

# STATEWIDE AIR EMISSIONS CALCULATIONS FROM WIND AND OTHER RENEWABLES

## SUMMARY REPORT

A Report to the  
Texas Commission on Environmental Quality  
For the Period January 2017 – December 2017



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July 2018



**ENERGY SYSTEMS LABORATORY**  
TEXAS A&M ENGINEERING EXPERIMENT STATION





ENERGY SYSTEMS LABORATORY

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July 20, 2018

Mr. Vincent Meiller  
Air Quality Planning Section  
Air Quality Division, Office of Air  
Texas Commission on Environmental Quality Austin, TX 78711-3087

Dear Mr. Meiller

The Energy Systems Laboratory (ESL) at the Texas Engineering Experiment Station of The Texas A&M University System is pleased to provide its annual report, "Statewide Emissions Calculations From Wind and Other Renewables," as required by the 79<sup>th</sup> Legislature. This work has been performed through a contract with the Texas Commission on Environmental Quality (TCEQ).

In this work the ESL is required to obtain input from public/private stakeholders, and develop and use a methodology to annually report the energy savings from wind and other renewables. This report summarizes the work performed by the ESL on this project from January 2017 to December 2017.

Please contact me at (979) 845-9213 should you have questions concerning this report or the work presently being done to quantify emissions reductions from renewable energy measures as a result of the TERP implementation.

Sincerely,

A handwritten signature in black ink, which appears to read "David E. Claridge".

David E. Claridge, Ph.D., P.E.  
Director

Enclosure

### Disclaimer

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### **ACKNOWLEDGMENT**

This report cannot be accomplished without the help of many people. Special thanks to Connor Anderson, Planning Engineer, Resource Adequacy department at Electric Reliability Council of Texas (ERCOT), for providing the wind farm power generation data.

## SUMMARY REPORT

### Statewide Air Emissions Calculations from Wind and Other Renewables

#### 1 EXECUTIVE SUMMARY

The 79<sup>th</sup> Legislature, through Senate Bill 20, House Bill 2481 and House Bill 2129, amended Senate Bill 5 to enhance its effectiveness by adding 5,880 MW of generating capacity from renewable energy technologies by 2015 and 500 MW from non-wind renewables.

This legislation also requires the Public Utilities Commission of Texas (PUCT) to establish a target of 10,000 megawatts of installed renewable capacity by 2025, and requires the Texas Commission on Environmental Quality (TCEQ) to develop methodology for computing emissions reductions from renewable energy initiatives and the associated credits. Table 1-1 lists the statutory mandates and total wind power generation capacity (including installed and announced) in Texas from 2001 to 2025. It shows that Texas has achieved its milestone of 10,000 MW by the end of 2010 and could reach 34,481 MW by 2019 according to the information from PUCT<sup>1</sup>.

Table 1-1: Installed/Announced Wind Power Capacity and the Statutory Mandates

Texas Wind Summary			SB20 Plan	
Month-Yr	Installed MW	Announced MW	Month-Year	MW
Dec-2001	1,012	-		
Dec-2002	1,091	-		
Dec-2003	1,292	-		
Dec-2005	1,965	-		
Dec-2006	2,786	-	Jan-2007	2,280
Dec-2007	4,438	-		
Dec-2008	8,215	-	Jan-2009	3,272
Dec-2009	9,652	-		
Dec-2010	10,222	-	Jan-2011	4,264
Dec-2011	10,468	-		
Dec-2012	11,737	-		
Dec-2013	12,302	-	Jan-2013	5,256
Dec-2014	14,327	-		
Dec-2015	17,779	-	Jan-2015	5,880
Dec-2016	19,515	-		
Dec-2017	22,519	-		
Dec-2018		7,472		
Dec-2019		5,315		
			Jan-2025	10,000

In this Legislation, the function of the Energy Systems Laboratory (ESL) is to assist the TCEQ in quantifying emissions reductions credits from energy efficiency and renewable energy programs, through a contract with the TCEQ to develop and annually calculate creditable emissions reductions from wind and other renewable energy resources for the State Implementation Plan (SIP).

<sup>1</sup> The service date for some announced wind farms is from PUCT (<http://www.puc.texas.gov/industry/electric/reports/Default.aspx>).

The ESL, in fulfillment of its responsibilities under this Legislation, submits its tenth annual report, “Statewide Air Emissions Calculations from Wind and Other Renewables,” to the TCEQ.

The report is organized in several deliverables:

1. a summary report, which details the key areas of work,
2. supporting documentation, and
3. supporting data files, including weather data, and wind energy production data.

This executive summary provides key areas of accomplishment this year, including:

- analysis of power generation from wind farms using improved method and 2017 data,
- analysis of emissions reductions from wind farms,
- analysis of other renewables, including solar PV, solar thermal, biomass, hydroelectric, geothermal, and landfill gas, and
- review of electricity generation by renewable sources and transmission planning study reported by ERCOT

### 1.1 Texas wind power generation (ERCOT and PUCT)

For several years now, Texas has been the largest producer of wind energy in the United States. As of January 2018, the capacity of installed wind turbine totals was 22,519 MW with another 12,787 MW announced for new projects to be completed by 2019, though this last announced capacity maybe much lower as it has been the case in previous years. Figure 1-1 shows the growth pattern of the installed wind power capacity in Texas and their power generation in the ERCOT region from September 2005 to December 2017.

In the last few years, the electricity generated by wind has continually shown progressive and substantial increases. However, the wind electricity generation contains a significant seasonal response, which can be observed during the OSP when dramatic reduction in the power generation can be observed. This reduction is mainly due to the fact that the wind speed in those periods is lower than other times during the year. On the other hand, it is also observed that the peaks of wind electricity generation occur more often during the winter periods, when the wind speed also has a higher overall average value.

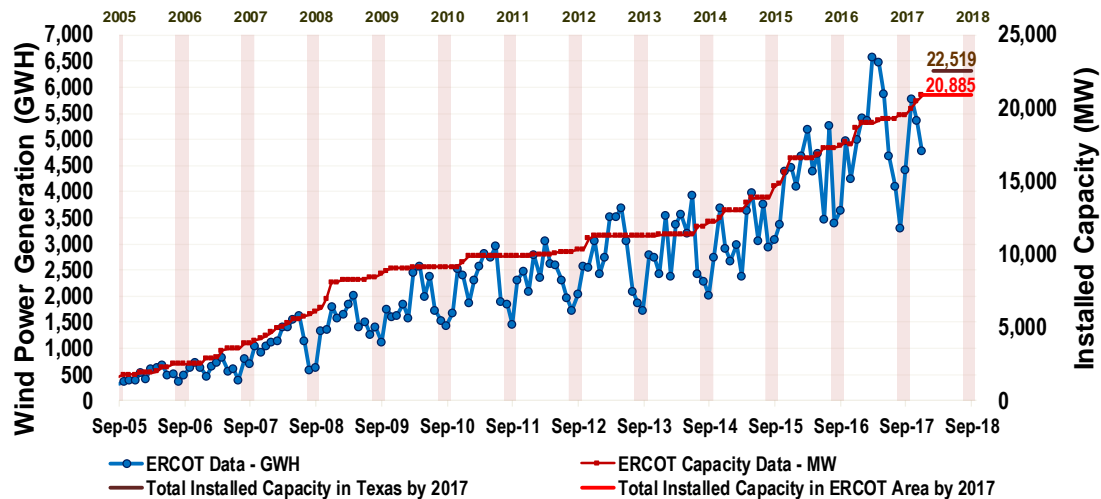


Figure 1-1: Installed Wind Power Capacity and Power Generation in the ERCOT Region from September 2005 to December 2017

## 1.2 Analysis of wind farms using an improved method and 2017 electricity generation data.

In this report, the weather normalization procedures, developed together with the Stakeholders, were presented and applied to all the wind farms that reported their data to ERCOT during the 2017 measurement period, together with wind data from the nearby NOAA weather stations.

In the previous Wind and Renewables reports to the TCEQ, weather normalization analysis methods were reviewed and determined to be appropriate for this report. Therefore, this report used the same analysis method as the previous reports to present the same weather normalization procedure, including:

- the processing of weather and power generation data, modeling of daily power generation versus daily wind speed using the ASHRAE Inverse Model Toolkit (IMT) for two separate periods, i.e., Ozone Season Period (OSP), from July 15 to September 15, and Non-Ozone Season Period (Non-OSP);
- predicting wind power generation based on 2008 baseline wind speed data, using developed coefficients from 2017 daily OSP and Non-OSP models for all the wind farms; and
- the analysis on monthly capacity factors generated using the models.

This report also includes an uncertainty analysis that was performed on all the daily regression models for the entire year and OSP. The detailed analysis for each wind farm is provided in the Appendix B to this report. The original data used in the analysis is included in the accompanying CD-ROM with this report.

### 1.3 Analysis of emissions reduction from wind farms

In this report, the procedure for calculating annual and peak-day, county-wide NO<sub>x</sub> reductions from electricity savings from wind projects implemented in the Competitive Load (CL) zones in ERCOT was presented. The calculation of the NO<sub>x</sub> emission reductions is based on the 2016 eGRID as modified according to ESL-TR-08-12-04 report (US EPA and ESL, 2008). As shown in Table 2, based on the 2017 measured ERCOT data, the total MWh savings for all the wind farms within the ERCOT region are 61,318,323 MWh/yr and 117,729 MWh/day for an average day in the OSP. The total NO<sub>x</sub> emissions reductions in 2017 across all the counties amount are 31,263 tons/yr and 61.89 tons/day for the OSP. A comparison of the measured 2017 data and the modeled 2008 data is presented in Section 3.2 of this report

Table 2: Electricity Generation and NO<sub>x</sub> Emission Reductions for All the Wind Farms in ERCOT Region in 2017

	<b>Annual</b>	<b>OSP</b>
<b>Actual Measured Electricity Generation in 2017</b>	61,318,323 [MWh/yr]	117,729 [MWh/day]
<b>NO<sub>x</sub> Emission Reductions in 2017</b>	31,263 [tons/yr]	61.89 [tons/day]

Figure 1-2 and Figure 1-3 show the measured annual and OSP NO<sub>x</sub> emissions reductions from wind power in each county of Texas in 2017.

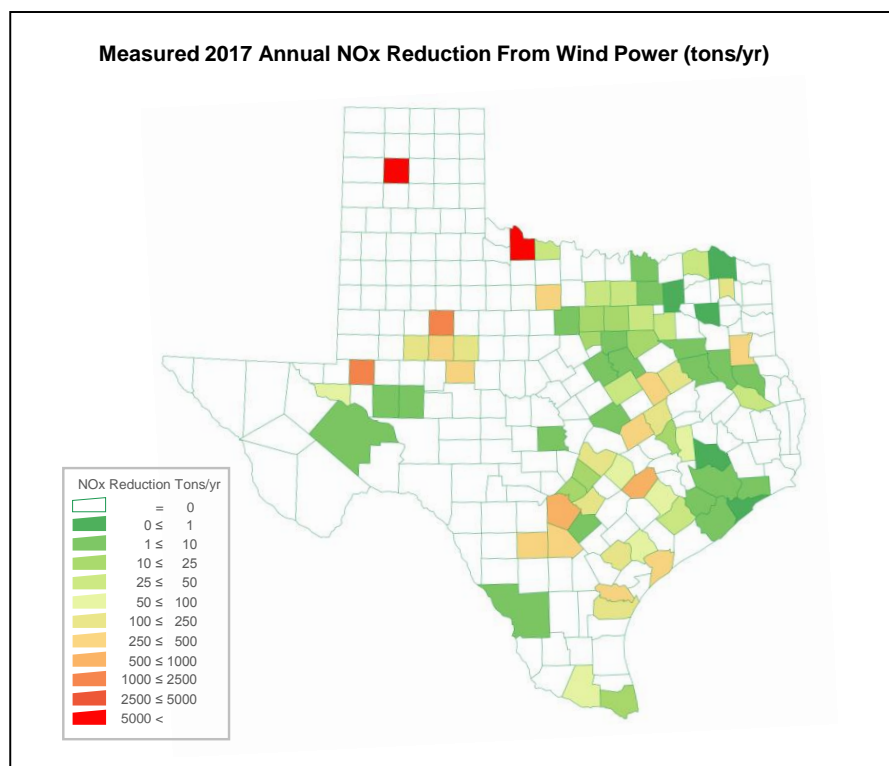


Figure 1-2: Measured 2017 Annual NO<sub>x</sub> Reductions from Wind Power in Texas Map

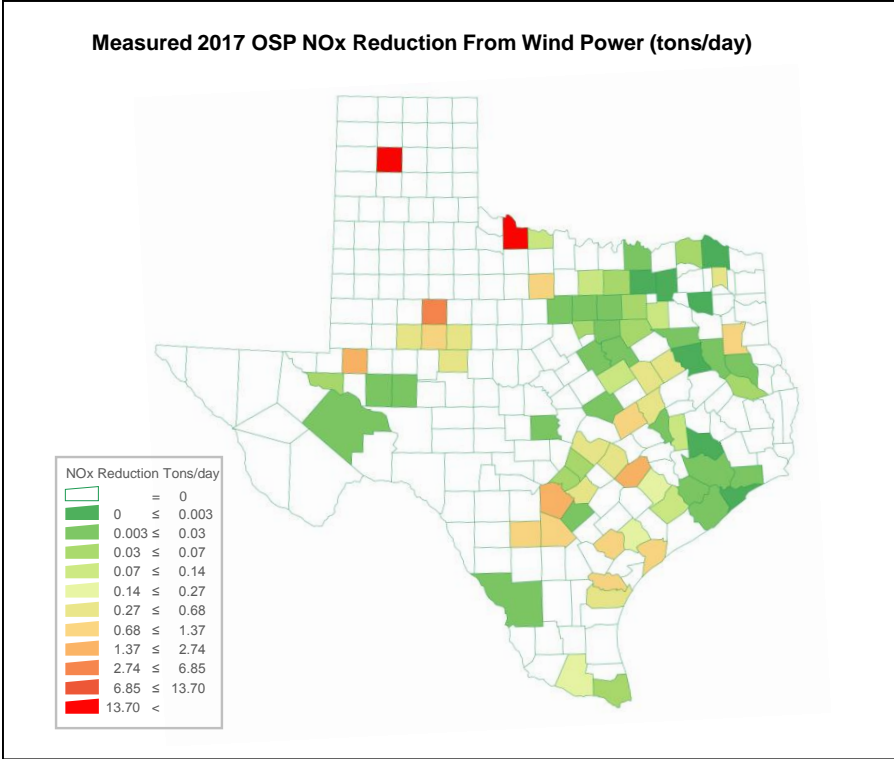


Figure 1-3: Measured 2017 OSP NOx Reductions from Wind Power in Texas Map



#### 1.4 Analysis of other renewable sources

Five specific renewable sources were determined: solar, biomass, hydroelectric, geothermal, and landfill gas-fired. To generate/save energy throughout the State of Texas, six types of renewable energy projects were identified: solar photovoltaic (PV) including solar power, solar thermal, biomass power, hydroelectric power, geothermal HVAC, and landfill gas-fired power projects. The solar photovoltaic project accounts for non-utility scale PV installations in Texas whereas the solar power project accounts for utility scale (solar power plant) constructions. Table 1-3 presents the number of newly located renewable energy projects and total renewable energy projects included in this report.

This report also presents county-wide annual/OSP energy savings and annual NOx emission reductions for solar photovoltaic including solar power, solar thermal, biomass, and hydroelectric projects. The annual/OSP energy savings calculation for solar photovoltaic and solar thermal was conducted using the eCalc tool. The power generation data for the other renewable energy projects (solar power, biomass, and hydroelectric), which were obtained from the ERCOT, were used to evaluate the annual/OSP energy generation. Then, the annual NOx emission reductions calculation was conducted with the special version of Texas 2016 eGrid.

In 2017, the total annual/OSP energy savings from each renewable projects across all the counties were:

- solar photovoltaic projects (non-utility scale) : 342,792 MWh/yr and 1,033 MWh/day; in addition, solar power projects (utility scale): 2,186,173 MWh/yr and 5,990 MWh/day,
- solar thermal projects : 232 MWh/yr and 0.6 MWh/day,
- biomass projects : 544,193 MWh/yr and 1,491 MWh/day, and
- hydroelectric projects: 855,842 MWh/yr and 2,345 MWh/day.

In 2017, the annual NOx emission reductions from renewable projects across all the counties were:

- solar photovoltaic projects (non-utility scale): 129.7 tons/yr; in addition, solar power projects (utility scale): 1,118.4 tons/yr,
- solar thermal projects: 0.1 tons/yr and,
- hydroelectric projects: 305.4 tons/yr.

Table 1-3: Number of Projects Identified for Other Renewable Sources

Renewable Energy Projects	Number of 2017 New Projects	Total Number of Projects	Annual Measured/ Estimated Electricity Generation in 2017 [MWh/yr]	OSP Measured/ Estimated Electricity Generation in 2017 [MWh/day]	NOx Emission Reductions in 2017 [tons/yr]
Solar photovoltaic <sup>2, 3</sup>	36	4,786	342,792	1,033	129.7
Solar Power <sup>3</sup>	7	30	2,186,173	5,990	1,118.4
Solar Thermal <sup>3</sup>	0	38	232	0.6	0.1
Biomass <sup>4</sup>	0	14	544,193	1,491	-
Hydroelectric	0	29	855,842	2,345	305.4
Geothermal	0	286	-	-	-
Landfill Gas-Fired <sup>5</sup>	0	35	-	-	-

<sup>2</sup> The Open PV project database of National Renewable Energy Laboratory (NREL) (<https://openpv.nrel.gov/>), which was checked in March, 2018, provides updated PV projects for 2006, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, and 2017. Thus, the total number of PV projects until 2017, including PV projects from various websites, is now 4,786. Previously, it was 4,750.

<sup>3</sup> The utility scale solar power is measured while both non-utility scale solar photovoltaic and non-utility solar thermal are estimated.

<sup>4</sup> Four Biomass projects had no generation. Therefore, they are excluded from the list for this year. Also, NOx emission reductions for biomass is not reported since biomass itself has high NOx emissions.

<sup>5</sup> Landfill gas-fired projects information from EPA have seven sub-categories for their status: operational, candidates, potential, construction, shutdown, planned, and other. EPA rearranged/added/removed some projects information within the seven sub-categories. Operational projects were considered for the number of the projects.

## 1.5 Review of electricity savings and transmission planning study reported by ERCOT

In this report, the information posted on ERCOT’s Renewable Energy Credit (REC) Program site [www.texasrenewables.com](http://www.texasrenewables.com) was reviewed. In particular, information posted under the “Public Reports” tab was downloaded and assembled into an appropriate format for review. This includes ERCOT’s 2001 through 2017 reports to the Legislature and information from ERCOT’s listing of REC generators.

Each year ERCOT is required to compile a list of grid-connected sources that generate electricity from renewable energy and report them to the Legislature. Table 1-4 contains the data reported by ERCOT from 2001 to 2017. Figure 1-4 is included to better illustrate the annual data collected by ERCOT. Other sources present different renewable electricity generation values on biomass, wind and hydro, but those are explained in general because the numbers reported in this report are focused on the ERCOT region.

Table 1-4: Annual Electricity Generation by Renewable Resources (MWh, ERCOT: 2001 - 2017)<sup>6</sup>

Year	Biomass (MWh)	Hydro (MWh)	Landfill gas (MWh)	Solar <sup>6</sup> (MWh)	Wind (MWh)	Total (MWh)
2001	0	30,639	0	0	565,597	596,236
2002	0	312,093	29,412	87	2,451,484	2,793,076
2003	39,496	239,684	154,206	220	2,515,482	2,949,087
2004	36,940	234,791	203,443	211	3,209,630	3,685,014
2005	58,637	310,302	213,777	227	4,221,568	4,804,512
2006	60,569	210,077	306,087	470	6,530,928	7,108,131
2007	54,101	382,882	356,339	1,844	9,351,168	10,146,333
2008	70,833	445,428	387,110	3,338	16,286,440	17,193,150
2009	73,364	507,507	412,923	4,492	20,596,105	21,594,390
2010	97,535	609,257	464,904	14,449	26,828,660	28,014,805
2011	137,004	267,113	497,645	36,580	30,769,674	31,708,016
2012	288,988	389,197	549,037	139,439	32,746,534	34,113,195
2013	200,564	294,238	550,845	178,326	36,909,385	38,133,358
2014	343,469	240,792	518,580	312,757	40,644,362	42,059,961
2015	349,600	414,289	561,915	410,318	45,165,341	46,901,462
2016	247,643	393,740	518,403	848,410	57,796,161	59,804,357
2017	216,431	444,453	446,119	2,289,394	66,076,742	69,473,139

NOTE: The REC Program tracks renewable generation in Texas, including non-ERCOT regions of Texas<sup>7</sup>. Not all renewable is eligible for REC credit.

<sup>6</sup> Solar includes the utility scale solar power only

<sup>7</sup> <https://www.texasrenewables.com/reports.asp>

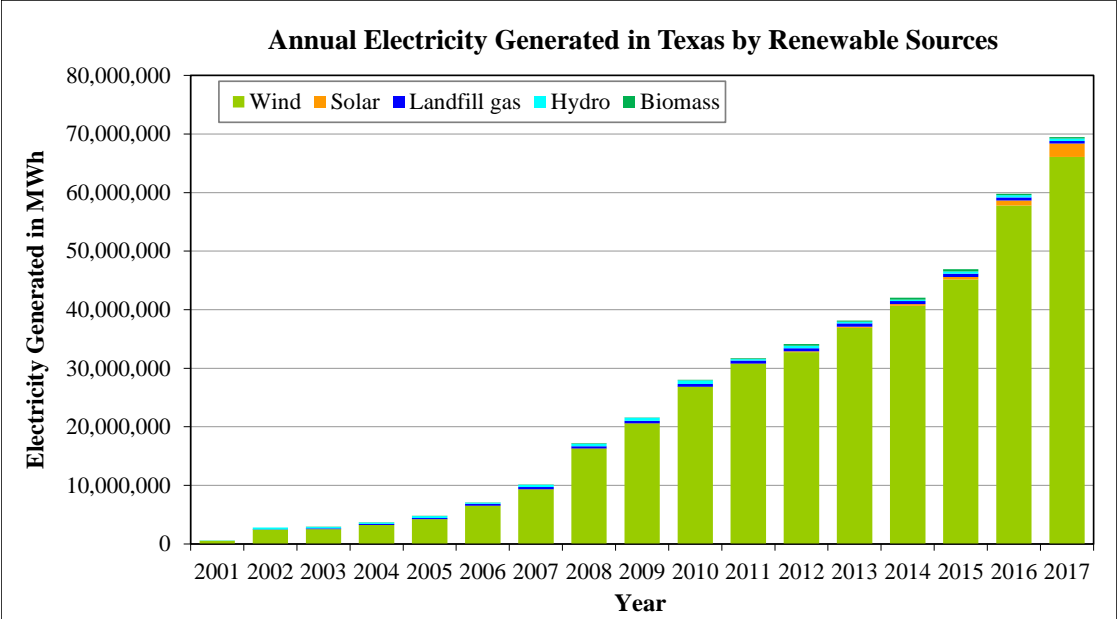


Figure 1-4: Electricity Generation by Renewable Resources (ERCOT: 2001–2017 Annual)

## TABLE OF CONTENTS

1	EXECUTIVE SUMMARY .....	4
1.1	Texas wind power generation (ERCOT and PUCT) .....	5
1.2	Analysis of wind farms using an improved method and 2017 electricity generation data. ....	6
1.3	Analysis of emissions reduction from wind farms .....	7
1.4	Analysis of other renewable sources .....	9
1.5	Review of electricity savings and transmission planning study reported by ERCOT .....	10
2	INTRODUCTION .....	40
2.1	Statement of Work for Calculations of Emissions from Wind and Other Renewables .....	40
2.2	Summary of Progress .....	40
3	ANALYSIS ON POWER PRODUCTION FROM WIND FARMS USING 2017 DATA .....	42
3.1	Introduction .....	42
3.2	Summary of Wind Power Production for All Wind Farms in the Texas ERCOT Region .....	48
3.3	Comparison of Measured Wind Power in Previous Reports and Present Report .....	54
3.4	Uncertainty Analysis on the 2017 Daily Regression Models .....	59
4	DEGRADATION ANALYSIS FOR WIND FARMS .....	66
5	CALCULATING NO <sub>x</sub> EMISSIONS REDUCTION FROM WIND POWER .....	104
5.1	Calculation of NO <sub>x</sub> Emissions from Wind Power Using 2016 eGRID .....	104
6	OTHER RENEWABLE SOURCES .....	116
6.1	Implementation .....	116
6.2	Renewable Energy Projects .....	117
6.2.1	Solar Photovoltaic .....	117
6.2.2	Solar Thermal .....	141
6.2.3	Biomass .....	144
6.2.4	Hydroelectric .....	155
6.2.5	Geothermal .....	174
6.2.6	Landfill Gas-Fired .....	174
6.3	Results .....	177
7	REFERENCES .....	178
8	REVIEW OF ERCOT'S RENEWABLE ENERGY CREDIT PROGRAM INFORMATION ...	179
8.1	Introduction .....	179
8.2	Summary of Renewable Projects in Texas .....	179
9	APPENDIX A .....	201
10	APPENDIX B .....	208
10.1	Anacacho Wind Farm .....	211
10.1.1	Anacacho Wind Farm - ANACACHO_ANA .....	211
10.2	Baffin Wind Farm (Penascal 3) .....	214
10.2.1	Baffin Wind Farm (Penascal 3) - BAFFIN_UNIT1 .....	214
10.2.2	Baffin Wind Farm (Penascal 3) - BAFFIN_UNIT2 .....	217
10.3	Barton Chapel Wind 1 .....	220

10.3.1	Barton Chapel Wind 1 - BRTSW_BCW1 .....	220
10.4	Big Spring Wind Power.....	223
10.4.1	Big Spring Wind Power - SGMNTN_SIGNALMT .....	223
10.5	Blue Summit Wind Energy Center.....	226
10.5.1	Blue Summit Wind Energy Center - BLSUMMIT_BLSMT1_5.....	226
10.6	Bobcat Bluff Wind Project .....	229
10.6.1	Bobcat Bluff Wind Project - BCATWIND_WIND_1 .....	229
10.7	Brazos Wind Ranch.....	232
10.7.1	Brazos Wind Ranch - BRAZ_WND_WND1 .....	232
10.7.2	Brazos Wind Ranch - BRAZ_WND_WND2 .....	235
10.8	Briscoe Wind.....	238
10.8.1	Briscoe Wind - BRISCOE_WIND .....	238
10.9	Buffalo Gap 1 .....	241
10.9.1	Buffalo Gap 1 - BUFF_GAP_UNIT1.....	241
10.10	Buffalo Gap 2 (Cirello 1) .....	244
10.10.1	Buffalo Gap 2 (Cirello 1) - BUFF_GAP_UNIT2_1 .....	244
10.11	Buffalo Gap 3.....	247
10.11.1	Buffalo Gap 3 - BUFF_GAP_UNIT3.....	247
10.12	Bull Creek Wind Plant .....	250
10.12.1	Bull Creek Wind Plant - BULLCRK_WND1.....	250
10.12.2	Bull Creek Wind Plant - BULLCRK_WND2.....	253
10.13	Callahan Divide Wind Energy Center .....	256
10.13.1	Callahan Divide Wind Energy Center - CALLAHAN_WND1 .....	256
10.14	Cameron County Wind.....	259
10.14.1	Cameron County Wind - CAMWIND_UNIT1.....	259
10.15	Camp Springs Wind Energy Center .....	262
10.15.1	Camp Springs Wind Energy Center - CSEC_CSECG1 .....	262
10.16	Camp Springs Wind Energy Expansion .....	265
10.16.1	Camp Springs Wind Energy Expansion - CSEC_CSECG2.....	265
10.17	Capricorn Ridge Wind.....	268
10.17.1	Capricorn Ridge Wind - CAPRIDGE_CR1 .....	268
10.17.2	Capricorn Ridge Wind - CAPRIDGE_CR2.....	271
10.18	Capricorn Ridge Wind expansion.....	274
10.18.1	Capricorn Ridge Wind expansion - CAPRIDG4_CR4 .....	274
10.18.2	Capricorn Ridge Wind expansion - CAPRIDGE_CR3.....	277
10.19	Cedro Hill Wind .....	280
10.19.1	Cedro Hill Wind - CEDROHIL_CHW1 .....	280
10.20	Champion Wind Farm .....	283
10.20.1	Champion Wind Farm - CHAMPION_UNIT1.....	283
10.21	Colbeck's Corner .....	286
10.21.1	Colbeck's Corner - GRANDVW1_COLA .....	286
10.21.2	Colbeck's Corner - GRANDVW1_COLB .....	289
10.22	Cotton Plains Wind .....	292
10.22.1	Cotton Plains Wind - COTPLNS_COTTONPL .....	292
10.23	Dermott Wind 1.....	295

10.23.1	Dermott Wind 1 - DERMOTT_UNIT1 .....	295
10.23.2	Dermott Wind 1 - DERMOTT_UNIT2 .....	298
10.24	Desert Sky (Indian Mesa II) .....	301
10.24.1	Desert Sky (Indian Mesa II) - INDNENR_INDNENR.....	301
10.24.2	Desert Sky (Indian Mesa II) - INDNENR_INDNENR_2.....	304
10.25	Elbow Creek Wind .....	307
10.25.1	Elbow Creek Wind - ELB_ELBCREEK .....	307
10.26	Electra Wind.....	310
10.26.1	Electra Wind - DIGBY_UNIT1 .....	310
10.26.2	Electra Wind - DIGBY_UNIT2.....	313
10.27	Falvez Astra Wind.....	316
10.27.1	Falvez Astra Wind - ASTRA_UNIT1 .....	316
10.28	Forest Creek Wind Farm .....	319
10.28.1	Forest Creek Wind Farm - MCDLD_FCW1 .....	319
10.29	Goat Wind .....	322
10.29.1	Goat Wind - GOAT_GOATWIND.....	322
10.30	Goldthwaite Wind Energy .....	325
10.30.1	Goldthwaite Wind Energy - GWEC_GWEC_G1 .....	325
10.31	Grandview Phase 1 (Conway Windfarm).....	328
10.31.1	Grandview Phase 1 (Conway Windfarm) - GRANDVW1_GV1A.....	328
10.31.2	Grandview Phase 1 (Conway Windfarm) - GRANDVW1_GV1B.....	331
10.32	Green Pastures W .....	334
10.32.1	Green Pastures W - GPASTURE_WIND_I.....	334
10.32.2	Green Pastures W - VERTIGO_WIND_I.....	337
10.33	Gulf Wind.....	340
10.33.1	Gulf Wind - TGW_T1 .....	340
10.33.2	Gulf Wind - TGW_T2 .....	343
10.34	Gunsight Mountain.....	346
10.34.1	Gunsight Mountain - GUNMTN_G1.....	346
10.35	Hackberry Wind Farm.....	349
10.35.1	Hackberry Wind Farm - HWF_HWFG1.....	349
10.36	Harbor Wind Project .....	352
10.36.1	Harbor Wind Project - DG_NUECE_6UNITS .....	352
10.37	Hereford Wind Project (Hereford 1) .....	355
10.37.1	Hereford Wind Project (Hereford 1) - HRFDWIND_WIND_G.....	355
10.37.2	Hereford Wind Project (Hereford 1) - HRFDWIND_WIND_V.....	358
10.38	Hidalgo & Starr Wind .....	361
10.38.1	Hidalgo & Starr Wind - MIRASOLE_MIR11 .....	361
10.38.2	Hidalgo & Starr Wind - MIRASOLE_MIR12.....	364
10.38.3	Hidalgo & Starr Wind - MIRASOLE_MIR21 .....	367
10.39	Horse Creek Wind .....	370
10.39.1	Horse Creek Wind - HORSECRK_UNIT1.....	370
10.39.2	Horse Creek Wind - HORSECRK_UNIT2.....	373
10.40	Horse Hollow Phase 1 .....	376
10.40.1	Horse Hollow Phase 1 - H_HOLLOW_WND1 .....	376
10.41	Horse Hollow Phase 2 .....	379

10.41.1	Horse Hollow Phase 2 - HHOLLOW2_WIND1.....	379
10.41.2	Horse Hollow Phase 2 - HHOLLOW4_WND1 .....	382
10.42	Horse Hollow Phase 3 .....	385
10.42.1	Horse Hollow Phase 3 - HHOLLOW3_WND_1 .....	385
10.43	Inadale Wind .....	388
10.43.1	Inadale Wind - INDL_INADALE1 .....	388
10.44	Indian Mesa I.....	391
10.44.1	Indian Mesa I - INDNNWP_INDNNWP .....	391
10.45	Javelina 2 Wind.....	394
10.45.1	Javelina 2 Wind - BORDAS2_JAVEL2_A .....	394
10.45.2	Javelina 2 Wind - BORDAS2_JAVEL2_B .....	397
10.45.3	Javelina 2 Wind - BORDAS2_JAVEL2_C .....	400
10.46	Javelina Wind.....	403
10.46.1	Javelina Wind - BORDAS_JAVEL18.....	403
10.47	Jumbo Road Wind (Hereford 2).....	406
10.47.1	Jumbo Road Wind (Hereford 2) - HRFDWIND_JRDWIND1 .....	406
10.47.2	Jumbo Road Wind (Hereford 2) - HRFDWIND_JRDWIND2 .....	409
10.48	Keechi Wind.....	412
10.48.1	Keechi Wind - KEECHI_U1.....	412
10.49	King Mountain Wind Ranch .....	415
10.49.1	King Mountain Wind Ranch - KING_NE_KINGNE .....	415
10.49.2	King Mountain Wind Ranch - KING_NW_KINGNW.....	418
10.49.3	King Mountain Wind Ranch - KING_SE_KINGSE.....	421
10.49.4	King Mountain Wind Ranch - KING_SW_KINGSW .....	424
10.50	Langford Wind Power.....	427
10.50.1	Langford Wind Power - LGD_LANGFORD .....	427
10.51	Logan's Gap Wind I.....	430
10.51.1	Logan's Gap Wind I - LGW_UNIT1 .....	430
10.51.2	Logan's Gap Wind I - LGW_UNIT2 .....	433
10.52	Lone Star - Mesquite Wind .....	436
10.52.1	Lone Star - Mesquite Wind - LNCRK_G83 .....	436
10.53	Lone Star - Post Oak Wind.....	439
10.53.1	Lone Star - Post Oak Wind - LNCRK2_G871.....	439
10.53.2	Lone Star - Post Oak Wind - LNCRK2_G872.....	442
10.54	Longhorn Energy Center North.....	445
10.54.1	Longhorn Energy Center North - LHORN_N_UNIT1 .....	445
10.54.2	Longhorn Energy Center North - LHORN_N_UNIT2 .....	448
10.55	Loraine WindparkFarm .....	451
10.55.1	Loraine Windpark - LONEWOLF_G1 .....	451
10.55.2	Loraine Windpark - LONEWOLF_G2 .....	454
10.55.3	Loraine Windpark - LONEWOLF_G3 .....	457
10.55.4	Loraine Windpark - LONEWOLF_G4 .....	460
10.56	Los Vientos I.....	463
10.56.1	Los Vientos I - LV1_LV1A.....	463
10.57	Los Vientos II.....	466
10.57.1	Los Vientos II - LV1_LV1B.....	466
10.58	Los Vientos III.....	469

10.58.1	Los Vientos III - LV3_UNIT_1 .....	469
10.59	Los Vientos IV .....	472
10.59.1	Los Vientos IV - LV4_UNIT_1 .....	472
10.60	Los Vientos V .....	475
10.60.1	Los Vientos V - LV5_UNIT_1 .....	475
10.61	Magic Valley Wind Farm .....	478
10.61.1	Magic Valley Wind Farm - REDFISH_MV1A .....	478
10.61.2	Magic Valley Wind Farm - REDFISH_MV1B .....	481
10.62	Mariah Del Notre .....	484
10.62.1	Mariah Del Notre - MARIAH_NORTE1 .....	484
10.62.2	Mariah Del Notre - MARIAH_NORTE2 .....	487
10.63	McAdoo Wind Energy .....	490
10.63.1	McAdoo Wind Energy - MWEC_G1 .....	490
10.64	Mesquite Creek W .....	493
10.64.1	Mesquite Creek W - MESQCRK_WND1 .....	493
10.64.2	Mesquite Creek W - MESQCRK_WND2 .....	496
10.65	Miami Wind 1 Project .....	499
10.65.1	Miami Wind 1 Project - MIAMI_G1 .....	499
10.65.2	Miami Wind 1 Project - MIAMI_G2 .....	502
10.66	Mozart Wind Farm .....	505
10.66.1	Mozart Wind Farm - MOZART_WIND_1 .....	505
10.67	Notrees Windpower .....	508
10.67.1	Notrees Windpower - NWF_NWF1 .....	508
10.68	Ocotillo Windpower 1 .....	511
10.68.1	Ocotillo Windpower 1 - OWF_OWf .....	511
10.69	Old Settler Wind .....	514
10.69.1	Old Settler Wind - COTPLNS_OLDSETLR .....	514
10.70	Panhandle Wind 1 .....	517
10.70.1	Panhandle Wind 1 - PH1_UNIT1 .....	517
10.70.2	Panhandle Wind 1 - PH1_UNIT2 .....	520
10.71	Panhandle Wind 2 .....	523
10.71.1	Panhandle Wind 2 - PH2_UNIT1 .....	523
10.71.2	Panhandle Wind 2 - PH2_UNIT2 .....	526
10.72	Panther Creek 1 .....	529
10.72.1	Panther Creek 1 - PC_NORTH_PANTHER1 .....	529
10.73	Panther Creek 2 .....	532
10.73.1	Panther Creek 2 - PC_SOUTH_PANTHER2 .....	532
10.74	Panther Creek 3 .....	535
10.74.1	Panther Creek 3 - PC_SOUTH_PANTHER3 .....	535
10.75	Papalote Creek Phase II .....	538
10.75.1	Papalote Creek Phase II - COTTON_PAP2 .....	538
10.76	Papalote Creek Wind Farm .....	541
10.76.1	Papalote Creek Wind Farm - PAPI_PAP1 .....	541
10.77	Penascal Wind Farm .....	544
10.77.1	Penascal Wind Farm - PENA_UNIT1 .....	544
10.77.2	Penascal Wind Farm - PENA_UNIT2 .....	547



10.78	Penascal Wind Farm 2.....	550
10.78.1	Penascal Wind Farm 2 - PENA3_UNIT3 .....	550
10.79	Pyron Wind Farm .....	553
10.79.1	Pyron Wind Farm - PYR_PYRON1 .....	553
10.80	RattleSnake Wind Ph 1.....	556
10.80.1	RattleSnake Wind Ph 1 - RSnake_G1 .....	556
10.80.2	RattleSnake Wind Ph 1 - RSnake_G2 .....	559
10.81	Red Canyon .....	562
10.81.1	Red Canyon - RDCANYON_RDCNY1 .....	562
10.82	Roscoe Wind Farm .....	565
10.82.1	Roscoe Wind Farm - TKWSW1_ROSCOE .....	565
10.83	Route66 Wind.....	568
10.83.1	Route66 Wind - ROUTE_66_WIND1 .....	568
10.84	Salt Fork Wind .....	571
10.84.1	Salt Fork Wind - SALTFORK_UNIT1.....	571
10.84.2	Salt Fork Wind - SALTFORK_UNIT2.....	574
10.85	San Roman Wind 1.....	577
10.85.1	San Roman Wind 1 - SANROMAN_WIND_1 .....	577
10.86	Sand Bluff Wind Farm .....	580
10.86.1	Sand Bluff Wind Farm - MCDLD_SBW1.....	580
10.87	Senate Wind Farm .....	583
10.87.1	Senate Wind Farm - SENATEWD_UNIT1 .....	583
10.88	Sendero Wind Energy Project .....	586
10.88.1	Sendero Wind Energy Project - EXGNSND_WIND_1 .....	586
10.89	Shannon Wind .....	589
10.89.1	Shannon Wind - SHANNONW_UNIT_1.....	589
10.90	Sherbino 1 Wind Farm .....	592
10.90.1	Sherbino 1 Wind Farm - KEO_KEO_SM1 .....	592
10.91	Sherbino 2 Wind Farm .....	595
10.91.1	Sherbino 2 Wind Farm - KEO_SHRBINO2.....	595
10.92	Silver Star Phase I .....	598
10.92.1	Silver Star Phase I - FLTCK_SSI .....	598
10.93	Snyder Wind Project .....	601
10.93.1	Snyder Wind Project - ENAS_ENA1 .....	601
10.94	South Plains Wind I.....	604
10.94.1	South Plains Wind I - SPLAIN1_WIND1 .....	604
10.94.2	South Plains Wind I - SPLAIN1_WIND2 .....	607
10.95	South Plains Wind II Phase a .....	610
10.95.1	South Plains Wind II Phase a - SPLAIN2_WIND21 .....	610
10.96	South Plains Wind II Phase b .....	613
10.96.1	South Plains Wind II Phase b - SPLAIN2_WIND22.....	613
10.97	South Trent Wind Farm.....	616
10.97.1	South Trent Wind Farm - STWF_T1 .....	616
10.98	Southwest Mesa Wind Project.....	619
10.98.1	Southwest Mesa Wind Project - SW_MESA_SW_MESA.....	619

10.99	Spinning Spur Wind II .....	622
10.99.1	Spinning Spur Wind II - SSPUR TWO_WIND_1 .....	622
10.100	Spinning Spur Wind III .....	625
10.100.1	Spinning Spur Wind III - SSPUR TWO_SS3WIND1 .....	625
10.100.2	Spinning Spur Wind III - SSPUR TWO_SS3WIND2 .....	628
10.101	Stanton Wind Energy .....	631
10.101.1	Stanton Wind Energy - SWEC_G1 .....	631
10.102	Stephens Ranch Wind Phase 1 .....	634
10.102.1	Stephens Ranch Wind Phase 1 - SRWE1_UNIT1 .....	634
10.103	Stephens Ranch Wind Phase b .....	637
10.103.1	Stephens Ranch Wind Phase b - SRWE1_SRWE2 .....	637
10.104	Sweetwater Wind 1 .....	640
10.104.1	Sweetwater Wind 1 - SWEETWND_WND1 .....	640
10.105	Sweetwater Wind 2 .....	643
10.105.1	Sweetwater Wind 2 - SWEETWN2_WND2 .....	643
10.105.2	Sweetwater Wind 2 - SWEETWN2_WND24 .....	646
10.106	Sweetwater Wind 3 .....	649
10.106.1	Sweetwater Wind 3 - SWEETWN3_WND3A .....	649
10.107	Sweetwater Wind 4 .....	652
10.107.1	Sweetwater Wind 4 - SWEETWN4_WND4A .....	652
10.107.2	Sweetwater Wind 4 - SWEETWN4_WND4B .....	655
10.108	Sweetwater Wind 5 .....	658
10.108.1	Sweetwater Wind 5 - SWEETWN4_WND5 .....	658
10.109	Trent Mesa .....	661
10.109.1	Trent Mesa - TRENT_TRENT .....	661
10.110	Trinity Hills Wind Farm .....	664
10.110.1	Trinity Hills Wind Farm - TRINITY_TH1_BUS1 .....	664
10.110.2	Trinity Hills Wind Farm - TRINITY_TH1_BUS2 .....	667
10.111	Turkey Track Energy Center .....	670
10.111.1	Turkey Track Energy Center - TTWEC_G1 .....	670
10.112	Tyler Bluff Wind (Muenster Wind) .....	673
10.112.1	Tyler Bluff Wind (Muenster Wind) - TYLRWIND_UNIT1 .....	673
10.113	Val Verde Wind .....	676
10.113.1	Val Verde Wind - FERMI_WIND1 .....	676
10.113.2	Val Verde Wind - FERMI_WIND2 .....	679
10.114	Wake Wind .....	682
10.114.1	Wake Wind - WAKEWE_G1 .....	682
10.114.2	Wake Wind - WAKEWE_G2 .....	685
10.115	Whirlwind Energy .....	688
10.115.1	Whirlwind Energy - WEC_WECG1 .....	688
10.116	Whitetail Wind Project .....	691
10.116.1	Whitetail Wind Project - EXGNWTL_WIND_1 .....	691
10.117	Windthorst 2 .....	694
10.117.1	Windthorst 2 - WNDTHST2_UNIT1 .....	694
10.118	Wolf Ridge Windfarm .....	697
10.118.1	Wolf Ridge Windfarm - WHTTAIL_WR1 .....	697

10.119	Woodward Mountain Ranch.....	700
10.119.1	Woodward Mountain Ranch - WOODWRD1_WOODWRD1.....	700
10.119.2	Woodward Mountain Ranch - WOODWRD2_WOODWRD2.....	703
11	APPENDIX C.....	704

## LIST OF FIGURES

Figure 1-1: Installed Wind Power Capacity and Power Generation in the ERCOT Region from September 2005 to December 2017 .....	6
Figure 1-2: Measured 2017 Annual NOx Reductions from Wind Power in Texas Map .....	7
Figure 1-3: Measured 2017 OSP NOx Reductions from Wind Power in Texas Map .....	8
Figure 1-4: Electricity Generation by Renewable Resources (ERCOT: 2001–2017 Annual).....	11
Figure 3-1: Procedure for the 2008 Annual and OSP Weather Normalized Wind Power Generation for Each Wind Farm in Operation in 2017 in Texas ERCOT Region .....	42
Figure 3-2: Installed Wind Power Capacity and Power Generation in the ERCOT Region from September 2005 to December 2017 .....	43
Figure 3-3: Completed, Announced and Retired Wind Projects in Texas (Cont.).....	45
Figure 3-4: Comparison of Total 2017 Measured and 2008 Modeled Power Production .....	51
Figure 3-5: Comparison of Total 2017 OSP Measured and 2008 OSP Modeled Power Production.....	51
Figure 3-6: Comparison of 2017 Measured and 2008 Modeled Wind Power Production for Each Wind Farm.....	52
Figure 3-7: Comparison of 2017 OSP Measured and 2008 OSP Modeled Wind Power Production for Each Wind Farm .....	53
Figure 3-8: Measured Annual Wind Power Comparison between 2008 and 2017.....	55
Figure 3-9: Measured OSP Wind Power Comparison between 2008 and 2017 .....	56
Figure 3-10: Difference Comparison between 2008 and 2017 - Measured Annual Wind Power .....	57
Figure 3-11: Difference Comparison between 2008 and 2017 - Measured OSP Wind Power.....	58
Figure 3-12: Linear Model Presentation of the Daily Wind Power Generation on the Year 2017 for Callahan Wind Farm .....	59
Figure 3-13: Uncertainty of the Wind Power generation Prediction Using the Linear Daily Models for Base Year 2008.....	65
Figure 4-1: Design and Hourly Measured Maximum Capacity for Ninety Seven Wind Farms.....	71
Figure 4-2: Sliding 12-month Hourly Wind Power Generation for Anacacho Wind .....	71
Figure 4-3: Sliding 12-month Hourly Wind Power Generation for Bobcat Bluff Wind .....	72
Figure 4-4: Sliding 12-month Hourly Wind Power Generation for Blue Summit Wind .....	72
Figure 4-5: Sliding 12-month Hourly Wind Power Generation for Brazos Wind Ranch.....	72
Figure 4-6: Sliding 12-month Hourly Wind Power Generation for Barton Chapel Wind 1 .....	73
Figure 4-7: Sliding 12-month Hourly Wind Power Generation for Buffalo Gap 1 .....	73
Figure 4-8: Sliding 12-month Hourly Wind Power Generation for Buffalo Gap 2 .....	73
Figure 4-9: Sliding 12-month Hourly Wind Power Generation for Buffalo Gap 3 .....	74
Figure 4-10: Sliding 12-month Hourly Wind Power Generation for Bull Creek Wind Plant.....	74
Figure 4-11: Sliding 12-month Hourly Wind Power Generation for Big Spring Wind Power.....	74
Figure 4-12: Sliding 12-month Hourly Wind Power Generation for Callahan Divide Wind .....	75
Figure 4-13: Sliding 12-month Hourly Wind Power Generation for Capricorn Ridge Wind 1 & 2.....	75
Figure 4-14: Sliding 12-month Hourly Wind Power Generation for Capricorn Ridge Wind 3.....	75
Figure 4-15: Sliding 12-month Hourly Wind Power Generation for Capricorn Ridge Wind 4.....	76
Figure 4-16: Sliding 12-month Hourly Wind Power Generation for Camp Springs Wind Energy Center .....	76
Figure 4-17: Sliding 12-month Hourly Wind Power Generation for Camp Springs Wind Energy Expansion.....	76
Figure 4-18: Sliding 12-month Hourly Wind Power Generation for Cedro Hill Wind .....	77
Figure 4-19: Sliding 12-month Hourly Wind Power Generation for Champion Wind .....	77
Figure 4-20: Sliding 12-month Hourly Wind Power Generation for Desert Sky .....	77
Figure 4-21: Sliding 12-month Hourly Wind Power Generation for Elbow Creek Wind .....	78
Figure 4-22: Sliding 12-month Hourly Wind Power Generation for Forest Creek Wind.....	78
Figure 4-23: Sliding 12-month Hourly Wind Power Generation for Goat Wind .....	78
Figure 4-24: Sliding 12-month Hourly Wind Power Generation for Goldthwaite Wind 1 .....	79
Figure 4-25: Sliding 12-month Hourly Wind Power Generation for Grandview Wind 1 (Conway) GV1A .....	79

Figure 4-26: Sliding 12-month Hourly Wind Power Generation for Grandview Wind 1 (Conway) GV1B .....	79
Figure 4-27: Sliding 12-month Hourly Wind Power Generation for Gulf Wind 1 .....	80
Figure 4-28: Sliding 12-month Hourly Wind Power Generation for Gulf Wind 2.....	80
Figure 4-29: Sliding 12-month Hourly Wind Power Generation for Hackberry Wind .....	80
Figure 4-30: Sliding 12-month Hourly Wind Power Generation for Harbor Wind.....	81
Figure 4-31: Sliding 12-month Hourly Wind Power Generation for Horse Hollow Phase 1 .....	81
Figure 4-32: Sliding 12-month Hourly Wind Power Generation for Horse Hollow Phase 2 .....	81
Figure 4-33: Sliding 12-month Hourly Wind Power Generation for Horse Hollow Phase 3 .....	82
Figure 4-34: Sliding 12-month Hourly Wind Power Generation for Horse Hollow Phase 4 .....	82
Figure 4-35: Sliding 12-month Hourly Wind Power Generation for Inadale Wind .....	82
Figure 4-36: Sliding 12-month Hourly Wind Power Generation for Indian Mesa .....	83
Figure 4-37: Sliding 12-month Hourly Wind Power Generation for King Mountain Wind Ranch-NE..	83
Figure 4-38: Sliding 12-month Hourly Wind Power Generation for King Mountain Wind Ranch-NW.	83
Figure 4-39: Sliding 12-month Hourly Wind Power Generation for King Mountain Wind Ranch-SE...	84
Figure 4-40: Sliding 12-month Hourly Wind Power Generation for King Mountain Wind Ranch-SW .	84
Figure 4-41: Sliding 12-month Hourly Wind Power Generation for Langford Wind .....	84
Figure 4-42: Sliding 12-month Hourly Wind Power Generation for Lone Star - Post Oak Wind.....	85
Figure 4-43: Sliding 12-month Hourly Wind Power Generation for Lone-Star Mesquite Wind .....	85
Figure 4-44: Sliding 12-month Hourly Wind Power Generation for Loraine Windpark I .....	85
Figure 4-45: Sliding 12-month Hourly Wind Power Generation for Loraine Windpark II.....	86
Figure 4-46: Sliding 12-month Hourly Wind Power Generation for Loraine Windpark III.....	86
Figure 4-47: Sliding 12-month Hourly Wind Power Generation for Loraine Windpark IV .....	86
Figure 4-48: Sliding 12-month Hourly Wind Power Generation for Los Vientos Wind I .....	87
Figure 4-49: Sliding 12-month Hourly Wind Power Generation for Los Vientos Wind II .....	87
Figure 4-50: Sliding 12-month Hourly Wind Power Generation for Magic Valley Wind (Redfish) 1A	87
Figure 4-51: Sliding 12-month Hourly Wind Power Generation for Magic Valley Wind (Redfish) 1B .	88
Figure 4-52: Sliding 12-month Hourly Wind Power Generation for McAdoo Wind .....	88
Figure 4-53: Sliding 12-month Hourly Wind Power Generation for Miami Wind G1 .....	88
Figure 4-54: Sliding 12-month Hourly Wind Power Generation for Miami Wind G2.....	89
Figure 4-55: Sliding 12-month Hourly Wind Power Generation for Notrees Windpower.....	89
Figure 4-56: Sliding 12-month Hourly Wind Power Generation for Ocotillo Windpower .....	89
Figure 4-57: Sliding 12-month Hourly Wind Power Generation for Panhandle Wind 1 U1 .....	90
Figure 4-58: Sliding 12-month Hourly Wind Power Generation for Panhandle Wind 1 U2.....	90
Figure 4-59: Sliding 12-month Hourly Wind Power Generation for Panhandle Wind 2 U1 .....	90
Figure 4-60: Sliding 12-month Hourly Wind Power Generation for Panhandle Wind 2 U2.....	91
Figure 4-61: Sliding 12-month Hourly Wind Power Generation for Panther Creek 1 .....	91
Figure 4-62: Sliding 12-month Hourly Wind Power Generation for Panther Creek 2 .....	91
Figure 4-63: Sliding 12-month Hourly Wind Power Generation for Panther Creek 3 .....	92
Figure 4-64: Sliding 12-month Hourly Wind Power Generation for Papalote Creek Wind Farm .....	92
Figure 4-65: Sliding 12-month Hourly Wind Power Generation for Papalote Creek Wind Farm II.....	92
Figure 4-66: Sliding 12-month Hourly Wind Power Generation for Penascal Wind 1 .....	93
Figure 4-67: Sliding 12-month Hourly Wind Power Generation for Penascal Wind 2 .....	93
Figure 4-68: Sliding 12-month Hourly Wind Power Generation for Penascal Wind 3 .....	93
Figure 4-69: Sliding 12-month Hourly Wind Power Generation for Pyron Wind.....	94
Figure 4-70: Sliding 12-month Hourly Wind Power Generation for Red Canyon 1 .....	94
Figure 4-71: Sliding 12-month Hourly Wind Power Generation for Roscoe Wind .....	94
Figure 4-72: Sliding 12-month Hourly Wind Power Generation for Sand Bluff Wind.....	95
Figure 4-73: Sliding 12-month Hourly Wind Power Generation for Senate Wind .....	95
Figure 4-74: Sliding 12-month Hourly Wind Power Generation for Sherbino 1 Wind.....	95
Figure 4-75: Sliding 12-month Hourly Wind Power Generation for Sherbino 2 Wind.....	96
Figure 4-76: Sliding 12-month Hourly Wind Power Generation for Silver Star Wind .....	96
Figure 4-77: Sliding 12-month Hourly Wind Power Generation for South Trent Wind .....	96
Figure 4-78: Sliding 12-month Hourly Wind Power Generation for Southwest Mesa Wind .....	97
Figure 4-79: Sliding 12-month Hourly Wind Power Generation for Spinning Spur Wind Two .....	97
Figure 4-80: Sliding 12-month Hourly Wind Power Generation for Stanton Wind Energy .....	97

Figure 4-81: Sliding 12-month Hourly Wind Power Generation for Stephens Ranch Wind 1.....	98
Figure 4-82: Sliding 12-month Hourly Wind Power Generation for Sweetwater Wind 1.....	98
Figure 4-83: Sliding 12-month Hourly Wind Power Generation for Sweetwater Wind 2 (Unit 1).....	98
Figure 4-84: Sliding 12-month Hourly Wind Power Generation for Sweetwater Wind 2 (Unit 2).....	99
Figure 4-85: Sliding 12-month Hourly Wind Power Generation for Sweetwater Wind 3.....	99
Figure 4-86: Sliding 12-month Hourly Wind Power Generation for Sweetwater Wind 4.....	99
Figure 4-87: Sliding 12-month Hourly Wind Power Generation for Sweetwater Wind 5.....	100
Figure 4-88: Sliding 12-month Hourly Wind Power Generation for Snyder Wind Project.....	100
Figure 4-89: Sliding 12-month Hourly Wind Power Generation for Trent Mesa Wind.....	100
Figure 4-90: Sliding 12-month Hourly Wind Power Generation for Trinity Hills Wind Farm 1.....	101
Figure 4-91: Sliding 12-month Hourly Wind Power Generation for Trinity Hills Wind Farm 2.....	101
Figure 4-92: Sliding 12-month Hourly Wind Power Generation for Turkey Track Wind Energy Center .....	101
Figure 4-93: Sliding 12-month Hourly Wind Power Generation for Whirlwind Wind.....	102
Figure 4-94: Sliding 12-month Hourly Wind Power Generation for Whitetail Wind.....	102
Figure 4-95: Sliding 12-month Hourly Wind Power Generation for Windthorst 2 Wind.....	102
Figure 4-96: Sliding 12-month Hourly Wind Power Generation for WKN Mozart Wind.....	103
Figure 4-97: Sliding 12-month Hourly Wind Power Generation for Wolf Ridge Wind.....	103
Figure 4-98: Sliding 12-month Hourly Wind Power Generation for Woodward Mountain Ranch.....	103
Figure 5-1: NOx Emissions from CL Zone - Houston in the 2016 Annual eGRID.....	105
Figure 5-2: NOx Emissions from CL Zone - North in the 2016 Annual eGRID.....	105
Figure 5-3: NOx Emissions from CL Zone - West in the 2016 Annual eGRID.....	106
Figure 5-4: NOx Emissions from CL Zone - South in the 2016 Annual eGRID.....	106
Figure 5-5: Modeled 2008 Annual NOx Reductions from Wind Power in Texas Map.....	108
Figure 5-6: Measured 2017 Annual NOx Reductions from Wind Power in Texas Map.....	109
Figure 5-7: Modeled 2008 OSP NOx Reductions from Wind Power in Texas Map.....	109
Figure 5-8: Measured 2017 OSP NOx Reductions from Wind Power in Texas Map.....	110
Figure 5-9: Comparisons of Modeled 2008 and Measured 2017 Annual NOx Emissions Reductions from Wind Power.....	110
Figure 5-10: Comparisons of Modeled 2008 and Measured 2017 OSP NOx Emissions Reductions from Wind Power.....	111
Figure 6-1: Chart of Work Flow for Other Renewable Energy Projects.....	117
Figure 6-2: Solar Photovoltaic Projects throughout Texas up to 2017.....	119
Figure 6-3: Annual Electric Savings per County from Solar Photovoltaic Projects up to 2017.....	120
Figure 6-4: Ozone Season Period Electric Savings per County from Solar Photovoltaic Projects up to 2017.....	120
Figure 6-5: NOx Emissions Reductions per County from Solar Photovoltaic Projects up to 2017.....	121
Figure 6-6: Annual Electricity Generation by Solar Power Plants in the State of Texas up to 2017.....	123
Figure 6-7: Solar Power Plant Projects throughout Texas up to 2017.....	124
Figure 6-8: Annual Electric Savings per County from Solar Power Plant Projects up to 2017.....	125
Figure 6-9: Ozone Season Period Electric Savings per County from Solar Power Plant Projects up to 2017.....	125
Figure 6-10: NOx Emissions Reductions per County from Solar Power Plant Projects up to 2017.....	126
Figure 6-11: Hourly Electricity Generation Profile for Solar Photovoltaic Project ACACIA_UNIT_1	126
Figure 6-12: Daily Total Electricity Generation Profile for Solar Photovoltaic Project ACACIA_UNIT_1.....	126
Figure 6-13: Hourly Electricity Generation Profile for Solar Photovoltaic Project BOOTHLEG_UNIT1 .....	127
Figure 6-14: Daily Total Electricity Generation Profile for Solar Photovoltaic Project BOOTHLEG_UNIT1.....	127
Figure 6-15: Hourly Electricity Generation Profile for Solar Photovoltaic Project CECSOLAR_DG_BECK1.....	127
Figure 6-16: Daily Total Electricity Generation Profile for Solar Photovoltaic Project CECSOLAR_DG_BECK1.....	127
Figure 6-17: Hourly Electricity Generation Profile for Solar Photovoltaic Project COSERVSS_CSS1 .....	128

Figure 6-18: Daily Total Electricity Generation Profile for Solar Photovoltaic Project COSERVSS_CSS1 .....	128
Figure 6-19: Hourly Electricity Generation Profile for Solar Photovoltaic Project DG_BROOK_1UNIT .....	128
Figure 6-20: Daily Total Electricity Generation Profile for Solar Photovoltaic Project DG_BROOK_1UNIT .....	128
Figure 6-21: Hourly Electricity Generation Profile for Solar Photovoltaic Project DG_ELMEN_1UNIT .....	129
Figure 6-22: Daily Total Electricity Generation Profile for Solar Photovoltaic Project DG_ELMEN_1UNIT .....	129
Figure 6-23: Hourly Electricity Generation Profile for Solar Photovoltaic Project DG_SOME1_1UNIT .....	129
Figure 6-24: Daily Total Electricity Generation Profile for Solar Photovoltaic Project DG_ SOME1_1UNIT .....	129
Figure 6-25: Hourly Electricity Generation Profile for Solar Photovoltaic Project DG_SOME2_1UNIT .....	130
Figure 6-26: Daily Total Electricity Generation Profile for Solar Photovoltaic Project DG_SOME2_1UNIT .....	130
Figure 6-27: Hourly Electricity Generation Profile for Solar Photovoltaic Project DG_STHWG_UNIT1 .....	130
Figure 6-28: Daily Total Electricity Generation Profile for Solar Photovoltaic Project DG_STHWG_UNIT1 .....	130
Figure 6-29: Hourly Electricity Generation Profile for Solar Photovoltaic Project DG_VALL1_1UNIT .....	131
Figure 6-30: Daily Total Electricity Generation Profile for Solar Photovoltaic Project DG_VALL1_1UNIT .....	131
Figure 6-31: Hourly Electricity Generation Profile for Solar Photovoltaic Project DG_VALL2_1UNIT .....	131
Figure 6-32: Daily Total Electricity Generation Profile for Solar Photovoltaic Project DG_VALL2_1UNIT .....	131
Figure 6-33: Hourly Electricity Generation Profile for Solar Photovoltaic Project DG_WALZM_UNIT1 .....	132
Figure 6-34: Daily Total Electricity Generation Profile for Solar Photovoltaic Project DG_WALZM_UNIT1 .....	132
Figure 6-35: Hourly Electricity Generation Profile for Solar Photovoltaic Project ECLIPSE_UNIT1 ..	132
Figure 6-36: Daily Total Electricity Generation Profile for Solar Photovoltaic Project ECLIPSE_UNIT1 .....	132
Figure 6-37: Hourly Electricity Generation Profile for Solar Photovoltaic Project FIFTHGS1_FGSOLAR1 .....	133
Figure 6-38: Daily Total Electricity Generation Profile for Solar Photovoltaic Project FIFTHGS1_FGSOLAR1 .....	133
Figure 6-39: Hourly Electricity Generation Profile for Solar Photovoltaic Project HELIOS_UNIT1 ..	133
Figure 6-40: Daily Total Electricity Generation Profile for Solar Photovoltaic Project HELIOS_UNIT1 .....	133
Figure 6-41: Hourly Electricity Generation Profile for Solar Photovoltaic Project HOVEY_UNIT1 ..	134
Figure 6-42: Daily Total Electricity Generation Profile for Solar Photovoltaic Project HOVEY_UNIT1 .....	134
Figure 6-43: Hourly Electricity Generation Profile for Solar Photovoltaic Project HOVEY_UNIT2 ..	134
Figure 6-44: Daily Total Electricity Generation Profile for Solar Photovoltaic Project HOVEY_UNIT2 .....	134
Figure 6-45: Hourly Electricity Generation Profile for Solar Photovoltaic Project LASSO_UNIT1 ....	135
Figure 6-46: Daily Total Electricity Generation Profile for Solar Photovoltaic Project LASSO_UNIT1 .....	135
Figure 6-47: Hourly Electricity Generation Profile for Solar Photovoltaic Project LMESASLR_UNIT1 .....	135

Figure 6-48: Daily Total Electricity Generation Profile for Solar Photovoltaic Project LMESASLR_UNIT1 .....	135
Figure 6-49: Hourly Electricity Generation Profile for Solar Photovoltaic Project OCI_ALM1_UNIT1 .....	136
Figure 6-50: Daily Total Electricity Generation Profile for Solar Photovoltaic Project OCI_ALM1_UNIT1 .....	136
Figure 6-51: Hourly Electricity Generation Profile for Solar Photovoltaic Project REROCK_UNIT1	136
Figure 6-52: Daily Total Electricity Generation Profile for Solar Photovoltaic Project REROCK_UNIT1 .....	136
Figure 6-53: Hourly Electricity Generation Profile for Solar Photovoltaic Project REROCK_UNIT2	137
Figure 6-54: Daily Total Electricity Generation Profile for Solar Photovoltaic Project REROCK_UNIT2 .....	137
Figure 6-55: Hourly Electricity Generation Profile for Solar Photovoltaic Project SEALY_1UNIT ...	137
Figure 6-56: Daily Total Electricity Generation Profile for Solar Photovoltaic Project SEALY_1UNIT .....	137
Figure 6-57: Hourly Electricity Generation Profile for Solar Photovoltaic Project SIRUS_UNIT1 .....	138
Figure 6-58: Daily Total Electricity Generation Profile for Solar Photovoltaic Project SIRUS_UNIT1 .....	138
Figure 6-59: Hourly Electricity Generation Profile for Solar Photovoltaic Project SIRUS_UNIT2 .....	138
Figure 6-60: Daily Total Electricity Generation Profile for Solar Photovoltaic Project SIRUS_UNIT2 .....	138
Figure 6-61: Hourly Electricity Generation Profile for Solar Photovoltaic Project SOLARA_UNIT1	139
Figure 6-62: Daily Total Electricity Generation Profile for Solar Photovoltaic Project SOLARA_UNIT1 .....	139
Figure 6-63: Hourly Electricity Generation Profile for Solar Photovoltaic Project SPTX12B_UNIT1	139
Figure 6-64: Daily Total Electricity Generation Profile for Solar Photovoltaic Project SPTX12B_UNIT1 .....	139
Figure 6-65: Hourly Electricity Generation Profile for Solar Photovoltaic Project WEBBER_S_WSP1 .....	140
Figure 6-66: Daily Total Electricity Generation Profile for Solar Photovoltaic Project WEBBER_S_WSP1 .....	140
Figure 6-67: Hourly Electricity Generation Profile for Solar Photovoltaic Project WLNTSPRG_1UNIT .....	140
Figure 6-68: Daily Total Electricity Generation Profile for Solar Photovoltaic Project WLNTSPRG_1UNIT .....	140
Figure 6-69: Solar Thermal Projects throughout Texas up to 2017.....	142
Figure 6-70: Annual Electric Savings per County from Solar Thermal Projects up to 2017.....	143
Figure 6-71: Ozone Season Period Electric Savings per County from Solar Thermal Projects up to 2017 .....	143
Figure 6-72: NOx Emissions Reductions per County from Solar Thermal Projects up to 2017 .....	144
Figure 6-73: Annual Electricity Generation by Biomass Projects in the State of Texas up to 2017 .....	145
Figure 6-74: Biomass Projects throughout Texas up to 2017.....	146
Figure 6-75: Annual Electric Savings per County from Biomass Projects up to 2017.....	147
Figure 6-76: Ozone Season Period Electric Savings per County from Biomass Projects up to 2017 ...	147
Figure 6-77: Hourly Electricity Generation Profile for Biomass Project AV_DG1 .....	148
Figure 6-78: Daily Total Electricity Generation Profile for Biomass Project AV_DG1 .....	148
Figure 6-79: Hourly Electricity Generation Profile for Biomass Project DG_78252_4UNITS .....	148
Figure 6-80: Daily Total Electricity Generation Profile for Biomass Project DG_78252_4UNITS .....	148
Figure 6-81: Hourly Electricity Generation Profile for Biomass Project DG_BIO2_4UNITS .....	149
Figure 6-82: Daily Total Electricity Generation Profile for Biomass Project DG_BIO2_4UNITS .....	149
Figure 6-83: Hourly Electricity Generation Profile for Biomass Project DG_BIOE_2UNITS .....	149
Figure 6-84: Daily Total Electricity Generation Profile for Biomass Project DG_BIOE_2UNITS .....	149
Figure 6-85: Hourly Electricity Generation Profile for Biomass Project DG_FERIS_4_UNITS .....	150
Figure 6-86: Daily Total Electricity Generation Profile for Biomass Project DG_FERIS_4_UNITS ..	150
Figure 6-87: Hourly Electricity Generation Profile for Biomass Project DG_FREIH_2UNITS.....	150
Figure 6-88: Daily Total Electricity Generation Profile for Biomass Project DG_FREIH_2UNITS....	150



Figure 6-89: Hourly Electricity Generation Profile for Biomass Project DG_HBR_2UNITS .....	151
Figure 6-90: Daily Total Electricity Generation Profile for Biomass Project DG_HBR_2UNITS .....	151
Figure 6-91: Hourly Electricity Generation Profile for Biomass Project DG_MEDIN_1UNIT .....	151
Figure 6-92: Daily Total Electricity Generation Profile for Biomass Project DG_MEDIN_1UNIT ....	151
Figure 6-93: Hourly Electricity Generation Profile for Biomass Project DG_S_SNR_UNIT1 .....	152
Figure 6-94: Daily Total Electricity Generation Profile for Biomass Project DG_S_SNR_UNIT1 .....	152
Figure 6-95: Hourly Electricity Generation Profile for Biomass Project DG_SPRIN_4UNITS .....	152
Figure 6-96: Daily Total Electricity Generation Profile for Biomass Project DG_SPRIN_4UNITS ....	152
Figure 6-97: Hourly Electricity Generation Profile for Biomass Project DG_WALZE_4UNITS .....	153
Figure 6-98: Daily Total Electricity Generation Profile for Biomass Project DG_WALZE_4UNITS .	153
Figure 6-99: Hourly Electricity Generation Profile for Biomass Project DG_WSTHL_3UNITS .....	153
Figure 6-100: Daily Total Electricity Generation Profile for Biomass Project DG_WSTHL_3UNITS	153
Figure 6-101: Hourly Electricity Generation Profile for Biomass Project HB_DG1 .....	154
Figure 6-102: Daily Total Electricity Generation Profile for Biomass Project HB_DG1 .....	154
Figure 6-103: Hourly Electricity Generation Profile for Biomass Project NACPW_UNIT1.....	154
Figure 6-104: Daily Total Electricity Generation Profile for Biomass Project NACPW_UNIT1.....	154
Figure 6-105: Annual Electricity Generation by Hydroelectric Projects in the State of Texas up to 2017 .....	156
Figure 6-106: Hydroelectric Projects throughout Texas up to 2017.....	157
Figure 6-107: Annual Electric Savings per County from Hydroelectric Projects up to 2017.....	158
Figure 6-108: Ozone Season Period Electric Savings per County from Hydroelectric Projects up to 2017 .....	158
Figure 6-109: NOx Emissions Reductions per County from Hydroelectric Projects up to 2017 .....	159
Figure 6-110: Hourly Electricity Generation Profile for Hydroelectric Project AMISTAD_AMISTAG1 .....	159
Figure 6-111: Daily Total Electricity Generation Profile for Hydroelectric Project AMISTAD_AMISTAG1 .....	159
Figure 6-112: Hourly Electricity Generation Profile for Hydroelectric Project AMISTAD_AMISTAG2 .....	160
Figure 6-113: Daily Total Electricity Generation Profile for Hydroelectric Project AMISTAD_AMISTAG2 .....	160
Figure 6-114: Hourly Electricity Generation Profile for Hydroelectric Project AUSTPL_AUSTING1	160
Figure 6-115: Daily Total Electricity Generation Profile for Hydroelectric Project AUSTPL_AUSTING1 .....	160
Figure 6-116: Hourly Electricity Generation Profile for Hydroelectric Project AUSTPL_AUSTING2	161
Figure 6-117: Daily Total Electricity Generation Profile for Hydroelectric Project AUSTPL_AUSTING2 .....	161
Figure 6-118: Hourly Electricity Generation Profile for Hydroelectric Project BUCHAN_BUCHANG1 .....	161
Figure 6-119: Daily Total Electricity Generation Profile for Hydroelectric Project BUCHAN_BUCHANG1 .....	161
Figure 6-120: Hourly Electricity Generation Profile for Hydroelectric Project BUCHAN_BUCHANG2 .....	162
Figure 6-121: Daily Total Electricity Generation Profile for Hydroelectric Project BUCHAN_BUCHANG2 .....	162
Figure 6-122: Hourly Electricity Generation Profile for Hydroelectric Project BUCHAN_BUCHANG3 .....	162
Figure 6-123: Daily Total Electricity Generation Profile for Hydroelectric Project BUCHAN_BUCHANG3 .....	162
Figure 6-124: Hourly Electricity Generation Profile for Hydroelectric Project CANYHY_CANYHYG1 .....	163
Figure 6-125: Daily Total Electricity Generation Profile for Hydroelectric Project CANYHY_CANYHYG1 .....	163
Figure 6-126: Hourly Electricity Generation Profile for Hydroelectric Project DG_LKWDT_2UNITS .....	163

Figure 6-127: Daily Total Electricity Generation Profile for Hydroelectric Project DG_LKWDT_2UNITS.....	163
Figure 6-128: Hourly Electricity Generation Profile for Hydroelectric Project DG_LWSVL_1UNIT	164
Figure 6-129: Daily Total Electricity Generation Profile for Hydroelectric Project DG_LWSVL_1UNIT .....	164
Figure 6-130: Hourly Electricity Generation Profile for Hydroelectric Project DG_MCQUE_5UNITS .....	164
Figure 6-131: Daily Total Electricity Generation Profile for Hydroelectric Project DG_MCQUE_5UNITS.....	164
Figure 6-132: Hourly Electricity Generation Profile for Hydroelectric Project DG_OAKHL_1UNIT	165
Figure 6-133: Daily Total Electricity Generation Profile for Hydroelectric Project DG_OAKHL_1UNIT .....	165
Figure 6-134: Hourly Electricity Generation Profile for Hydroelectric Project DG_SCHUM_2UNITS .....	165
Figure 6-135: Daily Total Electricity Generation Profile for Hydroelectric Project DG_SCHUM_2UNITS.....	165
Figure 6-136: Hourly Electricity Generation Profile for Hydroelectric Project DNDAM_DENISOG1	166
Figure 6-137: Daily Total Electricity Generation Profile for Hydroelectric Project DNDAM_DENISOG1 .....	166
Figure 6-138: Hourly Electricity Generation Profile for Hydroelectric Project DNDAM_DENISOG2	166
Figure 6-139: Daily Total Electricity Generation Profile for Hydroelectric Project DNDAM_DENISOG2.....	166
Figure 6-140: Hourly Electricity Generation Profile for Hydroelectric Project EAGLE_HY_EAGLE_HY .....	167
Figure 6-141: Daily Total Electricity Generation Profile for Hydroelectric Project EAGLE_HY_EAGLE_HY .....	167
Figure 6-142: Hourly Electricity Generation Profile for Hydroelectric Project FALCON_FALCONG1 .....	167
Figure 6-143: Daily Total Electricity Generation Profile for Hydroelectric Project FALCON_FALCONG1.....	167
Figure 6-144: Hourly Electricity Generation Profile for Hydroelectric Project FALCON_FALCONG2 .....	168
Figure 6-145: Daily Total Electricity Generation Profile for Hydroelectric Project FALCON_FALCONG2.....	168
Figure 6-146: Hourly Electricity Generation Profile for Hydroelectric Project FALCON_FALCONG3 .....	168
Figure 6-147: Daily Total Electricity Generation Profile for Hydroelectric Project FALCON_FALCONG3.....	168
Figure 6-148: Hourly Electricity Generation Profile for Hydroelectric Project INKSDA_INKS_G1 ..	169
Figure 6-149: Daily Total Electricity Generation Profile for Hydroelectric Project INKSDA_INKS_G1 .....	169
Figure 6-150: Hourly Electricity Generation Profile for Hydroelectric Project MARBFA_MARBFAG1 .....	169
Figure 6-151: Daily Total Electricity Generation Profile for Hydroelectric Project MARBFA_MARBFAG1 .....	169
Figure 6-152: Hourly Electricity Generation Profile for Hydroelectric Project MARBFA_MARBFAG2 .....	170
Figure 6-153: Daily Total Electricity Generation Profile for Hydroelectric Project MARBFA_MARBFAG2.....	170
Figure 6-154: Hourly Electricity Generation Profile for Hydroelectric Project MARSFO_MARSFOG1 .....	170
Figure 6-155: Daily Total Electricity Generation Profile for Hydroelectric Project MARSFO_MARSFOG1 .....	170
Figure 6-156: Hourly Electricity Generation Profile for Hydroelectric Project MARSFO_MARSFOG2 .....	171

Figure 6-157: Daily Total Electricity Generation Profile for Hydroelectric Project MARSFO_MARSFOG2.....	171
Figure 6-158: Hourly Electricity Generation Profile for Hydroelectric Project MARSFO_MARSFOG3 .....	171
Figure 6-159: Daily Total Electricity Generation Profile for Hydroelectric Project MARSFO_MARSFOG3.....	171
Figure 6-160: Hourly Electricity Generation Profile for Hydroelectric Project WIRTZ_WIRTZ_G1 .	172
Figure 6-161: Daily Total Electricity Generation Profile for Hydroelectric Project WIRTZ_WIRTZ_G1 .....	172
Figure 6-162: Hourly Electricity Generation Profile for Hydroelectric Project WIRTZ_WIRTZ_G2 .	172
Figure 6-163: Daily Total Electricity Generation Profile for Hydroelectric Project WIRTZ_WIRTZ_G2 .....	172
Figure 6-164: Hourly Electricity Generation Profile for Hydroelectric Project WND_WHITNEY1 ...	173
Figure 6-165: Daily Total Electricity Generation Profile for Hydroelectric Project WND_WHITNEY1 .....	173
Figure 6-166: Hourly Electricity Generation Profile for Hydroelectric Project WND_WHITNEY2 ...	173
Figure 6-167: Daily Total Electricity Generation Profile for Hydroelectric Project WND_WHITNEY2 .....	173
Figure 6-168: Geothermal Projects Installed throughout Texas up to 2017 .....	175
Figure 6-169: Landfill Gas-Fired Projects Installed throughout Texas up to 2017 .....	176
Figure 8-1: Electricity Generation by Renewable Sources (ERCOT: 2001–2017 Annually) .....	198
Figure 8-2: Electricity Generation by Renewable Sources Other Than Wind (ERCOT: 2001–2017 Annually) .....	199
Figure 8-3: Electricity Generation by Renewable Sources from Solar, Landfill Gas, and Biomass (ERCOT: 2001–2017 Annually).....	199
Figure 8-4: Electricity Generation by Renewable Sources from Solar and Biomass (ERCOT: 2001–2017 Annually) .....	200
Figure 9-1: Presentation to the Texas Energy Summit Conference.....	207
Figure 10-1: ANACACHO_ANA - Hourly Wind Power vs. ERCOT Average Wind Speed .....	211
Figure 10-2: ANACACHO_ANA - Model Coefficients (Using Non-OSP and OSP Data) .....	212
Figure 10-3: ANACACHO_ANA - Predicted Wind Power and Capacity Factor Using Daily Models .....	213
Figure 10-4: BAFFIN_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	214
Figure 10-5: BAFFIN_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data) .....	215
Figure 10-6: BAFFIN_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	216
Figure 10-7: ANACACHO_ANA - Hourly Wind Power vs. ERCOT Average Wind Speed .....	217
Figure 10-8: BAFFIN_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data) .....	218
Figure 10-9: BAFFIN_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models .....	219
Figure 10-10: BRTSW_BCW1 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	220
Figure 10-11: BRTSW_BCW1 - Model Coefficients (Using Non-OSP and OSP Data) .....	221
Figure 10-12: BRTSW_BCW1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	222
Figure 10-13: SGMNTN_SIGNALMT - Hourly Wind Power vs. ERCOT Average Wind Speed.....	223
Figure 10-14: SGMNTN_SIGNALMT - Model Coefficients (Using Non-OSP and OSP Data).....	224
Figure 10-15: SGMNTN_SIGNALMT - Predicted Wind Power and Capacity Factor Using Daily Models .....	225
Figure 10-16: BLSUMMIT_BLSMT1_5 - Hourly Wind Power vs. ERCOT Average Wind Speed ....	226
Figure 10-17: BLSUMMIT_BLSMT1_5 - Model Coefficients (Using Non-OSP and OSP Data).....	227
Figure 10-18: BLSUMMIT_BLSMT1_5 - Predicted Wind Power and Capacity Factor Using Daily Models .....	228
Figure 10-19: BCATWIND_WIND_1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	229
Figure 10-20: BCATWIND_WIND_1 - Model Coefficients (Using Non-OSP and OSP Data) .....	230
Figure 10-21: BCATWIND_WIND_1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	231
Figure 10-22: BRAZ_WND_WND1 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	232
Figure 10-23: BRAZ_WND_WND1 - Model Coefficients (Using Non-OSP and OSP Data).....	233
Figure 10-24: BRAZ_WND_WND1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	234

Figure 10-25: BRAZ_WND_WND2 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	235
Figure 10-26: BRAZ_WND_WND2 - Model Coefficients (Using Non-OSP and OSP Data).....	236
Figure 10-27: BRAZ_WND_WND2 - Predicted Wind Power and Capacity Factor Using Daily Models .....	237
Figure 10-28: BRISCOE_WIND - Hourly Wind Power vs. ERCOT Average Wind Speed.....	238
Figure 10-29: BRISCOE_WIND - Model Coefficients (Using Non-OSP and OSP Data) .....	239
Figure 10-30: BRISCOE_WIND - Predicted Wind Power and Capacity Factor Using Daily Models .	240
Figure 10-31: BUFF_GAP_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	241
Figure 10-32: BUFF_GAP_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data).....	242
Figure 10-33: BUFF_GAP_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	243
Figure 10-34: BUFF_GAP_UNIT2_1 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	244
Figure 10-35: BUFF_GAP_UNIT2_1 - Model Coefficients (Using Non-OSP and OSP Data).....	245
Figure 10-36: BUFF_GAP_UNIT2_1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	246
Figure 10-37: BUFF_GAP_UNIT3 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	246
Figure 10-38: BUFF_GAP_UNIT3 - Model Coefficients (Using Non-OSP and OSP Data).....	248
Figure 10-39: BUFF_GAP_UNIT3 - Predicted Wind Power and Capacity Factor Using Daily Models .....	249
Figure 10-40: BULLCRK_WND1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	250
Figure 10-41: BULLCRK_WND1 - Model Coefficients (Using Non-OSP and OSP Data) .....	251
Figure 10-42: BULLCRK_WND1 - Predicted Wind Power and Capacity Factor Using Daily Models	252
Figure 10-43: BULLCRK_WND2 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	253
Figure 10-44: BULLCRK_WND2 - Model Coefficients (Using Non-OSP and OSP Data) .....	254
Figure 10-45: BULLCRK_WND2 - Predicted Wind Power and Capacity Factor Using Daily Models	255
Figure 10-46: CALLAHAN_WND1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	256
Figure 10-47: CALLAHAN_WND1 - Model Coefficients (Using Non-OSP and OSP Data).....	257
Figure 10-48: CALLAHAN_WND1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	258
Figure 10-49: CAMWIND_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	259
Figure 10-50: CAMWIND_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data).....	260
Figure 10-51: CAMWIND_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	261
Figure 10-52: CSEC_CSECG1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	262
Figure 10-53: CSEC_CSECG1 - Model Coefficients (Using Non-OSP and OSP Data) .....	263
Figure 10-54: CSEC_CSECG1 - Predicted Wind Power and Capacity Factor Using Daily Models ....	264
Figure 10-55: CSEC_CSECG2 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	265
Figure 10-56: CSEC_CSECG2 - Model Coefficients (Using Non-OSP and OSP Data) .....	266
Figure 10-57: CSEC_CSECG2 - Predicted Wind Power and Capacity Factor Using Daily Models ....	267
Figure 10-58: CAPRIDGE_CR1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	268
Figure 10-59: CAPRIDGE_CR1 - Model Coefficients (Using Non-OSP and OSP Data) .....	269
Figure 10-60: CAPRIDGE_CR1 - Predicted Wind Power and Capacity Factor Using Daily Models..	270
Figure 10-61: CAPRIDGE_CR2 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	271
Figure 10-62: CAPRIDGE_CR2 - Model Coefficients (Using Non-OSP and OSP Data) .....	272
Figure 10-63: CAPRIDGE_CR2 - Predicted Wind Power and Capacity Factor Using Daily Models..	273
Figure 10-64: CAPRIDG4_CR4 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	274
Figure 10-65: CAPRIDG4_CR4 - Model Coefficients (Using Non-OSP and OSP Data) .....	275
Figure 10-66: CAPRIDG4_CR4 - Predicted Wind Power and Capacity Factor Using Daily Models..	276
Figure 10-67: CAPRIDGE_CR3 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	277
Figure 10-68: CAPRIDGE_CR3 - Model Coefficients (Using Non-OSP and OSP Data) .....	278
Figure 10-69: CAPRIDGE_CR3 - Predicted Wind Power and Capacity Factor Using Daily Models..	279
Figure 10-70: CEDROHIL_CHW1 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	280
Figure 10-71: CEDROHIL_CHW1 - Model Coefficients (Using Non-OSP and OSP Data).....	281
Figure 10-72: CEDROHIL_CHW1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	282
Figure 10-73: CHAMPION_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	283

Figure 10-74: CHAMPION_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data) .....	284
Figure 10-75: CHAMPION_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	285
Figure 10-76: GRANDVW1_COLA - Hourly Wind Power vs. ERCOT Average Wind Speed.....	286
Figure 10-77: GRANDVW1_COLA - Model Coefficients (Using Non-OSP and OSP Data).....	287
Figure 10-78: GRANDVW1_COLA - Predicted Wind Power and Capacity Factor Using Daily Models .....	288
Figure 10-79: GRANDVW1_COLB - Hourly Wind Power vs. ERCOT Average Wind Speed .....	289
Figure 10-80: GRANDVW1_COLB - Model Coefficients (Using Non-OSP and OSP Data).....	290
Figure 10-81: GRANDVW1_COLB - Predicted Wind Power and Capacity Factor Using Daily Models .....	291
Figure 10-82: COTPLNS_COTTONPL - Hourly Wind Power vs. ERCOT Average Wind Speed .....	292
Figure 10-83: COTPLNS_COTTONPL - Model Coefficients (Using Non-OSP and OSP Data).....	293
Figure 10-84: COTPLNS_COTTONPL - Predicted Wind Power and Capacity Factor Using Daily Models .....	294
Figure 10-85: DERMOTT_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	295
Figure 10-86: DERMOTT_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data) .....	296
Figure 10-87: DERMOTT_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	297
Figure 10-88: DERMOTT_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	298
Figure 10-89: DERMOTT_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data) .....	299
Figure 10-90: DERMOTT_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models .....	300
Figure 10-91: INDNENR_INDNENR - Hourly Wind Power vs. ERCOT Average Wind Speed .....	301
Figure 10-92: INDNENR_INDNENR - Model Coefficients (Using Non-OSP and OSP Data) .....	302
Figure 10-93: INDNENR_INDNENR - Predicted Wind Power and Capacity Factor Using Daily Models .....	303
Figure 10-94: INDNENR_INDNENR_2 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	304
Figure 10-95: INDNENR_INDNENR_2 - Model Coefficients (Using Non-OSP and OSP Data) .....	305
Figure 10-96: INDNENR_INDNENR_2 - Predicted Wind Power and Capacity Factor Using Daily Models .....	306
Figure 10-97: ELB_ELBCREEK - Hourly Wind Power vs. ERCOT Average Wind Speed .....	307
Figure 10-98: ELB_ELBCREEK - Model Coefficients (Using Non-OSP and OSP Data) .....	308
Figure 10-99: ELB_ELBCREEK - Predicted Wind Power and Capacity Factor Using Daily Models .....	309
Figure 10-100: DIGBY_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	310
Figure 10-101: DIGBY_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data).....	311
Figure 10-102: DIGBY_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models...	312
Figure 10-103: DIGBY_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	313
Figure 10-104: DIGBY_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data).....	314
Figure 10-105: DIGBY_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models...	315
Figure 10-106: ASTRA_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	316
Figure 10-107: ASTRA_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data).....	317
Figure 10-108: ASTRA_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models ..	318
Figure 10-109: MCDLD_FCW1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	319
Figure 10-110: MCDLD_FCW1 - Model Coefficients (Using Non-OSP and OSP Data) .....	320
Figure 10-111: MCDLD_FCW1 - Predicted Wind Power and Capacity Factor Using Daily Models ..	321
Figure 10-112: GOAT_GOATWIND - Hourly Wind Power vs. ERCOT Average Wind Speed .....	322
Figure 10-113: GOAT_GOATWIND - Model Coefficients (Using Non-OSP and OSP Data) .....	323
Figure 10-114: GOAT_GOATWIND - Predicted Wind Power and Capacity Factor Using Daily Models .....	324
Figure 10-115: GWEC_GWEC_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	325
Figure 10-116: GWEC_GWEC_G1 - Model Coefficients (Using Non-OSP and OSP Data).....	326
Figure 10-117: GWEC_GWEC_G1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	327
Figure 10-118: GRANDVW1_GV1A - Hourly Wind Power vs. ERCOT Average Wind Speed.....	328
Figure 10-119: GRANDVW1_GV1A - Model Coefficients (Using Non-OSP and OSP Data).....	329

Figure 10-120: GRANDVW1_GV1A - Predicted Wind Power and Capacity Factor Using Daily Models	330
Figure 10-121: GRANDVW1_GV1B - Hourly Wind Power vs. ERCOT Average Wind Speed	331
Figure 10-122: GRANDVW1_GV1B - Model Coefficients (Using Non-OSP and OSP Data)	332
Figure 10-123: GRANDVW1_GV1B - Predicted Wind Power and Capacity Factor Using Daily Models	333
Figure 10-124: GPASTURE_WIND_I - Hourly Wind Power vs. ERCOT Average Wind Speed	334
Figure 10-125: GPASTURE_WIND_I - Model Coefficients (Using Non-OSP and OSP Data)	335
Figure 10-126: GPASTURE_WIND_I - Predicted Wind Power and Capacity Factor Using Daily Models	336
Figure 10-127: VERTIGO_WIND_I - Hourly Wind Power vs. ERCOT Average Wind Speed	337
Figure 10-128: VERTIGO_WIND_I - Model Coefficients (Using Non-OSP and OSP Data)	338
Figure 10-129: VERTIGO_WIND_I - Predicted Wind Power and Capacity Factor Using Daily Models	339
Figure 10-130: TGW_T1 - Hourly Wind Power vs. ERCOT Average Wind Speed	340
Figure 10-131: TGW_T1 - Model Coefficients (Using Non-OSP and OSP Data)	341
Figure 10-132: TGW_T1 - Predicted Wind Power and Capacity Factor Using Daily Models	342
Figure 10-133: TGW_T2 - Hourly Wind Power vs. ERCOT Average Wind Speed	343
Figure 10-134: TGW_T2 - Model Coefficients (Using Non-OSP and OSP Data)	344
Figure 10-135: TGW_T2 - Predicted Wind Power and Capacity Factor Using Daily Models	345
Figure 10-136: GUNMTN_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed	346
Figure 10-137: GUNMTN_G1 - Model Coefficients (Using Non-OSP and OSP Data)	347
Figure 10-138: GUNMTN_G1 - Predicted Wind Power and Capacity Factor Using Daily Models	348
Figure 10-139: HWF_HWFG1 - Hourly Wind Power vs. ERCOT Average Wind Speed	349
Figure 10-140: HWF_HWFG1 - Model Coefficients (Using Non-OSP and OSP Data)	350
Figure 10-141: HWF_HWFG1 - Predicted Wind Power and Capacity Factor Using Daily Models	351
Figure 10-142: DG_NUECE_6UNITS - Hourly Wind Power vs. ERCOT Average Wind Speed	352
Figure 10-143: DG_NUECE_6UNITS - Model Coefficients (Using Non-OSP and OSP Data)	353
Figure 10-144: DG_NUECE_6UNITS - Predicted Wind Power and Capacity Factor Using Daily Models	354
Figure 10-145: HRFDWIND_WIND_G - Hourly Wind Power vs. ERCOT Average Wind Speed	355
Figure 10-146: HRFDWIND_WIND_G - Model Coefficients (Using Non-OSP and OSP Data)	356
Figure 10-147: HRFDWIND_WIND_G - Predicted Wind Power and Capacity Factor Using Daily Models	357
Figure 10-148: HRFDWIND_WIND_V - Hourly Wind Power vs. ERCOT Average Wind Speed	358
Figure 10-149: HRFDWIND_WIND_V - Model Coefficients (Using Non-OSP and OSP Data)	359
Figure 10-150: HRFDWIND_WIND_V - Predicted Wind Power and Capacity Factor Using Daily Models	360
Figure 10-151: MIRASOLE_MIR11 - Hourly Wind Power vs. ERCOT Average Wind Speed	361
Figure 10-152: MIRASOLE_MIR11 - Model Coefficients (Using Non-OSP and OSP Data)	362
Figure 10-153: MIRASOLE_MIR11 - Predicted Wind Power and Capacity Factor Using Daily Models	363
Figure 10-154: MIRASOLE_MIR12 - Hourly Wind Power vs. ERCOT Average Wind Speed	364
Figure 10-155: MIRASOLE_MIR12 - Model Coefficients (Using Non-OSP and OSP Data)	365
Figure 10-156: MIRASOLE_MIR12 - Predicted Wind Power and Capacity Factor Using Daily Models	366
Figure 10-157: MIRASOLE_MIR21 - Hourly Wind Power vs. ERCOT Average Wind Speed	367
Figure 10-158: MIRASOLE_MIR21 - Model Coefficients (Using Non-OSP and OSP Data)	368
Figure 10-159: MIRASOLE_MIR21 - Predicted Wind Power and Capacity Factor Using Daily Models	369
Figure 10-160: HORSECRK_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed	370
Figure 10-161: HORSECRK_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)	371
Figure 10-162: HORSECRK_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models	372
Figure 10-163: HORSECRK_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed	373
Figure 10-164: HORSECRK_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data)	374

Figure 10-165: HORSECRK_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models	375
Figure 10-166: H_HOLLOW_WND1 - Hourly Wind Power vs. ERCOT Average Wind Speed	376
Figure 10-167: H_HOLLOW_WND1 - Model Coefficients (Using Non-OSP and OSP Data)	377
Figure 10-168: H_HOLLOW_WND1 - Predicted Wind Power and Capacity Factor Using Daily Models	378
Figure 10-169: HHOLLOW2_WIND1 - Hourly Wind Power vs. ERCOT Average Wind Speed	379
Figure 10-170: HHOLLOW2_WIND1 - Model Coefficients (Using Non-OSP and OSP Data)	380
Figure 10-171: HHOLLOW2_WIND1 - Predicted Wind Power and Capacity Factor Using Daily Models	381
Figure 10-172: HHOLLOW4_WND1 - Hourly Wind Power vs. ERCOT Average Wind Speed	382
Figure 10-173: HHOLLOW4_WND1 - Model Coefficients (Using Non-OSP and OSP Data)	383
Figure 10-174: HHOLLOW4_WND1 - Predicted Wind Power and Capacity Factor Using Daily Models	384
Figure 10-175: HHOLLOW3_WND_1 - Hourly Wind Power vs. ERCOT Average Wind Speed	385
Figure 10-176: HHOLLOW3_WND_1 - Model Coefficients (Using Non-OSP and OSP Data)	386
Figure 10-177: HHOLLOW3_WND_1 - Predicted Wind Power and Capacity Factor Using Daily Models	387
Figure 10-178: INDL_INADALE1 - Hourly Wind Power vs. ERCOT Average Wind Speed	388
Figure 10-179: INDL_INADALE1 - Model Coefficients (Using Non-OSP and OSP Data)	389
Figure 10-180: INDL_INADALE1 - Predicted Wind Power and Capacity Factor Using Daily Models	390
Figure 10-181: INDNNWP_INDNNWP - Hourly Wind Power vs. ERCOT Average Wind Speed	391
Figure 10-182: INDNNWP_INDNNWP - Model Coefficients (Using Non-OSP and OSP Data)	392
Figure 10-183: INDNNWP_INDNNWP - Predicted Wind Power and Capacity Factor Using Daily Models	393
Figure 10-184: BORDAS2_JAVEL2_A - Hourly Wind Power vs. ERCOT Average Wind Speed	394
Figure 10-185: BORDAS2_JAVEL2_A - Model Coefficients (Using Non-OSP and OSP Data)	395
Figure 10-186: BORDAS2_JAVEL2_A - Predicted Wind Power and Capacity Factor Using Daily Models	396
Figure 10-187: BORDAS2_JAVEL2_B - Hourly Wind Power vs. ERCOT Average Wind Speed	397
Figure 10-188: BORDAS2_JAVEL2_B - Model Coefficients (Using Non-OSP and OSP Data)	398
Figure 10-189: BORDAS2_JAVEL2_B - Predicted Wind Power and Capacity Factor Using Daily Models	399
Figure 10-190: BORDAS2_JAVEL2_C - Hourly Wind Power vs. ERCOT Average Wind Speed	400
Figure 10-191: BORDAS2_JAVEL2_C - Model Coefficients (Using Non-OSP and OSP Data)	401
Figure 10-192: BORDAS2_JAVEL2_C - Predicted Wind Power and Capacity Factor Using Daily Models	402
Figure 10-193: BORDAS_JAVEL18 - Hourly Wind Power vs. ERCOT Average Wind Speed	403
Figure 10-194: BORDAS_JAVEL18 - Model Coefficients (Using Non-OSP and OSP Data)	404
Figure 10-195: BORDAS_JAVEL18 - Predicted Wind Power and Capacity Factor Using Daily Models	405
Figure 10-196: HRFDWND_JRDWIND1 - Hourly Wind Power vs. ERCOT Average Wind Speed	406
Figure 10-197: HRFDWND_JRDWIND1 - Model Coefficients (Using Non-OSP and OSP Data)	407
Figure 10-198: HRFDWND_JRDWIND1 - Predicted Wind Power and Capacity Factor Using Daily Models	408
Figure 10-199: HRFDWND_JRDWIND2 - Hourly Wind Power vs. ERCOT Average Wind Speed	409
Figure 10-200: HRFDWND_JRDWIND2 - Model Coefficients (Using Non-OSP and OSP Data)	410
Figure 10-201: HRFDWND_JRDWIND2 - Predicted Wind Power and Capacity Factor Using Daily Models	411
Figure 10-202: KEECHI_U1 - Hourly Wind Power vs. ERCOT Average Wind Speed	412
Figure 10-203: KEECHI_U1 - Model Coefficients (Using Non-OSP and OSP Data)	413
Figure 10-204: KEECHI_U1 - Predicted Wind Power and Capacity Factor Using Daily Models	414
Figure 10-205: KING_NE_KINGNE - Hourly Wind Power vs. ERCOT Average Wind Speed	415
Figure 10-206: KING_NE_KINGNE - Model Coefficients (Using Non-OSP and OSP Data)	416

Figure 10-207: KING_NE_KINGNE - Predicted Wind Power and Capacity Factor Using Daily Models	417
Figure 10-208: KING_NW_KINGNW - Hourly Wind Power vs. ERCOT Average Wind Speed	418
Figure 10-209: KING_NW_KINGNW - Model Coefficients (Using Non-OSP and OSP Data)	419
Figure 10-210: KING_NW_KINGNW - Predicted Wind Power and Capacity Factor Using Daily Models	420
Figure 10-211: KING_SE_KINGSE - Hourly Wind Power vs. ERCOT Average Wind Speed	421
Figure 10-212: KING_SE_KINGSE - Model Coefficients (Using Non-OSP and OSP Data)	422
Figure 10-213: KING_SE_KINGSE - Predicted Wind Power and Capacity Factor Using Daily Models	423
Figure 10-214: KING_SW_KINGSW - Hourly Wind Power vs. ERCOT Average Wind Speed	424
Figure 10-215: KING_SW_KINGSW - Model Coefficients (Using Non-OSP and OSP Data)	425
Figure 10-216: KING_SW_KINGSW - Predicted Wind Power and Capacity Factor Using Daily Models	426
Figure 10-217: LGD_LANGFORD - Hourly Wind Power vs. ERCOT Average Wind Speed	427
Figure 10-218: LGD_LANGFORD - Model Coefficients (Using Non-OSP and OSP Data)	428
Figure 10-219: LGD_LANGFORD - Predicted Wind Power and Capacity Factor Using Daily Models	429
Figure 10-220: LGW_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed	430
Figure 10-221: LGW_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)	431
Figure 10-222: LGW_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models	432
Figure 10-223: LGW_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed	433
Figure 10-224: LGW_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data)	434
Figure 10-225: LGW_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models	435
Figure 10-226: LNCRK_G83 - Hourly Wind Power vs. ERCOT Average Wind Speed	436
Figure 10-227: LNCRK_G83 - Model Coefficients (Using Non-OSP and OSP Data)	437
Figure 10-228: LNCRK_G83 - Predicted Wind Power and Capacity Factor Using Daily Models	438
Figure 10-229: LNCRK2_G871 - Hourly Wind Power vs. ERCOT Average Wind Speed	439
Figure 10-230: LNCRK2_G871 - Model Coefficients (Using Non-OSP and OSP Data)	440
Figure 10-231: LNCRK2_G871 - Predicted Wind Power and Capacity Factor Using Daily Models	441
Figure 10-232: LNCRK2_G872 - Hourly Wind Power vs. ERCOT Average Wind Speed	442
Figure 10-233: LNCRK2_G872 - Model Coefficients (Using Non-OSP and OSP Data)	443
Figure 10-234: LNCRK2_G872 - Predicted Wind Power and Capacity Factor Using Daily Models	444
Figure 10-235: LHORN_N_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed	445
Figure 10-236: LHORN_N_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)	446
Figure 10-237: LHORN_N_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models	447
Figure 10-238: LHORN_N_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed	448
Figure 10-239: LHORN_N_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data)	449
Figure 10-240: LHORN_N_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models	450
Figure 10-241: LONEWOLF_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed	451
Figure 10-242: LONEWOLF_G1 - Model Coefficients (Using Non-OSP and OSP Data)	452
Figure 10-243: LONEWOLF_G1 - Predicted Wind Power and Capacity Factor Using Daily Models	453
Figure 10-244: LONEWOLF_G2 - Hourly Wind Power vs. ERCOT Average Wind Speed	454
Figure 10-245: LONEWOLF_G2 - Model Coefficients (Using Non-OSP and OSP Data)	455
Figure 10-246: LONEWOLF_G2 - Predicted Wind Power and Capacity Factor Using Daily Models	456
Figure 10-247: LONEWOLF_G3 - Hourly Wind Power vs. ERCOT Average Wind Speed	457
Figure 10-248: LONEWOLF_G3 - Model Coefficients (Using Non-OSP and OSP Data)	458
Figure 10-249: LONEWOLF_G3 - Predicted Wind Power and Capacity Factor Using Daily Models	459
Figure 10-250: LONEWOLF_G4 - Hourly Wind Power vs. ERCOT Average Wind Speed	460
Figure 10-251: LONEWOLF_G4 - Model Coefficients (Using Non-OSP and OSP Data)	461
Figure 10-252: LONEWOLF_G4 - Predicted Wind Power and Capacity Factor Using Daily Models	462
Figure 10-253: LV1_LV1A - Hourly Wind Power vs. ERCOT Average Wind Speed	463
Figure 10-254: LV1_LV1A - Model Coefficients (Using Non-OSP and OSP Data)	464
Figure 10-255: LV1_LV1A - Predicted Wind Power and Capacity Factor Using Daily Models	465



Figure 10-256: LV1_LV1B - Hourly Wind Power vs. ERCOT Average Wind Speed .....	466
Figure 10-257: LV1_LV1B - Model Coefficients (Using Non-OSP and OSP Data).....	467
Figure 10-258: LV1_LV1B - Predicted Wind Power and Capacity Factor Using Daily Models.....	468
Figure 10-259: LV3_UNIT_1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	469
Figure 10-260: LV3_UNIT_1 - Model Coefficients (Using Non-OSP and OSP Data) .....	470
Figure 10-261: LV3_UNIT_1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	471
Figure 10-262: LV4_UNIT_1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	472
Figure 10-263: LV4_UNIT_1 - Model Coefficients (Using Non-OSP and OSP Data) .....	473
Figure 10-264: LV4_UNIT_1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	474
Figure 10-265: LV5_UNIT_1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	475
Figure 10-266: LV5_UNIT_1 - Model Coefficients (Using Non-OSP and OSP Data) .....	476
Figure 10-267: LV5_UNIT_1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	477
Figure 10-268: REDFISH_MV1A - Hourly Wind Power vs. ERCOT Average Wind Speed .....	478
Figure 10-269: REDFISH_MV1A - Model Coefficients (Using Non-OSP and OSP Data) .....	479
Figure 10-270: REDFISH_MV1A - Predicted Wind Power and Capacity Factor Using Daily Models.....	480
Figure 10-271: REDFISH_MV1B - Hourly Wind Power vs. ERCOT Average Wind Speed.....	481
Figure 10-272: REDFISH_MV1B - Model Coefficients (Using Non-OSP and OSP Data) .....	482
Figure 10-273: REDFISH_MV1B - Predicted Wind Power and Capacity Factor Using Daily Models.....	483
Figure 10-274: MARIAH_NORTE1 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	484
Figure 10-275: MARIAH_NORTE1 - Model Coefficients (Using Non-OSP and OSP Data).....	485
Figure 10-276: MARIAH_NORTE1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	486
Figure 10-277: MARIAH_NORTE2 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	487
Figure 10-278: MARIAH_NORTE2 - Model Coefficients (Using Non-OSP and OSP Data).....	488
Figure 10-279: MARIAH_NORTE2 - Predicted Wind Power and Capacity Factor Using Daily Models .....	489
Figure 10-280: MWEC_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	490
Figure 10-281: MWEC_G1 - Model Coefficients (Using Non-OSP and OSP Data).....	491
Figure 10-282: MWEC_G1 - Predicted Wind Power and Capacity Factor Using Daily Models.....	492
Figure 10-283: MESQCRK_WND1 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	493
Figure 10-284: MESQCRK_WND1 - Model Coefficients (Using Non-OSP and OSP Data) .....	494
Figure 10-285: MESQCRK_WND1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	495
Figure 10-286: MESQCRK_WND2 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	496
Figure 10-287: MESQCRK_WND2 - Model Coefficients (Using Non-OSP and OSP Data) .....	497
Figure 10-288: MESQCRK_WND2 - Predicted Wind Power and Capacity Factor Using Daily Models .....	498
Figure 10-289: MIAM1_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	499
Figure 10-290: MIAM1_G1 - Model Coefficients (Using Non-OSP and OSP Data) .....	500
Figure 10-291: MIAM1_G1 - Predicted Wind Power and Capacity Factor Using Daily Models.....	501
Figure 10-292: MIAM1_G2 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	502
Figure 10-293: MIAM1_G2 - Model Coefficients (Using Non-OSP and OSP Data).....	503
Figure 10-294: MIAM1_G2 - Predicted Wind Power and Capacity Factor Using Daily Models.....	504
Figure 10-295: MOZART_WIND_1 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	505
Figure 10-296: MOZART_WIND_1 - Model Coefficients (Using Non-OSP and OSP Data).....	506
Figure 10-297: MOZART_WIND_1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	507
Figure 10-298: NWF_NWF1 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	508
Figure 10-299: NWF_NWF1 - Model Coefficients (Using Non-OSP and OSP Data) .....	509
Figure 10-300: NWF_NWF1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	510
Figure 10-301: OWF_OWF - Hourly Wind Power vs. ERCOT Average Wind Speed.....	511
Figure 10-302: OWF_OWF - Model Coefficients (Using Non-OSP and OSP Data) .....	512
Figure 10-303: OWF_OWF - Predicted Wind Power and Capacity Factor Using Daily Models .....	513
Figure 10-304: COTPLNS_OLDSETLR - Hourly Wind Power vs. ERCOT Average Wind Speed ....	514
Figure 10-305: COTPLNS_OLDSETLR - Model Coefficients (Using Non-OSP and OSP Data).....	515

Figure 10-306: COTPLNS_OLDSETLR - Predicted Wind Power and Capacity Factor Using Daily Models .....	516
Figure 10-307: PH1_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	517
Figure 10-308: PH1_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data).....	518
Figure 10-309: PH1_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	519
Figure 10-310: PH1_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	520
Figure 10-311: PH1_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data).....	521
Figure 10-312: PH1_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models .....	522
Figure 10-313: PH2_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	523
Figure 10-314: PH2_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data).....	524
Figure 10-315: PH2_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	525
Figure 10-316: PH2_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	526
Figure 10-317: PH2_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data).....	527
Figure 10-318: PH2_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models .....	528
Figure 10-319: PC_NORTH_PANTHER1 - Hourly Wind Power vs. ERCOT Average Wind Speed ..	529
Figure 10-320: PC_NORTH_PANTHER1 - Model Coefficients (Using Non-OSP and OSP Data) ....	530
Figure 10-321: PC_NORTH_PANTHER1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	531
Figure 10-322: PC_SOUTH_PANTHER2 - Hourly Wind Power vs. ERCOT Average Wind Speed..	532
Figure 10-323: PC_SOUTH_PANTHER2 - Model Coefficients (Using Non-OSP and OSP Data)....	533
Figure 10-324: PC_SOUTH_PANTHER2 - Predicted Wind Power and Capacity Factor Using Daily Models .....	534
Figure 10-325: PC_SOUTH_PANTHER3 - Hourly Wind Power vs. ERCOT Average Wind Speed..	535
Figure 10-326: PC_SOUTH_PANTHER3 - Model Coefficients (Using Non-OSP and OSP Data)....	536
Figure 10-327: PC_SOUTH_PANTHER3 - Predicted Wind Power and Capacity Factor Using Daily Models .....	537
Figure 10-328: COTTON_PAP2 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	538
Figure 10-329: COTTON_PAP2 - Model Coefficients (Using Non-OSP and OSP Data).....	539
Figure 10-330: COTTON_PAP2 - Predicted Wind Power and Capacity Factor Using Daily Models ..	540
Figure 10-331: PAPI_PAP1 - Hourly Wind Power vs. ERCOT Average Wind Speed.....	541
Figure 10-332: PAPI_PAP1 - Model Coefficients (Using Non-OSP and OSP Data).....	542
Figure 10-333: PAPI_PAP1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	543
Figure 10-334: PENA_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	544
Figure 10-335: PENA_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data) .....	545
Figure 10-336: PENA_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	546
Figure 10-337: PENA_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	547
Figure 10-338: PENA_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data) .....	548
Figure 10-339: PENA_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models .....	549
Figure 10-340: PENA3_UNIT3 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	550
Figure 10-341: PENA3_UNIT3 - Model Coefficients (Using Non-OSP and OSP Data) .....	551
Figure 10-342: PENA3_UNIT3 - Predicted Wind Power and Capacity Factor Using Daily Models ...	552
Figure 10-343: PYR_PYRON1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	553
Figure 10-344: PYR_PYRON1 - Model Coefficients (Using Non-OSP and OSP Data).....	554
Figure 10-345: PYR_PYRON1 - Predicted Wind Power and Capacity Factor Using Daily Models....	555
Figure 10-346: RSnake_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	556
Figure 10-347: RSnake_G1 - Model Coefficients (Using Non-OSP and OSP Data) .....	557
Figure 10-348: RSnake_G1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	558
Figure 10-349: RSnake_G2 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	559
Figure 10-350: RSnake_G2 - Model Coefficients (Using Non-OSP and OSP Data) .....	560
Figure 10-351: RSnake_G2 - Predicted Wind Power and Capacity Factor Using Daily Models .....	561
Figure 10-352: RDCANYON_RDCNY1 - Hourly Wind Power vs. ERCOT Average Wind Speed....	562
Figure 10-353: RDCANYON_RDCNY1 - Model Coefficients (Using Non-OSP and OSP Data).....	563
Figure 10-354: RDCANYON_RDCNY1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	564
Figure 10-355: TKSW1_ROSCOE - Hourly Wind Power vs. ERCOT Average Wind Speed.....	565
Figure 10-356: TKSW1_ROSCOE - Model Coefficients (Using Non-OSP and OSP Data) .....	566

Figure 10-357: TKWSW1_ROSCOE - Predicted Wind Power and Capacity Factor Using Daily Models	567
Figure 10-358: ROUTE_66_WIND1 - Hourly Wind Power vs. ERCOT Average Wind Speed	568
Figure 10-359: ROUTE_66_WIND1 - Model Coefficients (Using Non-OSP and OSP Data)	569
Figure 10-360: ROUTE_66_WIND1 - Predicted Wind Power and Capacity Factor Using Daily Models	570
Figure 10-361: SALTFORK_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed	571
Figure 10-362: SALTFORK_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)	572
Figure 10-363: SALTFORK_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models	573
Figure 10-364: SALTFORK_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed	574
Figure 10-365: SALTFORK_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data)	575
Figure 10-366: SALTFORK_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models	576
Figure 10-367: SANROMAN_WIND_1 - Hourly Wind Power vs. ERCOT Average Wind Speed	577
Figure 10-368: SANROMAN_WIND_1 - Model Coefficients (Using Non-OSP and OSP Data)	578
Figure 10-369: SANROMAN_WIND_1 - Predicted Wind Power and Capacity Factor Using Daily Models	579
Figure 10-370: MCDLD_SBW1 - Hourly Wind Power vs. ERCOT Average Wind Speed	580
Figure 10-371: MCDLD_SBW1 - Model Coefficients (Using Non-OSP and OSP Data)	581
Figure 10-372: MCDLD_SBW1 - Predicted Wind Power and Capacity Factor Using Daily Models	582
Figure 10-373: SENATEWD_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed	583
Figure 10-374: SENATEWD_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)	584
Figure 10-375: SENATEWD_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models	585
Figure 10-376: EXGNSND_WIND_1 - Hourly Wind Power vs. ERCOT Average Wind Speed	586
Figure 10-377: EXGNSND_WIND_1 - Model Coefficients (Using Non-OSP and OSP Data)	587
Figure 10-378: EXGNSND_WIND_1 - Predicted Wind Power and Capacity Factor Using Daily Models	588
Figure 10-379: SHANNONW_UNIT_1 - Hourly Wind Power vs. ERCOT Average Wind Speed	589
Figure 10-380: SHANNONW_UNIT_1 - Model Coefficients (Using Non-OSP and OSP Data)	590
Figure 10-381: SHANNONW_UNIT_1 - Predicted Wind Power and Capacity Factor Using Daily Models	591
Figure 10-382: KEO_KEO_SM1 - Hourly Wind Power vs. ERCOT Average Wind Speed	592
Figure 10-383: KEO_KEO_SM1 - Model Coefficients (Using Non-OSP and OSP Data)	593
Figure 10-384: KEO_KEO_SM1 - Predicted Wind Power and Capacity Factor Using Daily Models	594
Figure 10-385: KEO_SHRBINO2 - Hourly Wind Power vs. ERCOT Average Wind Speed	595
Figure 10-386: KEO_SHRBINO2 - Model Coefficients (Using Non-OSP and OSP Data)	596
Figure 10-387: KEO_SHRBINO2 - Predicted Wind Power and Capacity Factor Using Daily Models	597
Figure 10-388: FLTCK_SSI - Hourly Wind Power vs. ERCOT Average Wind Speed	598
Figure 10-389: FLTCK_SSI - Model Coefficients (Using Non-OSP and OSP Data)	599
Figure 10-390: FLTCK_SSI - Predicted Wind Power and Capacity Factor Using Daily Models	600
Figure 10-391: ENAS_ENA1 - Hourly Wind Power vs. ERCOT Average Wind Speed	601
Figure 10-392: ENAS_ENA1 - Model Coefficients (Using Non-OSP and OSP Data)	602
Figure 10-393: ENAS_ENA1 - Predicted Wind Power and Capacity Factor Using Daily Models	603
Figure 10-394: SPLAIN1_WIND1 - Hourly Wind Power vs. ERCOT Average Wind Speed	604
Figure 10-395: SPLAIN1_WIND1 - Model Coefficients (Using Non-OSP and OSP Data)	605
Figure 10-396: SPLAIN1_WIND1 - Predicted Wind Power and Capacity Factor Using Daily Models	606
Figure 10-397: SPLAIN1_WIND2 - Hourly Wind Power vs. ERCOT Average Wind Speed	607
Figure 10-398: SPLAIN1_WIND2 - Model Coefficients (Using Non-OSP and OSP Data)	608
Figure 10-399: SPLAIN1_WIND2 - Predicted Wind Power and Capacity Factor Using Daily Models	609
Figure 10-400: SPLAIN2_WIND21 - Hourly Wind Power vs. ERCOT Average Wind Speed	610
Figure 10-401: SPLAIN2_WIND21 - Model Coefficients (Using Non-OSP and OSP Data)	611

Figure 10-402: SPLAIN2_WIND21 - Predicted Wind Power and Capacity Factor Using Daily Models	612
Figure 10-403: SPLAIN2_WIND22 - Hourly Wind Power vs. ERCOT Average Wind Speed	613
Figure 10-404: SPLAIN2_WIND22 - Model Coefficients (Using Non-OSP and OSP Data)	614
Figure 10-405: SPLAIN2_WIND22 - Predicted Wind Power and Capacity Factor Using Daily Models	615
Figure 10-406: STWF_T1 - Hourly Wind Power vs. ERCOT Average Wind Speed	616
Figure 10-407: STWF_T1 - Model Coefficients (Using Non-OSP and OSP Data)	617
Figure 10-408: STWF_T1 - Predicted Wind Power and Capacity Factor Using Daily Models	618
Figure 10-409: SW_MESA_SW_MESA - Hourly Wind Power vs. ERCOT Average Wind Speed	619
Figure 10-410: SW_MESA_SW_MESA - Model Coefficients (Using Non-OSP and OSP Data)	620
Figure 10-411: SW_MESA_SW_MESA - Predicted Wind Power and Capacity Factor Using Daily Models	621
Figure 10-412: SSPUR TWO_WIND_1 - Hourly Wind Power vs. ERCOT Average Wind Speed	622
Figure 10-413: SSPUR TWO_WIND_1 - Model Coefficients (Using Non-OSP and OSP Data)	623
Figure 10-414: SSPUR TWO_WIND_1 - Predicted Wind Power and Capacity Factor Using Daily Models	624
Figure 10-415: SSPUR TWO_SS3WIND1 - Hourly Wind Power vs. ERCOT Average Wind Speed	625
Figure 10-416: SSPUR TWO_SS3WIND1 - Model Coefficients (Using Non-OSP and OSP Data)	626
Figure 10-417: SSPUR TWO_SS3WIND1 - Predicted Wind Power and Capacity Factor Using Daily Models	627
Figure 10-418: SSPUR TWO_SS3WIND2 - Hourly Wind Power vs. ERCOT Average Wind Speed	628
Figure 10-419: SSPUR TWO_SS3WIND2 - Model Coefficients (Using Non-OSP and OSP Data)	629
Figure 10-420: SSPUR TWO_SS3WIND2 - Predicted Wind Power and Capacity Factor Using Daily Models	630
Figure 10-421: SWEC_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed	631
Figure 10-422: SWEC_G1 - Model Coefficients (Using Non-OSP and OSP Data)	632
Figure 10-423: SWEC_G1 - Predicted Wind Power and Capacity Factor Using Daily Models	633
Figure 10-424: SRWE1_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed	634
Figure 10-425: SRWE1_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)	635
Figure 10-426: SRWE1_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models	636
Figure 10-427: SRWE1_SRWE2 - Hourly Wind Power vs. ERCOT Average Wind Speed	637
Figure 10-428: SRWE1_SRWE2 - Model Coefficients (Using Non-OSP and OSP Data)	638
Figure 10-429: SRWE1_SRWE2 - Predicted Wind Power and Capacity Factor Using Daily Models	639
Figure 10-430: SWEETWND_WND1 - Hourly Wind Power vs. ERCOT Average Wind Speed	640
Figure 10-431: SWEETWND_WND1 - Model Coefficients (Using Non-OSP and OSP Data)	641
Figure 10-432: SWEETWND_WND1 - Predicted Wind Power and Capacity Factor Using Daily Models	642
Figure 10-433: SWEETWN2_WND2 - Hourly Wind Power vs. ERCOT Average Wind Speed	643
Figure 10-434: SWEETWN2_WND2 - Model Coefficients (Using Non-OSP and OSP Data)	644
Figure 10-435: SWEETWN2_WND2 - Predicted Wind Power and Capacity Factor Using Daily Models	645
Figure 10-436: SWEETWN2_WND24 - Hourly Wind Power vs. ERCOT Average Wind Speed	646
Figure 10-437: SWEETWN2_WND24 - Model Coefficients (Using Non-OSP and OSP Data)	647
Figure 10-438: SWEETWN2_WND24 - Predicted Wind Power and Capacity Factor Using Daily Models	648
Figure 10-439: SWEETWN3_WND3A - Hourly Wind Power vs. ERCOT Average Wind Speed	649
Figure 10-440: SWEETWN3_WND3A - Model Coefficients (Using Non-OSP and OSP Data)	650
Figure 10-441: SWEETWN3_WND3A - Predicted Wind Power and Capacity Factor Using Daily Models	651
Figure 10-442: SWEETWN4_WND4A - Hourly Wind Power vs. ERCOT Average Wind Speed	652
Figure 10-443: SWEETWN4_WND4A - Model Coefficients (Using Non-OSP and OSP Data)	653
Figure 10-444: SWEETWN4_WND4A - Predicted Wind Power and Capacity Factor Using Daily Models	654
Figure 10-445: SWEETWN4_WND4B - Hourly Wind Power vs. ERCOT Average Wind Speed	655
Figure 10-446: SWEETWN4_WND4B - Model Coefficients (Using Non-OSP and OSP Data)	656

Figure 10-447: SWEETWN4_WND4B - Predicted Wind Power and Capacity Factor Using Daily Models .....	657
Figure 10-448: SWEETWN4_WND5 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	658
Figure 10-449: SWEETWN4_WND5 - Model Coefficients (Using Non-OSP and OSP Data) .....	659
Figure 10-450: SWEETWN4_WND5 - Predicted Wind Power and Capacity Factor Using Daily Models .....	660
Figure 10-451: TRENT_TRENT - Hourly Wind Power vs. ERCOT Average Wind Speed .....	661
Figure 10-452: TRENT_TRENT - Model Coefficients (Using Non-OSP and OSP Data) .....	662
Figure 10-453: TRENT_TRENT - Predicted Wind Power and Capacity Factor Using Daily Models .....	663
Figure 10-454: TRINITY_TH1_BUS1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	664
Figure 10-455: TRINITY_TH1_BUS1 - Model Coefficients (Using Non-OSP and OSP Data) .....	665
Figure 10-456: TRINITY_TH1_BUS1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	666
Figure 10-457: TRINITY_TH1_BUS2 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	667
Figure 10-458: TRINITY_TH1_BUS2 - Model Coefficients (Using Non-OSP and OSP Data) .....	668
Figure 10-459: TRINITY_TH1_BUS2 - Predicted Wind Power and Capacity Factor Using Daily Models .....	669
Figure 10-460: TTWEC_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	670
Figure 10-461: TTWEC_G1 - Model Coefficients (Using Non-OSP and OSP Data) .....	671
Figure 10-462: TTWEC_G1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	672
Figure 10-463: TYLRWIND_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	673
Figure 10-464: TYLRWIND_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data) .....	674
Figure 10-465: TYLRWIND_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	675
Figure 10-466: FERMI_WIND1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	676
Figure 10-467: FERMI_WIND1 - Model Coefficients (Using Non-OSP and OSP Data) .....	677
Figure 10-468: FERMI_WIND1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	678
Figure 10-469: FERMI_WIND2 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	679
Figure 10-470: FERMI_WIND2 - Model Coefficients (Using Non-OSP and OSP Data) .....	680
Figure 10-471: FERMI_WIND2 - Predicted Wind Power and Capacity Factor Using Daily Models .....	681
Figure 10-472: WAKEWE_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	682
Figure 10-473: WAKEWE_G1 - Model Coefficients (Using Non-OSP and OSP Data) .....	683
Figure 10-474: WAKEWE_G1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	684
Figure 10-475: WAKEWE_G2 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	685
Figure 10-476: WAKEWE_G2 - Model Coefficients (Using Non-OSP and OSP Data) .....	686
Figure 10-477: WAKEWE_G2 - Predicted Wind Power and Capacity Factor Using Daily Models .....	687
Figure 10-478: WEC_WECG1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	688
Figure 10-479: WEC_WECG1 - Model Coefficients (Using Non-OSP and OSP Data) .....	689
Figure 10-480: WEC_WECG1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	690
Figure 10-481: EXGNWTL_WIND_1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	691
Figure 10-482: EXGNWTL_WIND_1 - Model Coefficients (Using Non-OSP and OSP Data) .....	692
Figure 10-483: EXGNWTL_WIND_1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	693
Figure 10-484: WNDTHST2_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	694
Figure 10-485: WNDTHST2_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data) .....	695
Figure 10-486: WNDTHST2_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	696
Figure 10-487: WHTTAIL_WR1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	697
Figure 10-488: WHTTAIL_WR1 - Model Coefficients (Using Non-OSP and OSP Data) .....	698
Figure 10-489: WHTTAIL_WR1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	699
Figure 10-490: WOODWRD1_WOODWRD1 - Hourly Wind Power vs. ERCOT Average Wind Speed .....	700
Figure 10-491: WOODWRD1_WOODWRD1 - Model Coefficients (Using Non-OSP and OSP Data) .....	701
Figure 10-492: WOODWRD1_WOODWRD1 - Predicted Wind Power and Capacity Factor Using Daily Models .....	702

Figure 10-493: WOODWRD2\_WOODWRD2 - Hourly Wind Power vs. ERCOT Average Wind Speed  
..... 703

## LIST OF TABLES

Table 1-1: Installed/Announced Wind Power Capacity and the Statutory Mandates .....	4
Table 2: Electricity Generation and NOx Emission Reductions for All the Wind Farms in ERCOT Region in 2017 .....	7
Table 1-3: Number of Projects Identified for Other Renewable Sources .....	9
Table 1-4: Annual Electricity Generation by Renewable Resources (MWh, ERCOT: 2001 - 2017).....	10
Table 3-1: Summary of Annual Power Production for All Wind Farms Operated for more than a Year 49	
Table 3-2: Summary of 2008 and 2017 Monthly Average Wind Speed for Six NOAA Weather Stations .....	51
Table 3-3: Comparisons of NOAA Wind and ERCOT West Zone Wind Speed for 2008 - 2017.....	54
Table 3-4: Statistical Parameters of the Determined Daily Power Production Linear Models .....	61
Table 3-5: 2008 Uncertainty of the Power Generation Prediction using the Linear Daily Models .....	63
Table 3-6: 2008 Uncertainty of the Power Generation Prediction using the Linear Daily Models (Cont.) .....	64
Table 4-1: Summary of 90th Percentile Hourly Wind Power Analysis for Ninety Seven Sites in Texas	67
Table 4-2: Summary of Maximum Hourly Wind Power Analysis for Ninety Seven Sites in Texas.....	69
Table 5-1: Wind Farm Information from the PUCT (Updated Jan 3th, 2018) .....	107
Table 5-2: Modeled 2008 Wind Power Production Assigned to Each CL Zone in the ERCOT Region .....	108
Table 5-3: 2017 Wind Power Production Assigned to Each CL Zone in the ERCOT Region.....	108
Table 5-4: Distribution of the Annual Emission Reductions per CL Zone for each County (Base Year 2008).....	112
Table 5-5: Distribution of the Annual Emission Reductions per CL Zone for each County (Year 2017) .....	113
Table 5-6: Distribution of the OSP Emission Reductions per CL Zone for each County (Base Year 2008).....	114
Table 5-7: Distribution of the OSP Emission Reductions per CL Zone for each County (Year 2017) .	115
Table 6-1: Solar Photovoltaic Projects: Energy and NOx Reductions up to 2017 .....	118
Table 6-2: Solar Power Plant Projects in the State of Texas up to 2017 .....	122
Table 6-3: Solar Thermal Projects: Energy and NOx Reductions up to 2017 .....	141
Table 6-4: Biomass Projects in the State of Texas up to 2017 .....	145
Table 6-5: Hydroelectricity Power Projects in the State of Texas up to 2017.....	156
Table 6-6: Comparison of the Projects Identified from Previous and Present Reports .....	177
Table 8-1: ERCOT REC Generator List up to 2017 (Reference: <a href="https://www.texasrenewables.com/publicReports/rpt1.asp">https://www.texasrenewables.com/publicReports/rpt1.asp</a> ) .....	180
Table 8-2: Quarterly Electricity Generation by Renewable Sources, in MWh, for 2001–2017 .....	195
Table 8-3: Annual Electricity Generation by Renewable Sources (MWh, ERCOT: 2001–2017).....	198
Table 10-1: Listing of Wind Farms Analyzed for Base-year Calculations.....	208
Table 11-1: Solar Photovoltaic Projects: Data and Information up to 2017 .....	705
Table 11-2: Solar Thermal Projects up to 2017.....	825
Table 11-3: Solar Thermal Special Project.....	826
Table 11-4: Geothermal Heat Pump Energy Projects up to 2017.....	827
Table 11-5: Landfill Gas-Fired Power Plants up to 2017: Operational .....	837
Table 11-6: Landfill Gas-Fired Power Plants up to 2017: Candidate.....	838
Table 11-7: Landfill Gas-Fired Power Plants up to 2017: Potential .....	840
Table 11-8: Landfill Gas-Fired Power Plants up to 2017: Construction .....	841
Table 11-9: Landfill Gas-Fired Power Plants up to 2017: Shutdown.....	841
Table 11-10: Landfill Gas-Fired Power Plants up to 2017: Planned .....	841
Table 11-11: Landfill Gas-Fired Power Plants up to 2017: Other.....	842

## 2 INTRODUCTION

### 2.1 Statement of Work for Calculations of Emissions from Wind and Other Renewables

This summary report covers the Energy Systems Laboratory's work from January 2017 through December 2017. This work is intended to cover the basic work outline included below:

Task 1: Obtain input from public/private stakeholders

Task 2: Develop a methodology in cooperation with the Texas Commission on Environmental Quality (TCEQ) and the U.S. Environmental Protection Agency (US EPA) for calculating emissions reductions obtained through wind and other renewable energy resources in Texas

Task 3: Calculate annual, creditable emissions reductions for wind and other renewable energy resources for inclusion in the State SIP

Task 4: Include emissions reductions by county from wind and renewable energy resources in the ESL's annual report to the TCEQ

Task 5: Incorporate wind and renewable energy emissions reductions as a component of the ESL's *Texas Energy Summit* to facilitate technical transfer

### 2.2 Summary of Progress

The progress toward completing each task is provided in the following section and throughout this report.

#### Task 1: Obtain input from public/private stakeholders.

Legislation passed during the regular session of the 79<sup>th</sup> Legislature directed the Energy Systems Laboratory to work with the TCEQ to develop a methodology for computing emissions reductions attributable to renewable energy and for the ESL to quantify the emissions reductions attributable to renewables for inclusion in the State Implementation Plan (SIP) annually. HB 2921 directed the Texas Environmental Research Consortium (TERC) to engage the Texas Engineering Experiment Station for the development of this methodology.

During the period from January 2017 to December 2017, several presentations were done to report the analysis methodology and the results to interested parties. For example, Appendix A shows the slides that were presented in the meeting:

- November 2017 – Presentation at the Texas Energy Summit about Emissions Reduction Impact of Renewables, Plano, Texas.

#### Task 2: Develop a methodology in cooperation with the Texas Commission on Environmental Quality and the U.S. Environmental Protection Agency for calculating emissions reductions obtained through wind and other renewable energy resources in Texas.

This task is composed of the following subtasks:

- review existing methodologies for calculating emissions reductions from wind energy and other renewable energy systems with US EPA, TCEQ and stakeholders.
- develop acceptable methodologies for wind and renewables.
- determine how to implement methodologies for Texas, including accounting of current installations, future sites, degradation, discounting/uncertainty, grid constraints, etc.
- review methodologies for verifying wind energy production and renewable energy installations with TCEQ, US EPA and stakeholders.



- develop acceptable methodologies for verifying installations, including documentation, EPA Quality Assurance Project Plan (QAPP), etc.
- develop draft State Guidelines for the TCEQ for EE/RE SIP credits

Task 3: Calculate annual, creditable emissions reductions for wind and other renewable energy resources for inclusion in the State SIP.

This task is composed of the following subtasks:

- calculate annual emissions from wind and other renewable energy projects; verify annual installations of wind and renewable energy systems in Texas;
- verify ERCOT historical data for wind production and other renewables

Task 4: Include emissions reductions by county from wind and renewable energy resources in the ESL's annual report to the TCEQ.

This task is composed of the following subtasks:

- report annual emissions from wind and other renewable energy projects;
- report on verification of installations of wind and renewable energy systems in Texas;
- develop documentation for all methods developed

Task 5: Incorporate wind and renewable energy emissions reductions as a component of the ESL's Texas Energy Summit to facilitate technical transfer.

Additional information regarding the ESL's efforts on Tasks 2, 3, 4 and 5 are listed below and presented in detail in the following sections. This work was performed during the period January 2017 through December 2017.

- analysis of wind farms using 2017 data
- analysis of emissions reduction from wind farms
- updates of the degradation analysis to include more wind farms
- analysis of other renewables
- review of electricity savings and transmission planning study reported by ERCOT

### 3 ANALYSIS ON POWER PRODUCTION FROM WIND FARMS USING 2017 DATA

#### 3.1 Introduction

Texas is the largest producer of wind energy in the United States. As of January 2018<sup>8</sup>, the installed wind turbine capacity totals 22,519 MW, and it has been announced new projects that will add another 12,787 MW of capacity by the end of 2019. The ERCOT region encloses 20,885 MW, which accounts for 90% of the 2017 total capacity installed in Texas. Figure 3-2 shows the monthly electricity generation and capacity installed in the ERCOT region from September 2005 to December 2017. Figure 3-3 shows the location of the completed, announced and retired wind farms based on the information from the PUCT.

In section 3.2, a summary of wind power production for all wind farms in the Texas ERCOT region is presented. In order to weather normalize the wind power generation of the wind farms, linear regression models are developed for each wind farm that has been in operation in 2017. As shown in Figure 3-1, The model coefficients for each wind farm are obtained from these regression models using the 2017 daily power generation data of the corresponding wind farm and the daily wind speed data of the most representative NOAA weather station among the six chosen stations. The model is then used to estimate the wind power generation using the 2008 wind speed data. The weather normalized modeled power generation allows the comparison of the wind power generation of each wind farm in different years. In addition, a comparison between the annual and OSP wind power generation from previous report and this report is presented.

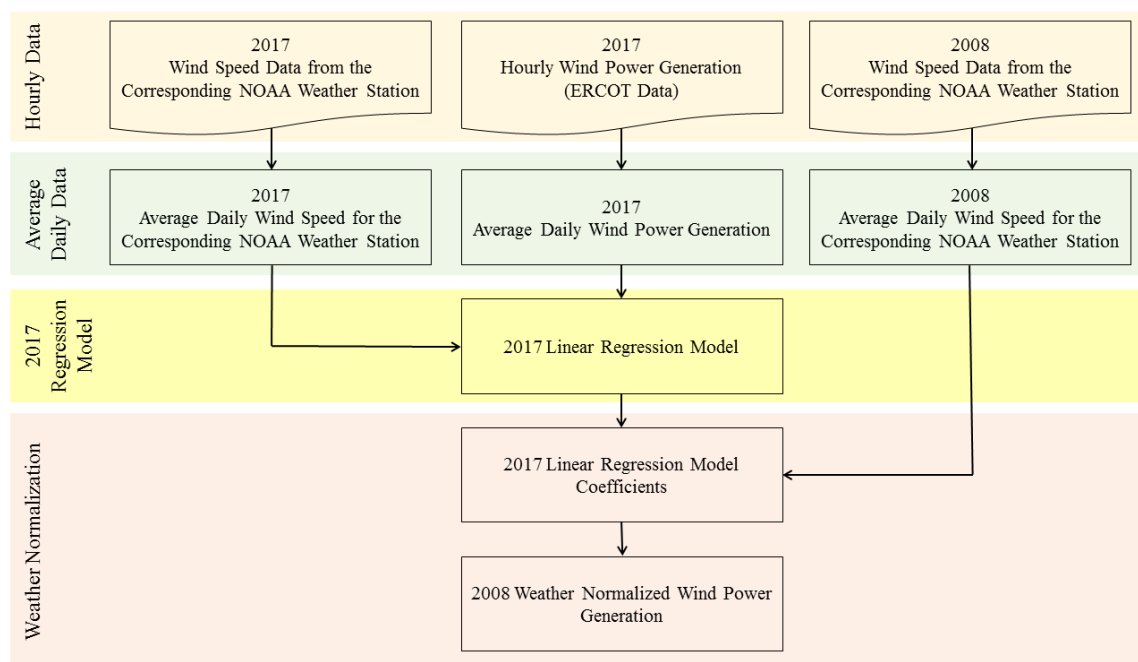


Figure 3-1: Procedure for the 2008 Annual and OSP Weather Normalized Wind Power Generation for Each Wind Farm in Operation in 2017 in Texas ERCOT Region

An uncertainty analysis was also performed on all the daily regression models and included in this report to show the accuracy of applying the OSP and Non-OSP linear regression models to predict the wind power generation that the wind farms would have had in the base year of 2008. The detailed analysis for each wind farm is provided in the Appendix B. The original data used in the analysis is included in the accompanying CD-ROM with this report.

<sup>8</sup> Wind project information obtained from the Public Utility Commission of Texas ([www.puc.texas.gov](http://www.puc.texas.gov)) as of 1/3/2018 and the Electric Reliability Council of Texas (ERCOT) as of March 2018.

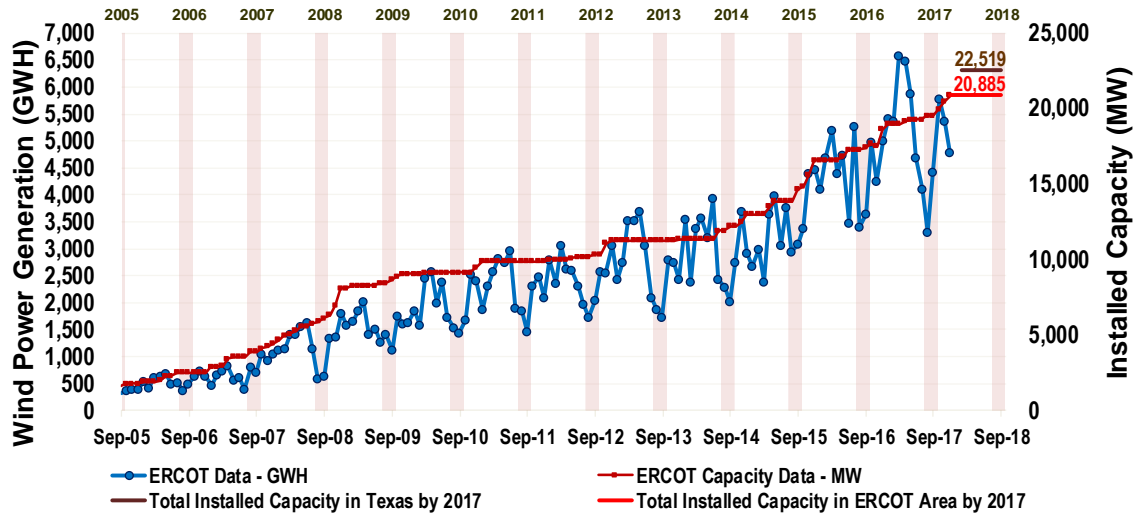
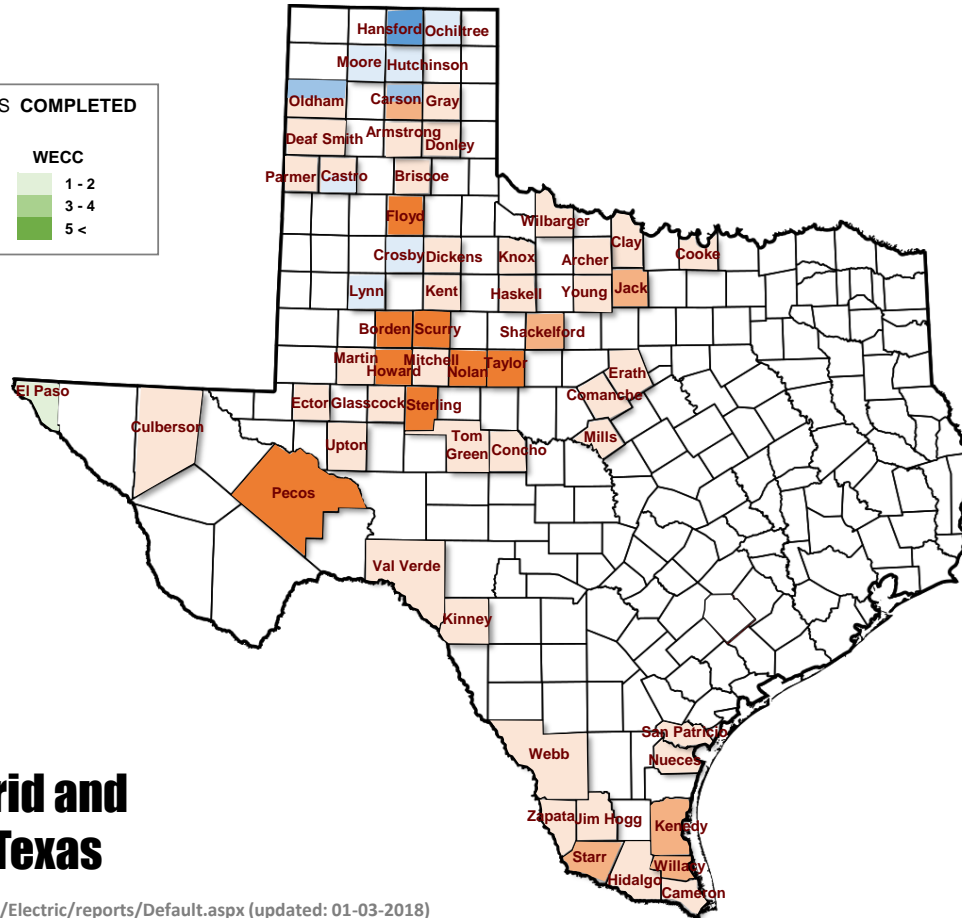
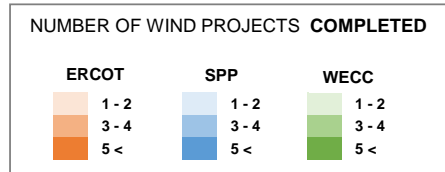


Figure 3-2: Installed Wind Power Capacity and Power Generation in the ERCOT Region from September 2005 to December 2017



## ERCOT Power Grid and Wind Farms in Texas

<http://www.puc.texas.gov/industry/Electric/reports/Default.aspx> (updated: 01-03-2018)

**WIND PROJECTS COMPLETED :****ERCOT Region - 20,675 MW**

1. Archer, Windthorst 2, 65 MW, Dec-14
2. Armstrong, Route66 Wind, 150 MW, Aug-15
3. Borden, Red Canyon 1, 84 MW, May-06
4. Borden, Bull Creek Wind Plant, 180 MW, Nov-08
5. Borden, Stephens Ranch Wind Phase 1, 211 MW, Dec-14
6. Borden, Mesquite Creek W, 211 MW, Apr-15
7. Borden, Stephens Ranch Wind Phase b, 165 MW, May-15
8. Briscoe, Longhorn Energy Center North, 200 MW, Sep-15
9. Briscoe, Briscoe Wind, 150 MW, Nov-15
10. Cameron, Cameron County Wind, 165 MW, Jan-16
11. Cameron, San Roman Wind 1, 94 MW, Feb-17
12. Carson, Panhandle Wind 1, 218 MW, Jul-14
13. Carson, Panhandle Wind 2, 198 MW, Nov-14
14. Carson, Grandview Phase 1 (Conway Windfarm), 211 MW, Dec-14
15. Carson, Colbeck's Corner, 200 MW, May-16
16. Castro, Jumbo Road Wind (Hereford 2), 300 MW, Apr-15
17. Clay, Bobcat Bluff, 163 MW, Mar-13
18. Clay, Shannon Wind, 200 MW, Dec-15
19. Comanche, Logan's Gap Wind I, 211 MW, Sep-15
20. Concho, Panther Creek 3, 200 MW, Aug-09
21. Cooke, Wolf Ridge Windfarm, 113 MW, Oct-08
22. Cooke, Tyler Bluff Wind (Muenster Wind), 118 MW, Dec-16
23. Culberson, Texas Wind Power Project, 35 MW, Oct-95
24. (Retired). Culberson, Delaware Mountain Wind Farm, MW, Jun-99
25. Deaf Smith, Hereford Wind Project (Hereford 1), 200 MW, May-15
26. Deaf Smith, Falvez Astra Wind, 163 MW, May-17
27. Dickens, McAdoo Wind Energy, 150 MW, May-08
28. Dickens, Wake Wind, 300 MW, Oct-16
29. Donley and Gray, Salt Fork Wind, 200 MW, Dec-16
30. Ector, Notrees Windpower, 153 MW, Jan-09
31. Erath, Silver Star Phase I, 60 MW, Mar-08
32. Floyd, Whirlwind, 60 MW, Dec-07
33. Floyd, South Plains Wind I, 200 MW, Nov-15
34. Floyd, South Plains Wind II Phase a, 152 MW, Jun-16
35. Floyd, South Plains Wind II Phase b, 148 MW, Jun-16
36. Floyd, Cotton Plains Wind, 50 MW, Mar-17
37. Floyd, Old Settler Wind, 150 MW, Apr-17
38. Floyd, Cotton Plains Wind, 50 MW, Apr-17
39. Glasscock, RattleSnake Wind Ph 1, 211 MW, Sep-15
40. Gray, Miami Wind 1 Project, 289 MW, Dec-14
41. Haskell, Horse Creek Wind, 230 MW, Jan-17
42. Haskell, Willow Springs Wind, 230 MW, Nov-17
43. Hidalgo, Hidalgo & Starr Wind, 250 MW, Dec-16
44. Howard, Big Spring Wind Power, 34 MW, Feb-99
45. Howard, Big Spring Wind Power, 6.6 MW, Jun-99
46. Howard, Panther Creek, 143 MW, Jul-08
47. Howard, Ocotillo Windpower 1, 59 MW, Aug-08
48. Howard, Elbow Creek Wind, 117.3 MW, Nov-08
49. Howard, Panther Creek 2, 115 MW, Nov-08
50. Howard, Gunsight Mountain, 120 MW, Sep-16
51. Jack, Barton Chapel Wind 1, 120 MW, Dec-07
52. Jack, Senate Wind Project, 150 MW, Dec-12
53. Jack, Keechi Wind, 102 MW, Jan-15
54. Jim Hogg, Sendero Wind Energy Project, 78 MW, Dec-15
55. Kenedy, Gulf Wind 1, 283 MW, Nov-08
56. Kenedy, Penascal Wind Farm , 202 MW, Nov-08
57. Kenedy, Penascal Wind Farm 2, 202 MW, Mar-10
58. Kenedy, Baffin Wind Farm (Penascal 3), 202 MW, Jun-16
59. Kent, Mozart, 30 MW, Dec-12
60. Kinney, Anacacho Windfarm, 100 MW, Dec-12
61. Knox, Green Pastures W, 300 MW, Nov-15
62. Martin, Stanton Wind Energy, 120 MW, Jan-08
63. Mills, Goldthwaite Wind Energy, 149 MW, Jun-14
64. Mitchell, Loraine Windpark, 251 MW, Oct-09
65. Nolan, Trent Mesa, 150 MW, Nov-01
66. Nolan, Sweetwater Wind 1, 37.5 MW, Dec-03
67. Nolan, Sweetwater Wind 2, 91.5 MW, Feb-05
68. Nolan, Sweetwater Wind 3 (Cottonwood Creek), 135 MW, Dec-05
69. Nolan, Sweetwater Wind 4 (Cottonwood Creek), 241 MW, May-07
70. Nolan, Sweetwater Wind 5, 80 MW, Dec-07
71. Nolan, Inadale, 197 MW, Nov-08
72. Nolan, Turkey Track Energy Center, 169.5 MW, Nov-08
73. Nueces, Harbor Wind Project, 9 MW, Mar-12
74. Nueces, Chapman Ranch Wind 1, 250 MW, Oct-17
75. Oldham, Spinning Spur Wind II, 161 MW, Jun-14
76. Oldham, Spinning Spur Wind III, 194 MW, Oct-15
77. Parmer, Mariah Del Notre, 230 MW, Mar-17
78. Pecos, Indian Mesa, 82.5 MW, Jun-01
79. Pecos, Woodward Mountain Ranch, 160 MW, Jul-01
80. Pecos, Desert Sky (Indian Mesa II), 160 MW, Dec-01
81. Pecos, Sherbino Mesa Wind Farm, 150 MW, Sep-08
82. Pecos, Sherbino Mesa Wind Farm 2, 158 MW, Nov-11
83. San Patricio, Papalote Creek Wind Farm, 180 MW, Sep-09
84. San Patricio, Papalote Creek Phase II, 198 MW, Jun-10
85. Scurry, Brazos Wind Ranch, 160 MW, Dec-03
86. Scurry, Camp Springs I, 130 MW, Jul-07
87. Scurry, Snyder Wind Project, 63 MW, Dec-07
88. Scurry, Champion Wind Farm, 126 MW, Jan-08
89. Scurry, Roscoe Wind Farm 1, 209 MW, Jan-08
90. Scurry, Camp Springs II, 120 MW, Jun-08
91. Scurry, Pylon, 249 MW, Nov-08
92. Scurry, Dermott Wind 1, 250 MW, Aug-17
93. Scurry, Fluvanna Renewable 1, 155 MW, Nov-17
94. Shackelford, Lone Star - Mesquite Wind, 200 MW, Dec-07
95. Shackelford, Lone Star - Post Oak Wind, 200 MW, May-08
96. Shackelford, Hackberry Wind Farm, 165 MW, Nov-08
97. Starr, Los Vientos III, 200 MW, Dec-15
98. Starr, Los Vientos IV, 200 MW, Jun-16
99. Starr, Los Vientos V, 200 MW, Sep-16
100. Sterling, Forest Creek Wind Farm, 124.2 MW, Dec-06
101. Sterling, Sand Bluff Wind Farm, 90 MW, Dec-06
102. Sterling, Capricorn Ridge Wind, 364 MW, Sep-07
103. Sterling, Goat Wind, 80 MW, Apr-08
104. Sterling, Capricorn Ridge Wind (exp), 298 MW, May-08
105. Sterling, Goat Wind Phase 2, 70 MW, Apr-09
106. Taylor, Callahan Divide Wind Energy Center, 114 MW, Feb-05
107. Taylor, Buffalo Gap 1, 120 MW, Sep-05
108. Taylor, Horse Hollow Phase 1, 213 MW, Oct-05
109. Taylor, Horse Hollow Phase 2, 223.5 MW, May-06
110. Taylor, Horse Hollow Phase 3, 299 MW, Sep-06
111. Taylor, Buffalo Gap 2 (Cirello 1), 233 MW, Aug-07
112. Taylor, Buffalo Gap 3, 170 MW, Apr-08
113. Taylor, South Trent Wind Farm, 101.2 MW, Oct-08
114. Tom Green, Langford Wind Power, 150 MW, Oct-09
115. Upton, Southwest Mesa Wind Project, 75 MW, Jun-99
116. Upton, King Mountain Wind Ranch, 278 MW, Dec-01
117. Val Verde, Val Verde Wind , 149 MW, Oct-17
118. Webb, Cedro Hill Wind, 150 MW, Oct-10
119. Webb, Whitetail Wind Project, 92 MW, Dec-12
120. Wilbarger, Blue Summit Wind, 135 MW, Dec-12
121. Wilbarger, Electra Wind, 230 MW, Jan-17
122. Willacy, Magic Valley Wind, 206 MW, Apr-12
123. Willacy, Los Vientos I, 200 MW, Jan-13
124. Willacy, Los Vientos II, 202 MW, Jan-13
125. Young, Trinity Hills Wind Farm, 225 MW, Jan-12
126. Zapata, Javelina Wind, 250 MW, Dec-15
127. Zapata, Javelina 2 Wind, 200 MW, Feb-17

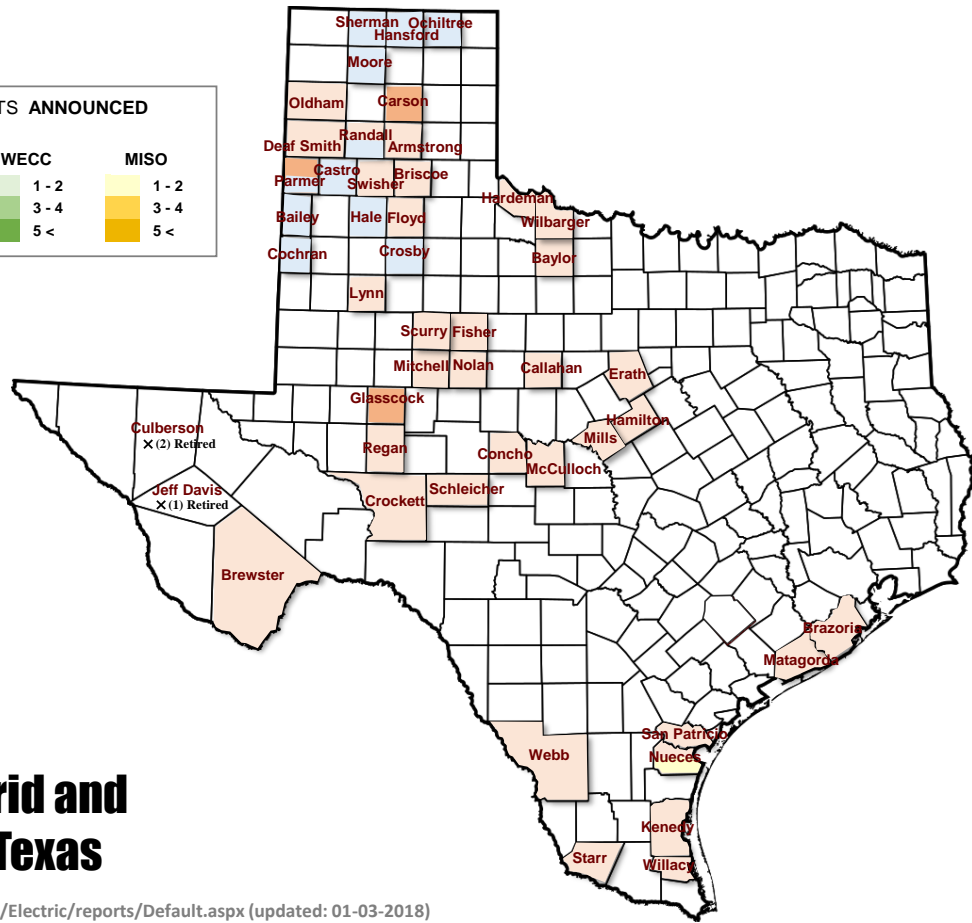
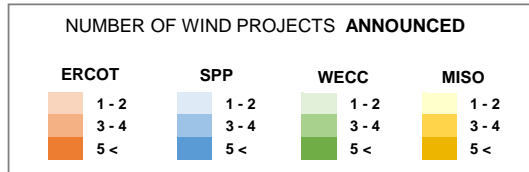
**SPP Region - 1,633 MW**

128. Carson, Llano Estacado Wind Ranch, 79 MW, Jan-02
129. Carson, Majestic Wind, 79.5 MW, Dec-09
130. Carson, Majestic Wind II, 79.6 MW, Dec-12
131. Carson, Pantex Wind Farm, 11.5 MW, Jun-14
132. Castro, Bethel Wind Energy Facility, 276 MW, Jan-17
133. Crosby, Ralls Wind Farm, 10 MW, Jul-11
134. Crosby, Pleasant Hill Wind Energy, 20 MW, Oct-15
135. Hansford , 3 MW, Dec-03
136. Hansford, Noble Great Plains Windpark, 114 MW, Feb-09
137. Hansford, JD Wind 1-7, 9-11, Wege, 189.8 MW, Dec-09
138. Hansford, Frisco Wind Farm, 20 MW, Feb-12
139. Hutchinson, Little Pringle 1,2, 20 MW, Sep-10
140. Lynn, Cirrus Wind Energy, 61.2 MW, Dec-12
141. Moore, Sunray Wind I, II, III, 49.5 MW, Aug-09
142. Ochiltree, Palo Duro Wind, 250 MW, Dec-14
143. Oldham, Wildorado Wind Ranch, 161 MW, Apr-07
144. Oldham, GS Panhandle Wind Ranch, 78 MW, Sep-11
145. Oldham, Spinning Spur Wind Ranch, 161 MW, Dec-12

**WECC Region - 1 MW**

146. El Paso, Hueco Mountain Wind Ranch, 1.3 MW, Apr-01

Figure 3-3: Completed, Announced and Retired Wind Projects in Texas (Cont.)



# ERCOT Power Grid and Wind Farms in Texas

<http://www.puc.texas.gov/industry/Electric/reports/Default.aspx> (updated: 01-03-2018)

**WIND PROJECTS ANNOUNCED :****ERCOT Region - 10,369 MW**

1. Armstrong, Goodnight Wind, 497 MW, Dec-18
2. Baylor, Seymour Hills Wind Project, 100 MW, Dec-18
3. Brazoria, Chocolate Bayou, 150 MW, Mar-19
4. Brewster, SolaireHolman 1, 50 MW, Jan-18
5. Briscoe, Longhorn Energy Center South, 160 MW, Dec-18
6. Briscoe, Silver Canyon Wind A, 200 MW, Oct-19
7. Callahan, Kaiser Creek Windfarm, 101 MW, Dec-18
8. Carson, Panhandle Wind 3, 248 MW, Dec-18
9. Carson, Salt Fork Wind Expansion, 54 MW, Dec-18
10. Carson, Grandview Windfarm Phase 3, 188 MW, Dec-19
11. Concho, Cactus Flats Wind, 150 MW, Jun-18
12. Crockett, Rancho Wind Farm, 250 MW, Dec-19
13. Deaf Smith, Unity Wind, 203 MW, Oct-19
14. Erath, Buckthorn Wind, 100 MW, Nov-17
15. Fisher, Mesquite Star Special Wind Project, 140 MW, Dec-19
16. Floyd, Pumpkin Wind Farm, 281 MW, Dec-18
17. Glasscock, Bearkat Wind A, 197 MW, Dec-17
18. Glasscock, Bearkat Wind B, 162 MW, Nov-18
19. Glasscock, Edmondson Ranch Wind, 292 MW, Sep-19
20. Hamilton, Vista Mountain Wind, 150 MW, Dec-20
21. Hardeeman, WIT Ranch Wind Farm, 200 MW, Dec-19
22. Kenedy, Stella 1 Wind, 201 MW, Dec-18
23. Lynn, Tahoka Wind, 505 MW, Oct-18
24. Matagorda, Peyton Creek Wind Farm, 150 MW, Dec-19
25. McCulloch, RTS Wind, 160 MW, Mar-18
26. McCulloch, Heart of Texas Wind, 150 MW, Dec-18
27. Mills, Payne Mountain Wind, 150 MW, Dec-20
28. Mills and Comanche, Flat Top Wind I, 200 MW, Mar-18
29. Mitchell, Third Planet Wind Power, 100 MW, Sep-18
30. Nolan, AES Generation Renewable, 150 MW, Dec-19
31. Nueces, Patriot Wind, 180 MW, Sep-19
32. Oldham, Canadian Breaks Wind, 210 MW, Apr-19
33. Parmer, Mariah Del Este, 152 MW, Sep-18
34. Parmer, Mariah Del Sur, 218 MW, Dec-18
35. Parmer, Scandia Wind D, E, & F, 600 MW, May-19
36. Randall, Pullman Road Wind Power, 300 MW, Oct-19
37. Regan, Santa Rita Wind, 300 MW, Dec-17
38. San Patricio, Midway Wind, 163 MW, Mar-19
39. San Patricio and Bee, Pacific Wind Development, 200 MW, Dec-19
40. Schleicher, Infinity Live Oak Wind, 201 MW, Dec-19
41. Scurry, Coyote Wind, 242 MW, May-19
42. Starr, Rio Bravo Wind, 238 MW, Dec-18
43. Swisher, Wildrose Wind, 212 MW, Oct-19
44. Swisher, Comanche Run Wind, 500 MW, Dec-19
45. Webb, Torrecillas Wind A, 200 MW, Dec-19
46. Webb, Torrecillas Wind B, 200 MW, Dec-19
47. Wilbarger, Lockett Wind Farm, 184 MW, Jun-19
48. Willacy, Bruenning's Breeze Wind Farm, 228 MW, Dec-17
49. Willacy, Las Majadas, 202 MW, Nov-18

**MISO Region - 340 MW**

50. Nueces, Palo Alto West Wind Farm, 340 MW, Dec-18

**SPP Region - 2,998 MW**

51. Bailey and Lamb, Blue Cloud Renewable Energy, 175 MW, Aug-18
52. Castro, Easter Renewable Energy, 225 MW, Dec-18
53. Cochran, Wildcat Ranch Wind Project, 150 MW, Dec-18
54. Crosby, Fiber Winds, 80 MW, Dec-18
55. Crosby and Floyd, Cone Renewable Energy Project, 300 MW, Dec-18
56. Hale, Hale Wind Energy, 478 MW, Dec-18
57. Hansford and Sherman, Novus IV Wind Facility (Oslo Wind), 360 MW, Oct-18
58. Moore and Hartley, Swinford Wind Farm, 400 MW, Oct-20
59. Ochiltree, Perryton Plains Wind Project, 300 MW, Sep-18
60. Randall, Buffalo Wind Energy Project, 150 MW, Dec-17
61. Sherman and Hansford, Coldwater Creek Wind Project, 150 MW, Dec-20
62. Bonita Wind Project, 230 MW, Oct-18

**WECC Region - 80 MW**

63. Parmer and Bailey, Tex-Mex Wind Energy Project, 80 MW, Oct-18

**WIND PROJECTS RETIRED :****ERCOT Region - 76 MW**

1. Culberson, Delaware Mountain Wind Farm, 30 MW, 1999
2. Culberson, Windpower Partners 1994 - Kunitz, 39 MW, 1995
3. Jeff Davis, Fort Davis Wind Farm, 6.6 MW, 1996

Figure 3-3: Completed, Announced and Retired Wind Projects in Texas

### 3.2 Summary of Wind Power Production for All Wind Farms in the Texas ERCOT Region

Table 3-1 shows the summary of the 2017 measured power production for the wind farms that were operating in 2017 in the Texas ERCOT region and the modeled wind power production using daily regression models and wind speed data from 2008 (Appendix B).

Table 3-2 shows the monthly average wind speed across six NOAA weather stations which is mainly used for the analysis. For the modeling analysis of this year, the average wind speed of NOAA weather stations.

As shown in Figure 3-4 and Figure 3-5, the modeled annual wind power production using 2008 wind speed data (66,242,675 MWh/yr) is higher by about 8% when compared to what was measured in 2017 (61,318,323 MWh/yr). For the OSP, the modeled average daily power production using 2008 wind speed data is 118,624 MWh/day, a 0.7% is higher from that measured in 2017 (117,729 MWh/day). This is because, for the modeling analysis of this year, the average wind speed of NOAA for the year 2017 is used for the analysis of most of wind farms. The average NOAA wind speed in 2017 is less than the average NOAA wind speed in 2008.

Figure 3-6 presents the comparison of the 2017 measured annual wind power production against the modeled annual wind power production using 2008 wind speed data for each wind farm. Figure 3-7 shows the difference between the 2017 measured average daily power production and the modeled average daily wind power production using 2008 wind speed data during the OSP for each wind farm.



Table 3-1: Summary of Annual Power Production for All Wind Farms Operated for more than a Year

Wind Unit Name	County	Capacity (MW)	ERCOT Wind Zone	CM Zone	Final Wind Zone	Wind Power for 2008 Predicted		Wind Power for 2017 Measured	
						Annual (MWh/yr)	OSD (MWh/day)	Annual (MWh/yr)	OSD (MWh/day)
ANACACHO_ANA	KINNEY	100.0	SOUTH	S	SOUTH	329,194	815	333,310	900
ASTRA_UNIT1	DEAF SMITH	163.2	PANHANDLE	W	PANHANDLE	596,074	1,296	449,449	1,140
BAFFN_UNIT1	KENEDY	100.0	COASTAL	S	COASTAL	316,963	701	324,779	846
BAFFN_UNIT2	KENEDY	102.0	COASTAL	S	COASTAL	293,231	632	300,874	773
BCATWIND_WIND_1	CLAY	150.0	WEST	W	WEST	405,133	739	370,263	691
BLSUMMIT_BLSMT1_5	WILBARGER	135.4	WEST	W	WEST	519,010	775	474,020	720
BORDAS_JAVEL18	ZAPATA	249.7	SOUTH	S	SOUTH	934,742	2,361	950,499	2,684
BORDAS2_JAVEL2_A	ZAPATA	96.0	SOUTH	S	SOUTH	367,638	950	372,600	1,074
BORDAS2_JAVEL2_B	ZAPATA	74.0	SOUTH	S	SOUTH	276,417	726	280,342	823
BORDAS2_JAVEL2_C	ZAPATA	30.0	SOUTH	S	SOUTH	119,662	315	121,624	356
BRAZ_WIND_WIND1	SCURRY	99.0	WEST	W	WEST	221,406	370	217,979	354
BRAZ_WIND_WIND2	SCURRY	61.0	WEST	W	WEST	152,019	281	149,558	269
BRISCOE_WIND	BRISCOE	149.8	PANHANDLE	W	PANHANDLE	414,461	676	409,363	641
BRTSW_BCW1	JACK	120.0	NORTH	N	NORTH	273,523	460	250,387	431
BUFF_GAP_UNIT1	TAYLOR	120.0	WEST	W	WEST	397,434	588	351,644	541
BUFF_GAP_UNIT2_1	TAYLOR	232.5	WEST	W	WEST	750,316	1,064	660,165	970
BUFF_GAP_UNIT3	TAYLOR	170.0	WEST	W	WEST	531,286	729	468,159	670
BULLCRK_WIND1	BORDEN	89.0	WEST	W	WEST	165,005	240	161,690	223
BULLCRK_WIND2	BORDEN	91.0	WEST	W	WEST	180,397	271	176,772	253
CALLAHAN_WIND1	TAYLOR	114.0	WEST	W	WEST	411,610	890	370,610	831
CAMWIND_UNIT1	CAMERON	165.0	COASTAL	S	COASTAL	502,075	805	510,328	961
CAPRIDG4_CR4	STERLING	112.5	WEST	W	WEST	346,503	518	309,008	484
CAPRIDGE_CR1	STERLING	214.5	WEST	W	WEST	717,412	1,030	644,249	956
CAPRIDGE_CR2	STERLING	149.5	WEST	W	WEST	385,263	574	346,262	542
CAPRIDGE_CR3	STERLING	186.0	WEST	W	WEST	577,093	812	519,224	763
CEDROHIL_CHW1	WEBB	150.0	SOUTH	S	SOUTH	494,883	1,236	503,504	1,418
CHAMPION_UNIT1	SCURRY	126.5	WEST	W	WEST	409,270	621	366,422	579
COTPLNS_COTTONFL	FLOYD	50.4	PANHANDLE	W	PANHANDLE	192,100	344	172,791	324
COTPLNS_OLDSETLR	FLOYD	151.2	PANHANDLE	W	PANHANDLE	592,812	1,023	422,202	965
COTTON_PAP2	SAN PATRICK	200.1	COASTAL	S	COASTAL	563,032	1,164	567,363	1,384
CSEC_CSECG1	SCURRY	130.0	WEST	W	WEST	451,293	641	403,860	591
CSEC_CSECG2	SCURRY	120.0	WEST	W	WEST	431,126	590	386,999	552
DERMOTT_UNIT1	SCURRY	126.5	WEST	W	WEST	474,528	858	230,458	831
DERMOTT_UNIT2	SCURRY	126.5	WEST	W	WEST	473,651	881	230,719	852
DG_NUECE_6UNITS	NUECES	9.0	COASTAL	S	COASTAL	15,227	38	15,428	43
DIGBY_UNIT1	WILBARGER	98.9	WEST	W	WEST	442,652	765	402,458	715
DIGBY_UNIT2	WILBARGER	131.1	WEST	W	WEST	570,760	964	517,294	891
ELB_ELBREEK	HOWARD	121.9	WEST	W	WEST	363,799	571	325,810	542
ENAS_BNA1	SCURRY	63.0	WEST	W	WEST	186,407	256	167,947	244
EXGNSND_WIND_1	JIM HOGG	76.0	SOUTH	S	SOUTH	305,739	771	301,783	856
EXGNWTL_WIND_1	WEBB	92.0	SOUTH	S	SOUTH	248,084	633	252,275	743
FERM_WIND1	VAL VERDE	121.9	WEST	S	WEST	262,569	496	116,608	509
FERM_WIND2	VAL VERDE	27.4	WEST	S	WEST	74,639	169	31,960	171
FLTCK_SSI	ERATH	60.0	NORTH	N	NORTH	174,699	236	145,728	213
GOAT_GOATWIND	STERLING	149.6	WEST	W	WEST	426,248	629	416,701	644
GPASTURE_WIND_1	KNOX	150.0	WEST	W	WEST	586,735	988	533,381	918
GRANDVW1_COLA	CARSON	100.2	PANHANDLE	W	PANHANDLE	457,478	845	420,025	747
GRANDVW1_COLB	CARSON	100.2	PANHANDLE	W	PANHANDLE	455,860	844	418,163	747
GRANDVW1_GV1A	CARSON	107.4	PANHANDLE	W	PANHANDLE	472,525	878	426,381	781
GRANDVW1_GV1B	CARSON	103.8	PANHANDLE	W	PANHANDLE	451,426	841	408,721	753
GUNMTR_G1	HOWARD	119.9	WEST	W	WEST	472,641	828	501,261	897
GWEC_GWEC_G1	MILLS	148.6	NORTH	N	NORTH	599,647	1,176	560,984	1,118
H_HOLLOW_WIND1	TAYLOR	213.0	WEST	W	WEST	715,970	1,318	651,528	1,228
HHOLLOW2_WIND1	TAYLOR	184.0	WEST	W	WEST	539,428	661	478,612	608
HHOLLOW3_WIND_1	TAYLOR	223.5	WEST	W	WEST	694,102	1,134	622,492	1,055
HHOLLOW4_WIND1	TAYLOR	115.0	WEST	W	WEST	376,640	400	339,275	373
HORSECRK_UNIT1	HASKELL	131.1	WEST	W	WEST	555,981	954	479,533	895
HORSECRK_UNIT2	HASKELL	98.9	WEST	W	WEST	413,851	716	354,384	670
HRFDWIND_JRDWIND1	CASTRO	146.2	PANHANDLE	W	PANHANDLE	517,117	848	467,714	750
HRFDWIND_JRDWIND2	CASTRO	153.6	PANHANDLE	W	PANHANDLE	534,294	885	482,812	782
HRFDWIND_WIND_G	DEAF SMITH	99.9	PANHANDLE	W	PANHANDLE	363,025	575	328,276	507
HRFDWIND_WIND_V	DEAF SMITH	100.0	PANHANDLE	W	PANHANDLE	453,733	812	411,911	712
HWF_HWF_G1	SHACKELFORD	165.5	WEST	W	WEST	484,504	899	436,514	830
INDL_INADALE1	NOLAN	197.0	WEST	W	WEST	574,398	800	506,888	724
INDNENR_INDENR	PECOS	84.0	WEST	W	WEST	213,000	374	212,078	396
INDNENR_INDENR_2	PECOS	76.5	WEST	W	WEST	184,197	325	183,588	347
INDNWP_INDNNWP	PECOS	82.5	WEST	W	WEST	176,465	319	175,553	341
KEECHIU1	JACK	110.0	NORTH	N	NORTH	477,208	853	432,943	801
KEO_KEO_SM1	PECOS	150.0	WEST	W	WEST	355,540	768	355,245	817
KEO_SHRBINO2	PECOS	150.0	WEST	W	WEST	418,693	907	402,726	962
KING_NE_KINGNE	UPTON	79.3	WEST	W	WEST	117,340	183	113,588	194
KING_NW_KINGNW	UPTON	79.3	WEST	W	WEST	152,006	292	151,404	308
KING_SE_KINGSE	UPTON	40.3	WEST	W	WEST	63,496	98	61,525	104
KING_SW_KINGSW	UPTON	79.3	WEST	W	WEST	143,362	247	142,713	261
LGD_LANGFORD	TOM GREEN	150.0	WEST	W	WEST	521,212	895	513,691	918
LGW_UNIT1	COMANCHE	103.8	NORTH	N	NORTH	368,206	695	337,558	656
LGW_UNIT2	COMANCHE	106.3	NORTH	N	NORTH	347,292	665	318,023	631
LHORN_N_UNIT1	BRISCOE	100.0	PANHANDLE	W	PANHANDLE	385,861	638	379,581	595
LHORN_N_UNIT2	BRISCOE	100.0	PANHANDLE	W	PANHANDLE	394,624	661	388,177	616
LNCRK_G83	SHACKELFORD	200.0	WEST	W	WEST	596,798	967	528,607	898
LNCRK2_G871	SHACKELFORD	100.0	WEST	W	WEST	314,958	537	280,074	494
LNCRK2_G872	SHACKELFORD	100.0	WEST	W	WEST	312,444	530	278,817	489
LONEWOLF_G1	MITCHELL	49.5	WEST	W	WEST	149,569	252	135,213	235

Table 3-1: Summary of Annual Power Production for All Wind Farms Operated for more than a Year (Cont.)

Wind Unit Name	County	Capacity (MW)	ERCOT Wind Zone	CM Zone	Final Wind Zone	Wind Power for 2008 Predicted		Wind Power for 2017 Measured	
						Annual (MWh/yr)	OSD (MWh/day)	Annual (MWh/yr)	OSD (MWh/day)
LONEWOLF_G2	MITCHELL	51.0	WEST	W	WEST	148,844	231	133,815	216
LONEWOLF_G3	MITCHELL	26.0	WEST	W	WEST	81,728	137	73,704	127
LONEWOLF_G4	MITCHELL	24.0	WEST	W	WEST	72,147	114	64,831	106
LV1_LV1A	WILLACY	200.1	COASTAL	S	COASTAL	649,359	1,425	661,828	1,703
LV1_LV1B	WILLACY	201.6	COASTAL	S	COASTAL	582,136	1,267	596,575	1,539
LV3_UNIT_1	STARR	200.0	SOUTH	S	SOUTH	677,176	1,721	657,861	1,977
LV4_UNIT_1	STARR	200.0	SOUTH	S	SOUTH	732,208	1,761	738,176	1,976
LV5_UNIT_1	STARR	110.0	SOUTH	S	SOUTH	377,427	944	385,757	1,101
MARIAH_NORTE1	PARMER	115.2	PANHANDLE	W	PANHANDLE	474,563	826	411,554	736
MARIAH_NORTE2	PARMER	115.2	PANHANDLE	W	PANHANDLE	478,592	849	403,179	750
MCDLD_FCW1	STERLING	124.2	WEST	W	WEST	428,826	643	386,746	598
MCDLD_SBW1	STERLING	90.0	WEST	W	WEST	193,254	230	176,233	217
MESQCRK_WND1	BORDEN	105.6	WEST	W	WEST	365,877	519	358,153	503
MESQCRK_WND2	BORDEN	105.6	WEST	W	WEST	341,475	559	333,919	536
MIAMI_G1	GRAY	144.3	PANHANDLE	W	PANHANDLE	631,539	1,149	580,743	1,038
MIAMI_G2	GRAY	144.3	PANHANDLE	W	PANHANDLE	605,857	1,142	553,487	1,027
MIRASOLE_MIR11	HIDALGO	52.0	SOUTH	S	SOUTH	180,702	442	183,043	517
MIRASOLE_MIR12	HIDALGO	98.0	SOUTH	S	SOUTH	349,378	837	353,881	982
MIRASOLE_MIR21	HIDALGO	100.0	SOUTH	S	SOUTH	343,273	831	348,323	981
MOZART_WIND_1	KENT	30.0	WEST	W	WEST	80,067	128	78,709	124
MWEC_G1	DICKENS	150.0	PANHANDLE	W	PANHANDLE	564,208	872	500,195	829
NWF_NWF1	ECTOR	153.0	WEST	W	WEST	398,435	787	422,132	836
OWF_OW1	HOWARD	58.8	WEST	W	WEST	159,539	229	144,250	216
PAP1_PAP1	SAN PATRICK	180.0	COASTAL	S	COASTAL	512,085	1,086	510,702	1,247
PC_NORTH_PANTHER1	HOWARD	142.5	WEST	W	WEST	534,110	778	478,839	739
PC_SOUTH_PANTHER2	HOWARD	115.5	WEST	W	WEST	422,715	644	374,845	605
PC_SOUTH_PANTHER3	HOWARD	199.5	WEST	W	WEST	672,692	1,027	608,874	957
PENA_UNIT1	KENEDY	161.0	COASTAL	S	COASTAL	442,109	971	454,302	1,194
PENA_UNIT2	KENEDY	142.0	COASTAL	S	COASTAL	398,644	876	408,720	1,063
PENA3_UNIT3	KENEDY	101.0	COASTAL	S	COASTAL	244,647	543	250,747	671
PH1_UNIT1	CARSON	109.2	PANHANDLE	W	PANHANDLE	437,886	797	396,514	706
PH1_UNIT2	CARSON	109.2	PANHANDLE	W	PANHANDLE	418,601	752	380,222	668
PH2_UNIT1	CARSON	94.2	PANHANDLE	W	PANHANDLE	430,122	892	392,363	798
PH2_UNIT2	CARSON	96.6	PANHANDLE	W	PANHANDLE	435,422	915	396,091	818
PYR_PYRON1	SCURRY	249.0	WEST	W	WEST	799,978	1,134	712,621	1,084
RDCANY_ON_RDCNY1	BORDEN	84.0	WEST	W	WEST	292,689	300	269,276	286
REDFISH_MV1A	WILLACY	100.8	COASTAL	S	COASTAL	329,879	755	333,567	894
REDFISH_MV1B	WILLACY	100.8	COASTAL	S	COASTAL	336,753	785	342,618	932
ROUTE_66_WIND1	ARMSTRONG	150.0	PANHANDLE	W	PANHANDLE	601,747	1,343	564,319	1,222
RSNAKE_G1	GLASSCOCK	104.3	WEST	W	WEST	471,318	849	434,247	799
RSNAKE_G2	GLASSCOCK	103.0	WEST	W	WEST	459,332	826	424,178	779
SALTFORK_UNIT1	DONLEY	64.0	PANHANDLE	W	PANHANDLE	279,811	474	253,154	422
SALTFORK_UNIT2	DONLEY	110.0	PANHANDLE	W	PANHANDLE	489,239	812	441,031	722
SANROMAN_WIND_1	CAMERON	95.2	COASTAL	S	COASTAL	319,331	680	321,293	798
SENATEWIND_UNIT1	JACK	150.0	NORTH	N	NORTH	547,141	913	492,736	857
SGMTN_SIGNALMT	HOWARD	41.0	WEST	W	WEST	61,306	86	54,852	80
SHANNONWV_UNIT_1	CLAY	204.1	WEST	W	WEST	763,066	1,192	676,834	1,123
SPLAIN1_WIND1	FLOYD	102.0	PANHANDLE	W	PANHANDLE	354,046	649	349,208	610
SPLAIN1_WIND2	FLOYD	98.0	PANHANDLE	W	PANHANDLE	352,195	668	347,376	629
SPLAIN2_WIND21	FLOYD	148.5	PANHANDLE	W	PANHANDLE	544,718	866	535,356	810
SPLAIN2_WIND22	FLOYD	151.8	PANHANDLE	W	PANHANDLE	571,316	890	561,602	831
SRWE1_SRWE2	BORDEN	164.7	WEST	W	WEST	596,109	874	588,333	833
SRWE1_UNIT1	BORDEN	211.2	WEST	W	WEST	780,999	1,228	770,843	1,172
SSPURTW2_SS3WIND1	OLDHAM	96.0	PANHANDLE	W	PANHANDLE	430,997	911	394,776	818
SSPURTW2_SS3WIND2	OLDHAM	98.0	PANHANDLE	W	PANHANDLE	458,251	1,023	415,953	929
SSPURTW2_WIND_1	OLDHAM	161.0	PANHANDLE	W	PANHANDLE	653,961	1,427	596,082	1,280
STWF_T1	TAYLOR	101.2	WEST	W	WEST	360,277	581	321,980	538
SW_MESA_SW_MESA	UPTON	74.6	WEST	W	WEST	143,731	253	143,160	288
SWEC_G1	MARTIN	120.0	WEST	W	WEST	355,244	508	384,381	554
SWEETWIND2_WIND2	NOLAN	97.5	WEST	W	WEST	294,266	560	257,945	534
SWEETWIND2_WIND24	NOLAN	16.0	WEST	W	WEST	54,615	80	46,816	76
SWEETWIND3_WIND3A	NOLAN	135.0	WEST	W	WEST	440,326	676	390,975	642
SWEETWIND4_WIND4A	NOLAN	135.0	WEST	W	WEST	371,639	539	328,742	496
SWEETWIND4_WIND4B	NOLAN	105.8	WEST	W	WEST	345,688	493	308,832	456
SWEETWIND4_WIND5	NOLAN	80.5	WEST	W	WEST	257,437	371	229,763	343
SWEETWIND_WIND1	NOLAN	37.5	WEST	W	WEST	109,729	218	96,998	207
TGW_T1	KENEDY	141.6	COASTAL	S	COASTAL	355,800	796	362,286	968
TGW_T2	KENEDY	141.6	COASTAL	S	COASTAL	399,427	903	410,072	1,092
TKWSW1_ROSCOE	SCURRY	209.0	WEST	W	WEST	620,873	775	553,655	711
TRENT_TRENT	NOLAN	150.0	WEST	W	WEST	451,144	719	402,932	667
TRINITY_TH1_BUS1	YOUNG	117.5	WEST	W	WEST	346,775	556	307,276	522
TRINITY_TH1_BUS2	YOUNG	107.5	WEST	W	WEST	335,139	512	297,299	470
TWEC_G1	NOLAN	169.5	WEST	W	WEST	555,453	811	496,370	755
TYLRWIND_UNIT1	COOKE	125.6	NORTH	N	NORTH	451,720	707	417,123	669
VERTIGO_WIND_1	KNOX	150.0	WEST	W	WEST	562,782	935	512,595	868
WAKEWE_G1	DICKENS	114.9	PANHANDLE	W	PANHANDLE	526,271	896	519,298	848
WAKEWE_G2	DICKENS	142.3	PANHANDLE	W	PANHANDLE	644,718	1,084	635,995	1,025
WEC_WECG1	FLOYD	60.0	PANHANDLE	W	PANHANDLE	198,667	346	194,887	327
WHITTAL_WR1	COOKE	112.5	NORTH	N	NORTH	375,769	594	346,772	564
WINDTHST2_UNIT1	ARCHER	67.6	WEST	W	WEST	255,269	438	231,418	412
WOODWRD1_WOODWRD1	PECOS	82.5	WEST	W	WEST	172,665	287	171,498	308
WOODWRD2_WOODWRD2	PECOS	77.2	WEST	W	WEST	148,408	263	147,563	282
<b>TOTAL</b>		19714.1				66,242,675	118,624	61,318,323	117,729

Table 3-2: Summary of 2008 and 2017 Monthly Average Wind Speed for Six NOAA Weather Stations

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average	OSP Average	
Wind Speed ABI (mph)	2008	12.1	12.3	13.4	13.9	12.8	13.7	10.6	7.4	8.0	10.5	10.2	12.2	11.4	8.7
	2017	10.4	11.2	13.0	13.5	11.6	10.7	9.2	7.9	9.5	11.1	10.2	9.1	10.6	8.3
Wind Speed AMA (mph)	2008	14.8	13.0	15.0	16.2	15.5	16.1	12.9	10.5	11.0	12.3	12.6	13.8	13.7	11.1
	2017	12.3	13.4	14.3	15.9	13.4	13.2	11.4	9.6	12.0	14.0	12.8	11.8	12.8	10.4
Wind Speed FST (mph)	2008	10.3	11.0	12.1	11.9	12.7	13.5	11.3	8.1	8.2	10.5	9.2	9.7	10.7	8.6
	2017	10.6	11.2	11.8	13.1	12.2	11.1	11.0	8.4	11.2	10.8	9.4	9.0	10.8	9.1
Wind Speed LBB (mph)	2008	12.8	12.7	15.0	14.4	13.0	14.2	10.5	8.7	7.7	10.5	10.6	12.1	11.8	8.9
	2017	12.0	12.9	13.6	14.6	13.8	12.3	10.0	8.2	10.4	11.8	11.5	10.5	11.8	8.7
Wind Speed MAF (mph)	2008	9.3	10.8	12.4	12.0	12.8	13.9	11.2	8.1	6.7	9.1	8.3	10.0	10.4	8.7
	2017	10.9	11.1	12.3	13.6	13.1	11.5	10.8	8.7	10.7	10.8	9.8	9.3	11.0	9.0
Wind Speed SJT (mph)	2008	9.0	10.6	11.5	11.0	10.3	11.9	8.6	6.3	5.3	7.8	8.2	10.5	9.2	7.0
	2017	10.0	9.9	10.7	11.7	10.0	8.6	7.5	7.3	7.7	8.8	9.0	8.6	9.1	7.1

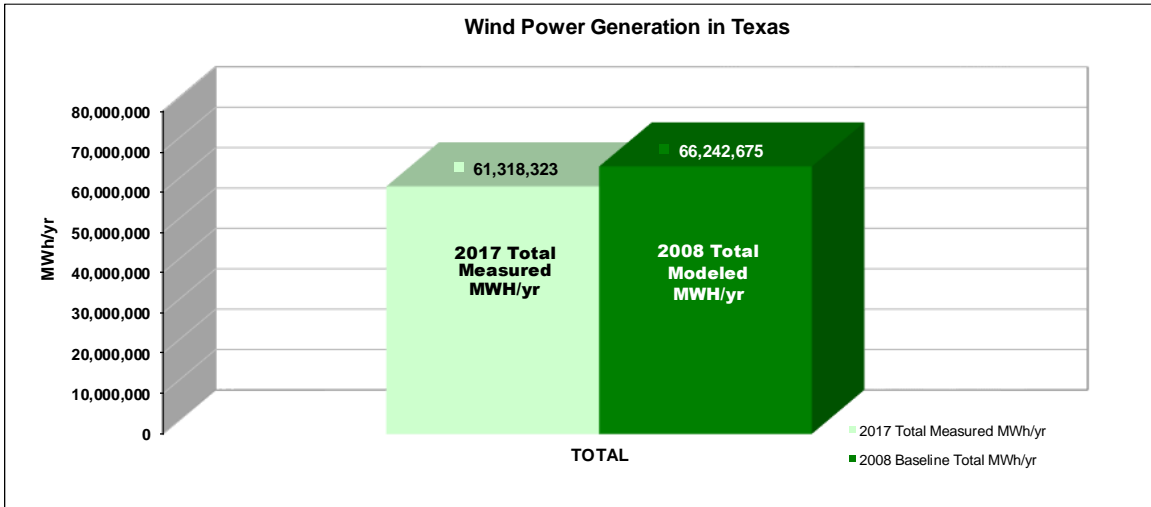


Figure 3-4: Comparison of Total 2017 Measured and 2018 Modeled Power Production

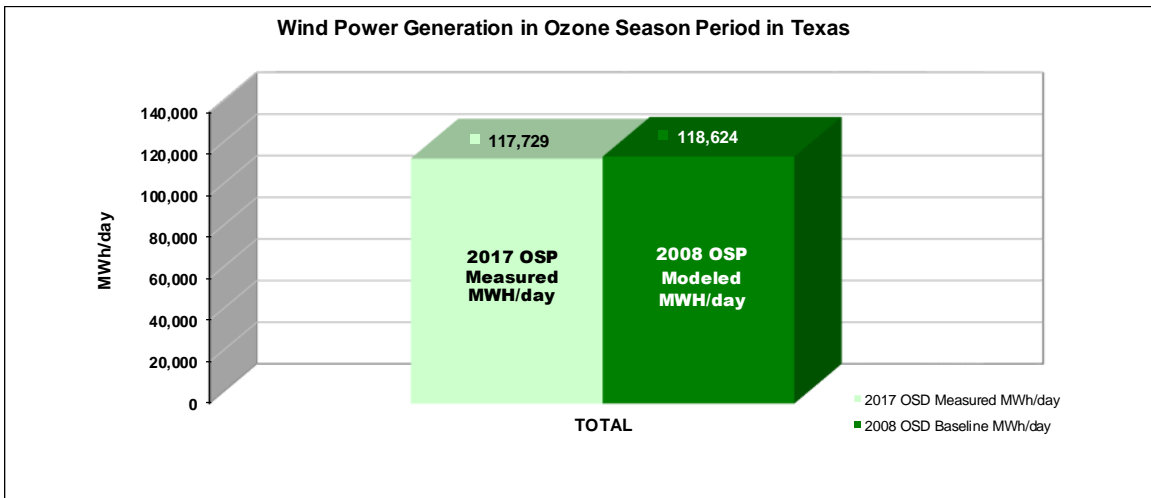


Figure 3-5: Comparison of Total 2017 OSP Measured and 2018 OSP Modeled Power Production



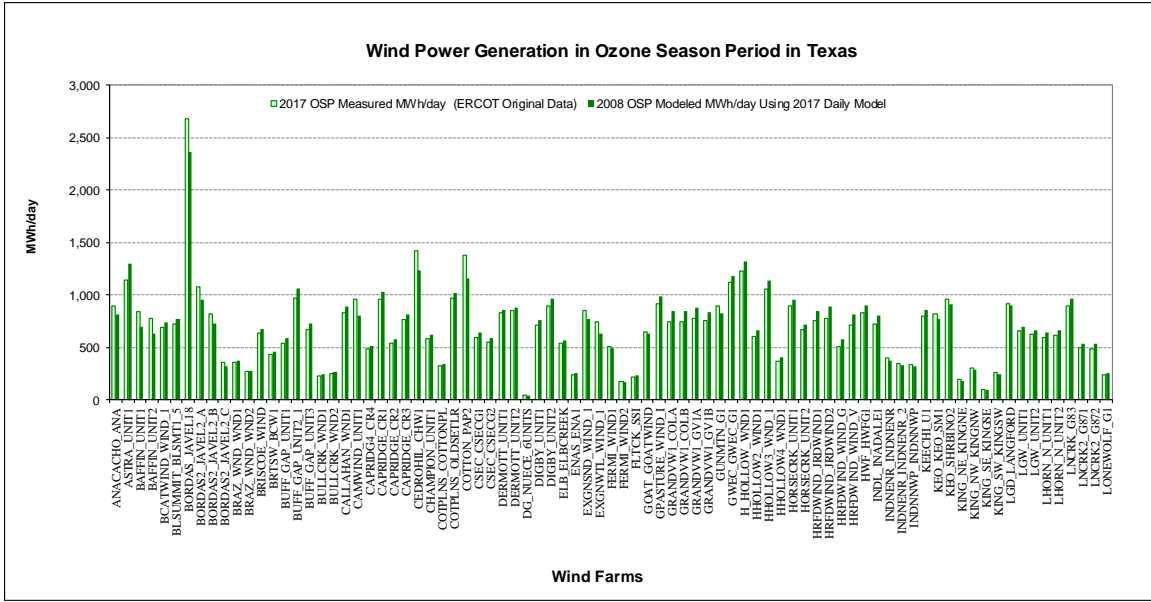


Figure 3-7: Comparison of 2017 OSP Measured and 2018 OSP Modeled Wind Power Production for Each Wind Farm

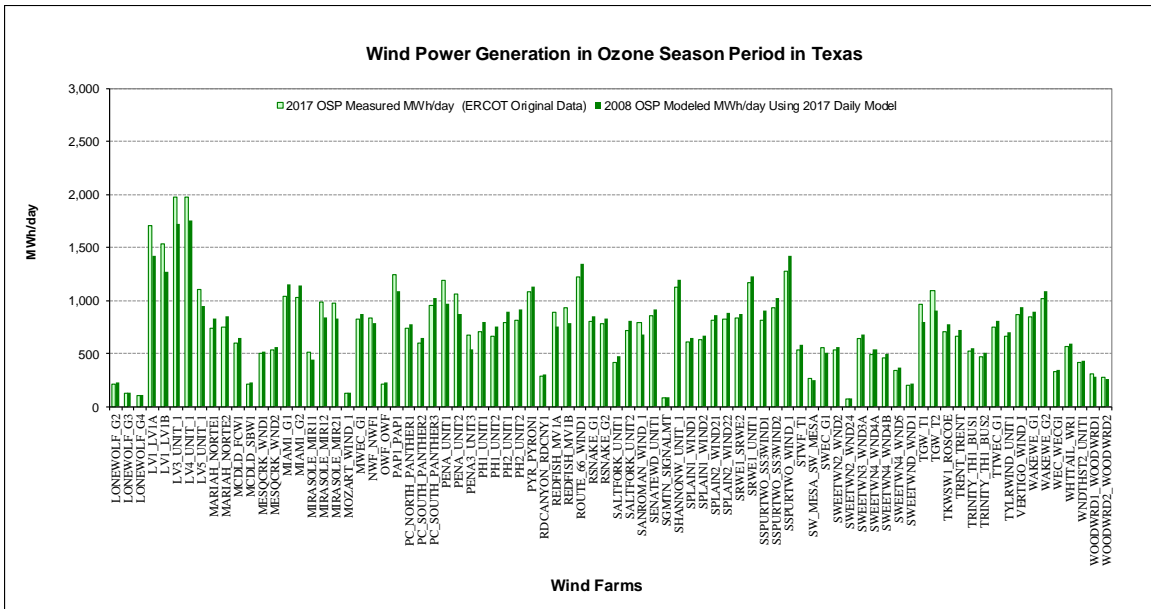


Figure 3-6: Comparison of 2017 OSP Measured and 2018 OSP Modeled Wind Power Production for Each Wind Farm (Cont.)

### 3.3 Comparison of Measured Wind Power in Previous Reports and Present Report

Different from the previous annual reports, since 2012 the reports have used a 2008 base year instead of the 1999 base year. The daily model is used for predicting the annual and OSP wind power productions. Due to the different base year analysis, this section only compares the ERCOT measured annual and OSP wind power productions. Compared to what was reported in the previous year’s annual report, an increase of 22.6% on measured annual wind production was observed, from 50,023,889 MWh/yr in 2016 to 61,318,323 MWh/yr in 2017.

The average daily wind power production during the OSP showed an increase of 3%, from 113,946 MWh/day to 117,729 MWh/day. Table 3-3 shows the average NOAA monthly wind speed for the main six weather stations used in the analysis.

Figure 3-8 shows the measured annual wind power comparison of 2008 through 2017 for all the wind farms. Figure 3-9 shows the wind power comparison of 2008 through 2017 during the ozone season. The annual wind power difference percentages are compared for 2008 through 2017, shown in Figure 3-10 and Figure. It has been observed that most of the analyzed wind farms show differences in percentage between 2016 and 2017. This is due to the differences wind speed values resulted in different power generation values. In addition, Figure 3-11 shows the difference comparison of 2008 through 2017 measured data during the ozone season.

Table 3-3: Comparisons of NOAA Wind and ERCOT West Zone Wind Speed for 2008 - 2017

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average	OSP Average	
Wind Speed ABI (mph)	2008	12.1	12.3	13.4	13.9	12.8	13.7	10.6	7.4	8.0	10.5	10.2	12.2	11.4	8.7
	2009	10.6	12.9	13.3	14.9	10.1	11.3	8.9	9.6	8.6	10.7	8.4	8.9	10.7	8.9
	2010	10.5	9.9	13.2	13.7	10.7	11.5	9.2	8.3	8.9	8.3	11.8	10.0	10.5	8.9
	2011	9.0	11.3	12.3	13.9	13.9	14.6	10.1	9.2	7.4	10.6	11.7	9.5	11.1	9.0
	2012	11.0	11.4	11.9	11.6	11.9	11.4	9.2	8.8	9.5	9.8	9.9	10.7	10.6	9.0
	2013	9.1	11.4	12.6	14.2	13.2	11.3	8.8	8.5	8.0	10.1	10.5	9.1	10.6	8.2
	2014	11.2	10.6	12.7	13.9	12.1	14.3	10.1	9.6	9.2	10.2	12.3	10.6	11.4	10.1
	2015	9.3	11.1	9.0	11.7	11.9	10.1	10.6	9.5	9.4	9.3	11.2	10.8	10.3	9.9
Wind Speed AMA (mph)	2016	9.4	10.9	12.6	11.5	11.8	9.2	12.1	9.2	8.6	10.8	9.7	10.1	10.5	9.7
	2017	10.4	11.2	13.0	13.5	11.6	10.7	9.2	7.9	9.5	11.1	10.2	9.1	10.6	8.3
	2008	14.8	13.0	15.0	16.2	15.5	16.1	12.9	10.5	11.0	12.3	12.6	13.8	13.7	11.1
	2009	12.3	13.4	14.3	15.9	13.4	13.2	11.4	9.6	12.0	14.0	12.8	11.8	12.8	10.4
	2010	10.3	11.0	12.1	11.9	12.7	13.5	11.3	8.1	8.2	10.5	9.2	9.7	10.7	8.6
	2011	9.5	11.3	9.6	12.5	10.1	8.4	9.3	9.4	8.1	10.5	9.0	8.6	9.7	8.7
	2012	10.3	10.9	12.7	12.5	12.8	11.8	11.1	9.0	8.9	9.2	9.8	9.1	10.7	9.7
	2013	9.6	10.9	10.7	12.3	11.9	13.8	11.5	10.3	8.9	10.6	10.8	8.6	9.7	10.2
Wind Speed FST (mph)	2014	9.8	10.5	12.2	11.6	11.2	12.5	9.7	8.9	8.7	9.3	9.0	10.0	10.3	9.1
	2015	9.0	11.3	11.4	11.5	11.8	13.0	10.6	10.1	10.0	10.4	10.3	9.4	10.8	10.1
	2016	10.4	10.2	11.3	12.3	11.9	14.8	12.0	9.3	10.0	9.2	10.9	9.0	10.9	10.1
	2017	8.7	10.4	8.5	11.2	12.0	12.3	11.1	10.1	10.2	9.4	10.0	10.7	10.4	10.3
	2008	9.5	9.9	11.0	11.1	12.3	11.5	12.0	9.0	10.0	9.5	9.2	8.5	10.3	10.3
	2009	10.6	11.2	11.8	13.1	12.2	11.1	11.0	8.4	11.2	10.8	9.4	9.0	10.8	9.1
	2010	12.8	12.7	15.0	14.4	13.0	14.2	10.5	8.7	7.7	10.5	10.6	12.1	11.8	8.9
	2011	11.3	12.8	14.1	15.5	11.7	11.2	9.8	10.4	9.2	11.5	9.7	9.4	11.4	9.4
Wind Speed LBB (mph)	2012	10.6	10.5	14.2	15.4	13.6	13.1	9.9	8.9	9.6	9.3	11.4	10.6	11.4	9.6
	2013	10.1	12.5	12.2	15.0	14.4	15.7	10.6	9.8	9.0	11.2	11.9	10.8	11.9	9.7
	2014	12.4	13.2	13.2	13.5	12.8	13.1	10.0	9.6	9.1	10.8	10.7	11.8	11.7	9.5
	2015	10.4	12.5	12.9	14.2	14.0	14.2	10.9	9.2	10.0	11.2	11.6	10.4	11.8	9.3
	2016	12.5	11.6	14.5	15.3	13.6	14.9	11.0	9.9	10.3	9.9	11.8	10.9	12.2	10.6
	2017	10.6	12.0	9.4	13.4	13.2	11.3	10.8	9.9	10.1	10.6	12.2	12.2	11.3	10.2
	2008	10.3	11.9	14.4	12.9	13.5	11.4	12.4	9.8	10.2	11.1	10.8	11.5	11.7	10.6
	2009	12.0	12.9	13.6	14.6	13.8	12.3	10.0	8.2	10.4	11.8	11.5	10.5	11.8	8.7
Wind Speed MAF (mph)	2010	9.3	10.8	12.4	12.0	12.8	13.9	11.2	8.1	6.7	9.1	8.3	10.0	10.4	8.7
	2011	9.5	11.3	11.0	13.4	10.6	10.2	8.2	8.3	8.1	10.1	7.5	8.4	9.7	8.0
	2012	9.1	9.9	13.0	13.0	12.2	12.0	10.4	9.3	9.1	8.8	10.0	9.3	10.5	9.7
	2013	8.6	10.8	11.4	13.8	13.1	14.1	10.6	9.6	8.9	10.4	10.8	10.4	11.0	9.9
	2014	10.2	11.9	11.9	12.0	11.5	12.5	10.1	9.8	9.9	9.8	8.7	10.0	10.7	9.9
	2015	9.1	11.2	11.9	13.1	13.7	13.9	10.9	10.2	10.0	10.2	10.2	9.3	11.1	10.1
	2016	11.2	10.7	13.0	13.7	12.1	15.6	11.7	9.9	10.8	9.7	11.4	10.4	11.7	10.9
	2017	9.6	11.0	8.8	12.3	12.7	11.7	10.7	9.7	9.7	9.7	10.9	10.3	10.6	9.9
Wind Speed SJJ (mph)	2018	9.4	9.8	12.1	12.2	13.4	10.9	12.3	10.1	10.2	9.9	9.7	10.0	10.9	10.7
	2008	10.9	11.1	12.3	13.6	13.1	11.5	10.8	8.7	10.7	10.8	9.8	9.3	11.0	9.0
	2009	9.0	10.6	11.5	11.0	10.3	11.9	8.6	6.3	5.3	7.8	8.2	10.5	9.2	7.0
	2010	9.1	10.1	10.9	12.0	8.7	9.0	7.7	7.4	7.2	9.3	7.0	7.6	8.8	7.3
	2011	8.4	9.2	11.1	10.6	9.2	10.3	8.2	7.4	7.7	6.3	9.1	8.8	8.9	7.9
	2012	7.9	10.4	10.4	12.5	11.6	12.3	9.0	7.9	7.5	8.7	9.6	8.5	9.7	8.2
	2013	9.6	10.0	10.2	9.9	9.6	9.4	8.3	7.9	8.6	8.1	7.9	9.1	9.1	8.2
	2014	8.5	10.5	11.7	11.6	11.0	9.9	7.2	7.1	7.0	7.5	8.0	7.9	9.0	6.8
Wind Speed SJJ (mph)	2015	11.0	10.4	11.5	12.1	11.2	10.8	8.3	7.7	7.7	8.6	10.8	9.2	9.9	8.3
	2016	8.7	10.5	7.9	10.2	10.0	8.0	9.0	7.9	7.3	7.9	9.2	9.1	8.8	8.1
	2017	8.7	9.6	10.3	9.4	9.8	7.7	9.5	8.0	7.4	8.2	8.1	8.7	8.8	8.0
	2018	10.0	9.9	10.7	11.7	10.0	8.6	7.5	7.3	7.7	8.8	9.0	8.6	9.1	7.1

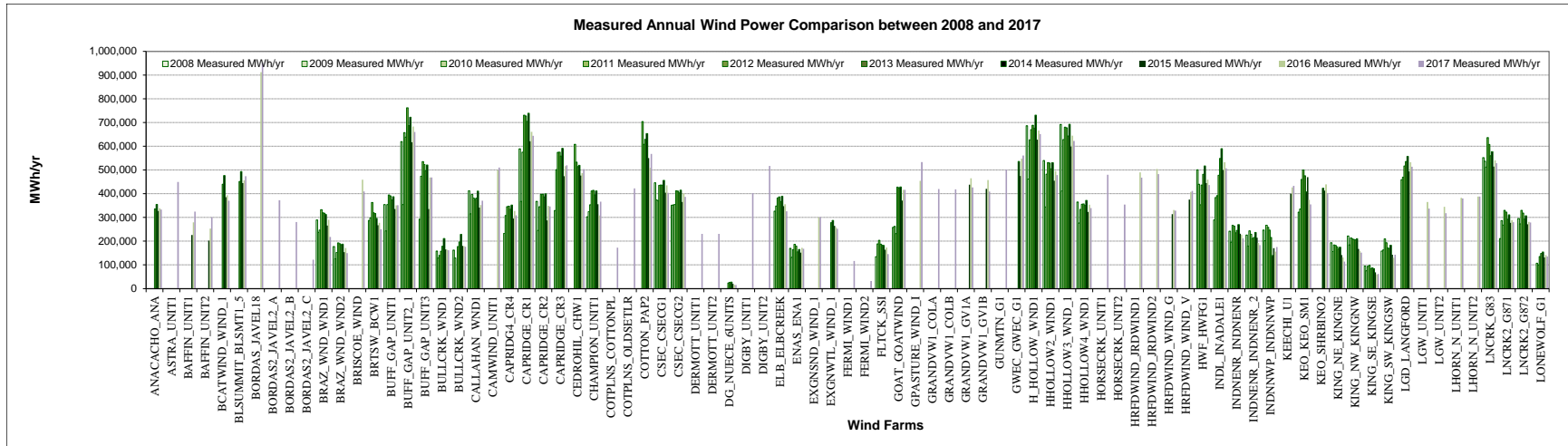


Figure 3-8: Measured Annual Wind Power Comparison between 2008 and 2017

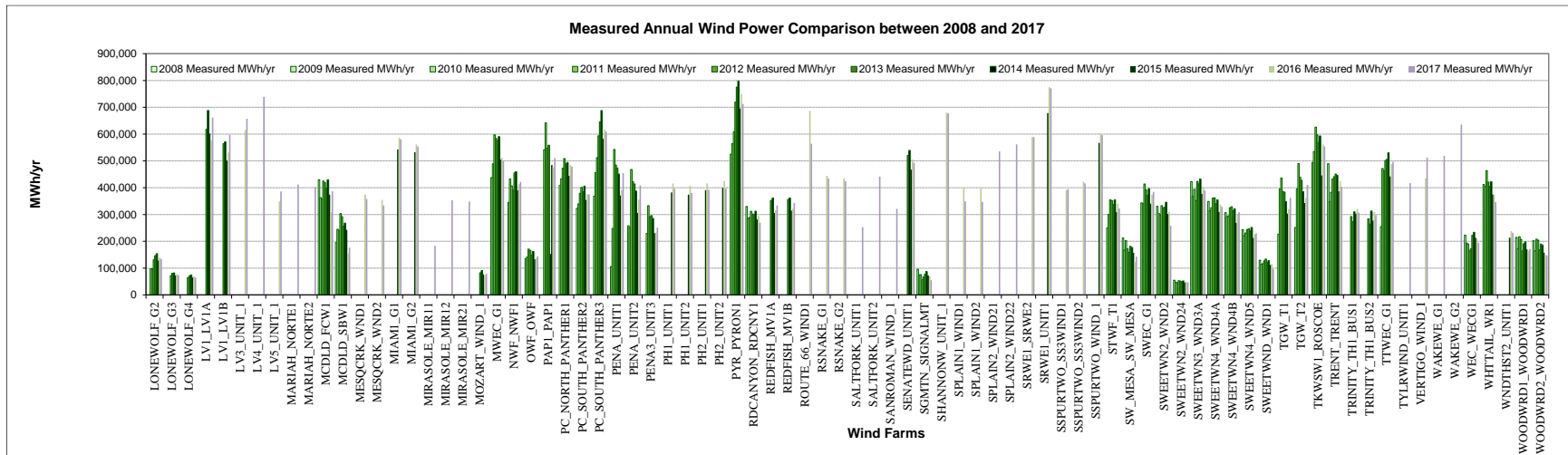


Figure 3-7: Measured Annual Wind Power Comparison between 2008 and 2017

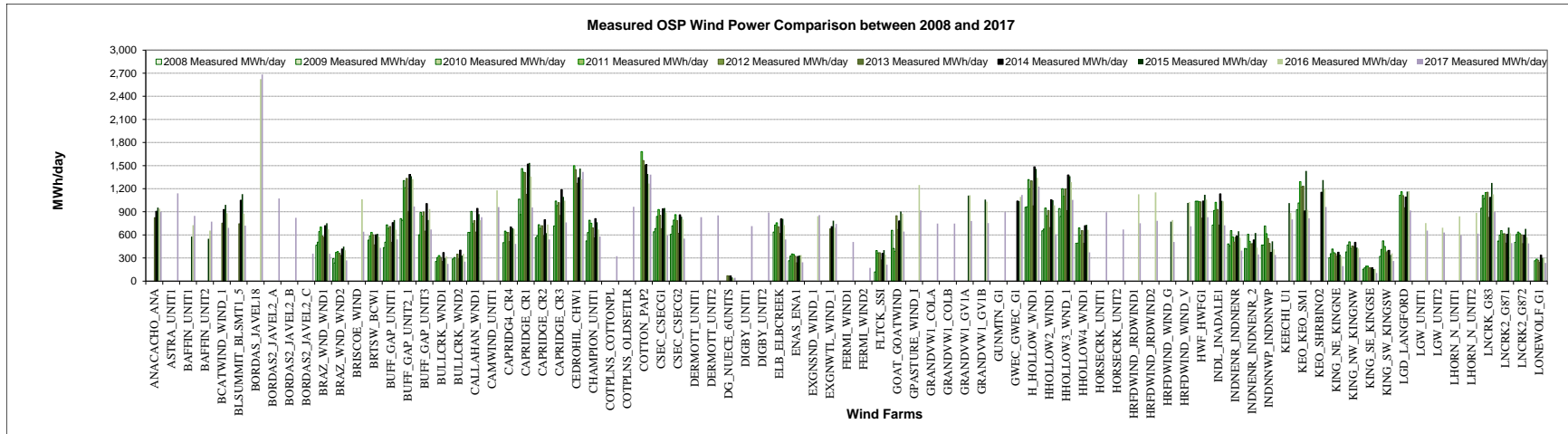


Figure 3-9: Measured OSP Wind Power Comparison between 2008 and 2017

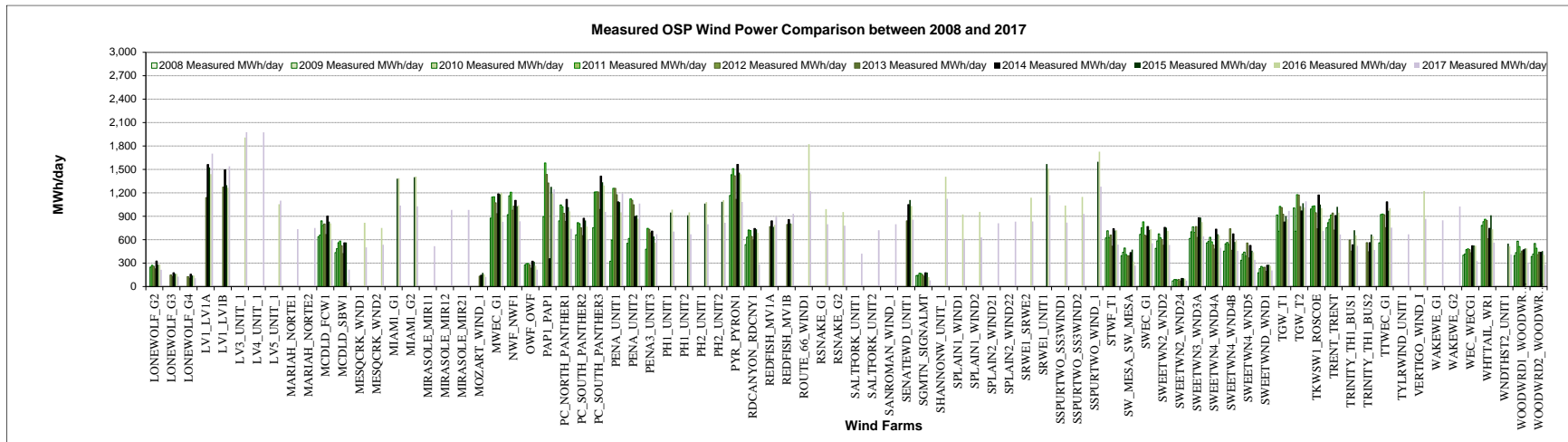


Figure 3-8: Measured OSP Wind Power Comparison between 2008 and 2017 (Cont.)



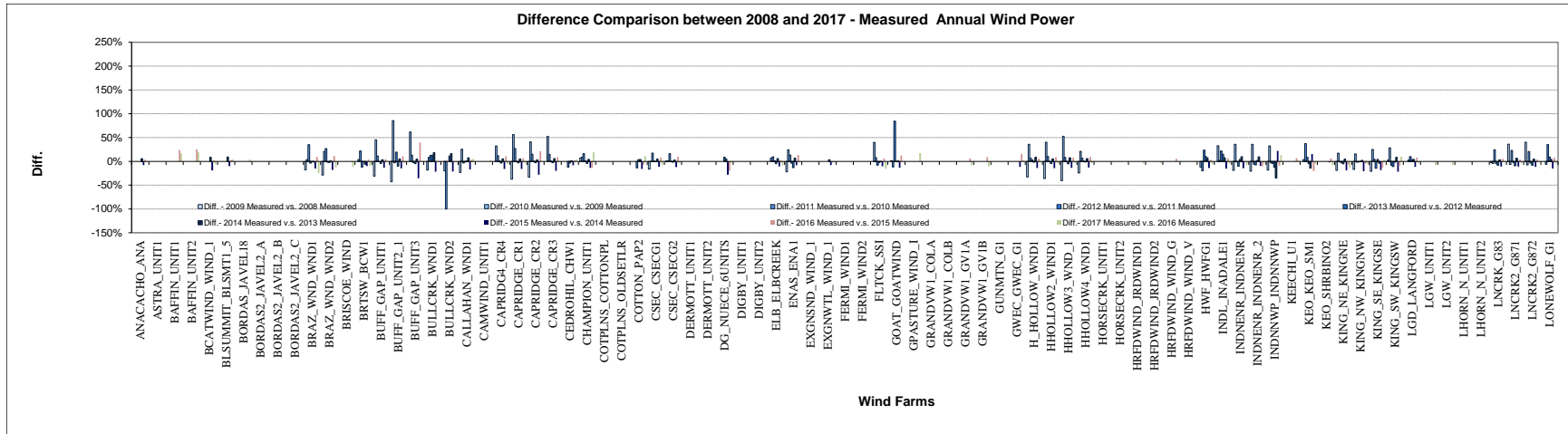


Figure 3-10: Difference Comparison between 2008 and 2017 - Measured Annual Wind Power

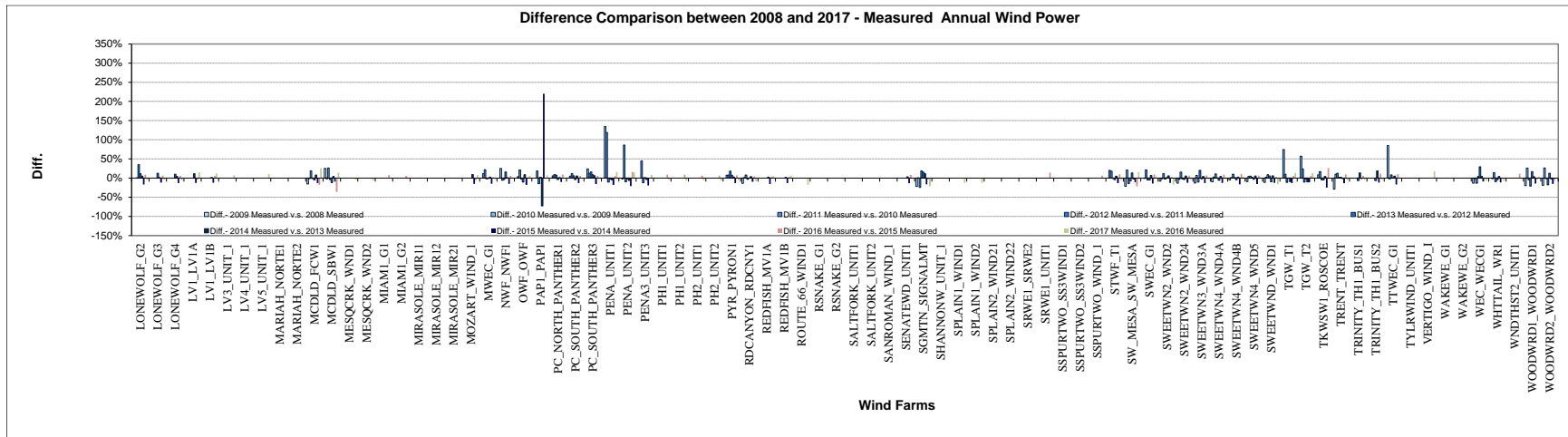


Figure 3-9: Difference Comparison between 2008 and 2017 - Measured Annual Wind Power (Cont.)

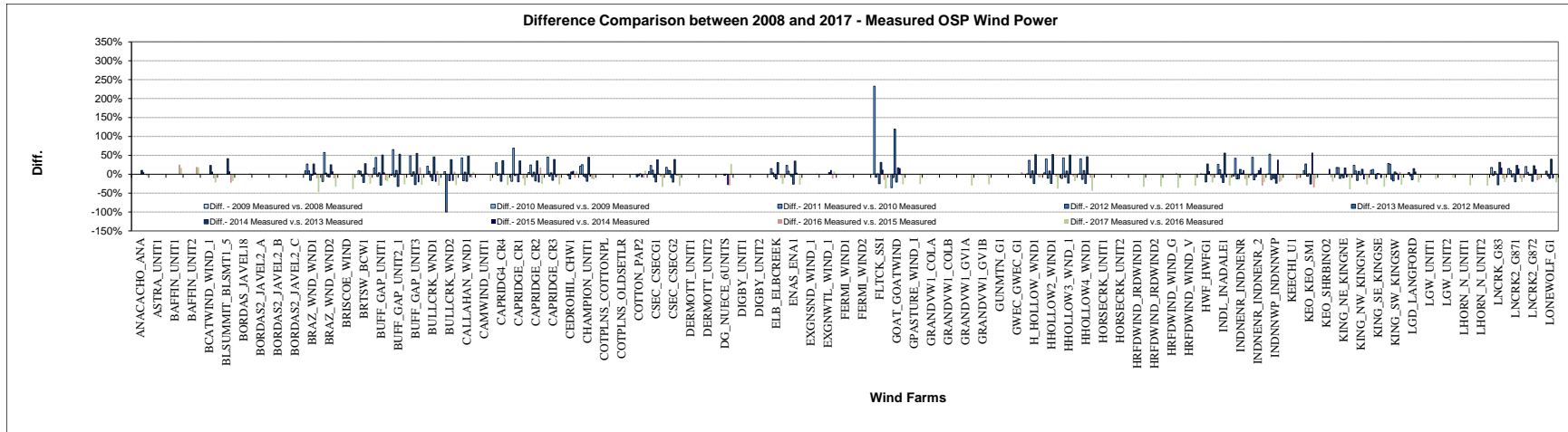


Figure 3-11: Difference Comparison between 2008 and 2017 - Measured OSP Wind Power

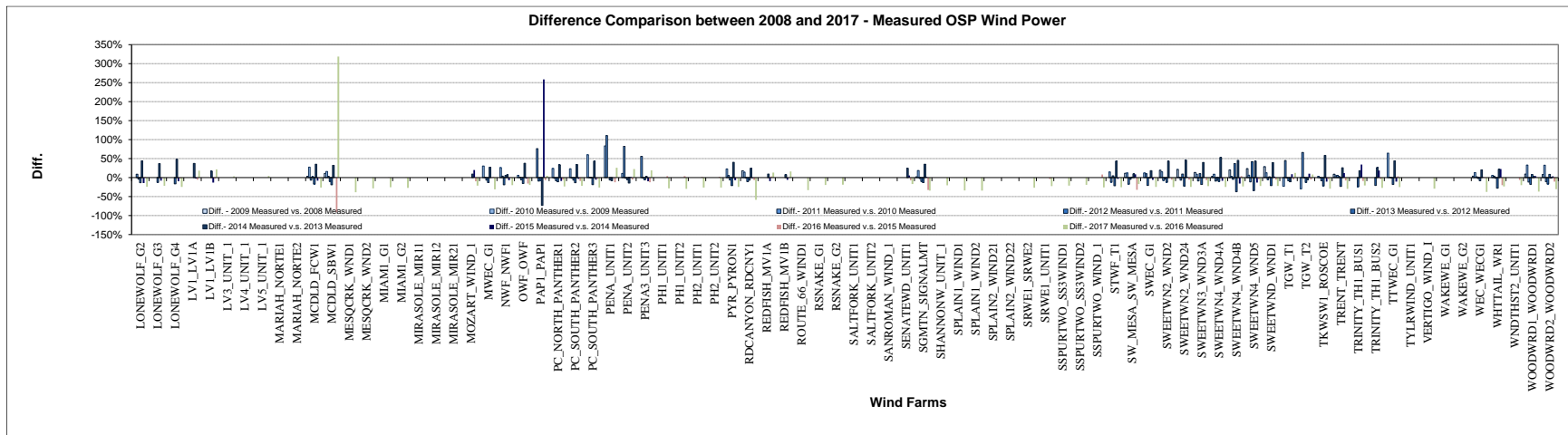


Figure 3-10: Difference Comparison between 2008 and 2017 - Measured OSP Wind Power (Cont.)

### 3.4 Uncertainty Analysis on the 2017 Daily Regression Models

One of the advantages of using regression models is that it allows for an uncertainty analysis to be calculated, which can be used to assess the accuracy of the model. This section of the report presents an updated uncertainty analysis for the daily regressions that were applied to the 2017 data.

Assuming that the daily energy production of wind farm data can be related linearly with the daily average wind speed (see Figure 3-12) and expressed as

$$\hat{E}_i = c_o + c_1 V_i \quad (1)$$

where  $V$  is the daily average wind speed,  $\hat{E}$  is the daily total energy production, and  $c_o$  and  $c_1$  are the resultant coefficients of a linear regression. The subscript  $i$  represents any day over the modeling period.

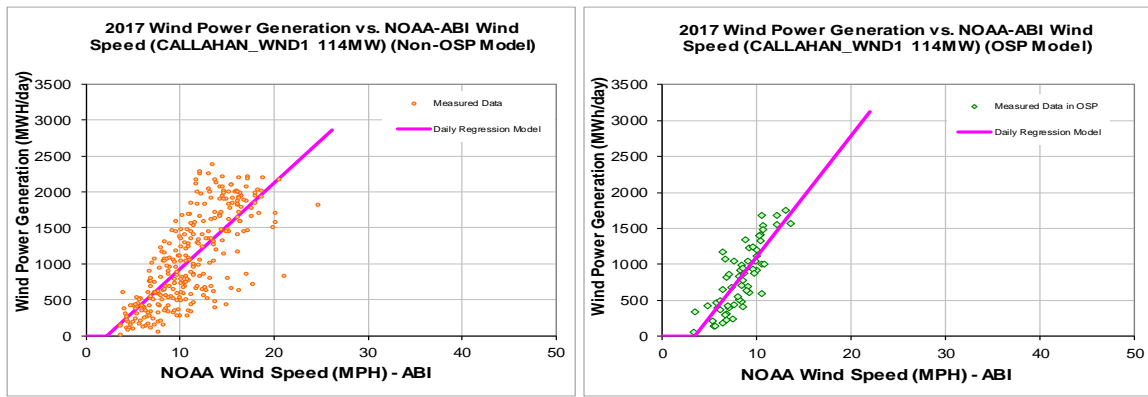


Figure 3-12: Linear Model Presentation of the Daily Wind Power Generation on the Year 2017 for Callahan Wind Farm

The primary purpose of modeling in this analysis is to back-cast the wind power production, or predict the power production in another year that would have occurred if the turbines had been installed and operating. This allows for the evaluation of the NOx reductions during the base-year weather conditions.

Unfortunately, any prediction intrinsically contains an uncertainty, which is related to the prediction variance. Thus, the prediction uncertainty,  $\sigma^2(\hat{E}_{pred,j})$ , assuming no autocorrelation effects in the data used to generate the linear model, can be presented for a particular observation,  $j$ , during any time a particular condition is presented as follows:

$$\sigma^2(\hat{E}_{pred,j}) = MSE(\hat{E}_i) \cdot \left[ 1 + \frac{1}{n} + \frac{(V_j - \bar{V}_n)^2}{\sum_{i=1}^n (V_i - \bar{V}_n)^2} \right] \quad (2)$$

The mean square error,  $MSE(\hat{E}_i)$ , during the period of the development of the linear model can be computed by:

$$MSE(\hat{E}_i) = \left[ \frac{1}{n - (k + 1)} \right] \sum_{i=1}^n (E_i - \hat{E}_i)^2 \quad (3)$$

Where  $n$  is the number of days in the period used for the developed model,  $k$  is the number of regressor variables in the linear model, and  $\bar{V}_n$  is the mean value of the velocity on the modeling period.

The last term in the brackets of the equation 2 accounts for the increase in the variance of the energy prediction for any particular observation,  $j$ , which is different from the centroid of the modeling data. On the other hand, the second term accounts for the variance in predicting the mean energy predicted for the observation,  $j$ .

The total uncertainty for a period of interest, of  $m$  days, is then the sum of all the wind energy predicted  $\hat{E}_{pred,j}$  in each individual observation.

Assuming that

$$\sum_{j=1}^m \sigma^2(\hat{E}_{pred,j}) = \sigma^2\left(\sum_{j=1}^m (\hat{E}_{pred,j})\right) = \sigma^2(\hat{E}_{pred,total}) \quad (4)$$

And the total prediction variance or uncertainty is obtained through

$$\sigma^2(\hat{E}_{pred,total}) = MSE(\hat{E}_i) \cdot m \cdot \left[ 1 + \frac{1}{n} + \frac{\sum_{j=1}^m (V_j - \bar{V}_n)^2}{m \sum_{i=1}^n (V_i - \bar{V}_n)^2} \right] \quad (5)$$

Thus, it is observable that the last equation is affected by the number of days that the wind energy will be predicted, the number of days used for the modeling development and the uncertainty due to the distances between the data predicted and the centroid of the modeling data. Therefore, increasing  $n$  and  $m$  yields an effective relative decrease in the uncertainty, which is expected.

Table 3-4 presents all the statistical parameters for the daily linear models of all the wind farms in the ERCOT region.

Table 3-5 and Figure 3-13 show the uncertainty of applying the linear models to predict the energy generation that they would have had in the 2008 Non-OSP using the N-OSP model, which considers the period of Jan 1 through July 14 and September 16 through December 31. The uncertainty of using Non-OSP models for predicting wind power in the 2008 N-OSP varies from 2.78% to 8.49%. The maximum uncertainty comes from a wind farm named FERMI\_WIND1. One reason for this may be the meter problems suspected when measuring the ERCOT data since the data include "0" generation values regardless of the wind speed. Also, wind speed can change significantly due to the elevation, wind mills distances, etc. In the current modeling, the average wind speed of NOAA is used for all the wind farms. Therefore, the average wind speed may not represent the real wind speed where the wind farms are located. The model uncertainty can come from the incorrect wind speed information.

In addition, the same table and figure include the uncertainty related to the predicted wind generated for the same wind farms in the 2008 OSP using the OSP model, which considers the period of July 15 through September 15 – about 63 days. The uncertainty of using OSP models for predicting wind power in the 2008 OSP varies from 5.11 % to 19.97% for all the wind farms. The reason for this large uncertainty value (19.97%), which comes from a wind farm named FERMI\_WIND2, is the same as that discussed above.

Table 3-4: Statistical Parameters of the Determined Daily Power Production Linear Models

Wind Farm	Statistical Parameters of Non-OSP Daily Models						Statistical Parameters of OSP Daily Models					
	$c_0$	$c_1$	AdjR <sup>2</sup>	RMSE	CV-RMSE	# Days	$c_0$	$c_1$	AdjR <sup>2</sup>	RMSE	CV-RMSE	# Days
ANACACHO_ANA	315.90	50.73	0.19	451.23	49.2%	302	207.03	67.33	0.40	295.71	33.1%	63
ASTRA_UNIT1	-78.73	125.13	0.26	885.26	55.0%	235	-1344.21	236.82	0.83	301.36	26.8%	63
BAFFIN_UNIT1	-337.81	104.51	0.68	307.47	34.0%	301	-393.29	121.09	0.73	269.29	32.0%	63
BAFFIN_UNIT2	-337.07	99.04	0.68	289.95	34.6%	301	-429.58	117.53	0.79	223.44	29.1%	63
BCATWIND_WIND_1	-119.17	108.71	0.48	450.74	41.5%	302	-562.23	148.71	0.59	262.10	38.9%	63
BLSUMMIT_BLSMT1_5	-180.11	144.55	0.61	459.06	32.3%	302	-533.00	149.51	0.51	308.63	43.5%	63
BORDAS2_JAVEL2_A	73.54	79.53	0.39	426.92	41.9%	301	-92.01	115.34	0.62	312.16	29.3%	62
BORDAS2_JAVEL2_B	53.97	59.71	0.38	323.98	42.4%	301	-87.43	89.97	0.63	240.86	29.5%	62
BORDAS2_JAVEL2_C	59.47	22.78	0.33	139.48	42.3%	301	17.83	32.94	0.57	104.46	29.6%	63
BORDAS_JAVEL18	244.94	198.29	0.38	1068.91	41.1%	301	2.71	260.98	0.59	800.21	30.1%	63
BRAZ_WIND_WIND1	-225.98	70.59	0.45	292.74	44.8%	301	-319.99	76.35	0.53	188.45	55.4%	63
BRAZ_WIND_WIND2	-131.35	46.11	0.47	184.28	41.6%	301	-246.55	58.37	0.57	132.21	51.2%	63
BRISCOE_WIND	44.85	94.84	0.26	595.71	48.6%	302	-462.04	126.02	0.66	236.78	37.7%	63
BRTSW_BCW1	-69.31	73.15	0.52	278.94	37.6%	302	-314.03	88.46	0.61	150.30	35.7%	63
BUFF_GAP_UNIT1	-497.97	140.82	0.70	361.43	34.0%	299	-560.80	131.14	0.63	212.26	40.1%	63
BUFF_GAP_UNIT2_1	-1081.97	278.45	0.73	669.87	33.4%	299	-1144.89	252.10	0.70	351.57	37.0%	63
BUFF_GAP_UNIT3	-749.76	196.23	0.72	481.20	33.7%	299	-798.34	164.14	0.70	231.17	35.2%	63
BULLCRK_WIND1	-329.95	66.13	0.54	229.58	46.5%	300	-271.03	56.46	0.72	91.06	41.9%	63
BULLCRK_WIND2	-330.14	69.71	0.52	251.93	46.9%	300	-313.54	64.61	0.71	108.42	44.2%	63
CALLAHAN_WIND1	-261.32	119.74	0.56	421.16	39.5%	299	-582.20	168.35	0.64	266.75	32.6%	63
CAMWIND_UNIT1	-724.43	186.90	0.73	484.88	32.5%	302	-341.92	126.88	0.76	263.32	27.7%	63
CAPRIDG4_CR4	-414.63	121.05	0.71	308.05	33.2%	301	-342.84	98.48	0.65	152.84	32.1%	63
CAPRIDG_CR1	-649.37	233.93	0.70	612.36	31.5%	301	-758.34	204.39	0.61	345.82	36.7%	63
CAPRIDG_CR2	-301.60	121.32	0.60	394.01	37.8%	300	-243.23	93.55	0.57	171.21	32.0%	63
CAPRIDG_CR3	-466.88	183.83	0.70	482.50	30.7%	301	-481.87	148.03	0.62	244.05	32.6%	63
CEDROHL_CHW1	9.12	115.41	0.39	616.03	44.6%	300	-109.20	148.85	0.58	463.84	33.0%	63
CHAMPION_UNIT1	-351.89	131.31	0.57	453.94	41.1%	299	-444.49	121.85	0.65	188.43	33.1%	63
COTPLNS_COTTONPL	-65.01	50.34	0.51	194.35	32.7%	271	-278.16	68.86	0.70	116.79	36.6%	63
COTPLNS_OLDSETLR	-396.93	171.76	0.56	562.33	32.9%	212	-883.68	210.99	0.70	357.61	38.0%	63
COTTON_PAP2	-886.62	211.25	0.69	607.62	37.6%	302	-1731.84	319.71	0.80	476.47	34.5%	57
CSEC_CSEC01	-334.10	141.07	0.62	437.78	35.6%	300	-629.02	144.96	0.66	223.39	39.1%	61
CSEC_CSEC02	-314.01	134.72	0.66	379.72	32.2%	300	-522.75	127.11	0.60	219.27	41.1%	63
DERMOTT_UNIT1	-253.94	131.73	0.31	628.08	48.9%	140	-408.61	140.22	0.59	305.97	38.0%	63
DERMOTT_UNIT2	-249.82	130.79	0.30	639.33	50.1%	140	-470.22	149.58	0.60	316.38	38.4%	63
DO_NUECE_GUNITS	-12.03	4.59	0.53	18.35	43.1%	301	-21.43	6.56	0.59	16.69	38.8%	61
DIGBY_UNIT1	-154.00	121.50	0.65	354.99	29.7%	300	-529.09	147.96	0.53	292.51	41.7%	63
DIGBY_UNIT2	-269.72	163.00	0.66	468.75	30.5%	300	-683.79	188.36	0.51	388.89	44.1%	63
ELB_ELBCREEK	-103.17	95.53	0.41	412.92	41.6%	295	-221.57	83.61	0.40	218.88	41.4%	63
ENAS_ENA1	-151.23	59.52	0.60	193.85	38.1%	301	-147.13	46.14	0.47	103.70	43.9%	63
EXGNSD_WIND_1	106.30	62.66	0.38	333.94	39.6%	295	42.44	80.65	0.62	217.16	25.5%	62
EXGNWTL_WIND_1	-14.25	59.21	0.37	329.47	47.6%	298	-138.95	85.42	0.62	242.99	33.2%	63
FERMI_WIND1	209.22	49.30	0.07	569.70	77.6%	117	231.91	29.84	0.05	271.29	53.9%	61
FERMI_WIND2	47.32	14.60	0.11	139.01	68.5%	117	95.51	8.25	0.01	106.63	63.5%	49
FLTKK_SSI	-163.85	57.69	0.71	147.59	30.9%	284	-151.95	44.39	0.48	102.05	49.8%	49
GOAT_GOATWIND	-476.74	180.54	0.52	561.49	44.7%	300	-73.44	100.17	0.20	374.50	59.2%	63
GPASTURE_WIND_1	-306.75	170.07	0.58	567.44	36.0%	302	-711.09	194.23	0.48	430.35	47.6%	63
GRANDW1_COLA	-106.03	101.44	0.58	365.09	29.3%	300	-833.71	150.66	0.79	216.02	29.3%	63
GRANDW1_COLB	-125.12	102.42	0.59	361.30	29.2%	300	-834.51	150.70	0.80	214.44	29.1%	63
GRANDW1_GV1A	-93.50	103.58	0.55	396.83	30.9%	294	-773.78	148.43	0.81	202.52	26.1%	63
GRANDW1_GV1B	-34.57	95.06	0.53	379.97	30.9%	294	-673.99	136.31	0.80	190.89	25.5%	63
GUNWTTN_G1	-73.47	136.00	0.47	515.17	34.7%	301	-419.05	143.78	0.42	360.03	41.4%	63
GWEC_GWEC_G1	-107.14	155.33	0.60	511.26	31.4%	302	-164.10	151.75	0.41	458.06	41.4%	63
H_HOLLOW_WIND	-209.23	191.79	0.57	658.12	34.3%	300	-916.32	255.50	0.67	377.12	31.2%	63
H_HOLLOW2_WIND1	-645.19	190.94	0.70	500.01	34.0%	300	-558.57	139.40	0.72	186.14	31.0%	63
H_HOLLOW3_WIND_1	-606.65	222.13	0.67	614.66	33.1%	300	-824.78	223.95	0.63	364.28	35.1%	63
H_HOLLOW4_WIND1	-221.56	115.28	0.66	324.27	30.7%	299	-290.35	79.96	0.70	109.29	29.8%	63
HORSECRK_UNIT1	-313.77	162.77	0.66	462.03	30.9%	285	-521.67	168.88	0.52	350.45	39.6%	60
HORSECRK_UNIT2	-240.80	121.66	0.65	358.32	32.5%	285	-431.39	131.31	0.53	265.58	40.1%	60
HRFDWIND_JRDWIND1	-523.02	144.62	0.69	406.08	28.9%	300	-864.50	153.69	0.85	184.48	25.0%	63
HRFDWIND_JRDWIND2	-564.12	150.98	0.72	401.72	27.8%	300	-895.97	159.82	0.86	183.83	23.8%	63
HRFDWIND_WIND_G	-371.61	102.14	0.72	265.47	26.8%	300	-597.10	105.14	0.86	117.60	23.5%	63
HRFDWIND_WIND_V	-344.54	117.85	0.69	329.67	26.9%	300	-888.88	152.46	0.85	181.64	25.9%	63
HWF_HWFG1	-230.94	137.12	0.55	488.43	37.9%	299	-705.47	183.42	0.69	264.49	32.3%	63
INDL_INADALE1	-573.87	192.22	0.63	583.94	37.3%	297	-831.55	186.24	0.70	263.90	36.7%	59
INDENR_INDENR	-242.10	77.21	0.49	269.04	43.4%	302	-350.48	81.76	0.48	193.66	49.3%	63
INDENR_INDENR_2	-117.91	58.59	0.34	282.43	52.6%	302	-329.96	73.92	0.48	176.10	51.5%	63
INDNWP_INDNWP	-140.60	58.46	0.38	255.12	49.6%	300	-320.41	72.16	0.51	160.28	47.8%	63
KEECHI_U1	-287.66	140.64	0.69	375.10	29.5%	302	-608.19	167.19	0.60	290.43	37.2%	63
KEO_KEO_SM1	-155.75	104.16	0.33	513.62	51.0%	302	-810.07	178.04	0.57	353.91	43.8%	63
KEO_SHRBN02	-414.40	143.20	0.47	505.72	42.4%	287	-965.72	211.32	0.64	363.94	38.1%	63
KING_NE_KINGNE	-194.34	48.37	0.61	132.31	38.6%	296	-140.40	36.46	0.53	77.68	40.7%	63
KING_NW_KINGNW	-138.86	51.63	0.42	209.31	47.8%	302	-189.20	54.30	0.50	123.65	40.6%	63
KING_SE_KINGSE	-95.24	25.31	0.56	76.67	41.2%	296	-89.77	21.17	0.55	43.24	42.1%	63
KING_SW_KINGSW	-141.35	50.13	0.47	182.26	43.5%	302	-200.63	50.54	0.57	99.33	38.4%	63
LGD_LANFORD	-111.48	169.52	0.47	587.76	38.9%	302	-426.92	188.52	0.58	308.44	34.2%	63
LGW_UNIT1	-46.97	93.28	0.51	362.93	36.8%	301	-261.45	109.48	0.44	258.74	39.9%	63
LGW_UNIT2	-63.92	89.46	0.54	329.27	35.5%	301	-224.44	101.79	0.41	257.40	41.4%	63
LHORN_N_UNIT1	-322.57	117.42	0.54	402.61	35.3%	301	-655.35	142.97	0.71	238.97	41.1%	63
LHORN_N_UNIT2	-309.79	118.32	0.53	412.49	35.5%	301	-675.31	147.77	0.70	250.08	41.5%	63
LNCRK_G83	-790.56	213.56	0.77	465.10	29.6%	301	-753.97	196.63	0.73	253.16	28.6%	62
LNCRK_G871	-378.11	108.98	0.75	249.58	30.1%	301	-448.87	112.68	0.77	132.36	27.1%	63
LNCRK_G872	-337.05	104.99	0.74	247.47	30.0%	301	-418.66	108.42	0.74	136.08	28.2%	63
LONWOLF_G1	-92.66	44.57	0.64	132.86	33.0%	300	-175.25	48.80	0.66	74.89	32.5%	63

Table 3-4: Statistical Parameters of the Determined Daily Power Production Linear Models (Cont.)

Wind Farm	Statistical Parameters of Non-OSP Daily Models						Statistical Parameters of OSP Daily Models					
	$c_0$	$c_1$	AdjR <sup>2</sup>	RMSE	CV-RMSE	# Days	$c_0$	$c_1$	AdjR <sup>2</sup>	RMSE	CV-RMSE	# Days
LONEWOLF_G2	-118.80	46.90	0.65	135.51	33.7%	300	-167.45	45.54	0.68	67.03	31.7%	63
LONEWOLF_G3	-56.47	24.85	0.64	73.20	33.3%	300	-109.15	28.09	0.64	44.71	35.9%	63
LONEWOLF_G4	-55.71	22.55	0.65	65.59	33.6%	299	-88.69	23.15	0.68	33.97	32.7%	63
LV1_LV1A	-830.32	225.98	0.74	569.04	30.7%	300	-623.26	226.67	0.78	434.70	25.8%	63
LV1_LV1B	-925.06	217.99	0.76	529.92	31.8%	300	-769.12	225.31	0.77	444.67	29.1%	63
LV3_UNIT_1	-170.89	172.87	0.43	858.03	45.8%	285	-179.72	210.35	0.45	852.17	43.4%	63
LV4_UNIT_1	-338.65	201.66	0.53	807.01	39.3%	299	177.25	175.23	0.31	950.86	48.4%	63
LV5_UNIT_1	-179.18	103.70	0.52	427.01	40.6%	301	-224.00	129.25	0.59	390.19	35.7%	63
MARIAH_NORTE1	-173.79	110.46	0.58	392.55	30.2%	281	-748.83	141.51	0.77	220.04	30.3%	63
MARIAH_NORTE2	-259.93	117.14	0.62	383.14	29.2%	272	-817.44	149.59	0.80	210.98	28.4%	63
MCDLD_FCW1	-311.14	132.93	0.65	388.05	33.4%	301	-494.61	130.01	0.58	234.00	39.9%	63
MCDLD_SBW1	-18.98	50.83	0.26	338.41	62.1%	300	-123.56	40.42	0.36	115.19	54.0%	60
MESOCRK_WIND1	-236.79	107.19	0.53	380.49	34.7%	299	-320.77	93.04	0.63	186.36	38.3%	63
MESOCRK_WIND2	-178.35	95.40	0.45	392.15	38.9%	299	-411.64	107.46	0.73	169.71	32.8%	63
MIAMI_G1	-283.31	149.94	0.63	480.74	28.1%	302	-1002.66	193.43	0.66	394.05	38.8%	63
MIAMI_G2	-435.71	154.81	0.64	493.39	30.4%	302	-1068.46	198.52	0.65	409.53	40.9%	63
MIRASOLE_MIR11	-164.68	96.48	0.61	192.86	38.0%	297	-123.72	62.62	0.61	181.79	35.3%	63
MIRASOLE_MIR12	-318.58	109.53	0.63	357.84	36.4%	297	-256.24	121.00	0.63	335.25	34.3%	63
MIRASOLE_MIR21	-314.23	107.57	0.63	352.76	36.5%	297	-319.83	127.36	0.69	314.63	32.2%	63
MOZART_WIND_1	-60.48	23.91	0.45	99.49	42.0%	300	-38.18	18.45	0.48	50.01	41.2%	63
MWEC_G1	-624.53	184.95	0.57	540.17	33.8%	281	-714.76	175.63	0.68	318.10	39.5%	63
NWF_NWF1	-106.15	117.04	0.53	400.39	32.4%	299	-469.97	144.88	0.50	312.54	37.7%	63
OWF_OWF	-102.62	48.53	0.58	162.24	37.3%	301	-158.57	44.36	0.53	88.40	42.0%	63
PAP1_PAP1	-790.63	190.32	0.72	504.64	34.3%	297	-1220.50	255.23	0.75	441.71	35.5%	59
PC_NORTH_PANTHER1	-219.42	151.93	0.62	473.37	32.3%	302	-277.13	120.72	0.43	277.05	38.5%	51
PC_SOUTH_PANTHER2	-226.89	124.20	0.62	388.32	33.9%	295	-405.31	119.97	0.58	216.64	36.6%	63
PC_SOUTH_PANTHER3	-397.68	200.65	0.62	617.01	33.8%	301	-747.10	202.85	0.65	313.20	33.3%	63
PENA_UNIT1	-574.04	154.58	0.66	479.16	38.0%	301	-707.70	185.76	0.73	414.96	35.0%	63
PENA_UNIT2	-584.08	144.98	0.70	406.35	35.7%	301	-520.37	154.49	0.66	407.30	38.7%	63
PENA3_UNIT3	-289.87	83.10	0.59	294.72	42.2%	299	-425.98	107.20	0.74	232.08	34.8%	63
PH1_UNIT1	-486.30	124.38	0.71	337.49	28.9%	302	-811.73	144.33	0.80	203.68	29.4%	63
PH1_UNIT2	-415.19	115.54	0.70	317.72	28.3%	302	-731.86	133.22	0.80	184.80	28.1%	63
PH2_UNIT1	-299.93	108.06	0.66	330.16	29.0%	301	-812.52	153.11	0.78	231.65	29.5%	63
PH2_UNIT2	-353.37	112.70	0.66	338.87	29.5%	301	-859.70	159.43	0.76	249.68	31.1%	63
PYR_PYRON1	-599.17	250.68	0.62	767.92	35.1%	300	-1096.44	254.64	0.68	380.83	36.0%	54
RDCANYON_RDCNY1	38.56	72.19	0.44	324.38	38.7%	301	-339.86	73.04	0.32	223.45	83.5%	63
REDRSH_MV1A	-260.31	100.61	0.61	344.28	36.6%	295	-256.36	111.96	0.76	228.70	25.9%	63
REDRSH_MV1B	-296.85	105.10	0.61	361.56	38.0%	299	-308.20	120.94	0.74	261.96	28.3%	63
ROUTE_66_WIND1	499.50	85.03	0.23	641.81	39.5%	300	-859.77	198.57	0.80	280.29	23.1%	63
RSNAKE_G1	-19.90	116.74	0.60	377.44	29.6%	302	-428.70	146.28	0.55	278.58	35.4%	63
RSNAKE_G2	17.16	110.75	0.59	368.97	29.7%	302	-369.33	136.81	0.53	271.25	35.3%	63
SALT_FORK_UNIT1	-105.08	65.51	0.64	208.70	27.1%	295	-410.87	79.52	0.75	129.79	31.0%	63
SALT_FORK_UNIT2	-255.05	119.80	0.64	376.49	28.0%	295	-769.99	142.07	0.74	236.25	33.2%	63
SANROMAN_WIND_1	-367.91	108.08	0.67	327.19	35.7%	296	-177.82	94.95	0.59	288.84	36.6%	63
SEBATEWIND_UNIT1	-321.88	161.71	0.65	468.89	31.9%	299	-597.78	172.75	0.60	301.22	35.9%	63
SGMTN_SIGNALMIT	-51.17	19.66	0.60	63.23	38.0%	300	-84.61	19.52	0.57	36.28	46.7%	63
SHANNONW_UNIT_1	-788.81	253.65	0.73	617.87	30.0%	295	-785.87	226.25	0.53	452.21	41.3%	63
SPLAIN1_WIND1	-153.53	95.25	0.46	388.25	37.7%	302	-503.96	127.62	0.71	211.28	35.2%	63
SPLAIN1_WIND2	-88.34	89.21	0.43	383.63	37.6%	302	-503.12	129.66	0.67	238.82	38.6%	63
SPLAIN2_WIND21	-547.86	173.74	0.62	510.53	31.7%	301	-538.33	188.52	0.70	320.48	40.4%	63
SPLAIN2_WIND22	-531.81	179.09	0.61	539.97	31.9%	301	-856.24	193.13	0.69	339.16	41.6%	63
SRWE1_SRWE2	-757.20	204.02	0.68	518.16	29.1%	302	-749.00	179.54	0.77	253.34	31.5%	63
SRWE1_UNIT1	-811.50	251.43	0.67	657.24	28.4%	302	-964.75	242.69	0.76	360.56	31.8%	63
SSPURTWO_SS3WIND1	-268.21	105.74	0.64	337.63	29.7%	302	-744.77	148.96	0.72	260.04	32.1%	63
SSPURTWO_SS3WIND2	-237.92	108.30	0.61	365.27	30.2%	296	-688.88	154.27	0.68	296.53	32.2%	63
SSPURTWO_WIND_1	-558.86	170.49	0.67	507.04	29.7%	302	-1148.45	231.72	0.70	427.69	33.7%	63
STWF_T1	-318.38	115.73	0.75	264.26	27.4%	299	-478.77	121.06	0.70	169.90	32.2%	63
SW_MESA_SW_MESA	-131.21	49.23	0.48	175.14	41.8%	302	-230.43	54.57	0.55	113.29	42.7%	63
SWEC_G1	-347.26	131.56	0.56	419.61	36.0%	301	-397.61	104.37	0.47	235.39	43.7%	63
SWEETW2_WIND2	-207.12	88.61	0.49	356.29	46.2%	296	-297.84	98.24	0.54	198.53	37.6%	56
SWEETW2_WIND2A	-67.58	19.29	0.67	53.18	36.5%	293	-75.51	17.81	0.62	30.26	40.8%	56
SWEETW2_WIND2B	-323.13	136.52	0.72	338.47	28.4%	299	-420.66	125.42	0.55	248.36	39.4%	55
SWEETW4_WIND4A	-363.03	123.30	0.71	315.60	31.5%	298	-441.38	112.06	0.64	182.14	37.3%	61
SWEETW4_WIND4B	-277.90	109.85	0.72	271.59	28.9%	299	-335.91	94.83	0.66	147.85	32.8%	61
SWEETW4_WIND5	-217.09	82.59	0.71	206.79	29.6%	299	-251.59	71.17	0.64	114.69	33.8%	61
SWEETW4_WIND1	-84.05	33.46	0.52	127.63	44.6%	298	-159.95	43.15	0.56	81.82	40.3%	58
TGW_T1	-580.39	134.12	0.69	383.84	37.8%	297	-499.02	143.29	0.75	299.02	31.1%	63
TGW_T2	-592.57	145.44	0.67	435.88	38.5%	302	-514.19	156.84	0.67	403.68	37.2%	63
TKWSW1_ROSCOE	-755.77	220.63	0.72	545.78	32.2%	301	-765.03	175.85	0.65	271.82	39.0%	63
TRENT_TRENT	-406.89	145.74	0.58	485.76	40.1%	299	-613.62	152.26	0.56	284.06	43.5%	63
TRINITY_TH_BUS1	-381.42	117.71	0.68	321.28	34.8%	298	-452.97	115.24	0.58	210.14	41.6%	63
TRINITY_TH_BUS2	-372.07	114.48	0.65	330.62	36.9%	299	-427.14	107.30	0.57	198.88	42.8%	63
TTWEC_G1	-457.94	177.15	0.72	431.21	28.7%	299	-481.93	147.86	0.65	228.62	30.6%	63
TYLRWIND_UNIT1	-328.05	141.01	0.63	434.59	34.9%	302	-412.87	126.74	0.51	314.41	48.5%	63
VERTIGO_WIND_I	-245.60	159.29	0.54	581.61	38.3%	302	-705.91	187.51	0.46	427.47	50.1%	63
WAKEWE_G1	-98.75	132.31	0.56	434.10	28.1%	302	-715.70	178.39	0.73	285.21	34.5%	63
WAKEWE_G2	-166.30	165.95	0.55	559.28	29.5%	302	-931.92	223.08	0.74	343.71	34.4%	63
WEC_WECG1	-63.12	51.90	0.38	248.52	42.6%	300	-310.98	72.62	0.55	170.73	53.8%	63
WHTTAIL_WR1	-279.27	117.73	0.59	396.09	38.3%	302	-371.76	109.31	0.45	307.90	56.6%	63
WHDHST2_UNIT1	-166.56	76.61	0.66	216.71	31.8%	302	-283.04	82.49	0.59	144.64	35.9%	63
WOODWRD1_WOODWRD1	-377.20	78.94	0.61	214.94	42.3%	300	-495.23	88.03	0.65	148.99	48.9%	63
WOODWRD2_WOODWRD2	-313.36	66.59	0.61	183.95	42.6%	301	-374.15	71.79	0.60	134.44	48.3%	63

Table 3-5: 2008 Uncertainty of the Power Generation Prediction using the Linear Daily Models

Wind Farm	2008 Non Ozone Season Period				2008 Ozone Season Period (OSP)			
	Predicted days	Total Variance	Total Estimated	Relative Uncertainty	Predicted Days	Total Variance	Total Estimated	Relative uncertainty
ANACACHO_ANA	303	15,424.48	277,819	5.55%	63	4,630.02	51,375.0	9.01%
ASTRA_UNIT1	303	30,285.71	514,437	5.89%	63	4,743.20	81,638.8	5.81%
BAFFN_UNIT1	303	10,510.49	272,806	3.85%	63	4,216.28	44,156.3	9.55%
BAFFN_UNIT2	303	9,911.43	253,387	3.91%	63	3,498.51	39,843.8	8.78%
BCATWIND_WIND_1	303	15,409.62	358,590	4.30%	63	4,132.39	46,543.0	8.88%
BLSUMMIT_BLSMT1_5	303	15,694.21	470,214	3.34%	63	4,865.96	48,795.6	9.97%
BORDAS2_JAVEL2_A	303	14,593.71	307,773	4.74%	63	4,891.33	58,914.6	8.30%
BORDAS2_JAVEL2_B	303	11,074.90	230,705	4.80%	63	3,774.13	44,986.5	8.39%
BORDAS2_JAVEL2_C	303	4,767.86	99,788	4.78%	63	1,635.53	19,873.7	8.23%
BORDAS_JAVEL18	303	36,539.26	785,993	4.65%	63	12,529.08	148,749.1	8.42%
BRAZ_WIND_WIND1	303	10,010.21	197,857	5.06%	62	2,926.43	23,313.9	12.55%
BRAZ_WIND_WIND2	303	6,301.28	134,179	4.70%	62	2,053.08	17,705.6	11.80%
BRISCOE_WIND	303	20,370.12	371,417	5.48%	62	3,677.07	42,587.3	8.63%
BRTSW_BCW1	303	9,536.40	244,572	3.90%	63	2,369.65	28,950.4	8.19%
BUFF_GAP_UNIT1	303	12,356.60	360,417	3.43%	63	3,346.60	37,017.2	9.04%
BUFF_GAP_UNIT2_1	303	22,901.97	683,266	3.35%	63	5,543.01	67,050.4	8.27%
BUFF_GAP_UNIT3	303	16,451.58	485,354	3.39%	63	3,644.73	45,932.4	7.93%
BULLCRK_WIND1	303	7,850.34	149,684	5.24%	62	1,414.05	15,110.4	9.36%
BULLCRK_WIND2	303	8,614.57	163,092	5.28%	62	1,683.61	17,083.2	9.86%
CALLAHAN_WIND1	303	14,398.68	355,551	4.05%	63	4,205.77	56,059.0	7.50%
CAMWIND_UNIT1	303	16,574.62	451,386	3.67%	63	4,122.91	50,689.6	8.13%
CAPRIDG4_CR4	303	10,531.39	313,851	3.36%	63	2,409.71	32,651.8	7.38%
CAPRIDGE_CR1	303	20,935.29	652,543	3.21%	63	5,452.34	64,868.6	8.41%
CAPRIDGE_CR2	303	13,470.37	349,097	3.86%	63	2,699.37	36,165.7	7.46%
CAPRIDGE_CR3	303	16,495.57	525,936	3.14%	63	3,847.79	51,157.9	7.52%
CEDROHL_CHW1	303	21,058.66	417,024	5.05%	63	7,262.41	77,859.8	9.33%
CHAMPION_UNIT1	303	15,519.42	370,127	4.19%	63	2,970.87	39,142.7	7.59%
COTPLNS_COTTONPL	303	6,305.19	170,242	3.70%	62	1,813.69	21,677.1	8.37%
COTPLNS_OLDSETLR	303	19,249.68	527,746	3.65%	62	5,553.44	64,470.4	8.61%
COTTON_PAP2	303	20,770.32	489,730	4.24%	63	7,490.75	66,321.2	11.29%
CSEC_CSEC01	303	14,966.64	410,940	3.64%	63	3,522.79	39,072.4	9.02%
CSEC_CSEC02	303	12,981.92	393,958	3.30%	63	3,457.08	37,168.9	9.30%
DERMOTT_UNIT1	303	21,567.33	420,057	5.13%	62	4,751.41	54,032.0	8.79%
DERMOTT_UNIT2	303	21,953.54	417,760	5.26%	62	4,913.13	55,476.6	8.86%
DG_NUECE_GUNTS	303	627.32	12,842	4.88%	63	262.07	2,309.7	11.35%
DIGBY_UNIT1	303	12,136.29	394,460	3.08%	63	4,611.88	48,192.0	9.57%
DIGBY_UNIT2	303	16,025.46	510,047	3.14%	63	6,131.37	60,713.5	10.10%
ELB_ELBCKREEK	303	14,121.08	279,729	5.05%	63	3,435.59	31,743.4	10.82%
ENAS_ENA1	303	6,627.45	170,273	3.89%	63	1,634.99	16,133.2	10.13%
EXGNSND_WIND_1	303	11,416.45	257,148	4.44%	63	3,402.82	47,819.3	7.12%
EXGNWTL_WIND_1	303	11,262.96	208,208	5.41%	63	3,804.54	39,875.6	9.54%
FERMI_WIND1	301	19,467.16	229,417	8.49%	61	4,186.76	30,282.8	13.83%
FERMI_WIND2	301	4,749.98	63,534	7.48%	61	1,650.26	8,265.1	19.97%
FLTCK_SSI	303	5,046.34	159,821	3.16%	63	1,612.38	11,571.9	13.93%
GOAT_GOATWIND	303	19,203.73	386,620	4.97%	63	5,896.12	39,628.0	14.88%
GPASTURE_WIND_1	303	19,399.64	524,503	3.70%	63	6,785.01	62,232.8	10.90%
GRANDVW1_COLA	303	12,482.71	404,257	3.09%	63	3,399.97	53,221.4	6.39%
GRANDVW1_COLB	303	12,352.88	402,661	3.07%	63	3,375.05	53,199.3	6.34%
GRANDVW1_GV1A	303	13,568.61	417,237	3.25%	63	3,187.45	55,288.2	5.77%
GRANDVW1_GV1B	303	12,991.84	398,451	3.26%	63	3,004.44	52,975.1	5.67%
GUNWITN_G1	303	17,617.84	420,451	4.19%	63	5,651.09	52,190.2	10.83%
GWEC_GWEC_G1	303	17,486.73	525,567	3.33%	63	7,236.72	74,079.9	9.77%
H_HOLLOW_WIND1	303	22,500.00	632,921	3.55%	63	5,945.89	83,048.4	7.16%
HHOLLOW2_WIND1	303	17,094.28	497,574	3.43%	63	2,934.70	41,673.9	7.04%
HHOLLOW3_WIND_1	303	21,014.22	622,649	3.37%	63	5,743.45	71,453.1	8.04%
HHOLLOW4_WIND1	303	11,086.32	351,421	3.15%	63	1,722.89	25,219.2	6.83%
HORSECRK_UNIT1	303	15,797.78	495,880	3.19%	63	5,526.06	57,239.2	9.65%
HORSECRK_UNIT2	303	12,251.14	368,721	3.32%	63	4,187.82	42,981.5	9.74%
HRFDWIND_JRDWIND1	303	13,884.15	463,663	2.99%	63	2,903.55	53,453.6	5.43%
HRFDWIND_JRDWIND2	303	13,735.16	478,530	2.87%	63	2,893.26	55,764.0	5.19%
HRFDWIND_WIND_G	303	9,076.63	326,797	2.78%	63	1,850.86	36,227.3	5.11%
HRFDWIND_WIND_V	303	11,278.63	402,570	2.80%	63	2,862.05	51,162.4	5.59%
HWF_HWFG1	303	16,698.44	427,840	3.90%	63	4,170.01	56,664.3	7.36%
INDL_INADALE1	303	19,964.12	523,995	3.81%	63	4,161.38	47,202.7	8.82%
INDENR_INDENR	301	9,165.14	187,846	4.88%	61	2,988.76	23,575.4	12.68%
INDENR_INDENR_2	301	9,621.55	162,339	5.93%	61	2,717.67	20,496.6	13.26%
INDNNWP_INDNNWP	301	8,691.58	155,063	5.61%	61	2,473.54	20,112.7	12.30%
KEECHI_U1	303	12,823.76	423,457	3.03%	63	4,579.10	53,750.9	8.52%
KEO_KEO_SM1	301	17,497.31	304,802	5.74%	61	5,461.71	48,388.2	11.29%
KEO_SHRBN02	301	17,231.70	358,768	4.80%	61	5,616.63	57,164.5	9.83%
KING_NE_KINGNE	301	4,507.50	104,906	4.30%	61	1,198.85	11,517.4	10.41%
KING_NW_KINGNW	301	7,130.48	132,524	5.38%	61	1,908.20	18,404.5	10.37%
KING_SE_KINGSE	301	2,611.87	56,830	4.60%	61	667.37	6,168.4	10.82%
KING_SW_KINGSW	301	6,208.85	126,706	4.90%	61	1,532.99	15,584.3	9.84%
LGD_LANGFORD	303	20,101.86	464,818	4.32%	63	4,856.14	56,393.7	8.61%
LGW_UNIT1	303	12,407.71	324,420	3.82%	63	4,079.37	43,786.4	9.32%
LGW_UNIT2	303	11,256.95	305,407	3.69%	63	4,058.27	41,884.6	9.69%
LHORN_N_UNIT1	303	13,767.15	345,265	3.99%	62	3,710.95	40,179.9	9.24%
LHORN_N_UNIT2	303	14,105.14	352,550	4.00%	62	3,883.58	41,656.8	9.32%
LNCRK_G83	303	15,900.74	535,906	2.97%	63	3,991.92	59,924.9	6.66%
LNCRK2_G871	303	8,532.72	281,105	3.04%	63	2,086.81	33,853.8	6.16%
LNCRK2_G872	303	8,460.36	279,053	3.03%	63	2,145.52	33,391.9	6.43%
LONWOLF_G1	303	4,542.42	133,723	3.40%	63	1,180.75	15,846.7	7.45%

Table 3-6: 2008 Uncertainty of the Power Generation Prediction using the Linear Daily Models (Cont.)

Wind Farm	2008 Non Ozone Season Period				2008 Ozone Season Period (OSP)			
	Predicted days	Total Variance	Total Estimated	Relative Uncertainty	Predicted Days	Total Variance	Total Estimated	Relative uncertainty
LONEWOLF_G2	303	4,632.65	134,297	3.45%	63	1,056.84	14,547.1	7.26%
LONEWOLF_G3	303	2,502.51	73,122	3.42%	63	704.85	8,606.6	8.19%
LONEWOLF_G4	303	2,242.49	64,975	3.45%	63	535.54	7,172.2	7.47%
LV1_LV1A	303	19,451.53	559,579	3.48%	63	6,806.29	89,779.7	7.58%
LV1_LV1B	303	18,114.70	502,322	3.61%	63	6,962.28	79,813.8	8.72%
LV3_UNIT_1	303	29,333.39	568,747	5.16%	63	13,342.63	108,428.8	12.31%
LV4_UNIT_1	303	27,586.88	621,280	4.44%	63	14,887.81	110,928.0	13.42%
LV5_UNIT_1	303	14,596.92	317,958	4.59%	63	6,109.29	59,469.1	10.27%
MARIAH_NORTE1	303	13,423.74	422,515	3.18%	63	3,463.26	52,047.4	6.65%
MARIAH_NORTE2	303	13,102.87	425,127	3.08%	63	3,320.59	53,464.8	6.21%
MCDLD_FCW1	303	13,266.59	388,323	3.42%	63	3,690.75	40,502.1	9.11%
MCDLD_SBW1	303	11,569.55	178,790	6.47%	63	1,816.44	13,775.6	13.19%
MESOCRK_WND1	303	13,010.65	332,671	3.91%	62	2,878.55	32,726.0	8.80%
MESOCRK_WND2	303	13,409.40	305,882	4.38%	62	2,635.51	35,218.3	7.48%
MIAMI_G1	303	16,436.64	559,143	2.94%	63	6,202.04	72,396.0	8.57%
MIAMI_G2	303	16,869.23	533,924	3.16%	63	6,445.54	71,933.6	8.96%
MIRASOLE_MIR11	303	6,592.85	152,845	4.31%	63	2,846.40	27,857.5	10.22%
MIRASOLE_MIR12	303	12,232.49	296,636	4.12%	63	5,249.05	52,741.7	9.95%
MIRASOLE_MIR21	303	12,058.75	290,917	4.15%	63	4,926.19	52,355.9	9.41%
MOZART_WIND_1	303	3,402.15	71,888	4.73%	62	776.59	8,089.0	9.60%
MWEC_G1	303	18,485.24	508,580	3.63%	62	4,939.83	54,958.9	8.99%
NWF_WNF1	303	13,691.79	348,852	3.92%	63	4,905.66	49,582.1	9.89%
OWF_WWF	303	5,546.52	145,086	3.82%	63	1,393.83	14,452.2	9.64%
PAP1_PAP1	303	17,250.69	443,673	3.89%	63	6,942.47	64,069.0	10.84%
PC_NORTH_PANTHER1	303	16,183.60	485,123	3.34%	63	4,389.51	39,656.0	11.07%
PC_SOUTH_PANTHER2	303	13,275.99	382,172	3.47%	63	3,415.60	40,543.2	8.42%
PC_SOUTH_PANTHER3	303	21,094.26	607,974	3.47%	63	4,938.09	64,717.7	7.63%
PENA_UNIT1	303	16,379.39	380,941	4.30%	63	6,497.08	61,167.4	10.62%
PENA_UNIT2	303	13,890.47	343,479	4.04%	63	6,377.18	55,165.3	11.56%
PENA3_UNIT3	303	10,074.44	210,455	4.79%	63	3,633.77	34,191.9	10.63%
PH1_UNIT1	303	11,539.04	387,684	2.98%	63	3,205.77	50,202.1	6.39%
PH1_UNIT2	303	10,863.06	371,222	2.93%	63	2,908.55	47,379.1	6.14%
PH2_UNIT1	303	11,288.36	373,950	3.02%	63	3,645.93	56,172.0	6.49%
PH2_UNIT2	303	11,586.03	377,746	3.07%	63	3,929.76	57,675.6	6.81%
PYR_PYRON1	303	26,254.00	728,567	3.60%	63	6,012.34	61,209.8	9.82%
RDCANYON_RDCNY1	303	11,089.88	273,759	4.05%	63	3,522.99	18,930.4	18.61%
REDFISH_MV1A	303	11,769.38	282,289	4.17%	63	3,580.77	47,589.6	7.52%
REDFISH_MV1B	303	12,359.40	287,320	4.30%	63	4,101.51	49,433.1	8.30%
ROUTE_66_WIND1	303	21,944.68	517,147	4.24%	63	4,411.50	84,600.5	5.21%
RSNAKE_G1	303	12,903.88	417,816	3.09%	63	4,392.22	53,502.7	8.21%
RSNAKE_G2	303	12,614.09	407,299	3.10%	63	4,276.60	52,032.8	8.22%
SALTFORK_UNIT1	303	7,136.05	249,970	2.85%	63	2,042.80	29,841.2	6.85%
SALTFORK_UNIT2	303	12,873.00	438,082	2.94%	63	3,718.34	51,157.0	7.27%
SANROMAN_WIND_1	303	11,184.66	276,478	4.05%	63	4,522.44	42,852.8	10.55%
SENATEWD_UNIT1	303	16,030.41	489,640	3.27%	63	4,749.16	57,500.5	8.26%
SOMTN_SIGNALMT	303	2,161.60	55,865	3.87%	63	571.96	5,441.4	10.51%
SHANNONW_UNIT_1	303	21,124.48	687,939	3.07%	63	7,129.70	75,126.9	9.49%
SPLAIN_WIND1	303	13,276.07	312,839	4.24%	62	3,281.02	40,888.7	8.02%
SPLAIN_WIND2	303	13,117.95	309,808	4.23%	62	3,708.66	42,092.7	8.81%
SPLAIN2_WIND1	303	17,457.31	489,514	3.57%	62	4,976.84	54,582.6	9.12%
SPLAIN2_WIND2	303	18,464.24	514,567	3.59%	62	5,266.84	56,078.4	9.39%
SRWE1_SRWE2	303	17,718.31	540,308	3.28%	62	3,934.18	55,046.0	7.15%
SRWE1_UNIT1	303	22,474.24	702,732	3.20%	62	5,599.28	77,360.8	7.24%
SSPURTW0_SS3WIND1	303	11,543.62	373,602	3.09%	63	4,092.76	57,394.6	7.13%
SSPURTW0_SS3WIND2	303	12,489.01	393,799	3.17%	63	4,667.10	64,452.6	7.24%
SSPURTW0_WIND_1	303	17,335.79	564,074	3.07%	63	6,731.47	89,886.7	7.49%
STWF_T1	303	9,034.54	323,692	2.79%	63	2,678.76	36,585.3	7.32%
SW_MESA_SW_MESA	301	5,966.56	126,707	4.71%	61	1,748.42	15,959.2	10.96%
SWEC_G1	303	14,349.07	323,242	4.44%	63	3,694.66	32,002.8	11.54%
SWEETW2_WIND2	303	12,181.43	258,957	4.70%	63	3,132.53	31,385.4	9.98%
SWEETW2_WIND4	303	1,818.30	49,545	3.67%	63	477.43	4,507.0	10.59%
SWEETW3_WIND3A	303	11,571.88	397,751	2.91%	63	3,919.10	37,168.8	10.54%
SWEETW4_WIND4A	303	10,790.08	337,660	3.20%	63	2,871.93	32,900.3	8.73%
SWEETW4_WIND4B	303	9,285.39	314,605	2.95%	63	2,331.25	30,096.9	7.75%
SWEETW4_WIND5	303	7,069.77	234,080	3.02%	63	1,808.42	22,616.0	8.00%
SWEETW4_WIND1	303	4,363.73	96,025	4.54%	63	1,291.02	12,616.8	10.23%
TGW_T1	303	13,121.16	305,665	4.29%	63	4,681.78	50,134.2	9.34%
TGW_T2	303	14,899.75	342,534	4.35%	63	6,320.53	56,892.8	11.11%
TKWSW1_ROSCOE	303	18,659.39	572,043	3.26%	63	4,285.57	48,830.3	8.78%
TRENT_TRENT	303	16,607.58	405,841	4.09%	63	4,478.61	45,302.6	9.89%
TRINITY_TH1_BUS1	303	10,983.81	311,778	3.52%	63	3,313.12	34,997.4	9.47%
TRINITY_TH1_BUS2	303	11,303.25	302,884	3.73%	63	3,135.61	32,254.9	9.72%
TTWEC_G1	303	14,743.55	504,392	2.92%	63	3,604.45	51,061.5	7.06%
TYLRWIND_UNIT1	303	14,864.28	407,178	3.65%	63	4,967.17	44,541.5	11.15%
VERTIGO_WIND_I	303	19,883.82	503,904	3.95%	63	6,739.73	58,878.1	11.45%
WAKEWE_G1	303	14,843.73	469,271	3.16%	62	4,429.04	56,458.5	7.84%
WAKEWE_G2	303	19,124.48	575,725	3.32%	62	5,337.55	68,316.7	7.81%
WEC_WECG1	303	8,498.13	176,701	4.81%	62	2,851.31	21,769.5	12.18%
WHITTAIL_WR1	303	13,547.54	338,327	4.00%	63	4,864.42	37,441.8	12.99%
WINDHST2_UNIT1	303	7,408.91	227,664	3.25%	63	2,280.39	27,604.5	8.26%
WOODWRD1_WOODWRD1	301	7,322.50	153,271	4.78%	61	2,299.27	18,081.0	12.72%
WOODWRD2_WOODWRD2	301	6,286.82	130,747	4.79%	61	2,074.81	16,565.6	12.52%



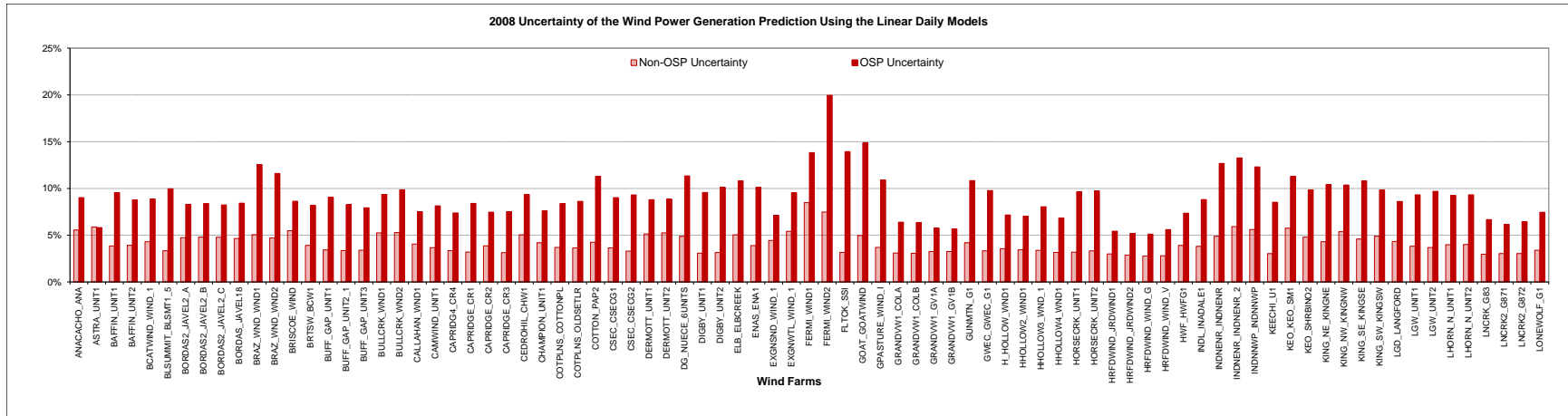


Figure 3-13: Uncertainty of the Wind Power generation Prediction Using the Linear Daily Models for Base Year 2008

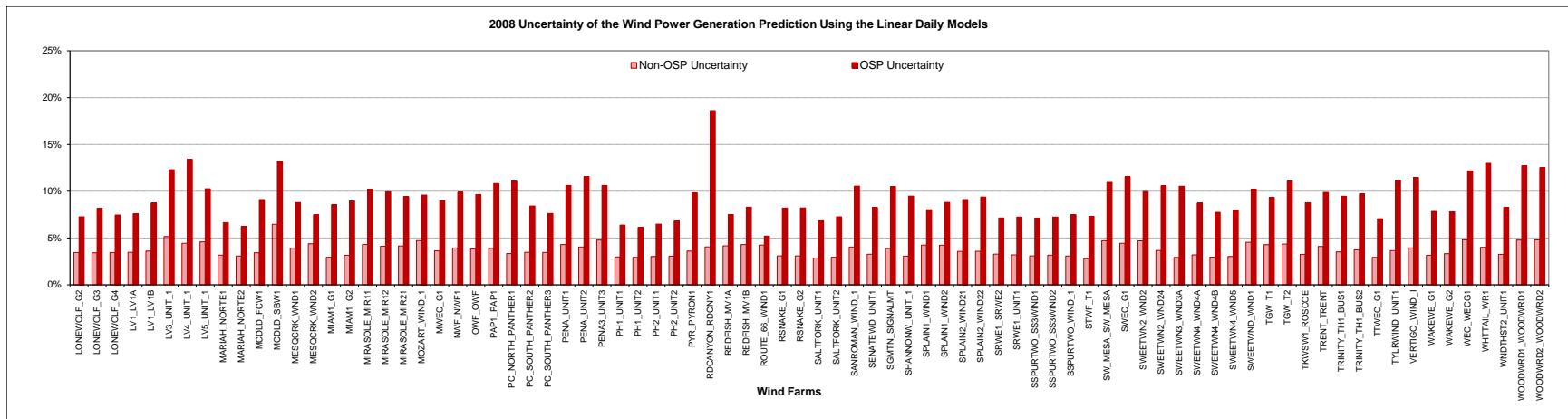


Figure 3-12: Uncertainty of the Wind Power generation Prediction Using the Linear Daily Models for Base Year 2008 (Cont.)

#### 4 DEGRADATION ANALYSIS FOR WIND FARMS

This report contains an updated analysis to determine any degradation could be observed in the measured power generation from Texas wind farms. By request of the TCEQ, the ESL has been evaluating any observed degradation from the measured data for Texas wind farms. To accomplish this, in this report ninety seven sites<sup>9</sup> built from 2002 to 2013 were evaluated with a total capacity of 12,683.2 MW (see Table 4-1).

In this analysis, a sliding statistical index was established for each site that used the 10th, 25th, 50th, 75th, 90th, and 99th percentiles of the hourly power generation over a 12-month sliding period, as well as mean, minimum and maximum hourly power generation of the same 12-month period. These indices were then displayed using one data symbol for each 12-month slide, beginning from the first 12-month period until the last 12-month period for each of the wind farms.

Table 4-1 presents the summary of the degradation analysis for the ninety seven sites. Of the ninety seven sites analyzed, sixty one sites showed an increase when one compares the 90th percentile of the whole period to the 90th percentile of the first 12-month period, ranging from 0.1% to 62.1%. The remaining thirty six sites showed a decrease from -0.2% to -21.9%. The weighted average of this increase across all wind farms studied is 5.7% (positive), which indicates that no degradation was observed from the aggregated energy production from these wind farms over the studied operation period. Based on the observations, special attention needs to be paid to sites Southwest Mesa Wind (-10.8%), Penascal Wind 3 (-10.9%), Papalote Creek Wind Farm (-12.1%), Big Spring Wind Power (-17.8%), and Sherbino 2 Wind (-21.9%). Those wind farms have comparison percentages larger than 10%, which may be caused by wind farm operation issues, meter problems or other similar issues.

Table 4-2 and Figure 4-1 show the design capacity, the maximum and minimum of the observed maximum hourly wind power over the sliding 12-month period, and the observed maximum hourly wind power for the last 12-month period for the studied wind farms. It is interesting to note that in most cases the observed maximum hourly wind power generation is equal, or slightly lower, than the design/announced capacity for all the sites.

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<sup>9</sup> The ninety seven sites presented in the degradation analysis section include one hundred and sixteen individual wind farms.

Table 4-1: Summary of 90th Percentile Hourly Wind Power Analysis for Ninety Seven Sites in Texas

Wind Farm	12-Month Sliding 90th Percentile Hourly Wind Report								No. of Months of Data	Capacity (MW)
	First Year		Average		Minimum		Maximum			
	First 12-mo Ending Mo.	MW	MW	% Diff. vs. First 12-mo	MW	% Diff. vs. First 12-mo	MW	% Diff. vs. First 12-mo		
Anacacho Wind	Nov-13	83.4	87.1	4.4%	83.1	-0.4%	89.2	6.9%	50	100
Blue Summit Wind	Oct-13	121.9	120.4	-1.2%	114.9	-5.8%	128.5	5.4%	51	135
Bobcat Bluff Wind	Nov-13	115.0	111.7	-2.9%	100.2	-12.8%	127.9	11.2%	50	150
Brazos Wind Ranch	Dec-04	127.5	125.7	-1.4%	93.5	-26.7%	139.4	9.3%	157	160
Barton Chapel Wind 1	Apr-10	74.3	78.0	5.0%	68.2	-8.2%	89.1	19.9%	97	120
Buffalo Gap 1	Nov-06	100.9	97.9	-3.0%	75.4	-25.2%	105.7	4.8%	134	120
Buffalo Gap 2	Apr-08	183.4	177.4	-3.3%	104.9	-42.8%	207.6	13.2%	117	233
Buffalo Gap 3	Jun-09	86.4	135.7	57.1%	86.4	0.0%	152.1	76.0%	103	170
Bull Creek Wind Plant	Dec-09	93.9	93.7	-0.2%	41.5	-55.8%	130.4	38.9%	97	180
Big Spring Wind Power	Dec-02	27.2	22.4	-17.8%	15.3	-43.8%	27.2	0.0%	181	41
Callahan Divide Wind	Feb-06	93.3	93.9	0.6%	83.9	-10.0%	101.5	8.8%	143	114
Capricorn Ridge Wind 1&2	Aug-08	258.0	250.0	-3.1%	174.5	-32.4%	291.2	12.8%	113	364
Capricorn Ridge Wind 3	Jan-09	120.3	134.8	12.1%	97.9	-18.6%	153.5	27.6%	108	186
Capricorn Ridge Wind 4	May-09	83.5	85.1	1.9%	67.6	-19.0%	95.4	14.3%	104	112.5
Camp Springs Wind Energy Center	Apr-08	111.3	108.7	-2.4%	95.0	-14.6%	120.9	8.6%	117	130
Camp Springs Energy Expension	Jan-09	94.0	98.9	5.3%	88.9	-5.4%	107.9	14.8%	108	120
Cedro Hill Wind	Dec-11	136.3	123.2	-9.6%	101.9	-25.2%	136.9	0.4%	73	150
Champion Wind Farm	Jan-09	89.4	102.4	14.5%	87.7	-1.9%	113.2	26.6%	108	126.5
Desert Sky	Dec-02	89.0	118.2	32.7%	83.1	-6.7%	134.4	50.9%	181	160.5
Elbow Creek Wind	Dec-09	94.5	97.0	2.7%	82.5	-12.7%	104.5	10.6%	97	121.9
Forest Creek Wind Farm	Dec-07	105.2	105.5	0.3%	97.3	-7.5%	111.2	5.7%	121	124.2
Goat Wind	Feb-09	61.4	99.5	62.1%	61.4	0.0%	122.6	99.8%	107	150
Goldthwaite Wind 1	Dec-14	122.8	126.1	2.7%	115.8	-5.7%	134.4	9.4%	37	149
Grandview Wind 1 (Conway) GV1A	Nov-15	99.3	99.9	0.6%	97.5	-1.8%	101.4	2.2%	26	107
Grandview Wind 1 (Conway) GV1B	Nov-15	94.0	95.8	1.8%	91.5	-2.7%	98.0	4.2%	26	104
Gulf Wind 1	Jun-10	108.6	105.6	-2.8%	85.2	-21.6%	119.4	9.9%	91	141.6
Gulf Wind 2	Jun-10	116.5	115.6	-0.8%	89.7	-23.0%	126.3	8.4%	91	141.6
Hackberry Wind	Dec-09	138.0	125.4	-9.1%	105.8	-23.3%	140.6	1.9%	97	165.5
Harbor Wind	Jan-13	6.1	5.6	-8.6%	3.7	-40.3%	7.1	15.9%	60	9
Horse Hollow Phase 1	Jun-06	157.0	164.9	5.1%	141.3	-10.0%	185.1	17.9%	139	213
Horse Hollow Phase 2	Aug-07	145.7	137.1	-5.9%	99.0	-32.1%	151.5	4.0%	125	184
Horse Hollow Phase 3	May-07	169.2	165.8	-2.0%	123.9	-26.8%	187.7	11.0%	128	223.5
Horse Hollow Phase 4	Jun-07	88.6	88.7	0.1%	80.9	-8.7%	94.8	6.9%	127	115
Inadale Wind	Sep-10	117.9	137.9	17.0%	99.0	-16.0%	166.3	41.1%	88	197
Indian Mesa	Dec-02	48.0	56.1	16.9%	36.0	-24.9%	72.2	50.5%	181	82.5
King Mountain Wind Ranch-NE	Dec-02	41.8	45.5	8.7%	31.5	-24.8%	56.4	34.8%	181	79.3
King Mountain Wind Ranch-NW	Dec-02	44.7	53.8	20.5%	40.2	-10.1%	65.3	46.1%	181	79.3
King Mountain Wind Ranch-SE	Dec-02	21.6	22.8	5.3%	15.8	-27.1%	28.1	29.8%	181	40.3
King Mountain Wind Ranch-SW	Dec-02	41.6	45.6	9.7%	33.7	-18.9%	53.7	29.1%	181	79.3
Langford Wind	Dec-10	115.7	127.1	9.8%	114.4	-1.1%	134.3	16.0%	85	150
Lone Star - Post Oak Wind	Mar-09	149.1	155.3	4.2%	138.4	-7.2%	170.5	14.4%	106	200
Lone Star - Mesquite Wind	Sep-08	140.4	150.1	6.9%	129.9	-7.5%	168.1	19.7%	112	200
Lorraine Windpark I	Dec-10	30.4	35.8	17.8%	25.9	-14.8%	42.3	39.2%	85	126
Lorraine Windpark II	Dec-10	27.8	36.2	30.3%	25.7	-7.6%	43.3	55.7%	85	124.5
Lorraine Windpark III	Jan-12	16.2	20.5	26.8%	16.2	0.0%	22.6	39.4%	72	26
Lorraine Windpark IV	Dec-12	17.4	16.8	-3.7%	5.0	-71.5%	20.8	19.1%	61	24
Los Vientos Wind I	Oct-13	148.5	165.0	11.1%	148.5	0.0%	175.1	17.9%	51	200.1
Los Vientos Wind II	Nov-13	153.3	152.2	-0.8%	134.4	-12.3%	164.3	7.2%	50	201.6
Magic Valley Wind (Redfish) 1A	Apr-13	88.6	86.2	-2.7%	79.3	-10.5%	90.7	2.4%	57	99.8
Magic Valley Wind (Redfish) 1B	Jul-13	94.2	89.7	-4.8%	83.8	-11.1%	94.6	0.4%	54	103.5
McAdoo Wind	Dec-09	111.7	136.0	21.7%	111.7	0.0%	143.6	28.5%	97	150
Miami Wind G1	Aug-15	125.8	130.7	3.9%	125.8	0.0%	132.6	5.4%	29	144
Miami Wind G2	Aug-15	126.0	131.3	4.2%	126.0	0.0%	133.4	5.9%	29	144
Notrees Windpower	Feb-10	103.7	113.1	9.1%	103.7	0.0%	122.9	18.6%	95	153
Ocotillo Windpower	Dec-09	39.1	41.2	5.3%	36.6	-6.4%	47.2	20.7%	97	58.8

Table 4-1: Summary of 90th Percentile Hourly Wind Power Analysis for Ninety Seven Sites in Texas (Continued)

Wind Farm	12-Month Sliding 90th Percentile Hourly Wind Report								No. of Months of Data	Capacity (MW)
	First Year		Average		Minimum		Maximum			
	First 12-mo Ending Mo.	MW	MW	% Diff. vs. First 12-mo	MW	% Diff. vs. First 12-mo	MW	% Diff. vs. First 12-mo		
Panhandle Wind 1 U1	May-15	94.5	98.6	4.4%	93.8	-0.7%	101.3	7.2%	32	109
Panhandle Wind 1 U2	May-15	90.6	95.2	5.0%	90.5	-0.1%	98.0	8.2%	32	109
Panhandle Wind 2 U1	Oct-15	88.2	89.5	1.5%	88.2	0.0%	90.0	2.0%	27	94
Panhandle Wind 2 U2	Sep-15	90.2	92.1	2.2%	90.2	0.0%	93.4	3.6%	28	97
Panther Creek 1	Dec-09	114.4	121.4	6.1%	107.8	-5.8%	128.9	12.7%	97	142.5
Panther Creek 2	Dec-09	91.8	97.0	5.7%	85.2	-7.2%	104.2	13.5%	97	115.5
Panther Creek 3	Aug-10	128.5	154.0	19.9%	120.0	-6.6%	177.1	37.8%	89	199.5
Papalote Creek Wind Farm	Dec-10	150.1	131.9	-12.1%	39.6	-73.6%	157.9	5.2%	85	180
Papalote Creek Wind Farm II	Dec-11	174.2	166.1	-4.7%	155.0	-11.0%	176.3	1.2%	73	200.1
Penascal Wind 1	Feb-11	133.2	125.3	-5.9%	99.7	-25.2%	141.5	6.2%	83	161
Penascal Wind 2	Dec-09	83.3	108.4	30.1%	80.7	-3.1%	125.4	50.5%	97	142
Penascal Wind 3	May-11	87.1	77.6	-10.9%	65.7	-24.6%	88.8	2.0%	80	101
Pyron Wind Farm	Dec-09	157.2	191.2	21.7%	151.4	-3.7%	220.1	40.0%	97	249
Red Canyon 1	Aug-07	76.4	75.3	-1.4%	71.0	-7.0%	79.1	3.6%	125	84
Roscoe Wind Farm	Dec-08	169.4	154.2	-9.0%	108.1	-36.2%	179.8	6.2%	109	209
Sand Bluff Wind Farm	Nov-08	69.4	66.4	-4.3%	51.7	-25.5%	75.4	8.6%	110	90
Senate Wind	Sep-13	127.1	126.6	-0.4%	119.0	-6.4%	132.2	4.0%	52	150
Sherbino I Wind	Dec-09	104.7	111.0	6.0%	91.8	-12.3%	128.1	22.4%	97	150
Sherbino 2 Wind	Dec-12	125.7	98.2	-21.9%	38.0	-69.8%	125.7	0.0%	61	150
Silver Star Wind	Apr-09	40.6	45.4	11.8%	39.5	-2.7%	50.5	24.4%	105	60
South Trent Wind Farm	Dec-09	67.7	84.2	24.3%	65.4	-3.5%	91.0	34.4%	97	101.2
Southwest Mesa Wind	Dec-02	51.1	45.6	-10.8%	31.3	-38.8%	56.5	10.6%	181	74.6
Stanton Wind Energy	Dec-08	79.4	97.2	22.4%	79.4	0.0%	107.1	34.8%	109	120
Spinning Spur Wind Two	May-15	140.9	145.8	3.5%	140.9	0.0%	149.4	6.1%	32	161
Sweetwater Wind 1	Dec-04	34.1	32.7	-4.1%	28.8	-15.4%	34.9	2.4%	157	37.5
Sweetwater Wind 2 (unit 1)	Jan-06	71.4	81.5	14.2%	71.4	0.0%	88.0	23.3%	144	97.5
Sweetwater Wind 2 (unit 2)	Mar-08	13.1	13.7	4.8%	12.0	-8.7%	14.8	13.3%	118	16
Sweetwater Wind 3	Dec-06	99.6	100.9	1.3%	67.1	-32.7%	111.2	11.6%	133	135
Sweetwater Wind 4	Mar-08	161.0	170.4	5.8%	153.2	-4.9%	182.2	13.2%	118	240.8
Sweetwater Wind 5	Dec-08	66.5	62.9	-5.5%	56.3	-15.3%	69.3	4.3%	109	80.5
Snyder Wind Project	Dec-08	46.5	44.8	-3.6%	36.1	-22.3%	50.9	9.6%	109	63
Stephens Ranch Wind 1	Nov-15	182.9	189.6	3.7%	182.9	0.0%	193.1	5.6%	26	211
Trent Mesa	Dec-02	108.8	119.3	9.7%	90.7	-16.7%	132.8	22.0%	181	150
Trinity Hills Wind Farm 1	Dec-12	78.8	81.6	3.6%	62.8	-20.3%	89.3	13.3%	61	118
Trinity Hills Wind Farm 2	Dec-12	74.8	79.7	6.6%	63.5	-15.0%	88.0	17.7%	61	108
Turkey Track Wind Energy Center	Dec-09	77.4	125.1	61.6%	76.5	-1.1%	143.1	85.0%	97	169.5
Whirlwind	Dec-08	54.0	51.2	-5.2%	39.8	-26.3%	56.9	5.4%	109	60
Whitetail Wind	Oct-13	72.9	69.3	-4.9%	64.2	-11.9%	73.1	0.3%	51	92
Windthorpe 2 Wind	Oct-15	50.3	57.0	13.3%	50.3	0.0%	59.4	18.1%	27	68
WKN Mozart Wind	Oct-13	22.4	22.7	1.1%	20.5	-8.5%	25.8	15.0%	51	30
Wolf Ridge Wind	Dec-09	105.9	104.0	-1.9%	93.0	-12.2%	108.8	2.7%	97	112.5
Woodward Mountain Ranch	Dec-02	85.3	96.1	12.8%	80.4	-5.7%	112.4	31.8%	181	159.7
<b>Weighted Average:</b>				<b>6.2%</b>		<b>-14.7%</b>		<b>18.6%</b>	<b>Total:</b>	<b>12683.2</b>

Table 4-2: Summary of Maximum Hourly Wind Power Analysis for Ninety Seven Sites in Texas

Wind Farm	Design Capacity (A)	12-Month Sliding Maximum MW - Measured		Maximum MW in Last 12-mo - Measured (D)	Difference (A-B)	Difference (B-D)
		Maximum (B)	Minimum (C)			
Anacacho Wind	100.0	98.0	97.0	97.8	2.0	0.2
Blue Summit Wind	135.0	135.0	134.7	134.7	0.0	0.3
Bobcat Bluff Wind	150.0	150.0	145.2	149.6	0.0	0.4
Brazos Wind Ranch	160.0	160.0	118.9	145.1	0.0	14.8
Barton Chapel Wind 1	120.0	114.1	106.5	106.5	5.9	7.6
Buffalo Gap 1	120.0	120.0	113.5	113.5	0.0	6.5
Buffalo Gap 2	233.0	232.7	223.7	230.5	0.3	2.2
Buffalo Gap 3	170.0	167.9	165.9	166.2	2.1	1.7
Bull Creek Wind Plant	180.0	177.4	73.6	177.4	2.6	0.0
Big Spring Wind Power	41.0	37.0	20.2	20.2	4.0	16.8
Callahan Divide Wind	114.0	113.9	103.7	106.7	0.1	7.2
Capricorn Ridge Wind 1&2	364.0	358.3	338.7	338.7	5.7	19.6
Capricorn Ridge Wind 3	186.0	186.0	181.2	182.0	0.0	4.0
Capricorn Ridge Wind 4	112.5	112.5	111.9	111.9	0.0	0.6
Camp Springs Wind Energy Center	130.0	130.0	129.1	130.0	0.0	0.0
Camp Springs Energy Expansion	120.0	120.0	118.6	119.2	0.0	0.8
Cedro Hill Wind	150.0	149.9	149.1	149.1	0.1	0.8
Champion Wind Farm	126.5	124.5	124.1	124.3	2.0	0.2
Desert Sky	160.5	160.3	105.8	142.4	0.3	17.9
Elbow Creek Wind	121.9	118.7	116.7	118.2	3.2	0.5
Forest Creek Wind Farm	124.2	123.9	120.4	120.5	0.3	3.5
Goat Wind	150.0	149.9	80.9	149.9	0.1	0.0
Goldthwaite Wind 1	149.0	148.7	143.9	148.7	0.3	0.0
Grandview Wind 1 (Conway) GV1A	107.0	106.2	104.1	104.1	0.8	2.2
Grandview Wind 1 (Conway) GV1B	104.0	102.9	101.6	102.9	1.1	0.0
Gulf Wind 1	141.6	140.7	136.2	140.4	0.9	0.3
Gulf Wind 2	141.6	140.9	134.6	140.0	0.7	0.9
Hackberry Wind	165.5	162.8	162.0	162.8	2.7	0.0
Harbor Wind	9.0	9.0	6.0	6.0	0.0	3.0
Horse Hollow Phase 1	213.0	211.3	196.7	200.4	1.7	10.9
Horse Hollow Phase 2	184.0	183.4	156.7	166.7	0.6	16.8
Horse Hollow Phase 3	223.5	223.0	178.7	201.3	0.5	21.7
Horse Hollow Phase 4	115.0	114.0	105.3	106.1	1.0	7.9
Inadale Wind	197.0	197.0	188.5	196.9	0.0	0.1
Indian Mesa	82.5	80.1	49.4	62.6	2.4	17.5
King Mountain Wind Ranch-NE	79.3	77.0	49.8	53.1	2.3	23.9
King Mountain Wind Ranch-NW	79.3	77.6	56.2	60.3	1.7	17.3
King Mountain Wind Ranch-SE	40.3	40.0	27.8	30.8	0.3	9.3
King Mountain Wind Ranch-SW	79.3	75.9	51.2	60.0	3.4	15.9
Langford Wind	150.0	150.0	147.2	148.1	0.0	1.9
Lone Star - Post Oak Wind	200.0	192.1	182.4	184.6	7.9	7.5
Lone Star - Mesquite Wind	200.0	195.0	183.2	185.9	5.0	9.0
Loraine Windpark I	126.0	95.2	48.7	49.0	30.8	46.2
Loraine Windpark II	124.5	80.8	50.7	51.0	43.7	29.8
Loraine Windpark III	26.0	26.0	23.6	25.5	0.0	0.5
Loraine Windpark IV	24.0	24.0	17.5	24.0	0.0	0.0
Los Vientos Wind I	200.1	198.7	196.8	198.7	1.4	0.0
Los Vientos Wind II	201.6	201.4	195.8	200.3	0.2	1.1
Magic Valley Wind (Redfish) 1A	99.8	97.6	95.9	97.1	2.2	0.5
Magic Valley Wind (Redfish) 1B	103.5	102.2	99.3	100.6	1.3	1.6
McAdoo Wind	150.0	150.0	149.6	150.0	0.0	0.0
Miami Wind G1	144.0	141.3	141.0	141.0	2.7	0.2
Miami Wind G2	144.0	141.5	141.2	141.2	2.5	0.2
Notrees Windpower	153.0	151.7	146.2	146.5	1.3	5.2
Ocotillo Windpower	58.8	57.5	52.6	55.0	1.3	2.6

Table 4-2: Summary of Maximum Hourly Wind Power Analysis for Ninety Seven Sites in Texas (Continued)

Wind Farm	Design Capacity (A)	12-Month Sliding Maximum MW - Measured		Maximum MW in Last 12-mo - Measured (D)	Difference (A-B)	Difference (B-D)
		Maximum (B)	Minimum (C)			
Panhandle Wind 1 U1	109.0	109.0	108.8	108.8	0.0	0.2
Panhandle Wind 1 U2	109.0	108.3	106.9	106.9	0.7	1.5
Panhandle Wind 2 U1	94.0	93.8	92.4	92.4	0.2	1.4
Panhandle Wind 2 U2	97.0	96.9	95.0	95.1	0.1	1.8
Panther Creek 1	142.5	142.5	139.0	142.1	0.0	0.4
Panther Creek 2	115.5	115.5	115.2	115.5	0.0	0.0
Panther Creek 3	199.5	199.5	195.6	199.1	0.0	0.4
Papalote Creek Wind Farm	180.0	180.0	49.2	177.0	0.0	3.0
Papalote Creek Wind Farm II	200.1	195.6	192.6	192.6	4.5	3.0
Penascal Wind 1	161.0	161.0	152.0	159.3	0.0	1.6
Penascal Wind 2	142.0	142.0	127.4	140.9	0.0	1.1
Penascal Wind 3	101.0	100.9	96.1	98.2	0.1	2.7
Pyron Wind Farm	249.0	249.0	244.3	245.1	0.0	3.9
Red Canyon 1	84.0	84.0	82.1	82.3	0.0	1.7
Roscoe Wind Farm	209.0	209.0	199.5	208.6	0.0	0.4
Sand Bluff Wind Farm	90.0	89.3	79.0	79.0	0.7	10.3
Senate Wind	150.0	146.1	142.3	145.6	3.9	0.5
Sherbino I Wind	150.0	149.9	118.5	120.2	0.1	29.6
Sherbino 2 Wind	150.0	146.8	71.3	135.1	3.2	11.7
Silver Star Wind	60.0	60.0	53.3	53.3	0.0	6.7
South Trent Wind Farm	101.2	99.0	96.6	96.6	2.2	2.4
Southwest Mesa Wind	74.6	73.3	47.0	52.5	1.3	20.8
Stanton Wind Energy	120.0	120.0	118.7	119.4	0.0	0.6
Spinning Spur Wind Two	161.0	157.9	156.3	156.3	3.1	1.6
Sweetwater Wind 1	37.5	37.5	36.0	37.5	0.0	0.0
Sweetwater Wind 2 (unit 1)	97.5	97.5	91.8	97.1	0.0	0.4
Sweetwater Wind 2 (unit 2)	16.0	16.0	15.9	16.0	0.0	0.0
Sweetwater Wind 3	135.0	129.6	121.5	128.2	5.4	1.4
Sweetwater Wind 4	240.8	240.6	216.7	222.5	0.2	18.1
Sweetwater Wind 5	80.5	80.5	76.9	80.3	0.0	0.2
Snyder Wind Project	63.0	63.0	60.8	61.6	0.0	1.4
Stephens Ranch Wind 1	211.0	207.6	205.2	206.4	3.4	1.3
Trent Mesa	150.0	147.6	138.8	143.2	2.4	4.4
Trinity Hills Wind Farm 1	118.0	117.7	101.7	108.6	0.3	9.2
Trinity Hills Wind Farm 2	108.0	107.6	104.5	105.2	0.4	2.4
Turkey Track Wind Energy Center	169.5	169.5	164.8	169.5	0.0	0.0
Whirlwind	60.0	59.3	57.0	58.4	0.7	0.9
Whitetail Wind	92.0	90.7	89.5	90.7	1.3	0.0
Windthorst 2 Wind	68.0	66.7	64.5	64.5	1.3	2.2
WKN Mozart Wind	30.0	30.0	29.9	30.0	0.0	0.0
Wolf Ridge Wind	112.5	112.5	112.0	112.2	0.0	0.3
Woodward Mountain Ranch	159.7	148.2	104.1	124.2	11.5	24.0
<b>Total:</b>	<b>12683.2</b>	<b>12486.1</b>	<b>11270.4</b>	<b>11953.5</b>	<b>197.1</b>	<b>532.6</b>

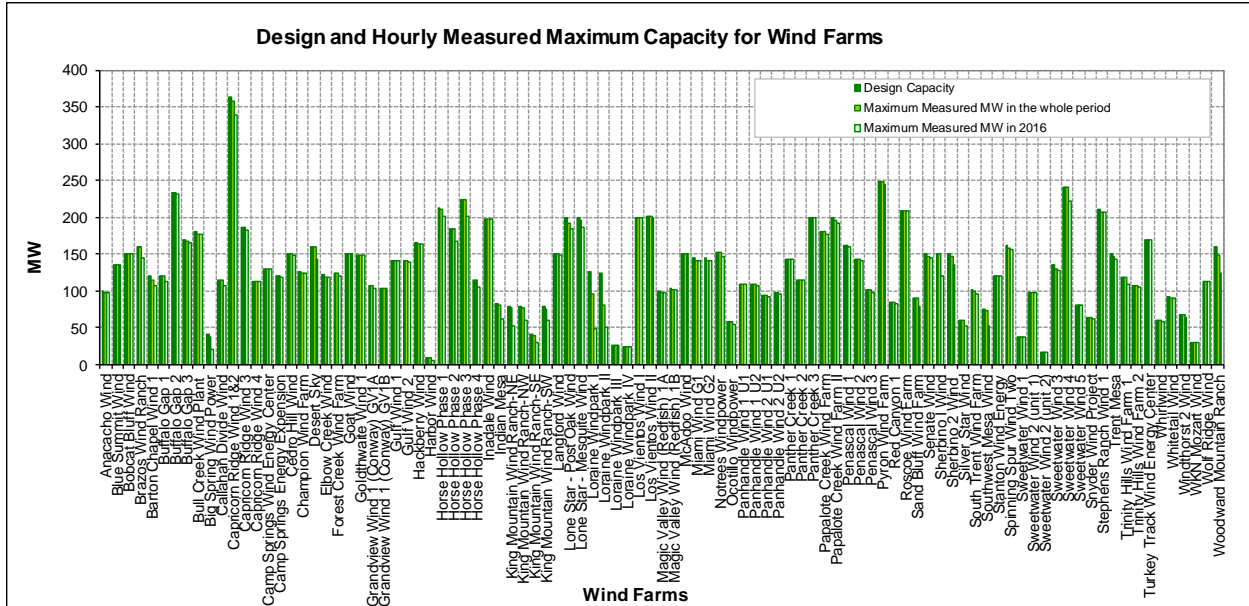


Figure 4-1: Design and Hourly Measured Maximum Capacity for Ninety Seven Wind Farms

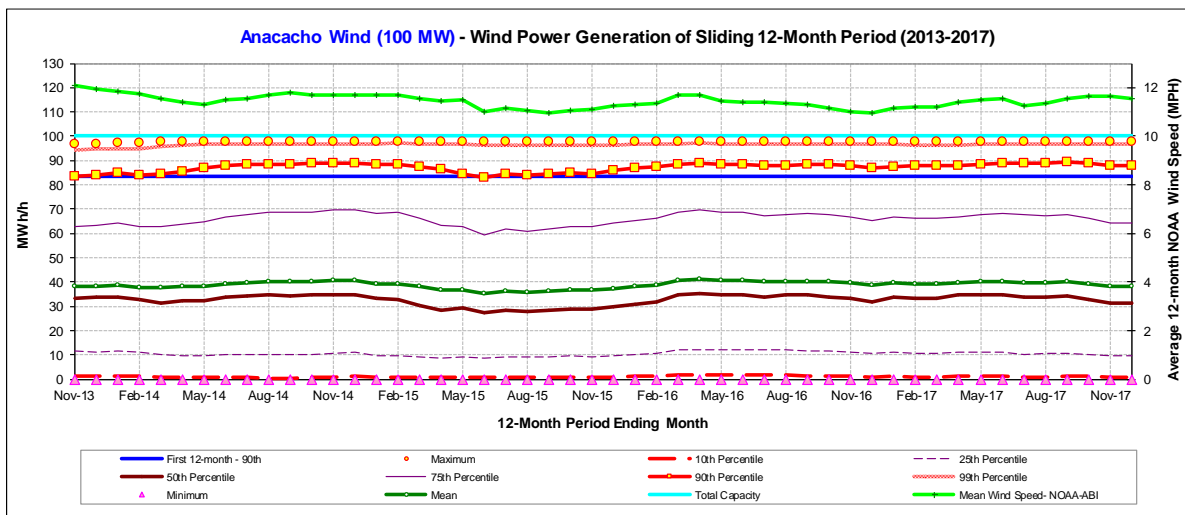


Figure 4-2: Sliding 12-month Hourly Wind Power Generation for Anacacho Wind

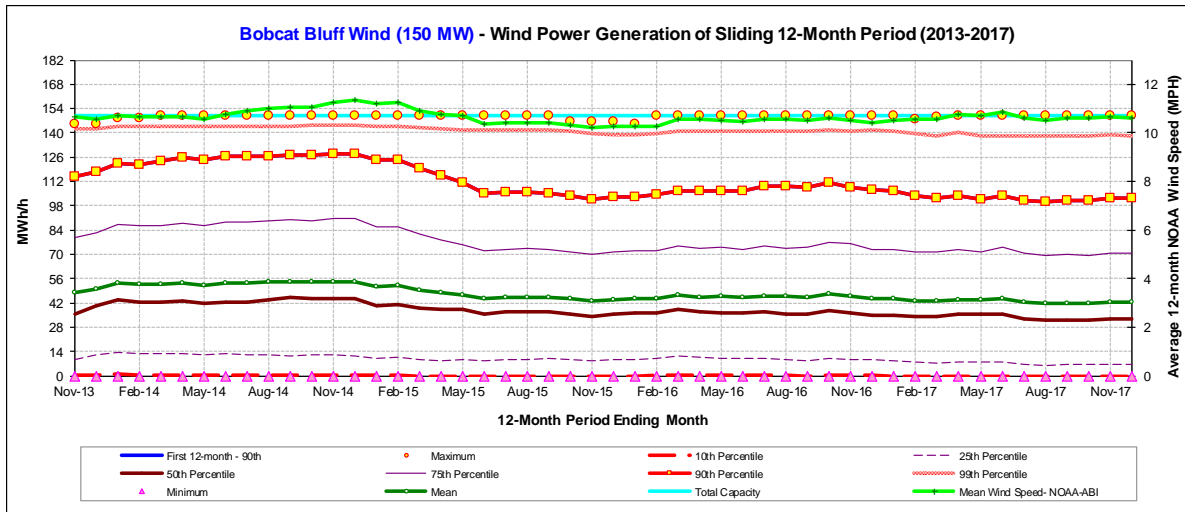


Figure 4-3: Sliding 12-month Hourly Wind Power Generation for Bobcat Bluff Wind

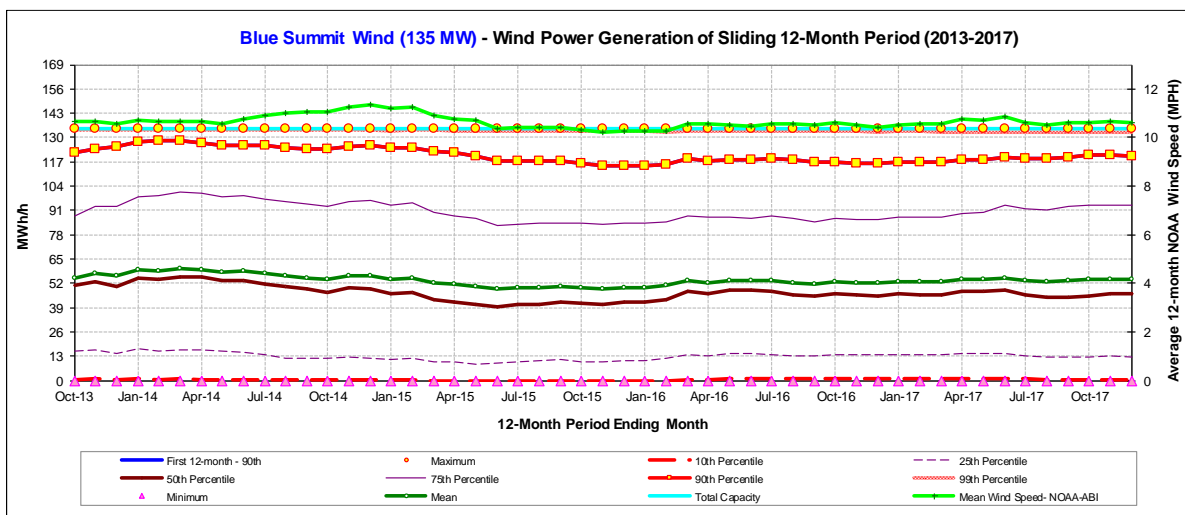


Figure 4-4: Sliding 12-month Hourly Wind Power Generation for Blue Summit Wind

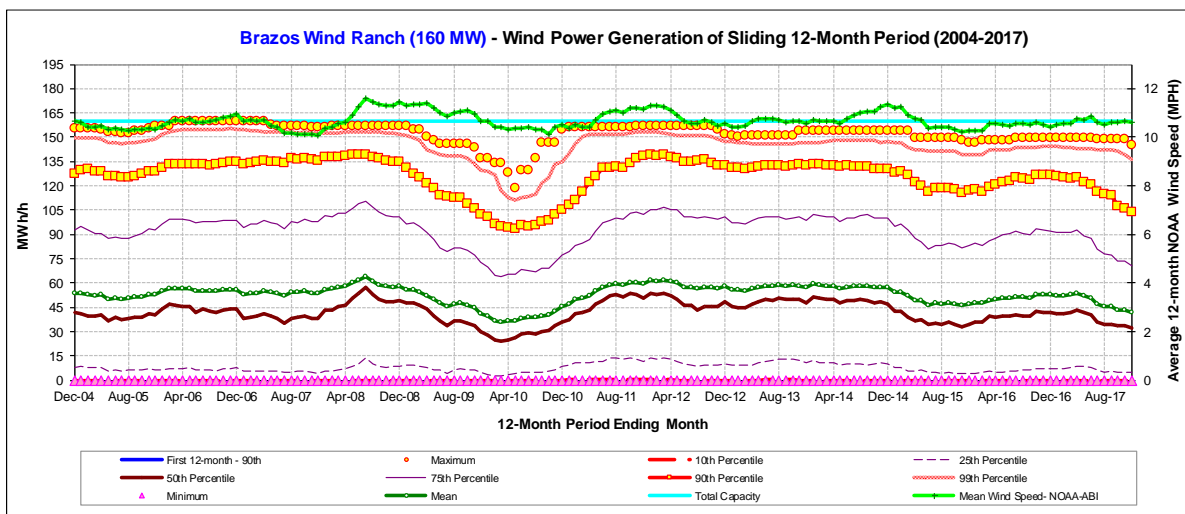


Figure 4-5: Sliding 12-month Hourly Wind Power Generation for Brazos Wind Ranch



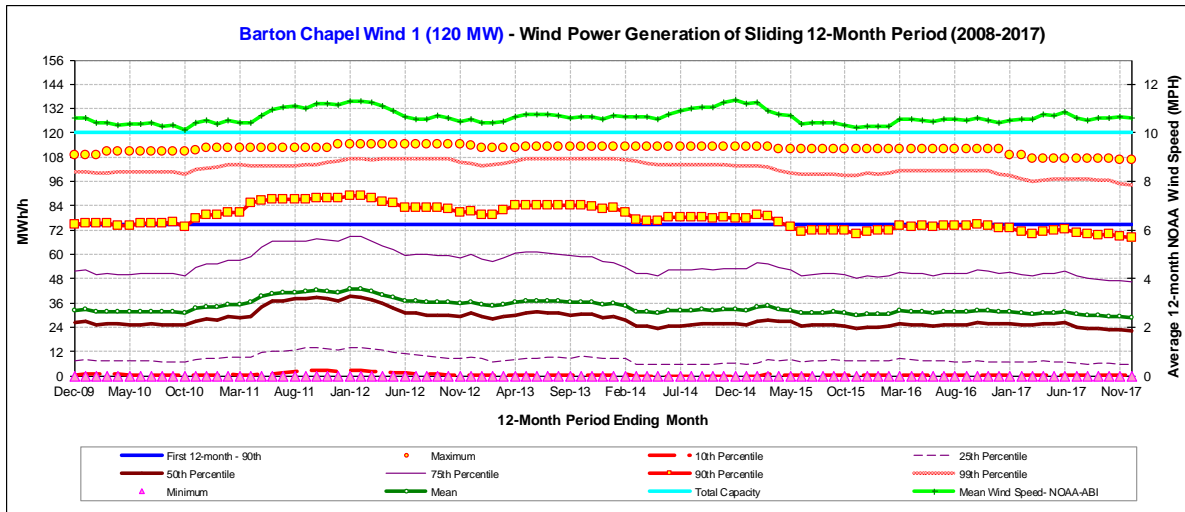


Figure 4-6: Sliding 12-month Hourly Wind Power Generation for Barton Chapel Wind 1

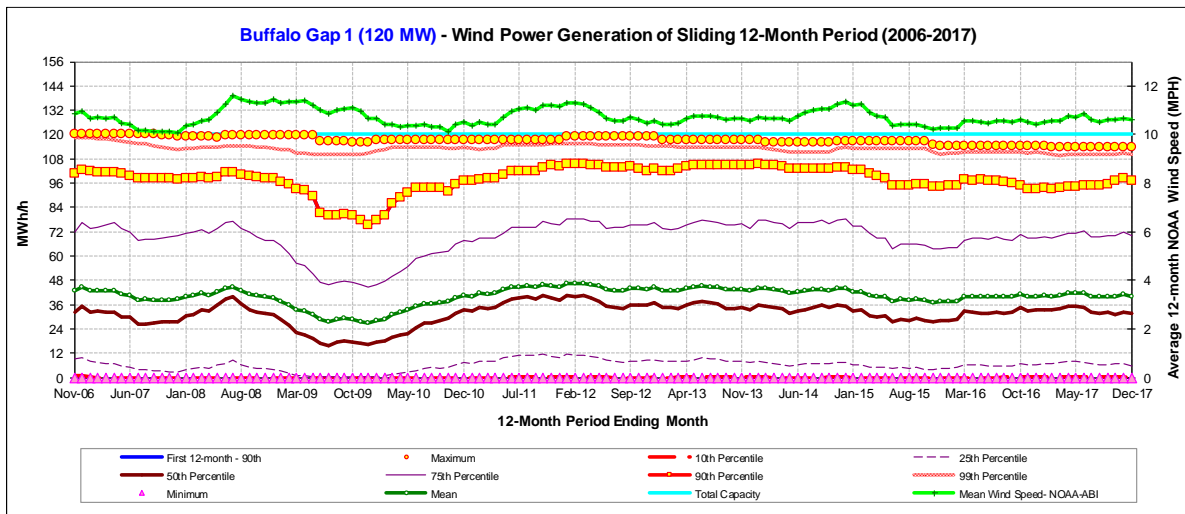


Figure 4-7: Sliding 12-month Hourly Wind Power Generation for Buffalo Gap 1

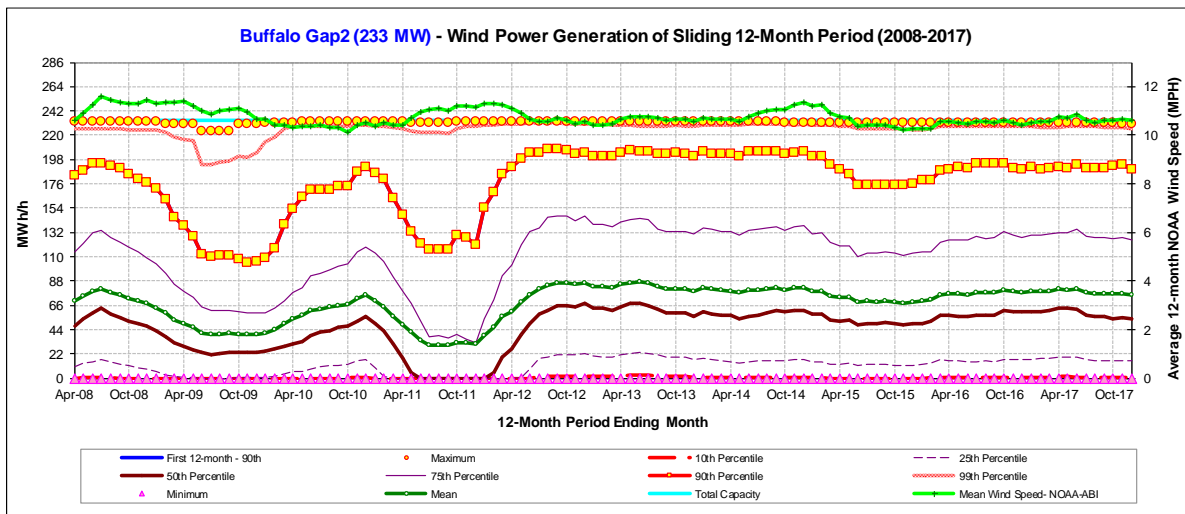


Figure 4-8: Sliding 12-month Hourly Wind Power Generation for Buffalo Gap 2

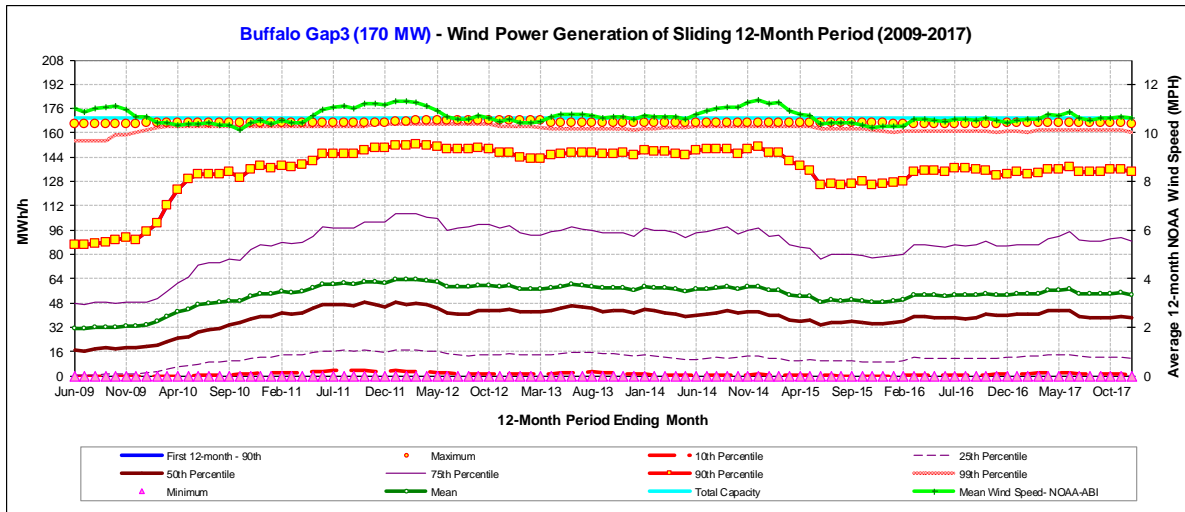


Figure 4-9: Sliding 12-month Hourly Wind Power Generation for Buffalo Gap 3

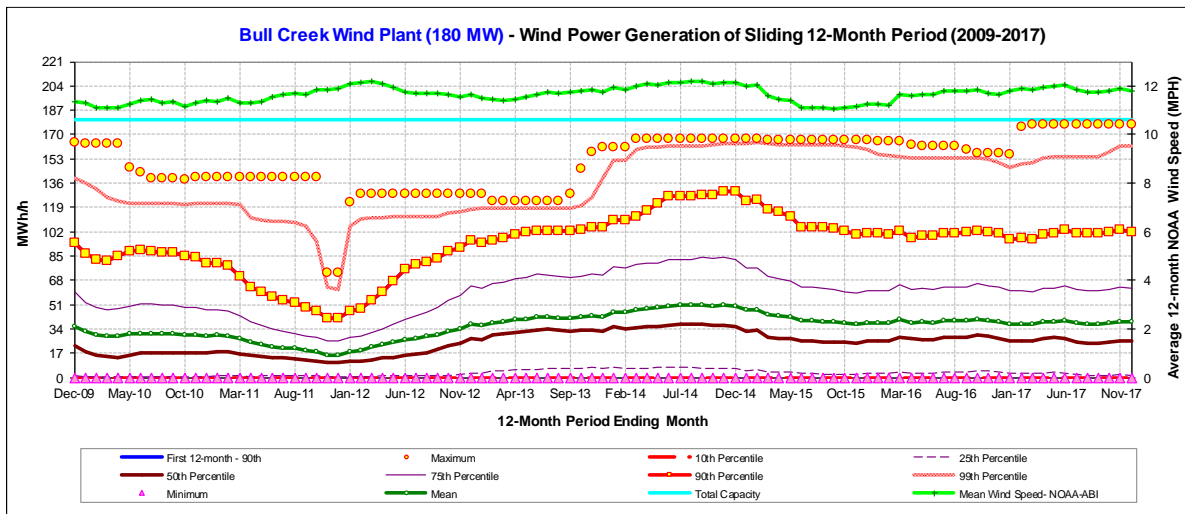


Figure 4-10: Sliding 12-month Hourly Wind Power Generation for Bull Creek Wind Plant

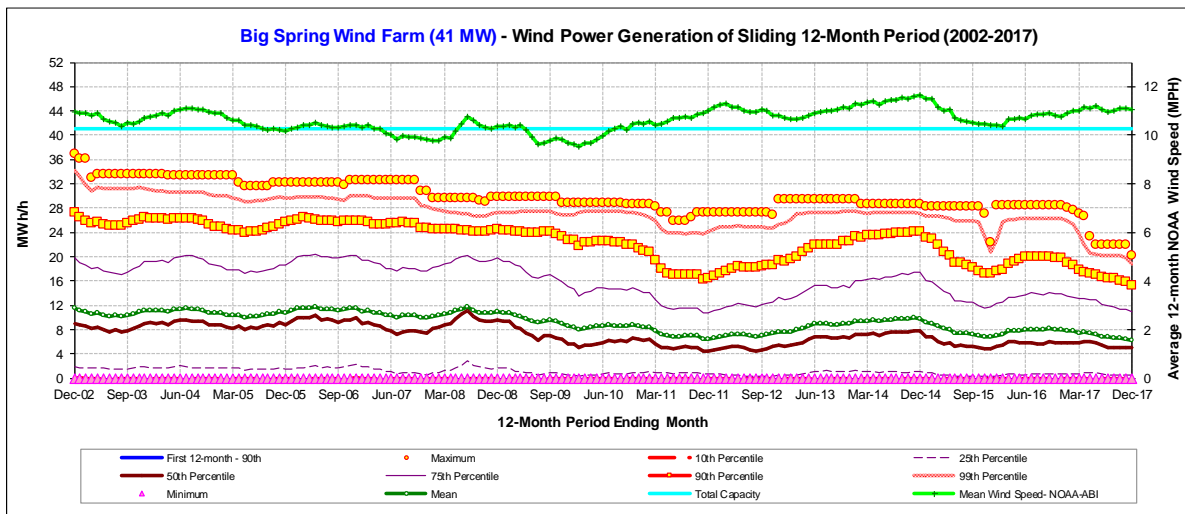


Figure 4-11: Sliding 12-month Hourly Wind Power Generation for Big Spring Wind Power

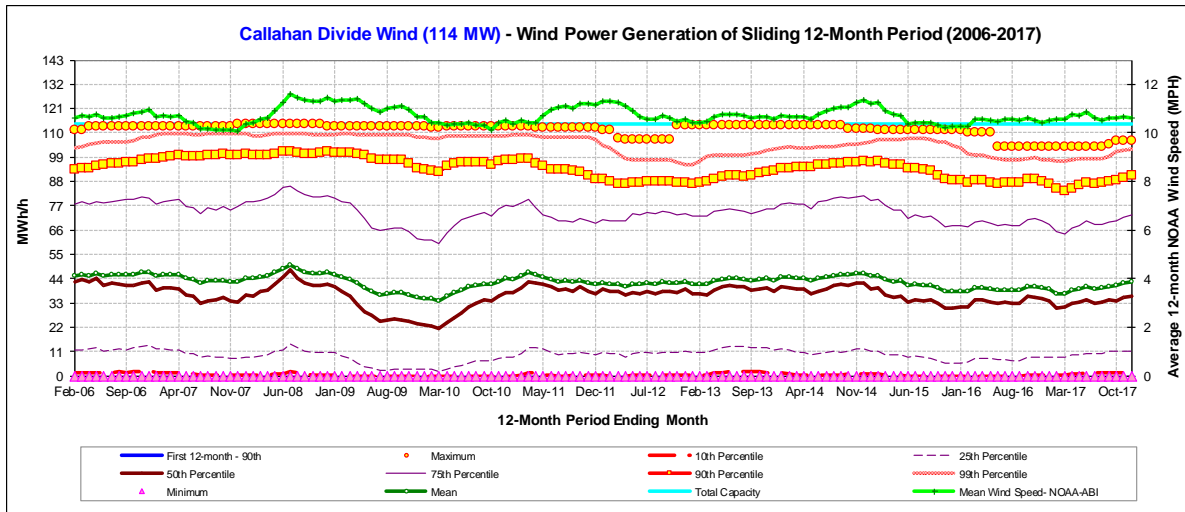


Figure 4-12: Sliding 12-month Hourly Wind Power Generation for Callahan Divide Wind

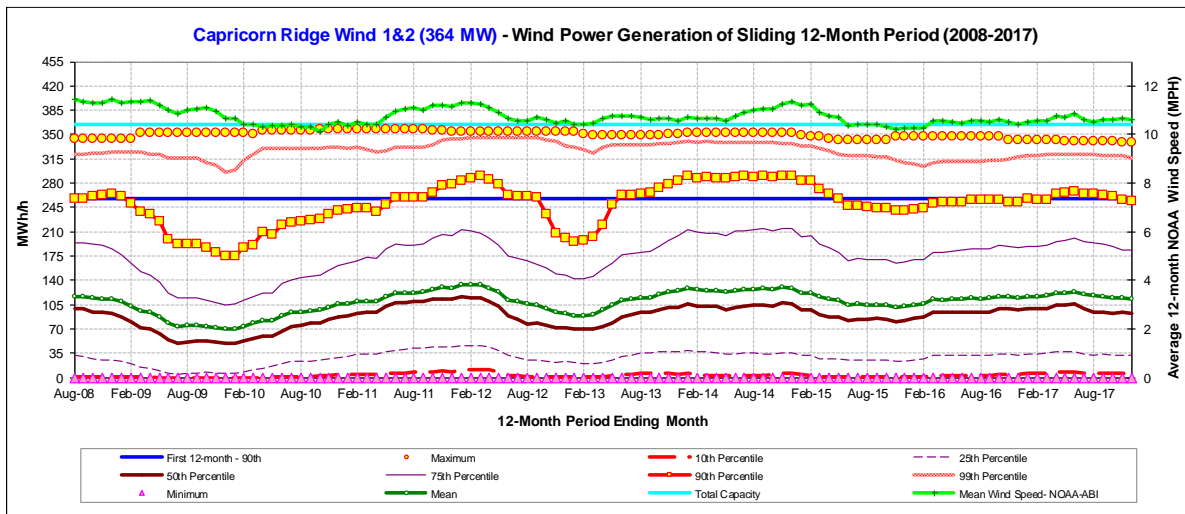


Figure 4-13: Sliding 12-month Hourly Wind Power Generation for Capricorn Ridge Wind 1 & 2

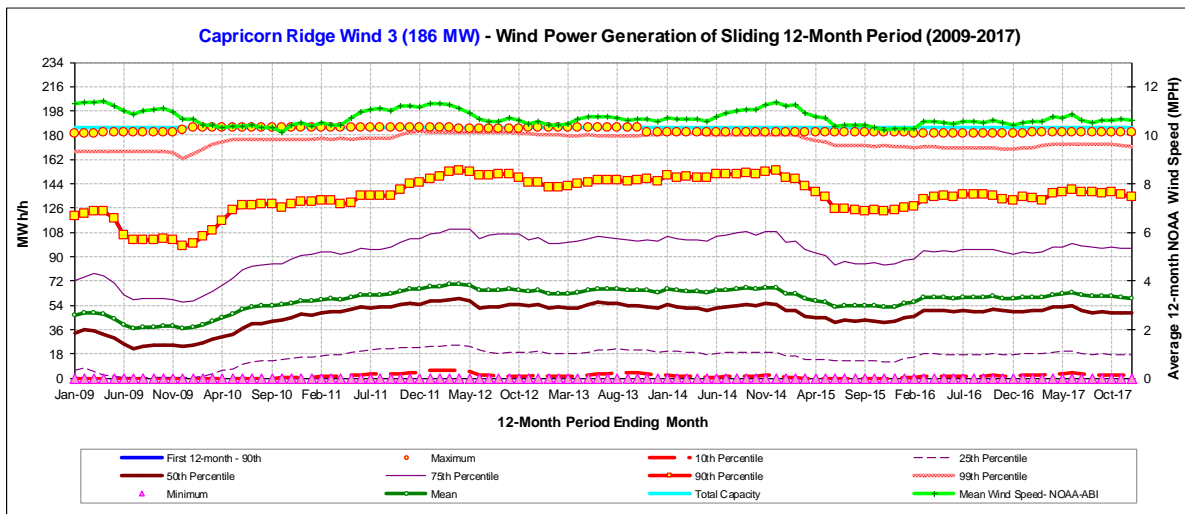


Figure 4-14: Sliding 12-month Hourly Wind Power Generation for Capricorn Ridge Wind 3

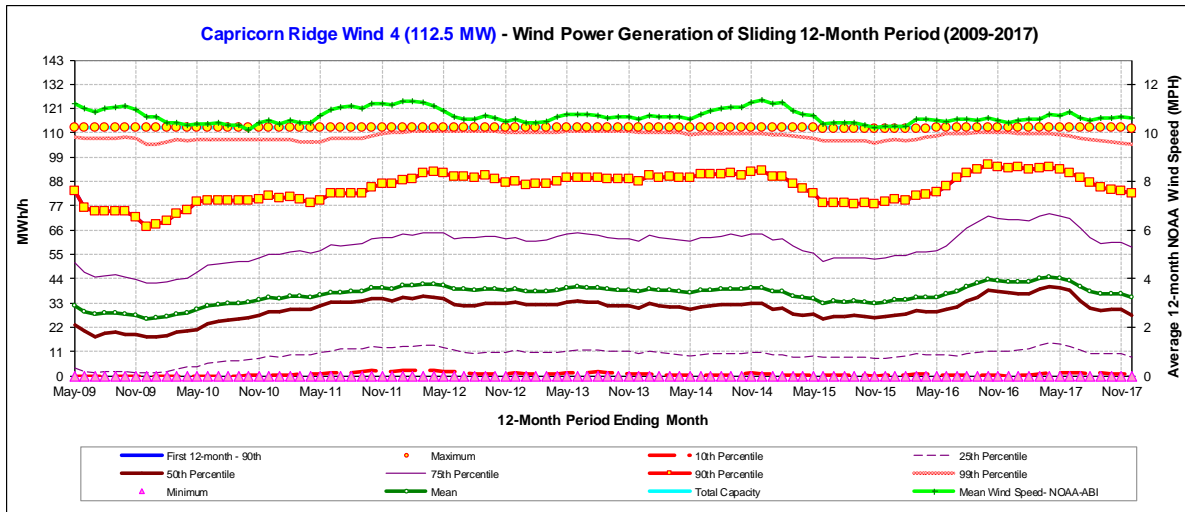


Figure 4-15: Sliding 12-month Hourly Wind Power Generation for Capricorn Ridge Wind 4

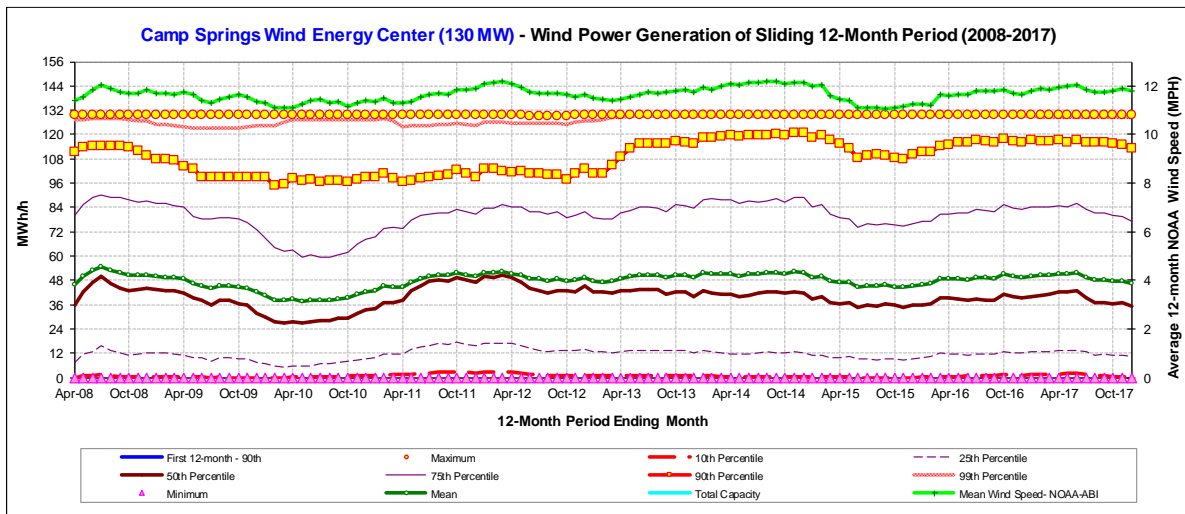


Figure 4-16: Sliding 12-month Hourly Wind Power Generation for Camp Springs Wind Energy Center

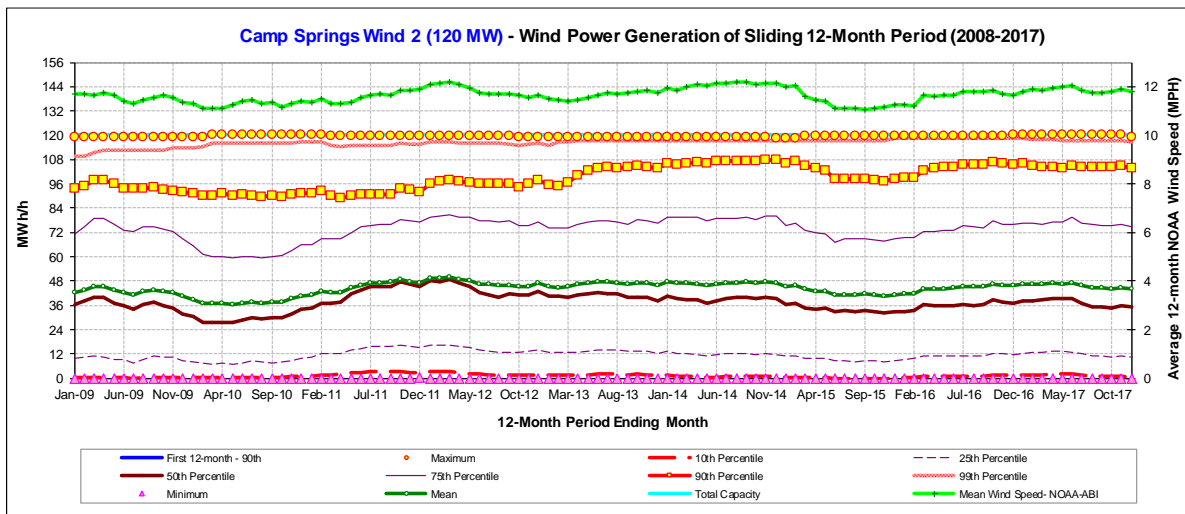


Figure 4-17: Sliding 12-month Hourly Wind Power Generation for Camp Springs Wind Energy Expansion

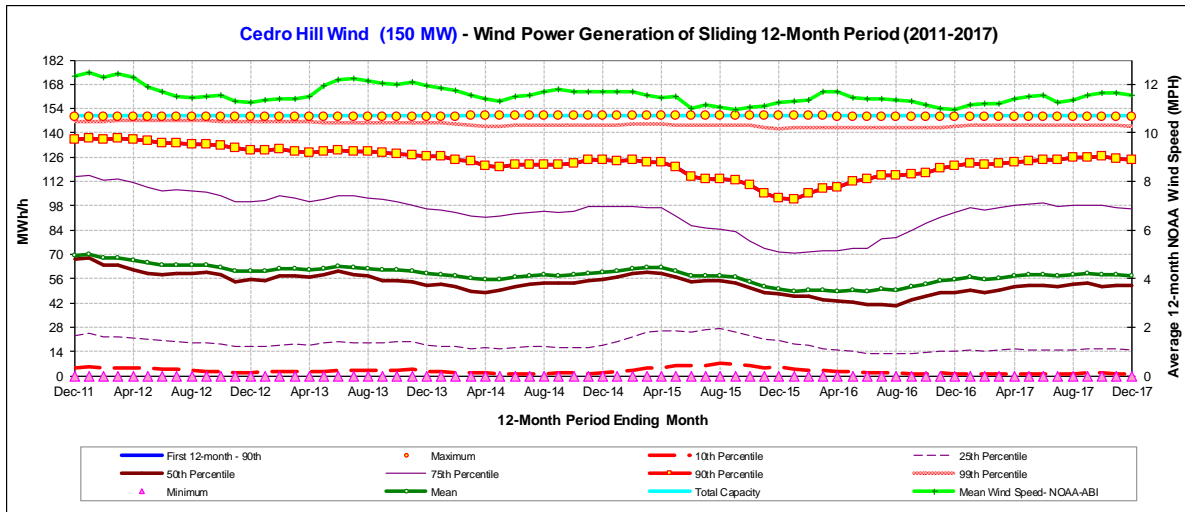


Figure 4-18: Sliding 12-month Hourly Wind Power Generation for Cedro Hill Wind

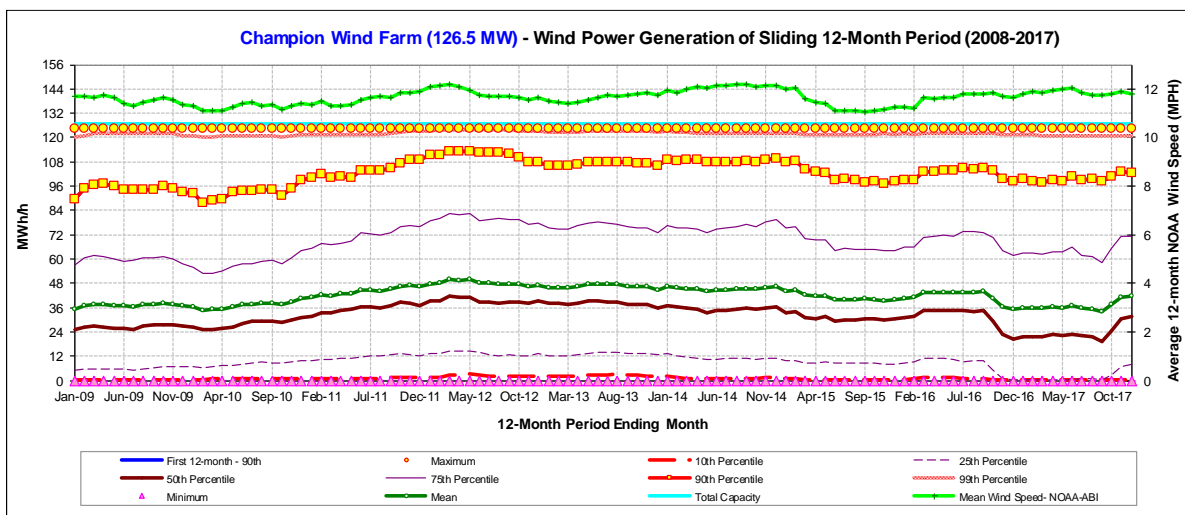


Figure 4-19: Sliding 12-month Hourly Wind Power Generation for Champion Wind

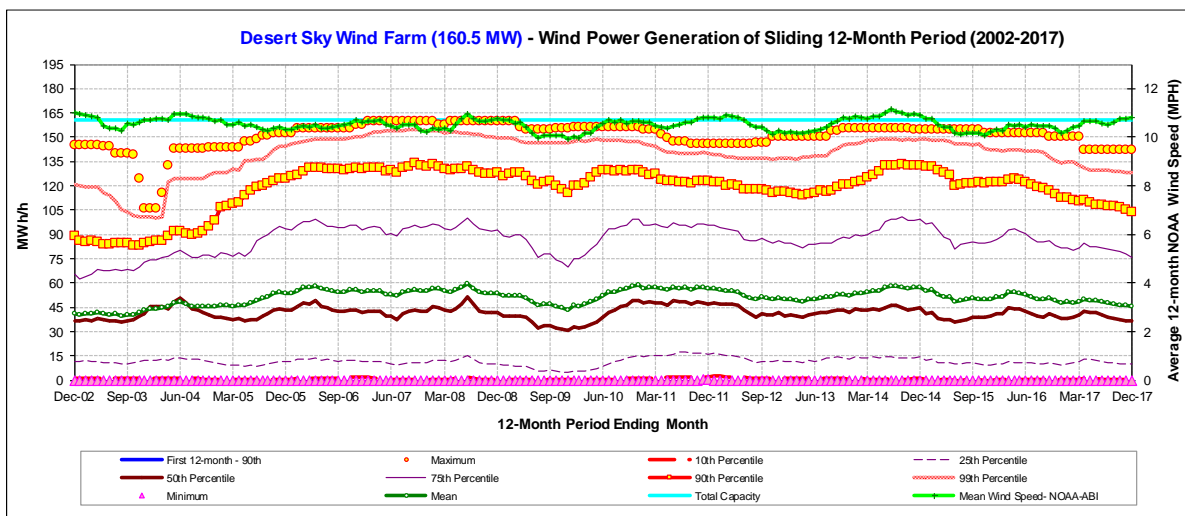


Figure 4-20: Sliding 12-month Hourly Wind Power Generation for Desert Sky



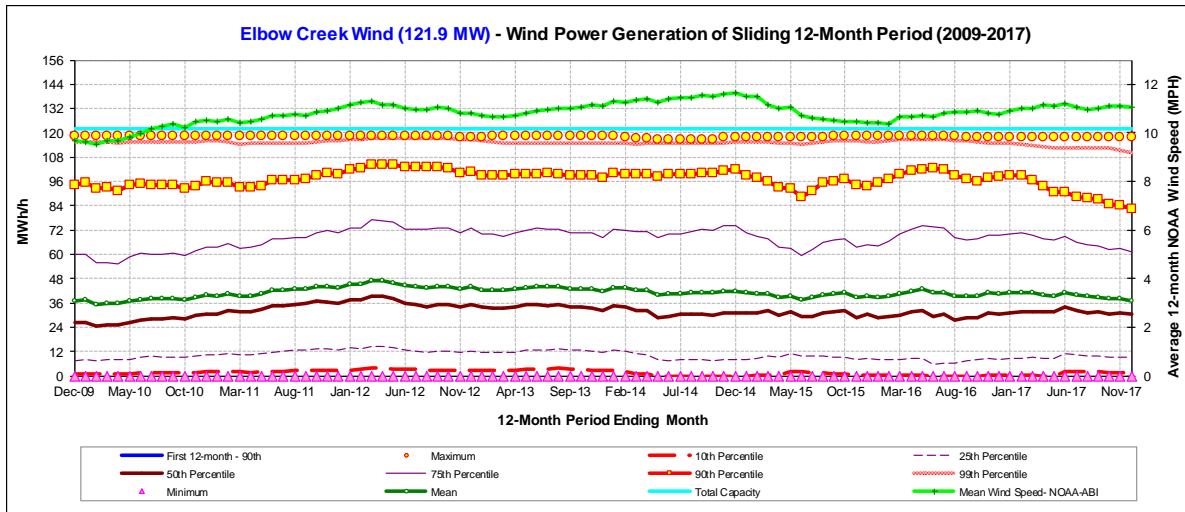


Figure 4-21: Sliding 12-month Hourly Wind Power Generation for Elbow Creek Wind

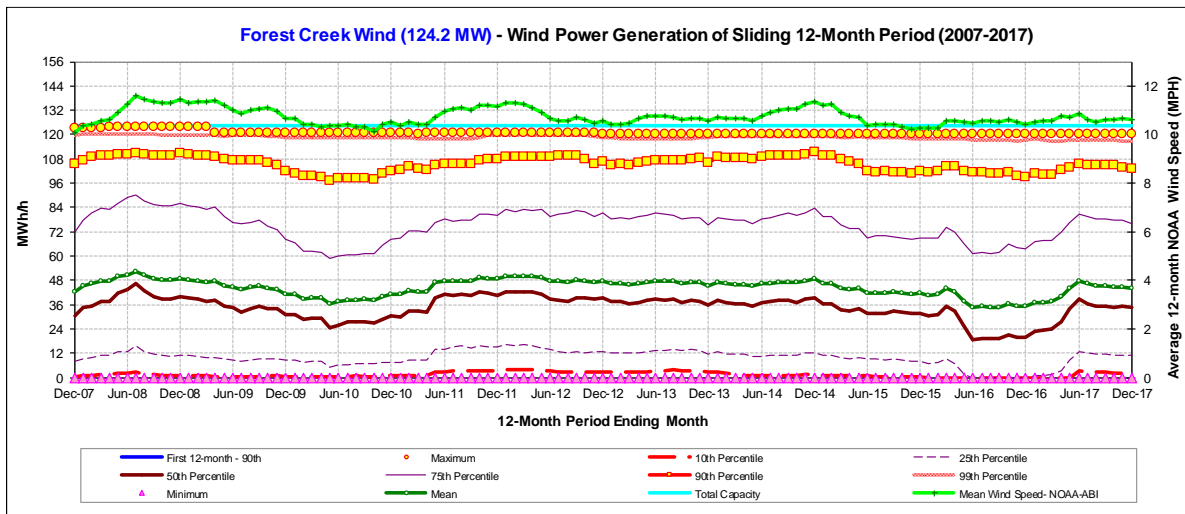


Figure 4-22: Sliding 12-month Hourly Wind Power Generation for Forest Creek Wind

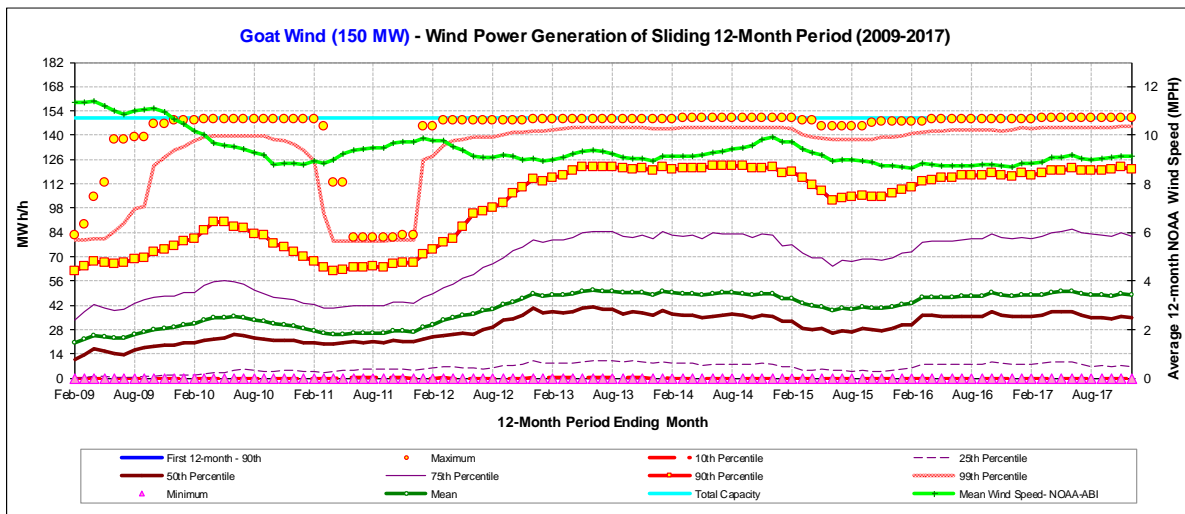


Figure 4-23: Sliding 12-month Hourly Wind Power Generation for Goat Wind

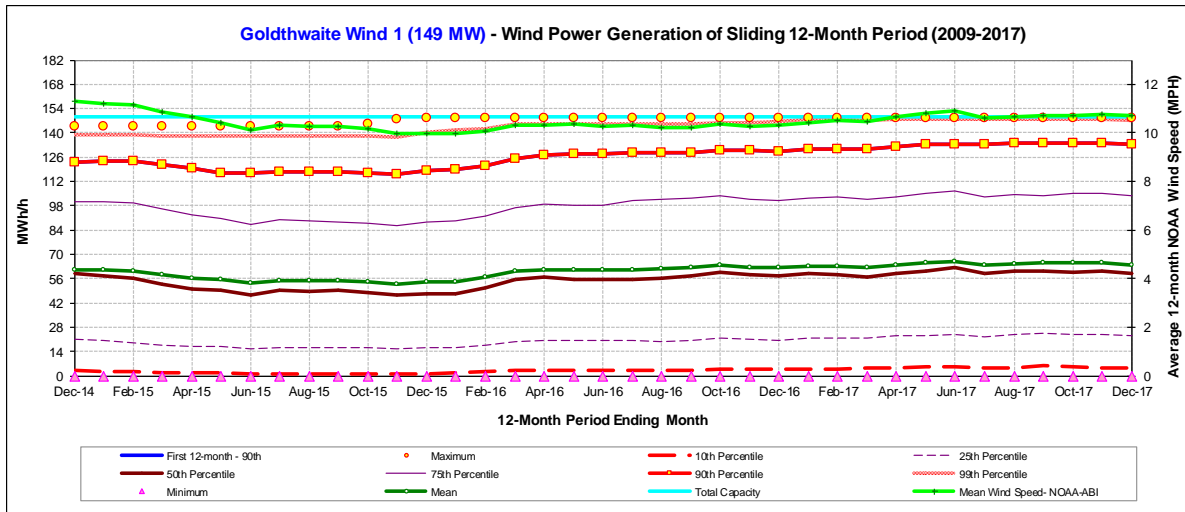


Figure 4-24: Sliding 12-month Hourly Wind Power Generation for Goldthwaite Wind 1

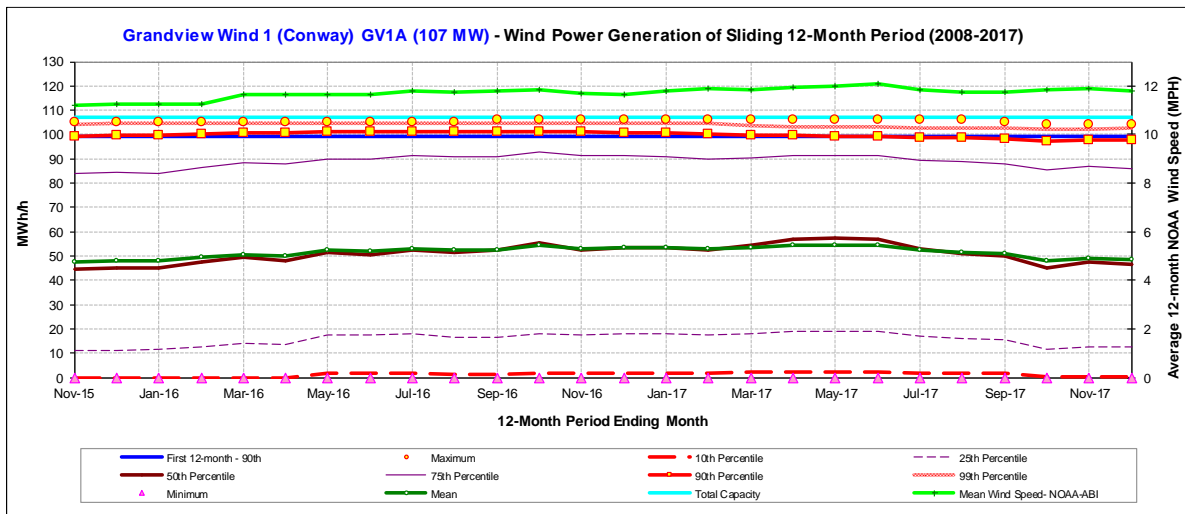


Figure 4-25: Sliding 12-month Hourly Wind Power Generation for Grandview Wind 1 (Conway) GV1A

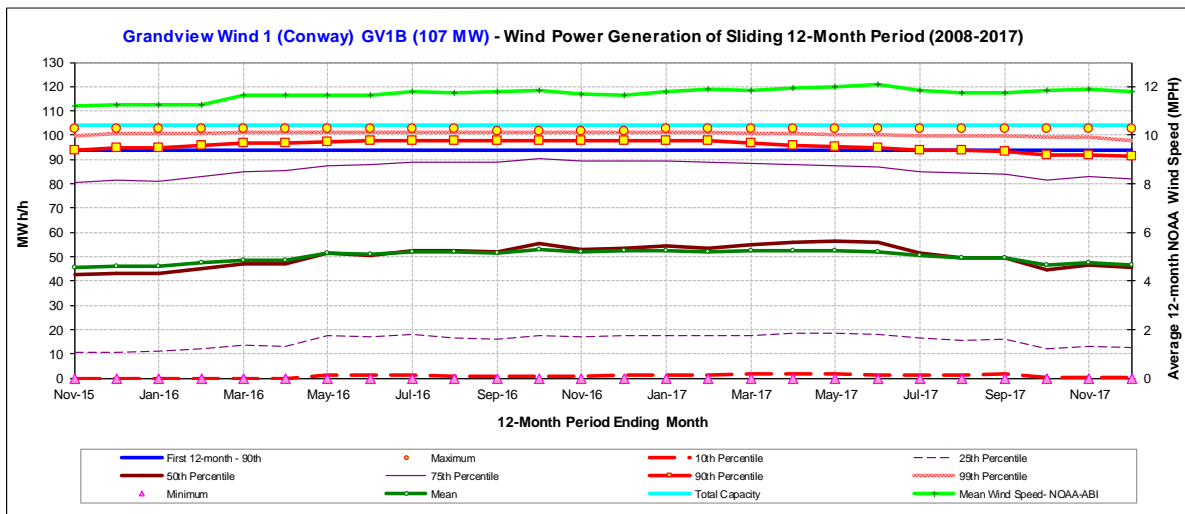


Figure 4-26: Sliding 12-month Hourly Wind Power Generation for Grandview Wind 1 (Conway) GV1B

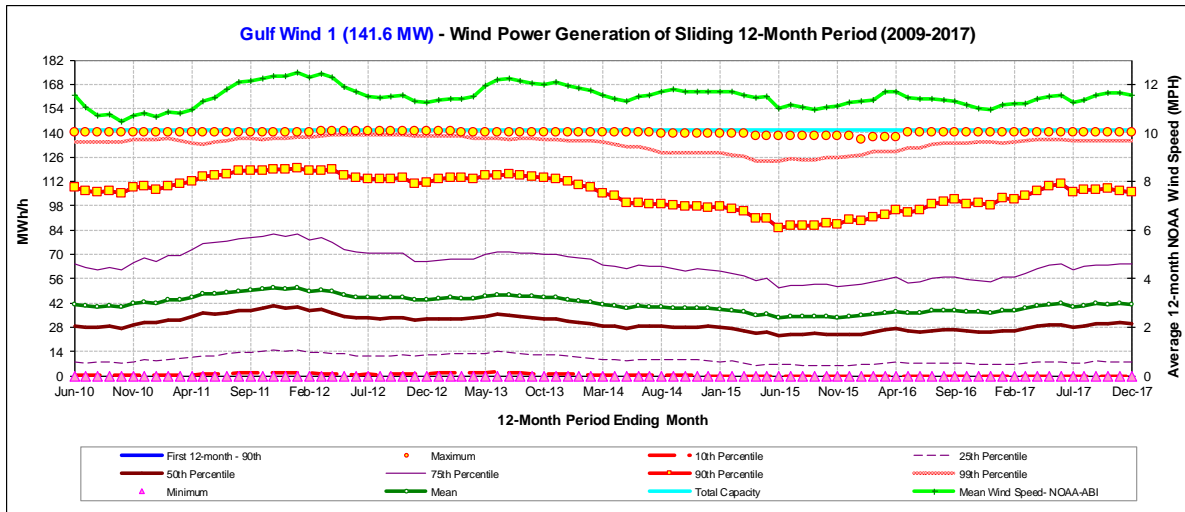


Figure 4-27: Sliding 12-month Hourly Wind Power Generation for Gulf Wind 1

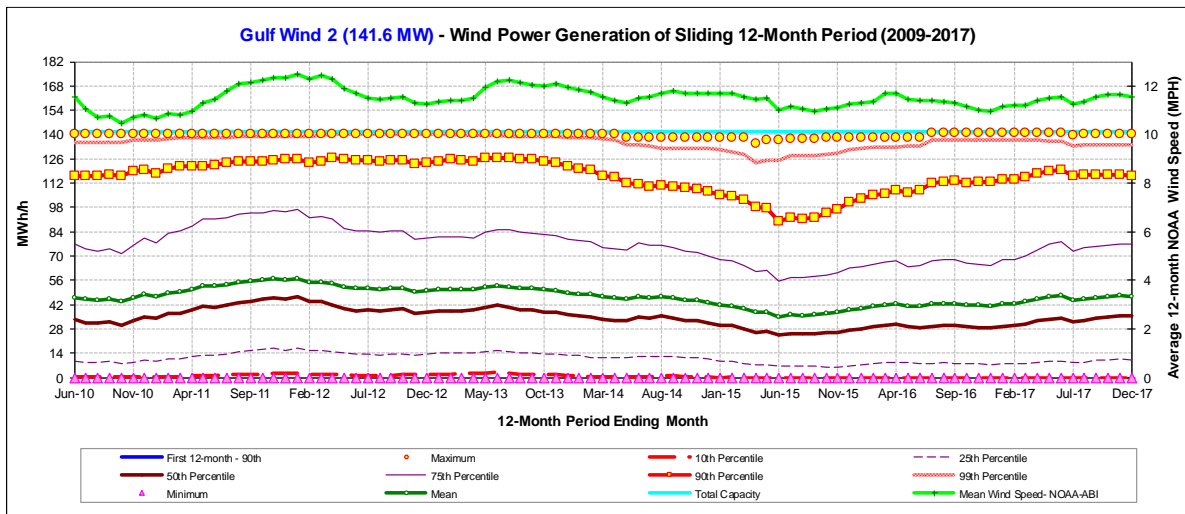


Figure 4-28: Sliding 12-month Hourly Wind Power Generation for Gulf Wind 2

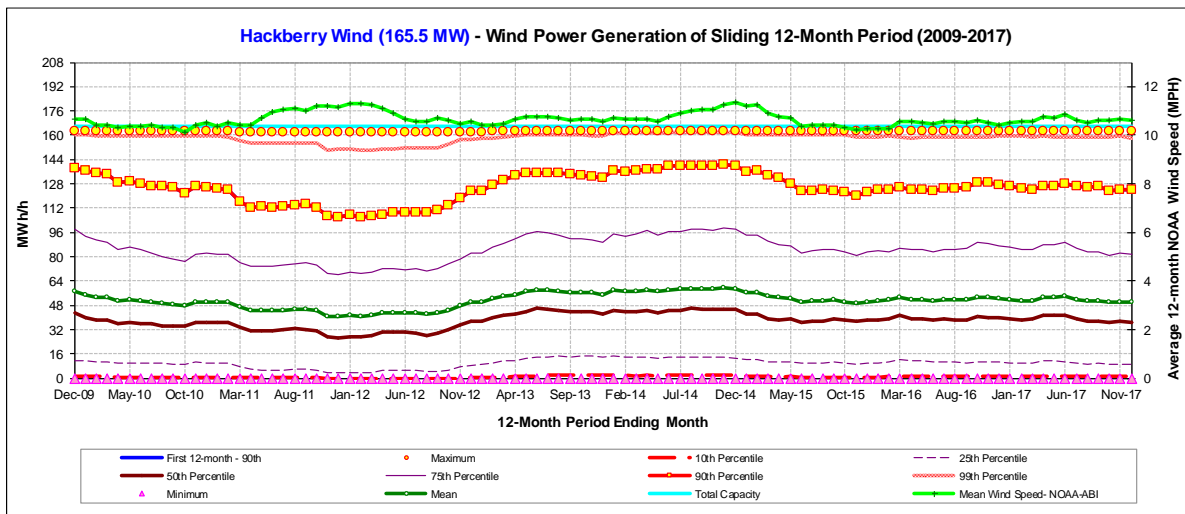


Figure 4-29: Sliding 12-month Hourly Wind Power Generation for Hackberry Wind



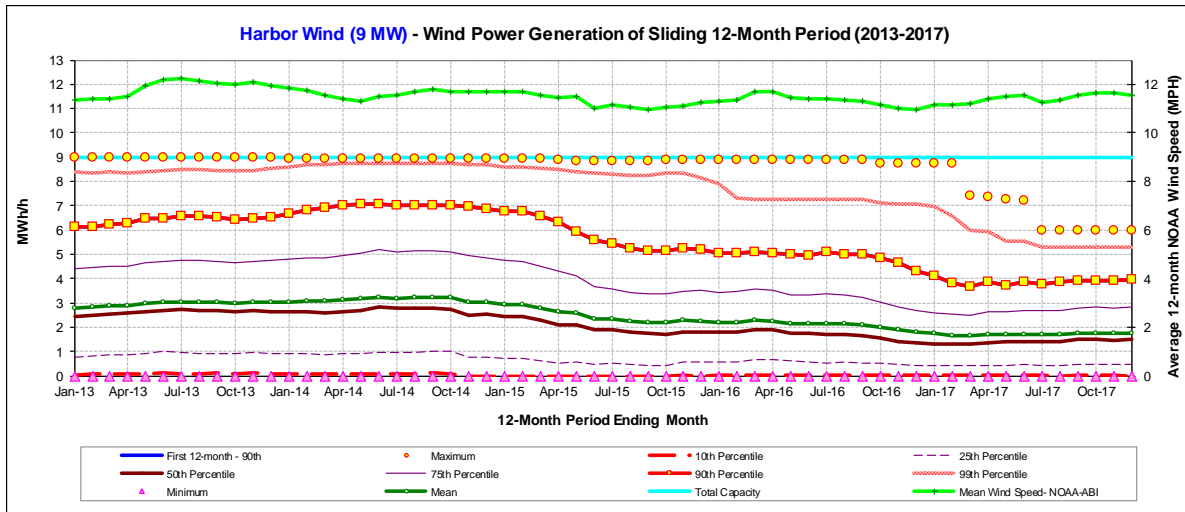


Figure 4-30: Sliding 12-month Hourly Wind Power Generation for Harbor Wind

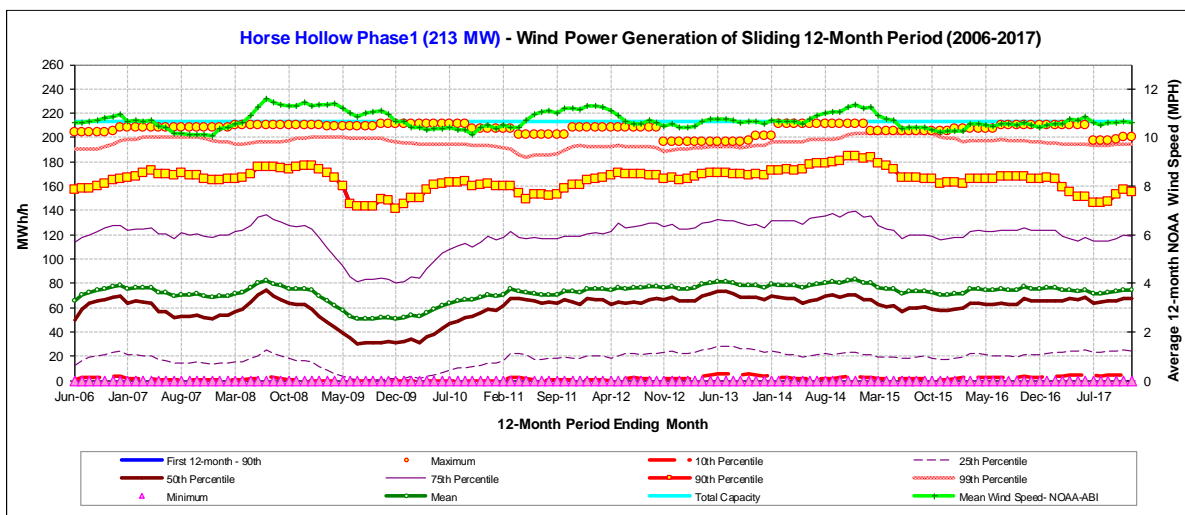


Figure 4-31: Sliding 12-month Hourly Wind Power Generation for Horse Hollow Phase 1

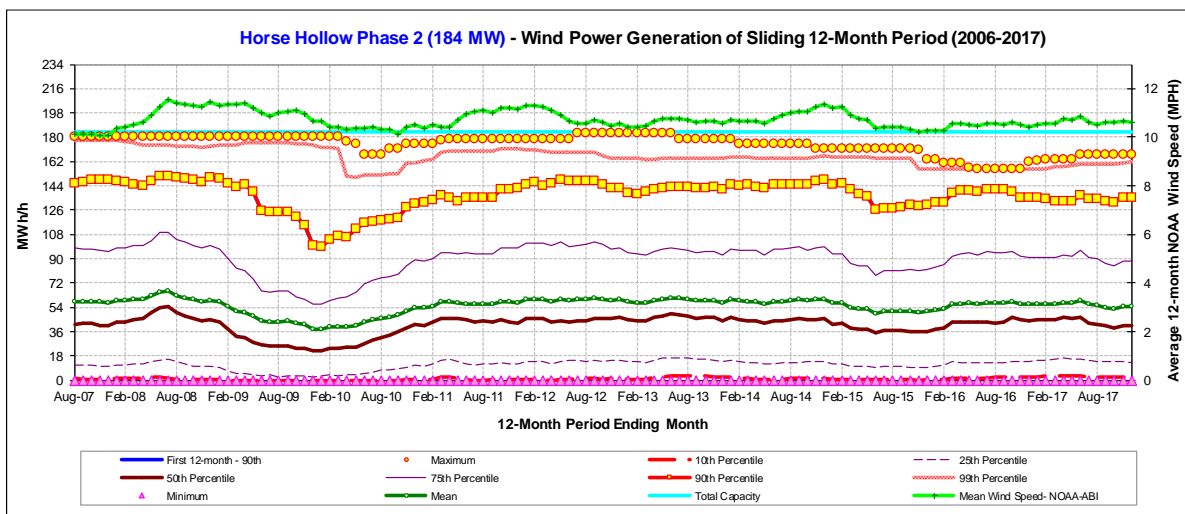


Figure 4-32: Sliding 12-month Hourly Wind Power Generation for Horse Hollow Phase 2

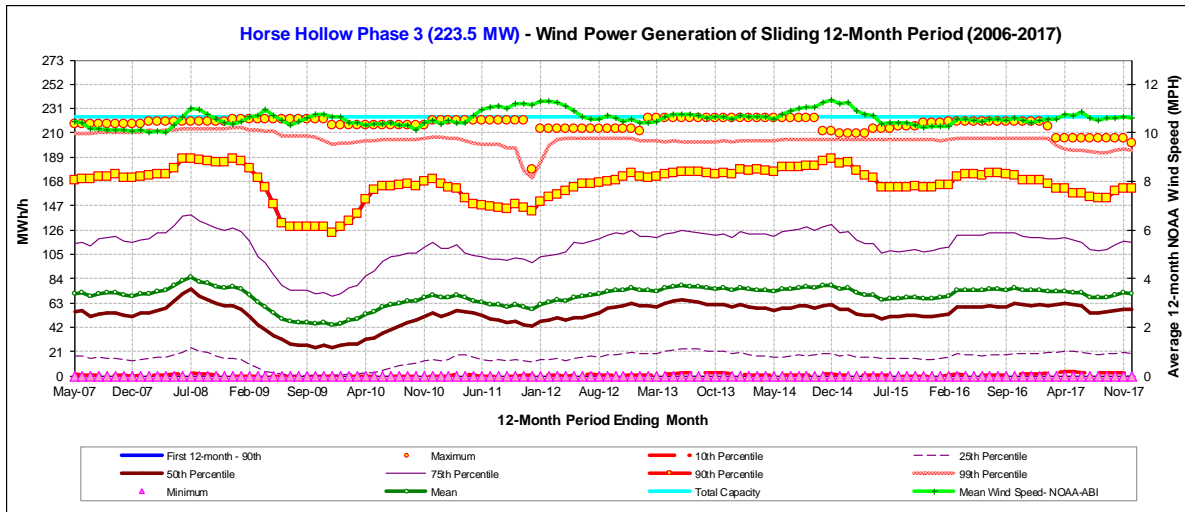


Figure 4-33: Sliding 12-month Hourly Wind Power Generation for Horse Hollow Phase 3

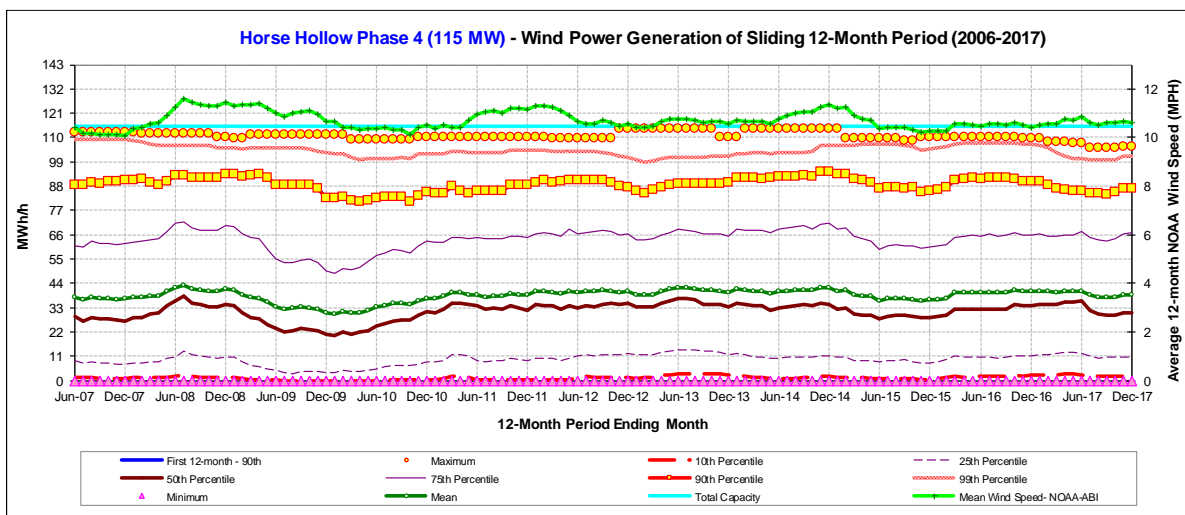


Figure 4-34: Sliding 12-month Hourly Wind Power Generation for Horse Hollow Phase 4

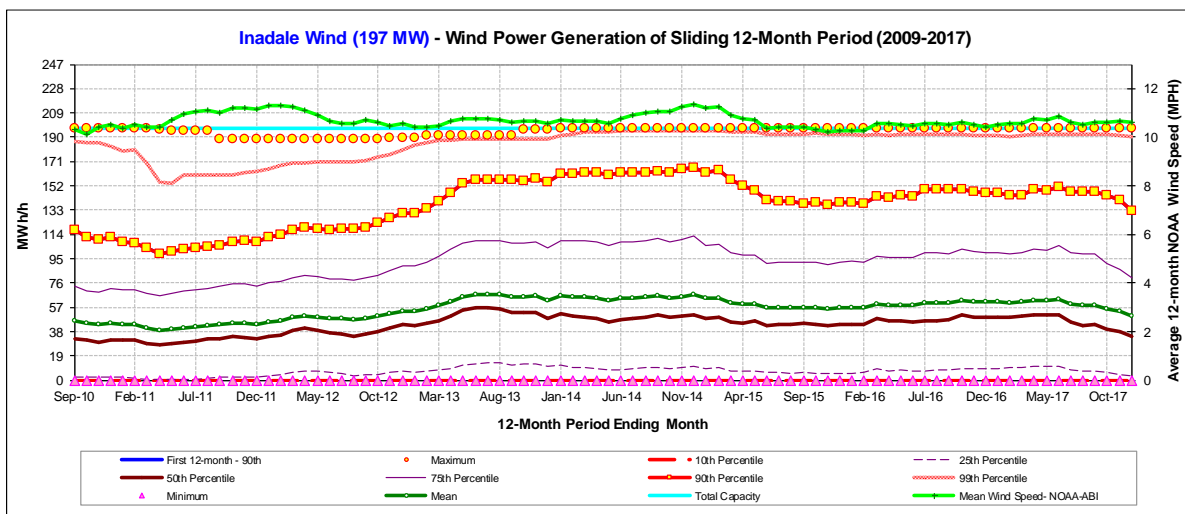


Figure 4-35: Sliding 12-month Hourly Wind Power Generation for Inadale Wind

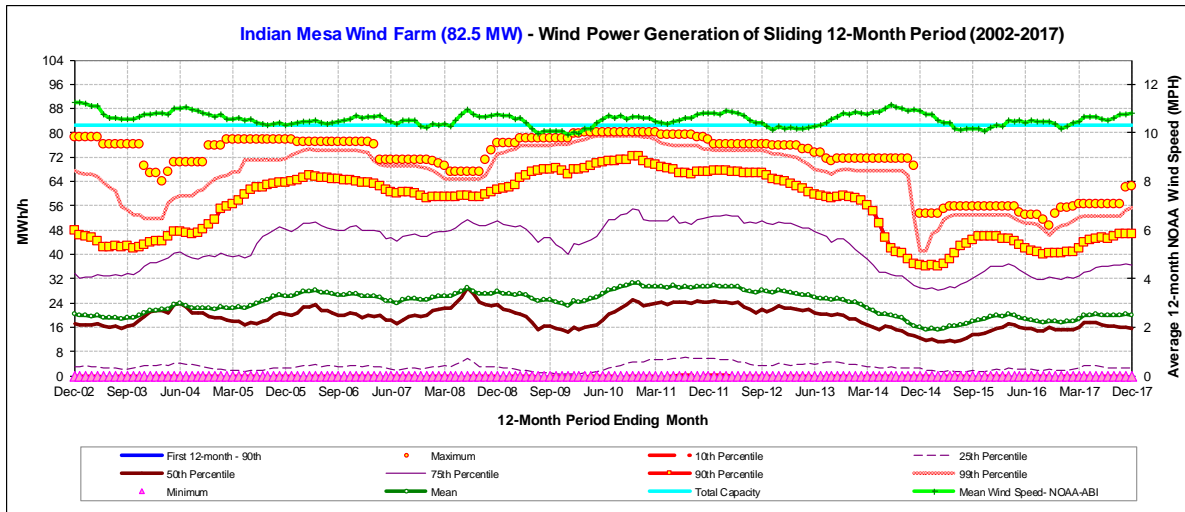


Figure 4-36: Sliding 12-month Hourly Wind Power Generation for Indian Mesa

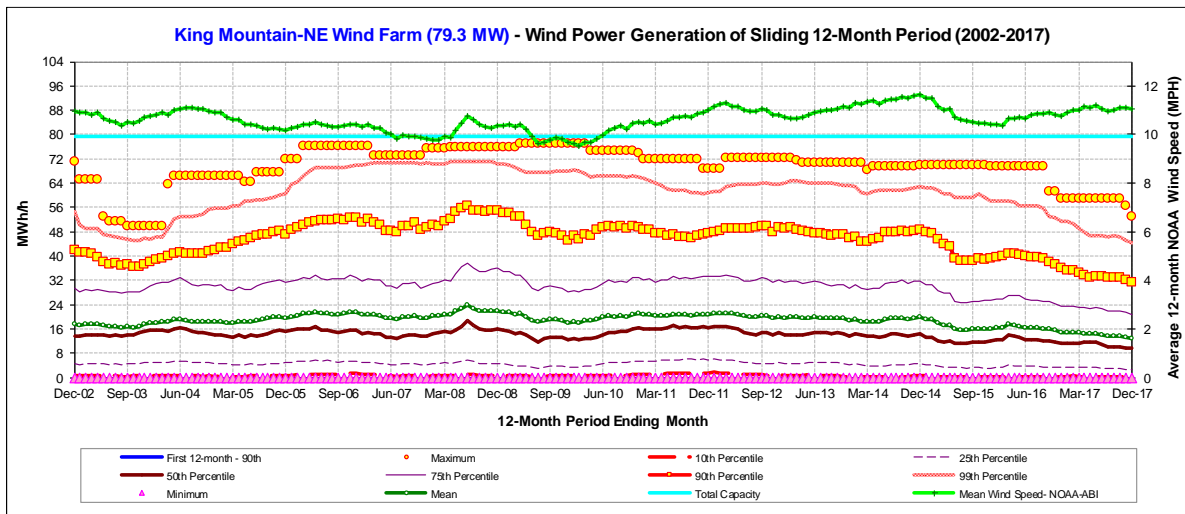


Figure 4-37: Sliding 12-month Hourly Wind Power Generation for King Mountain Wind Ranch-NE

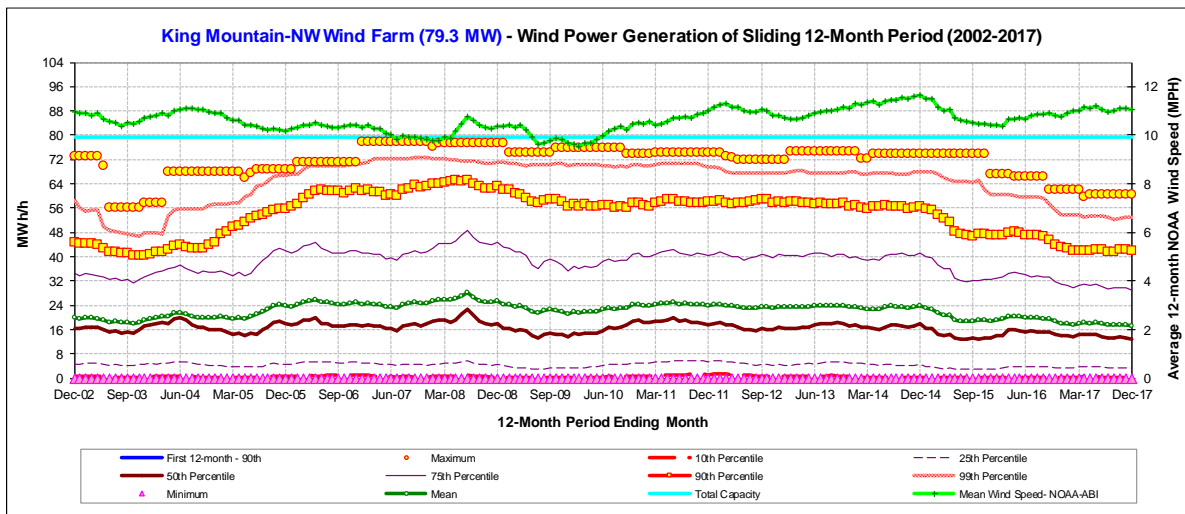


Figure 4-38: Sliding 12-month Hourly Wind Power Generation for King Mountain Wind Ranch-NW

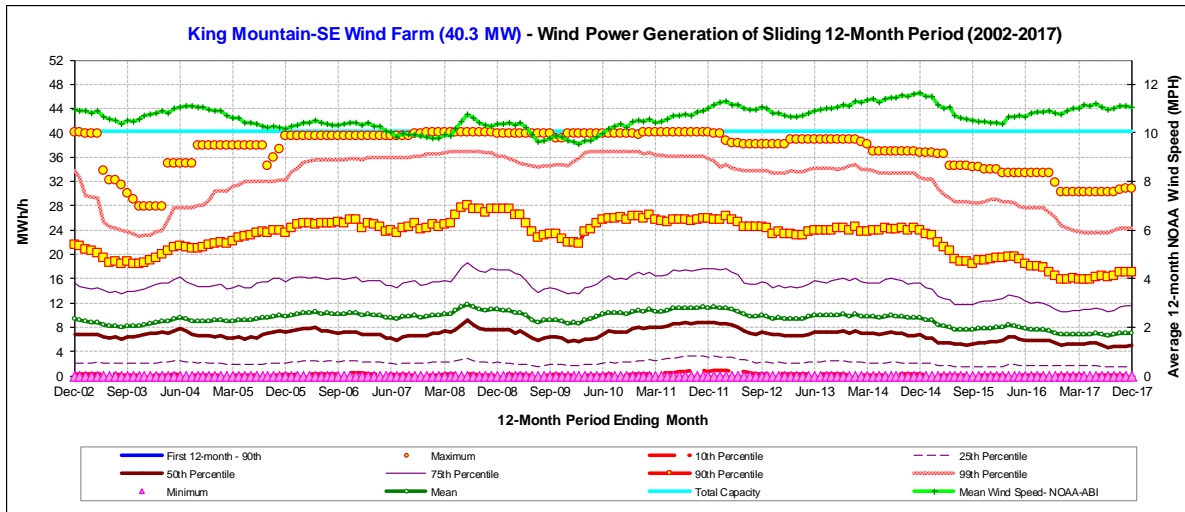


Figure 4-39: Sliding 12-month Hourly Wind Power Generation for King Mountain Wind Ranch-SE

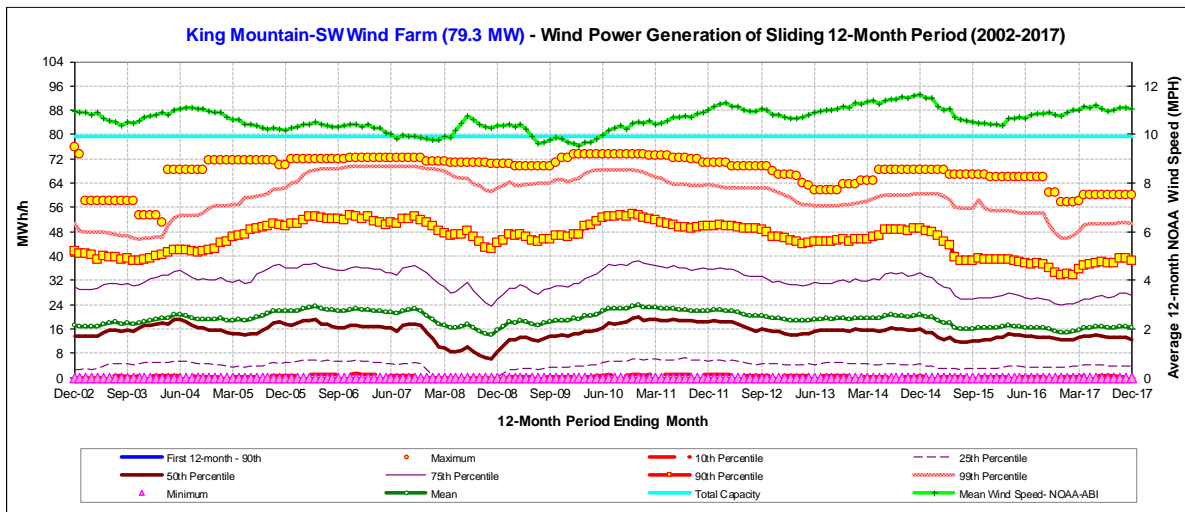


Figure 4-40: Sliding 12-month Hourly Wind Power Generation for King Mountain Wind Ranch-SW

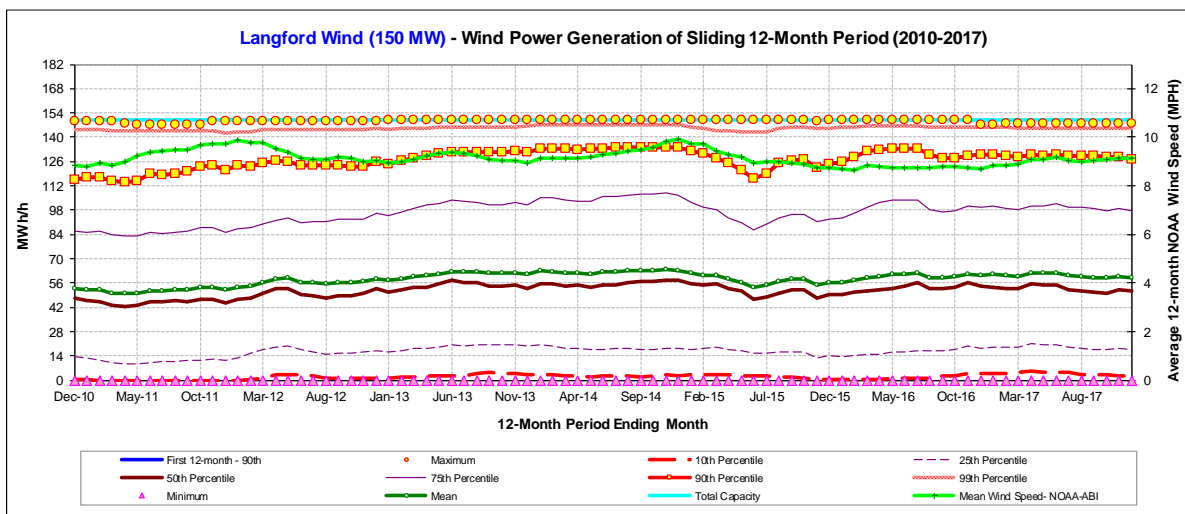


Figure 4-41: Sliding 12-month Hourly Wind Power Generation for Langford Wind

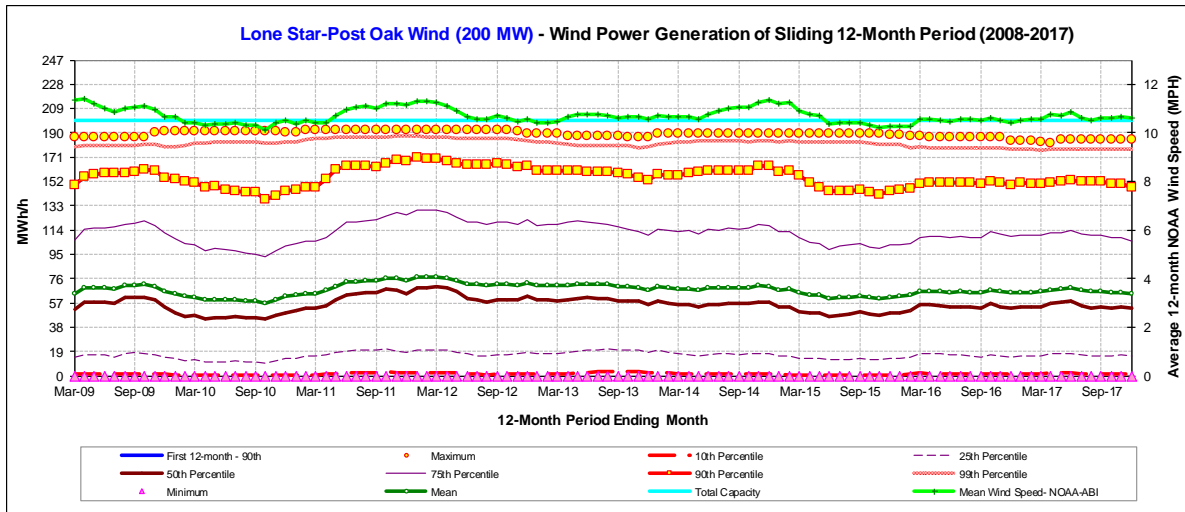


Figure 4-42: Sliding 12-month Hourly Wind Power Generation for Lone Star - Post Oak Wind

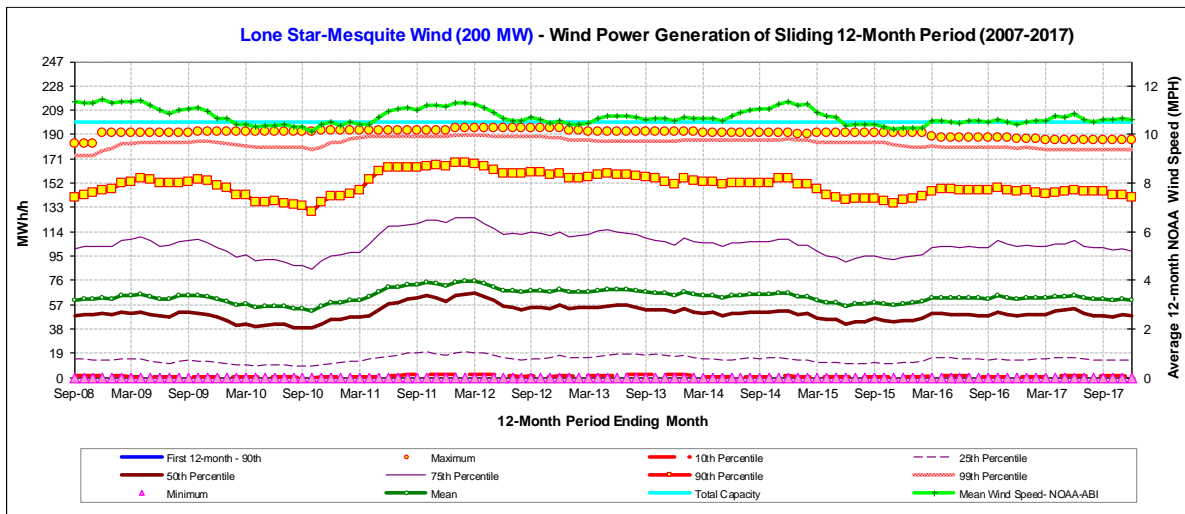


Figure 4-43: Sliding 12-month Hourly Wind Power Generation for Lone-Star Mesquite Wind

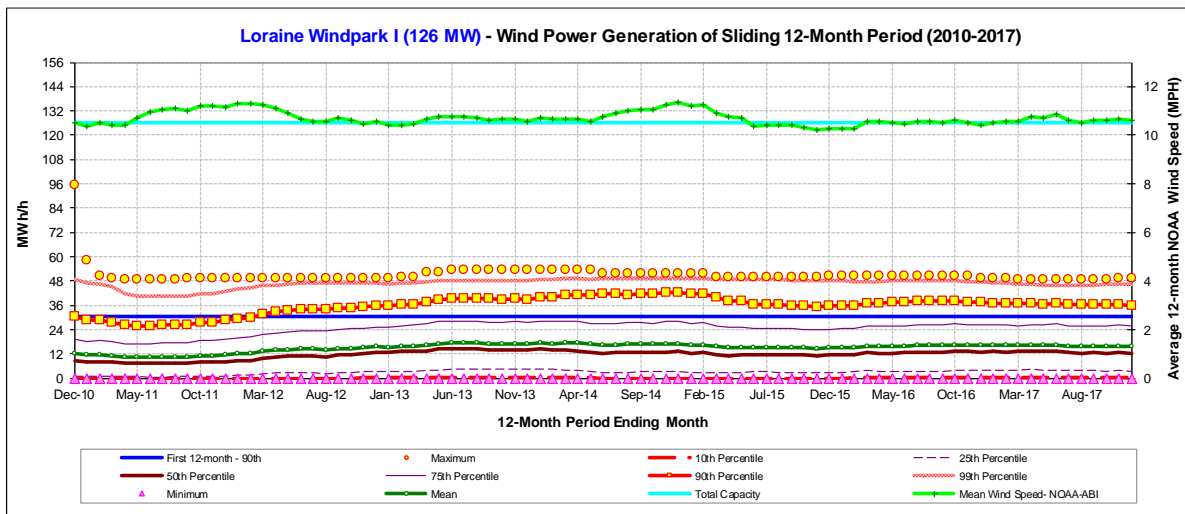


Figure 4-44: Sliding 12-month Hourly Wind Power Generation for Loraine Windpark I



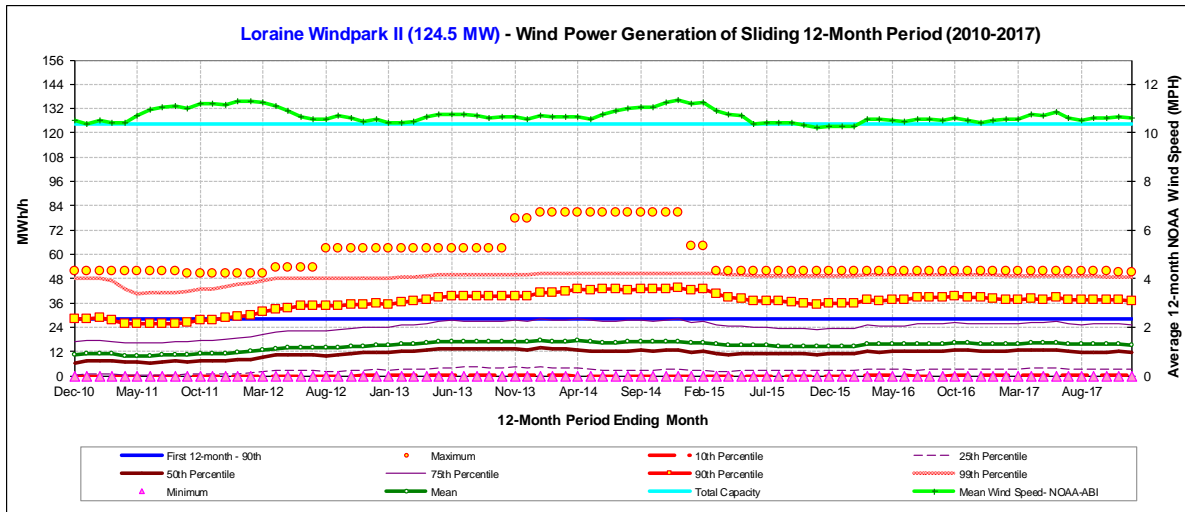


Figure 4-45: Sliding 12-month Hourly Wind Power Generation for Lorraine Windpark II

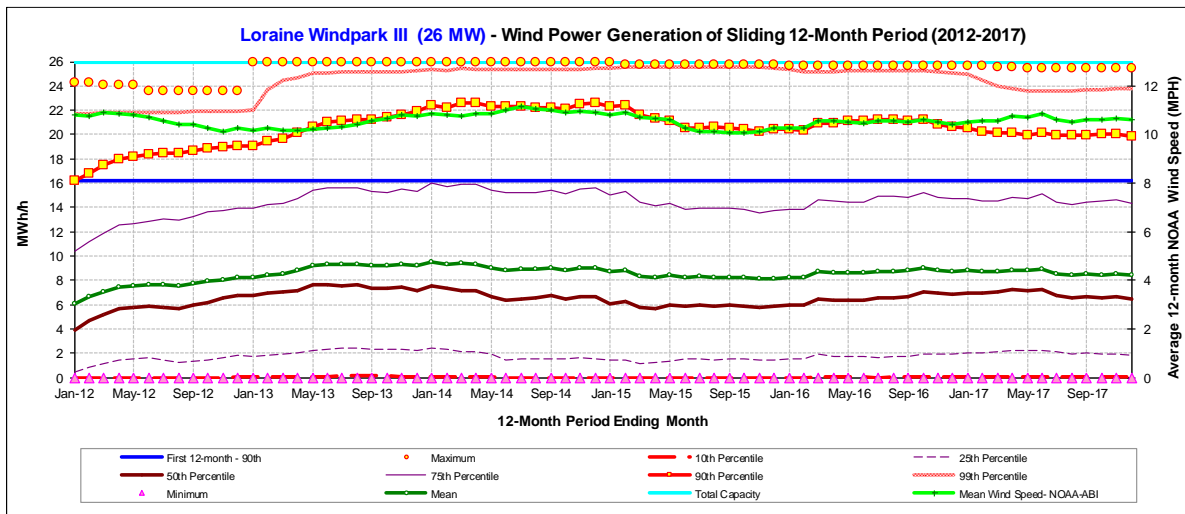


Figure 4-46: Sliding 12-month Hourly Wind Power Generation for Lorraine Windpark III

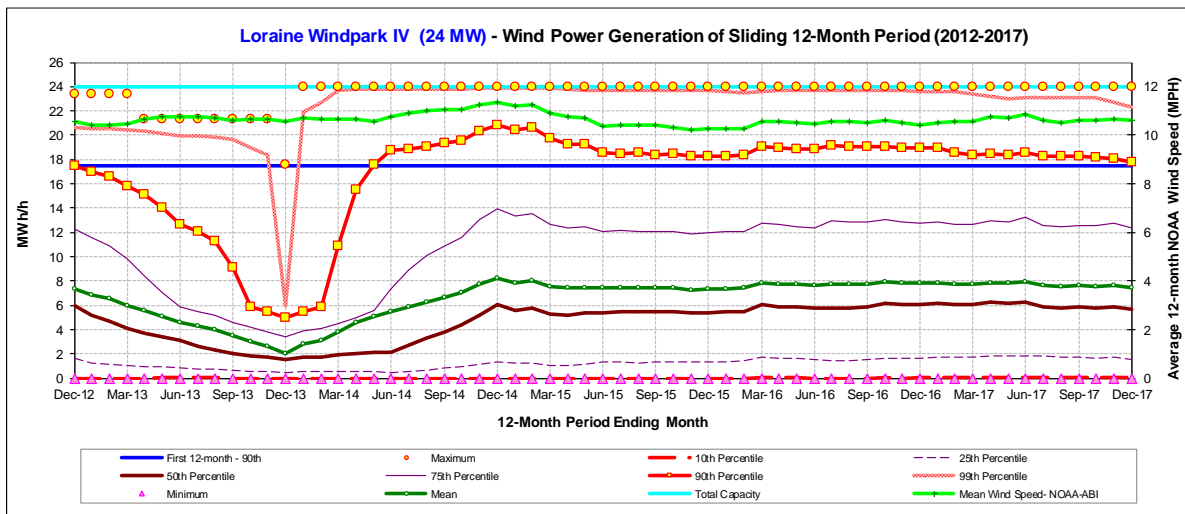


Figure 4-47: Sliding 12-month Hourly Wind Power Generation for Lorraine Windpark IV

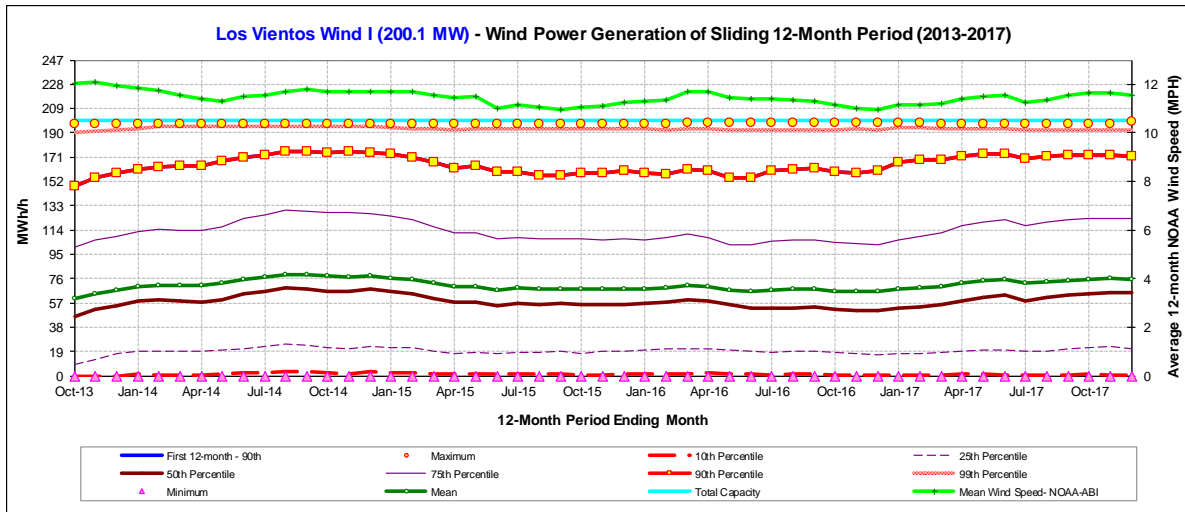


Figure 4-48: Sliding 12-month Hourly Wind Power Generation for Los Vientos Wind I

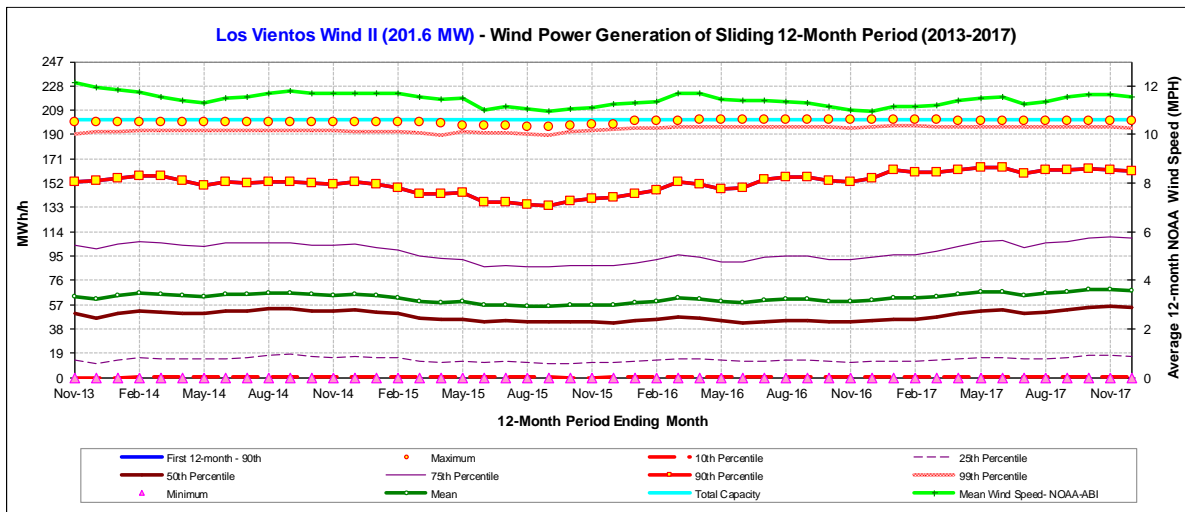


Figure 4-49: Sliding 12-month Hourly Wind Power Generation for Los Vientos Wind II

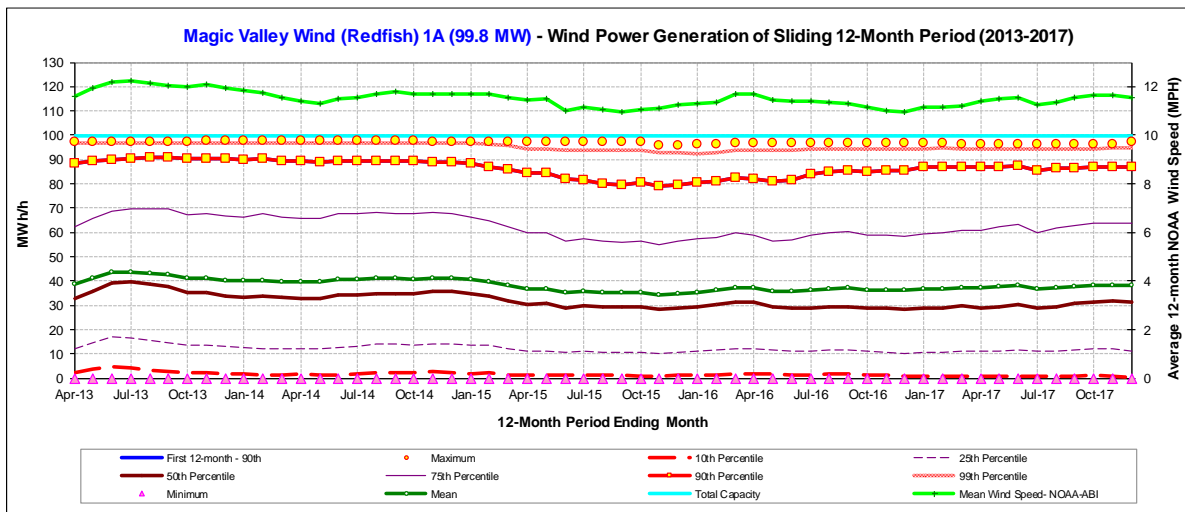


Figure 4-50: Sliding 12-month Hourly Wind Power Generation for Magic Valley Wind (Redfish) 1A

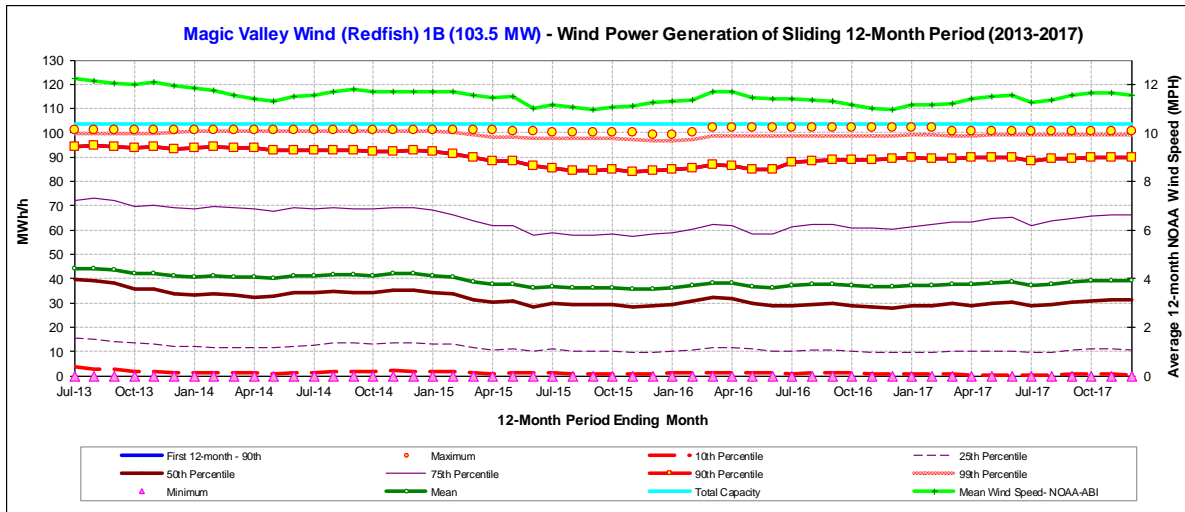


Figure 4-51: Sliding 12-month Hourly Wind Power Generation for Magic Valley Wind (Redfish) 1B

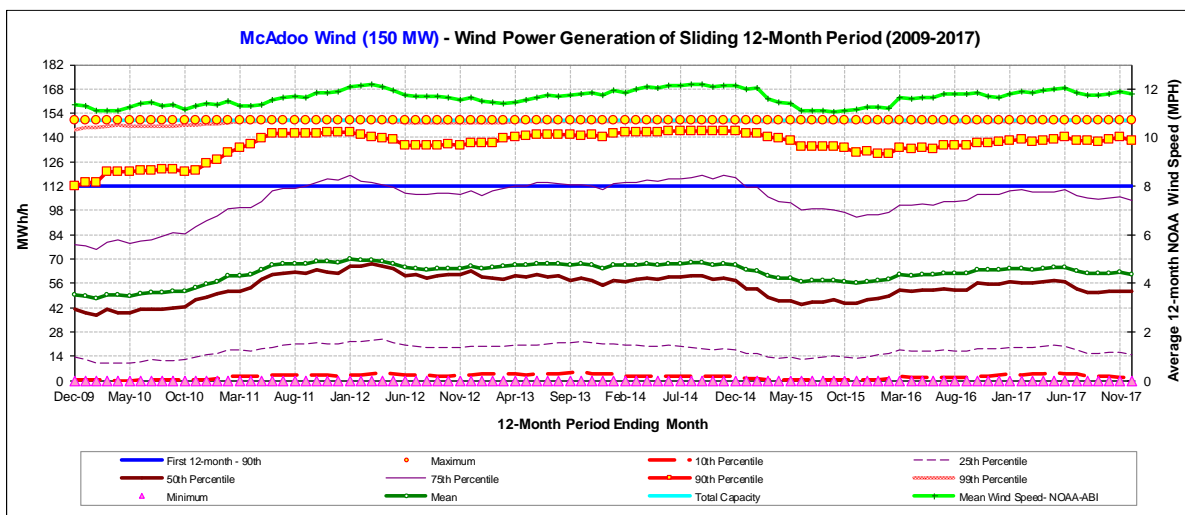


Figure 4-52: Sliding 12-month Hourly Wind Power Generation for McAdoo Wind

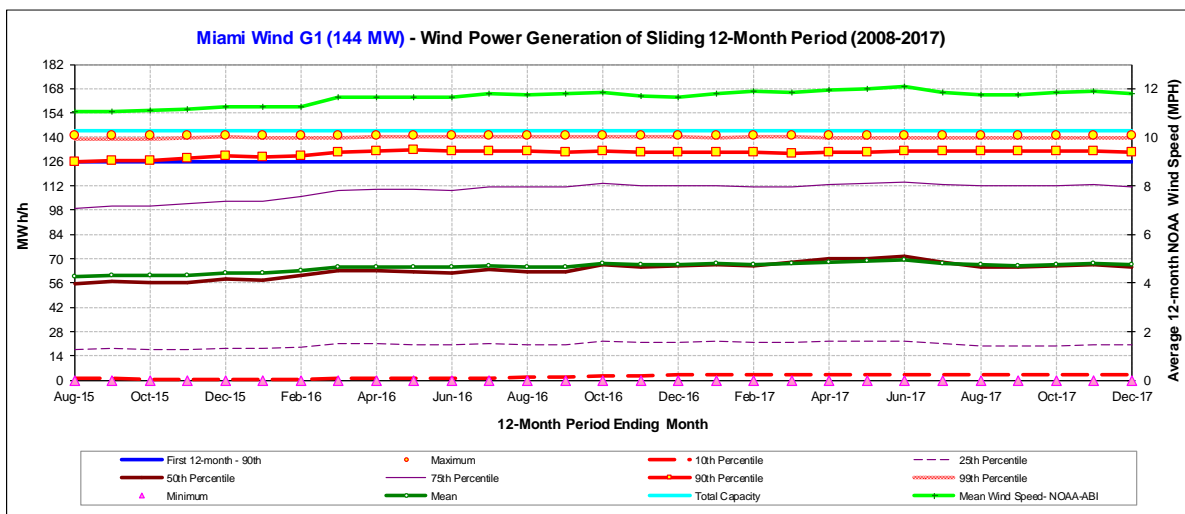


Figure 4-53: Sliding 12-month Hourly Wind Power Generation for Miami Wind G1



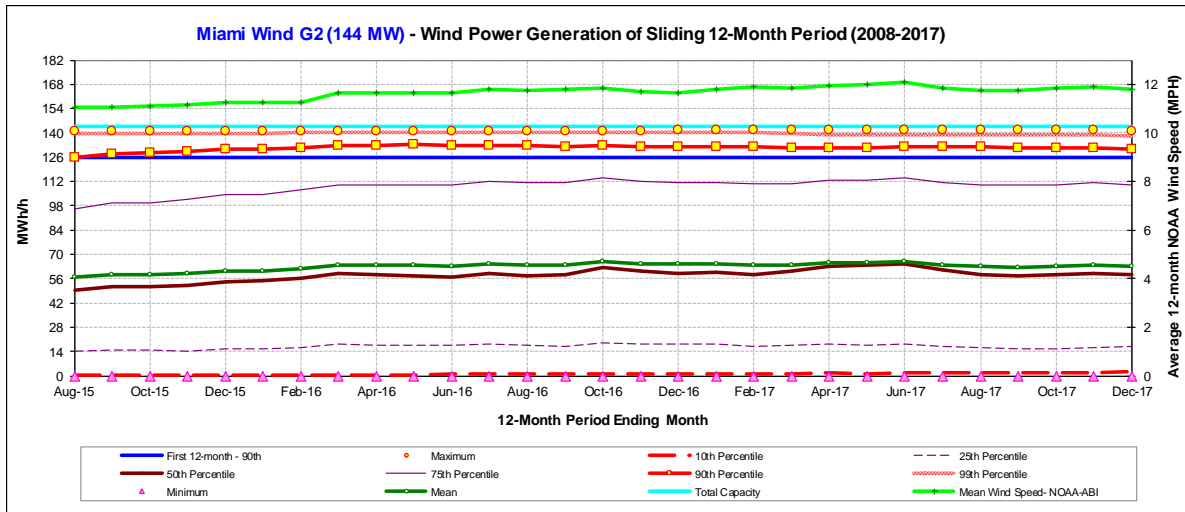


Figure 4-54: Sliding 12-month Hourly Wind Power Generation for Miami Wind G2

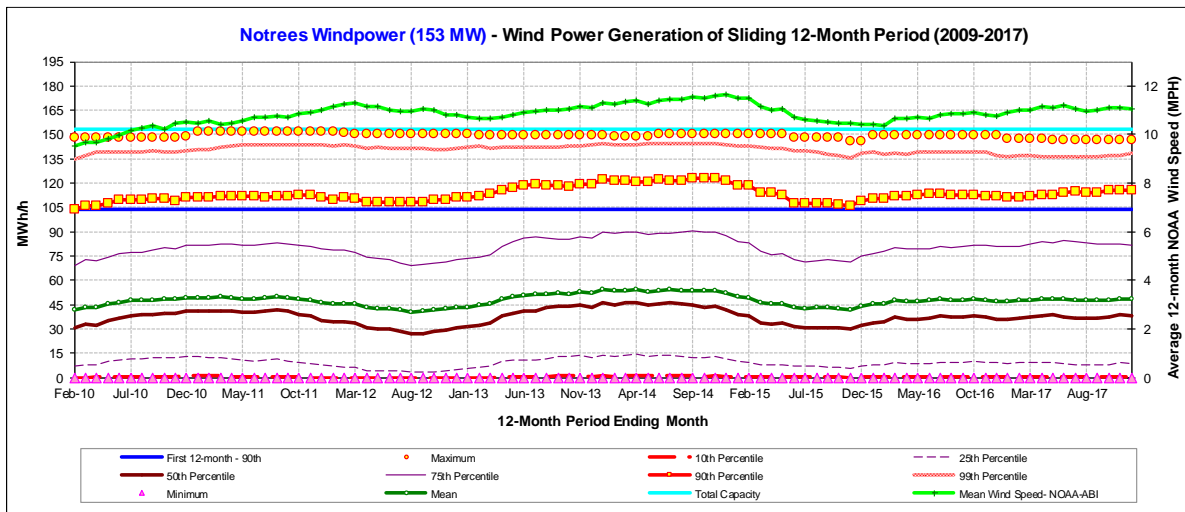


Figure 4-55: Sliding 12-month Hourly Wind Power Generation for Notrees Windpower

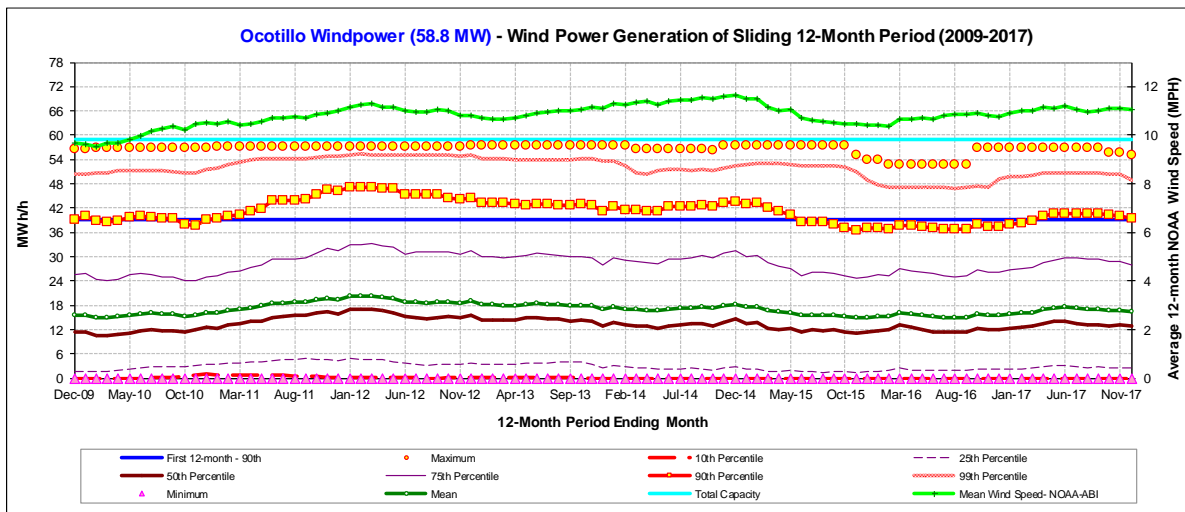


Figure 4-56: Sliding 12-month Hourly Wind Power Generation for Ocotillo Windpower

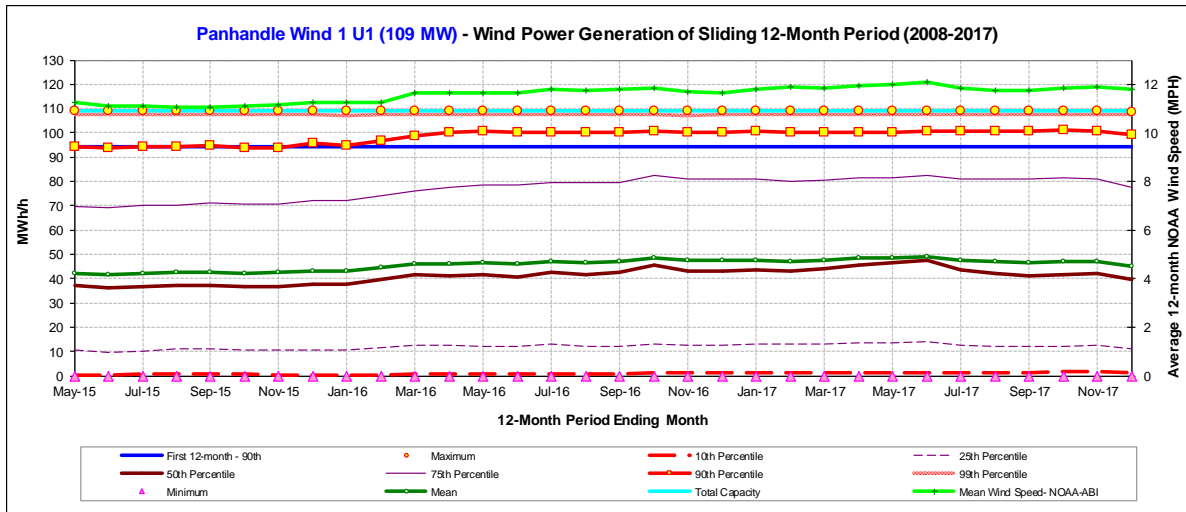


Figure 4-57: Sliding 12-month Hourly Wind Power Generation for Panhandle Wind 1 U1

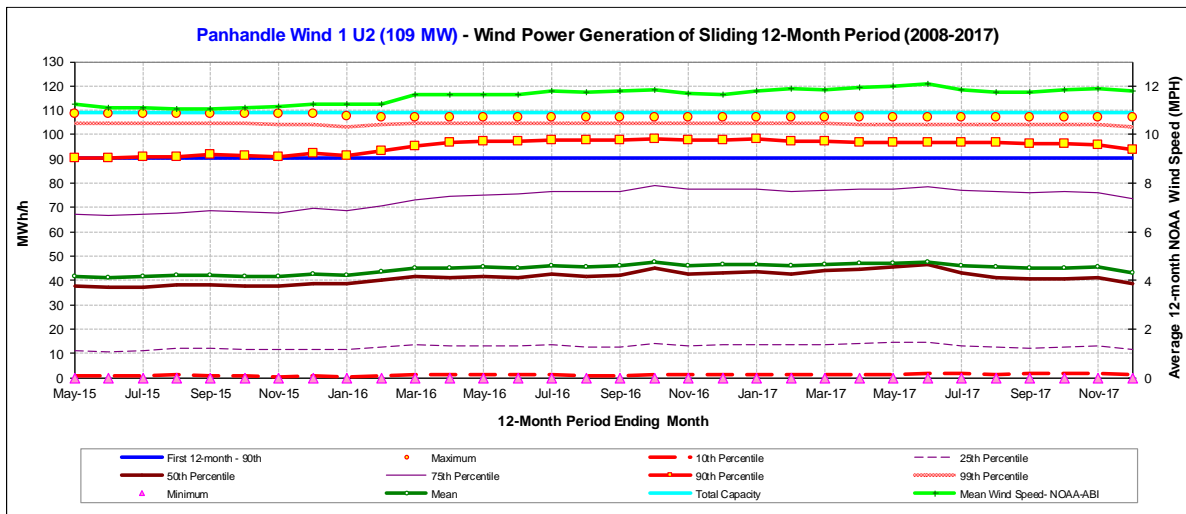


Figure 4-58: Sliding 12-month Hourly Wind Power Generation for Panhandle Wind 1 U2

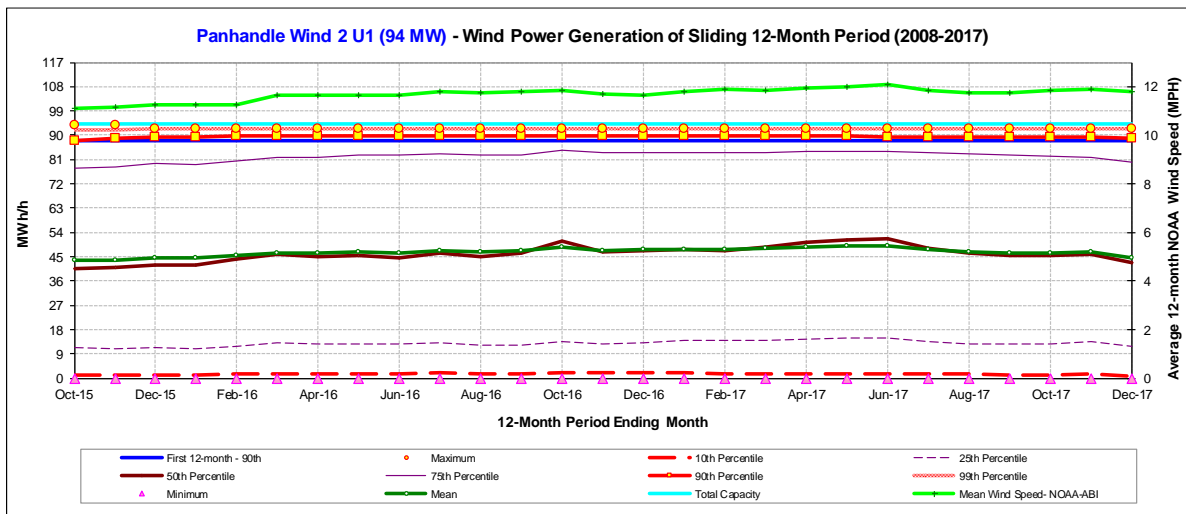


Figure 4-59: Sliding 12-month Hourly Wind Power Generation for Panhandle Wind 2 U1

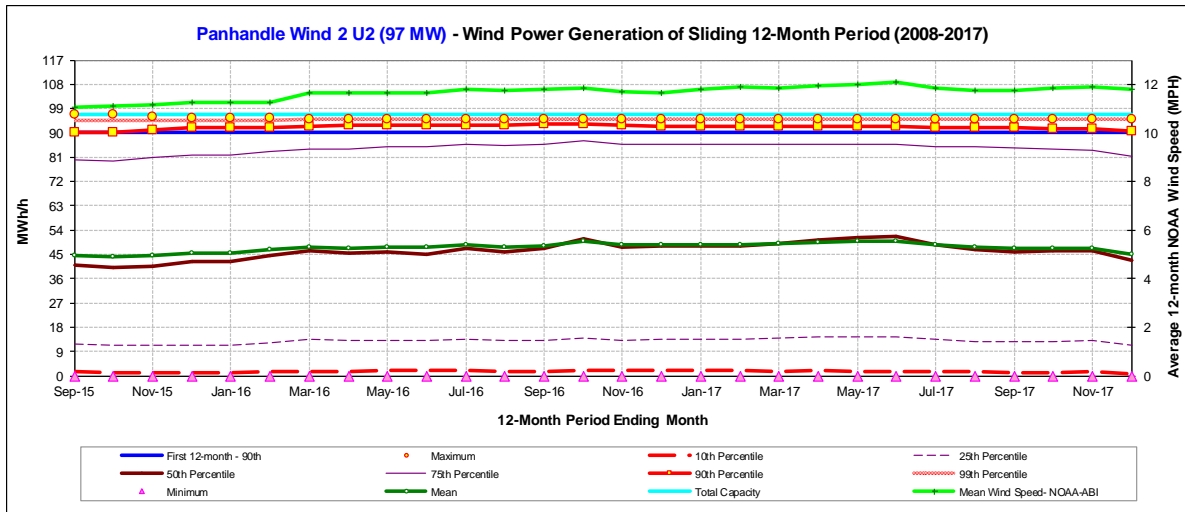


Figure 4-60: Sliding 12-month Hourly Wind Power Generation for Panhandle Wind 2 U2

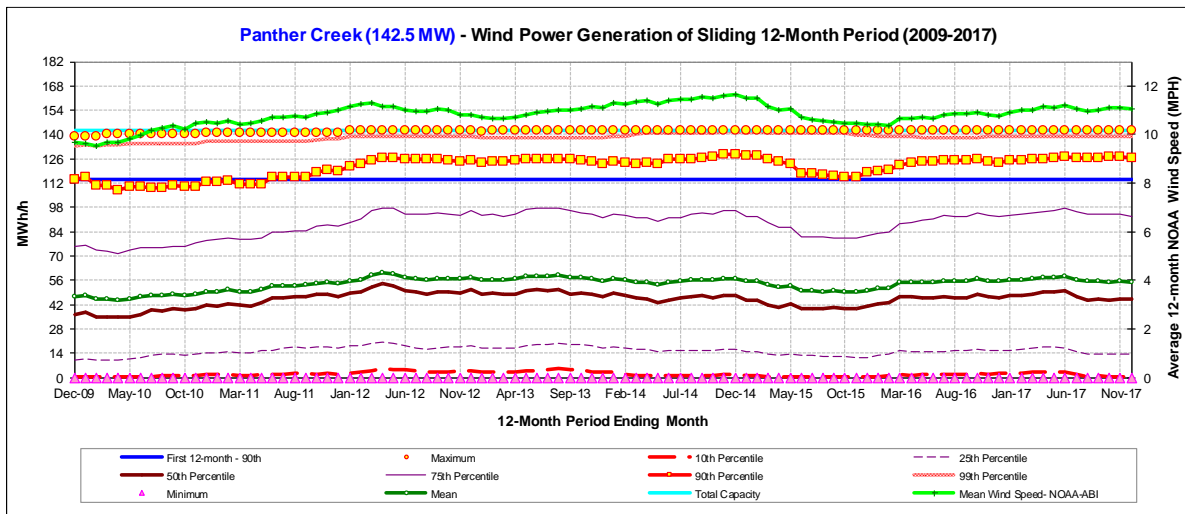


Figure 4-61: Sliding 12-month Hourly Wind Power Generation for Panther Creek 1

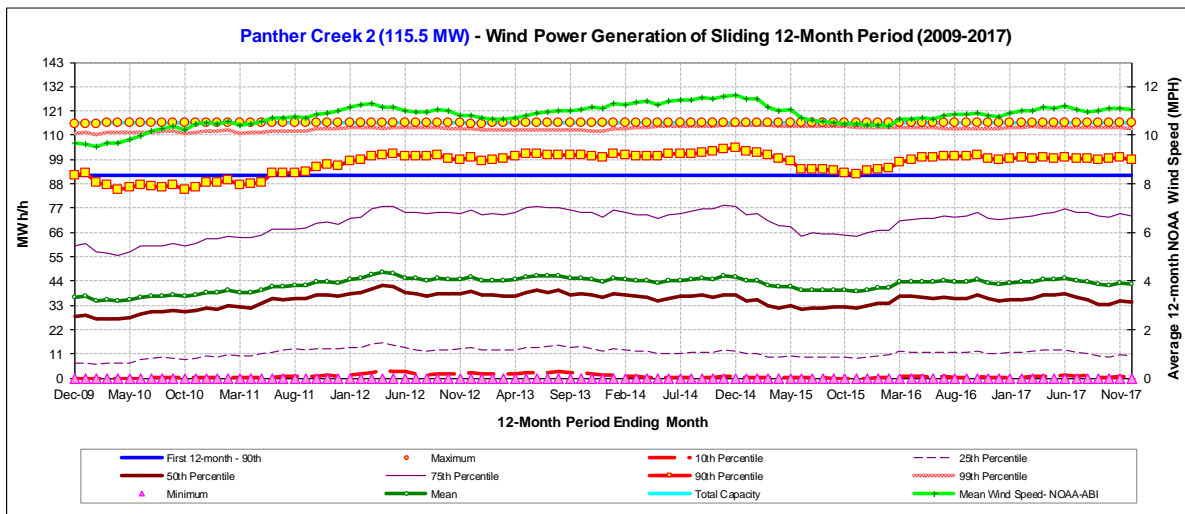


Figure 4-62: Sliding 12-month Hourly Wind Power Generation for Panther Creek 2

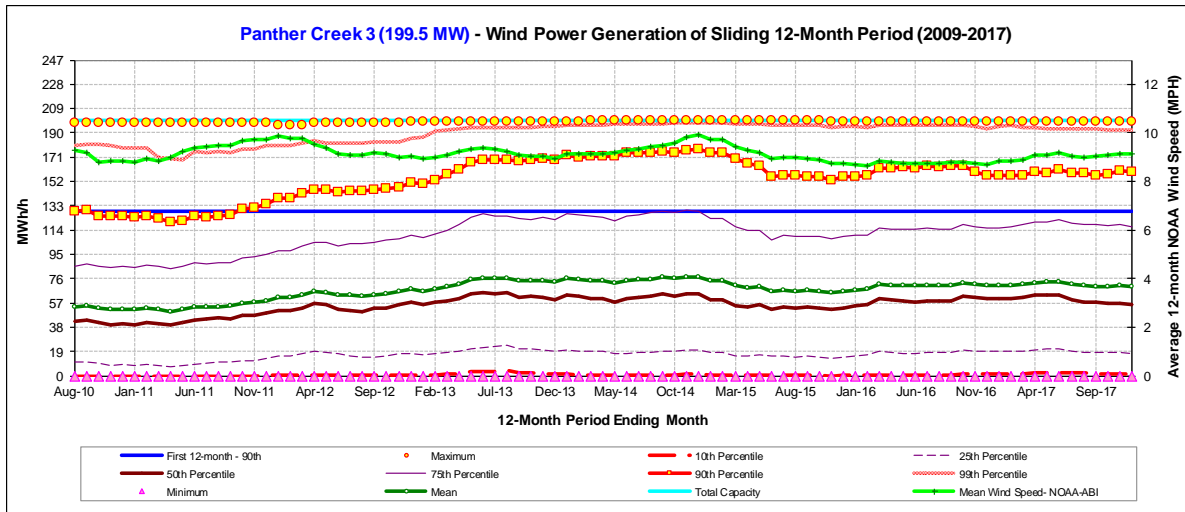


Figure 4-63: Sliding 12-month Hourly Wind Power Generation for Panther Creek 3

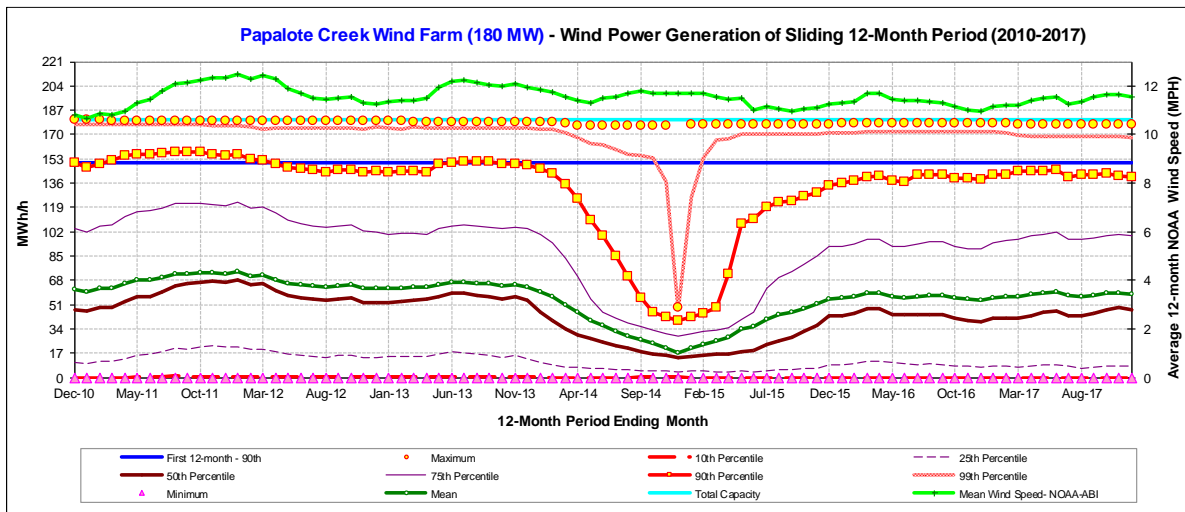


Figure 4-64: Sliding 12-month Hourly Wind Power Generation for Papalote Creek Wind Farm

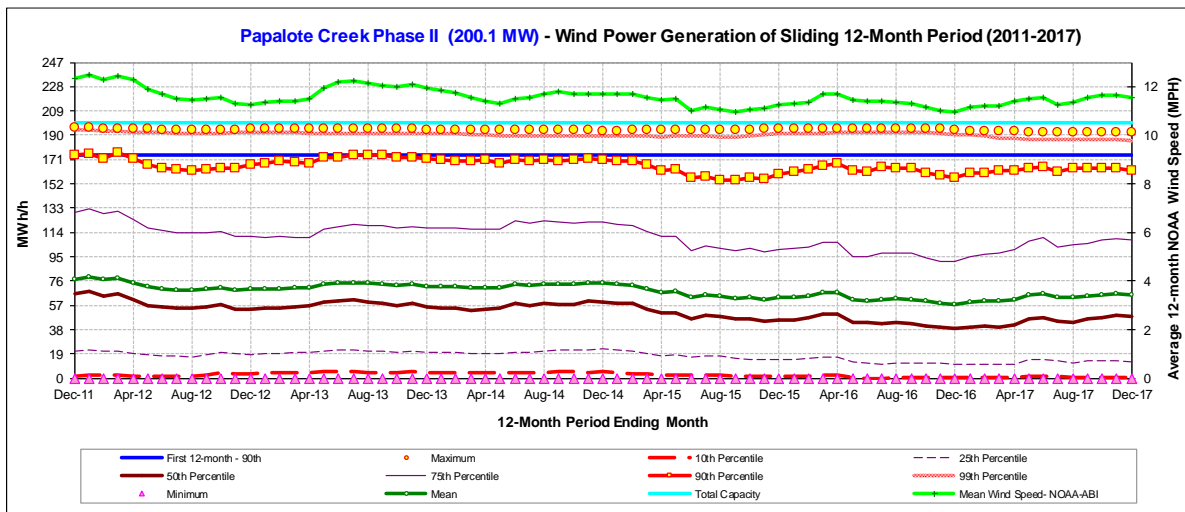


Figure 4-65: Sliding 12-month Hourly Wind Power Generation for Papalote Creek Wind Farm II

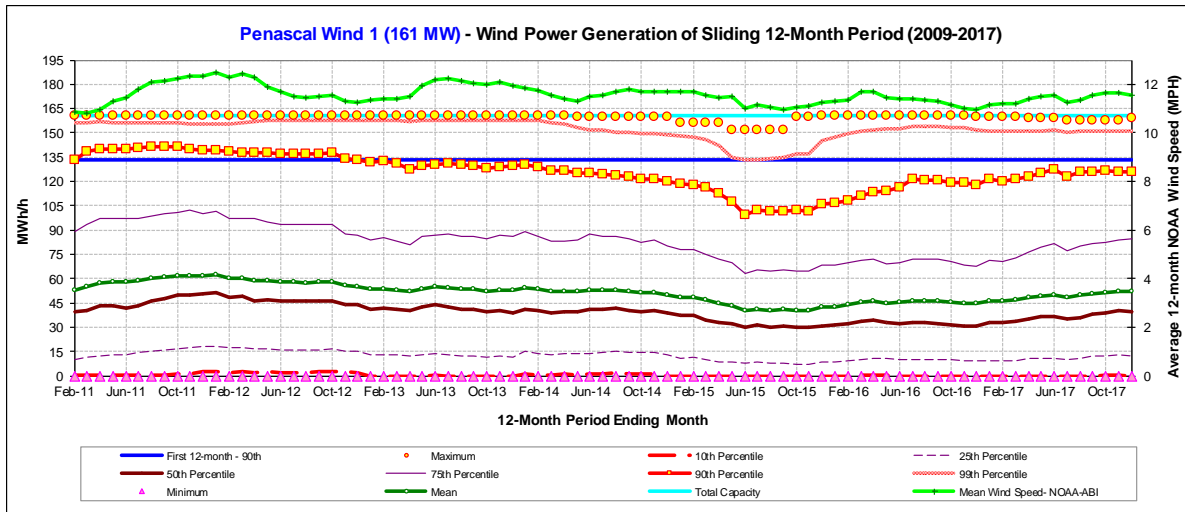


Figure 4-66: Sliding 12-month Hourly Wind Power Generation for Penascal Wind 1

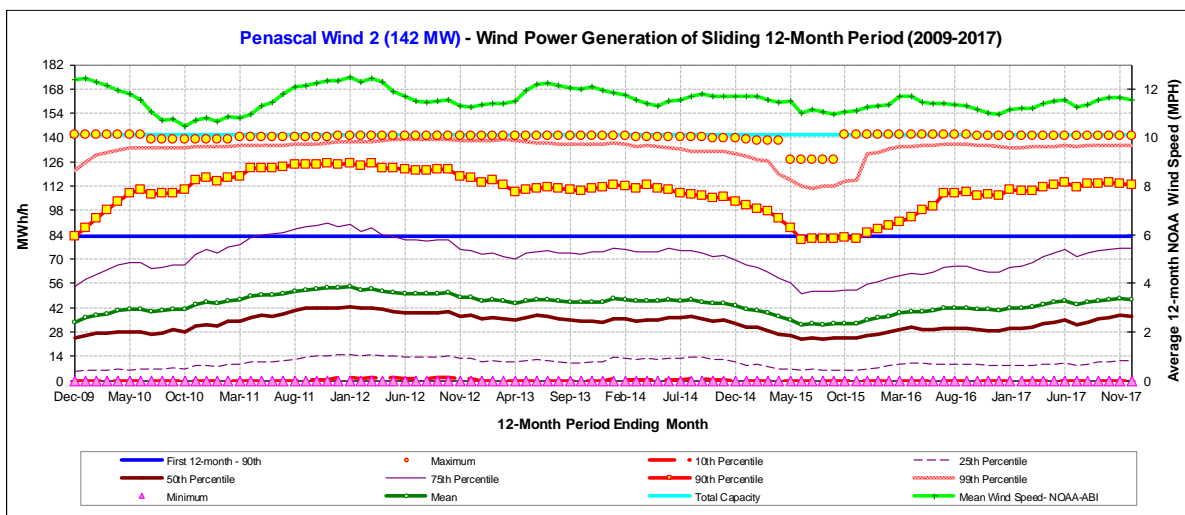


Figure 4-67: Sliding 12-month Hourly Wind Power Generation for Penascal Wind 2

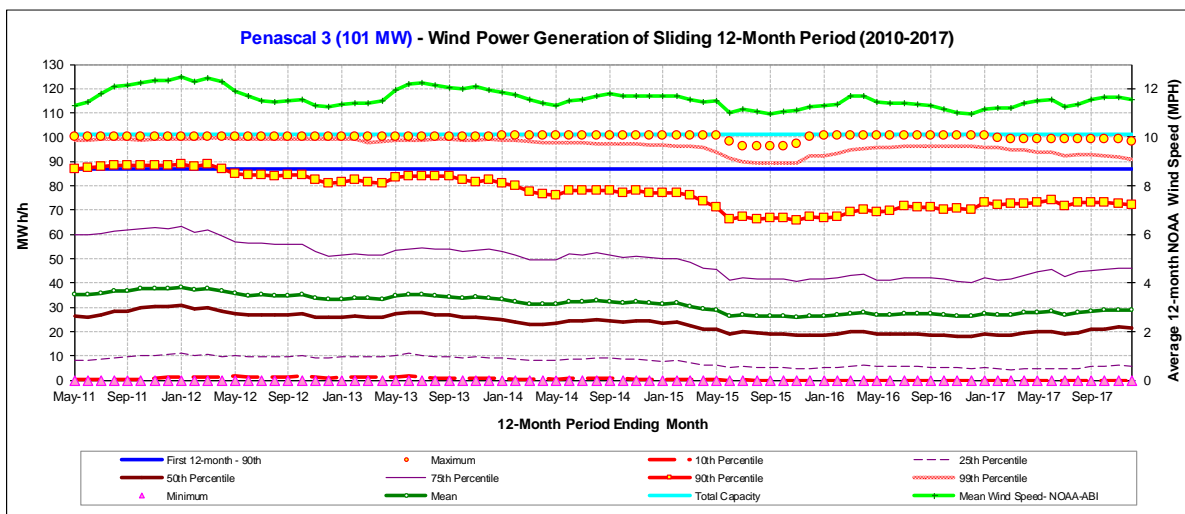


Figure 4-68: Sliding 12-month Hourly Wind Power Generation for Penascal Wind 3

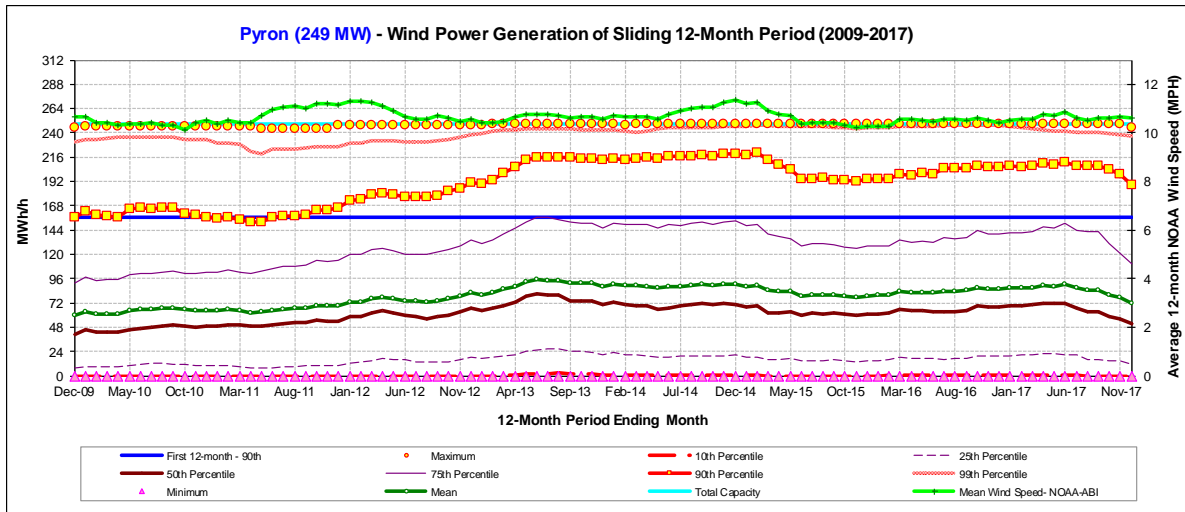


Figure 4-69: Sliding 12-month Hourly Wind Power Generation for Pyron Wind

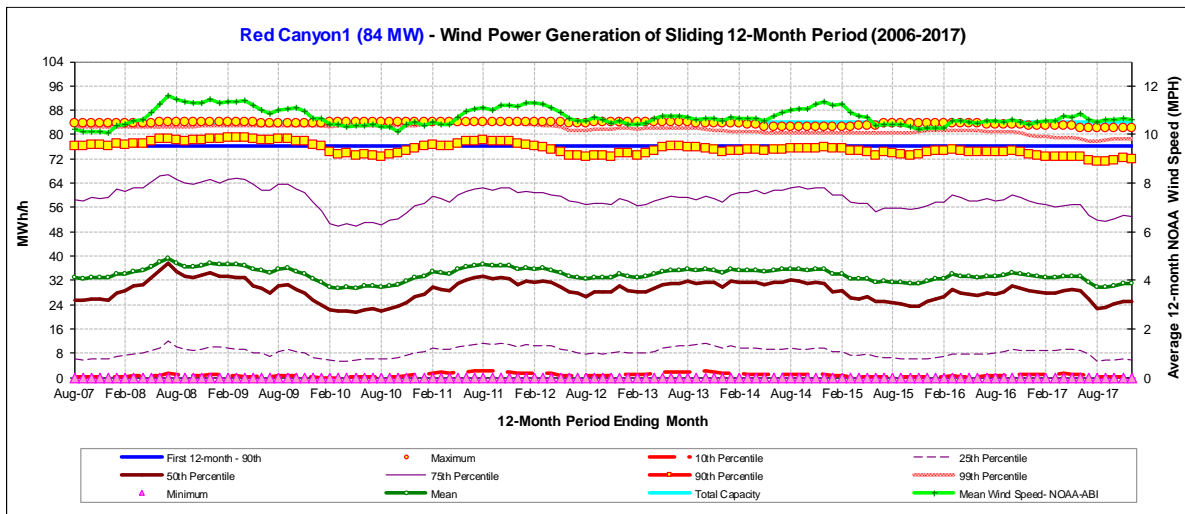


Figure 4-70: Sliding 12-month Hourly Wind Power Generation for Red Canyon 1

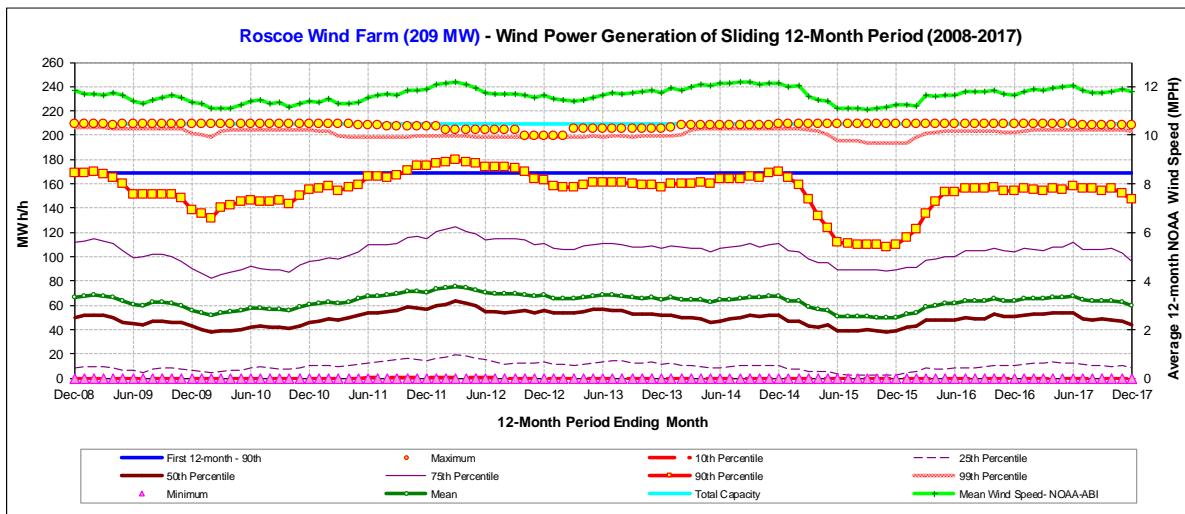


Figure 4-71: Sliding 12-month Hourly Wind Power Generation for Roscoe Wind



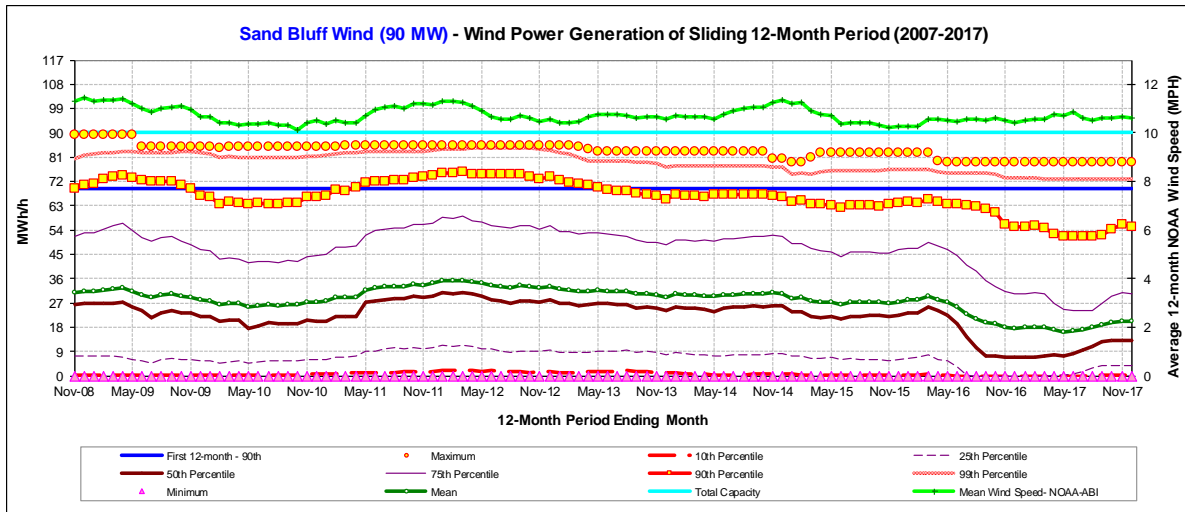


Figure 4-72: Sliding 12-month Hourly Wind Power Generation for Sand Bluff Wind

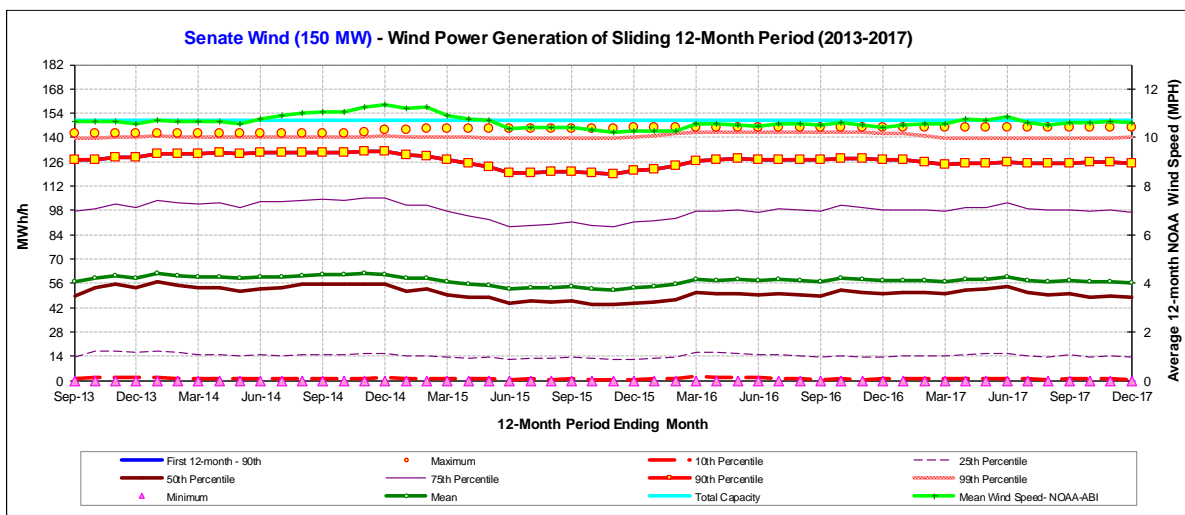


Figure 4-73: Sliding 12-month Hourly Wind Power Generation for Senate Wind

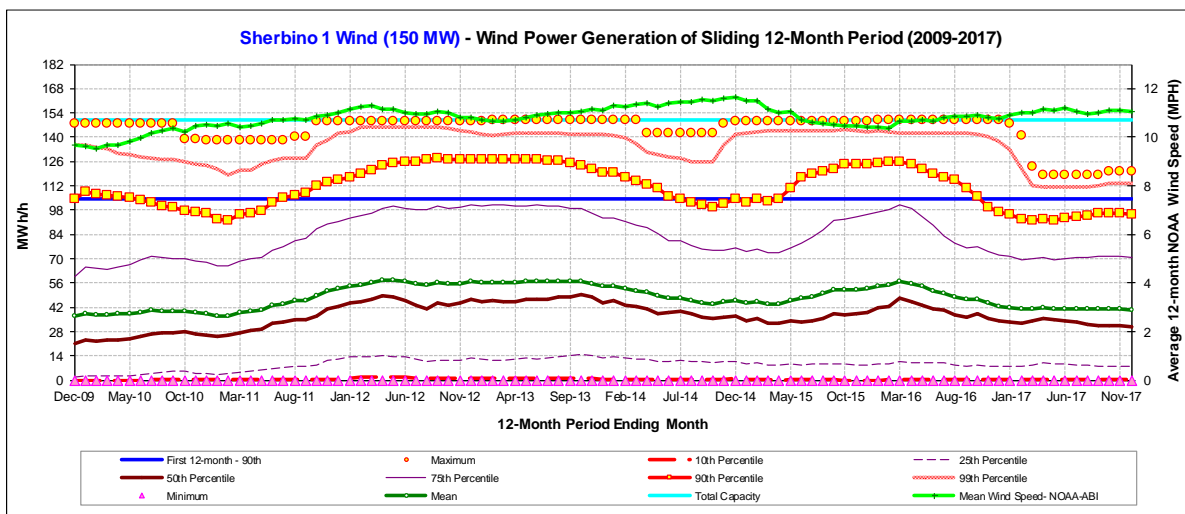


Figure 4-74: Sliding 12-month Hourly Wind Power Generation for Sherbino 1 Wind

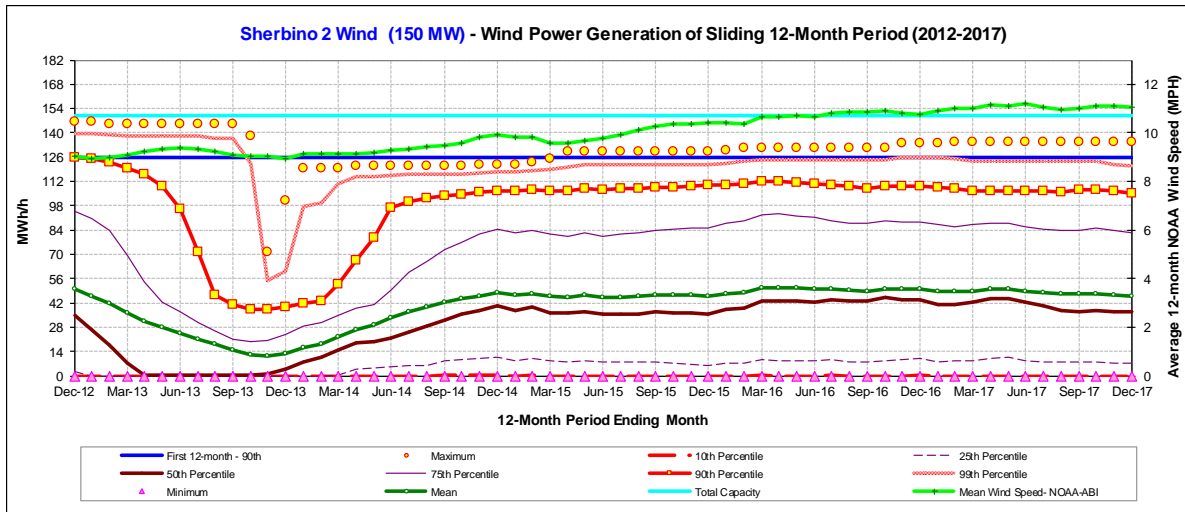


Figure 4-75: Sliding 12-month Hourly Wind Power Generation for Sherbino 2 Wind

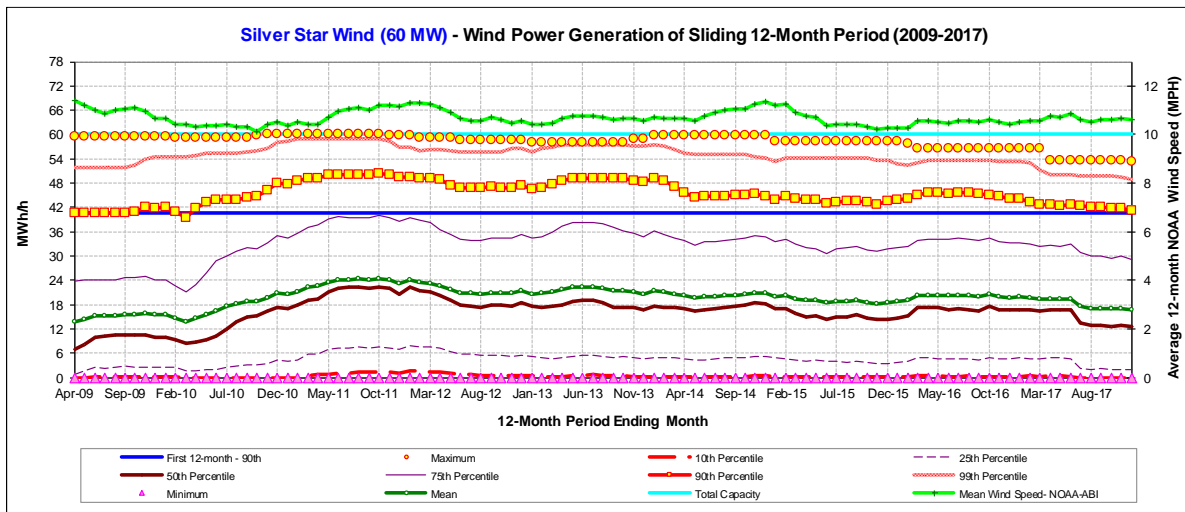


Figure 4-76: Sliding 12-month Hourly Wind Power Generation for Silver Star Wind

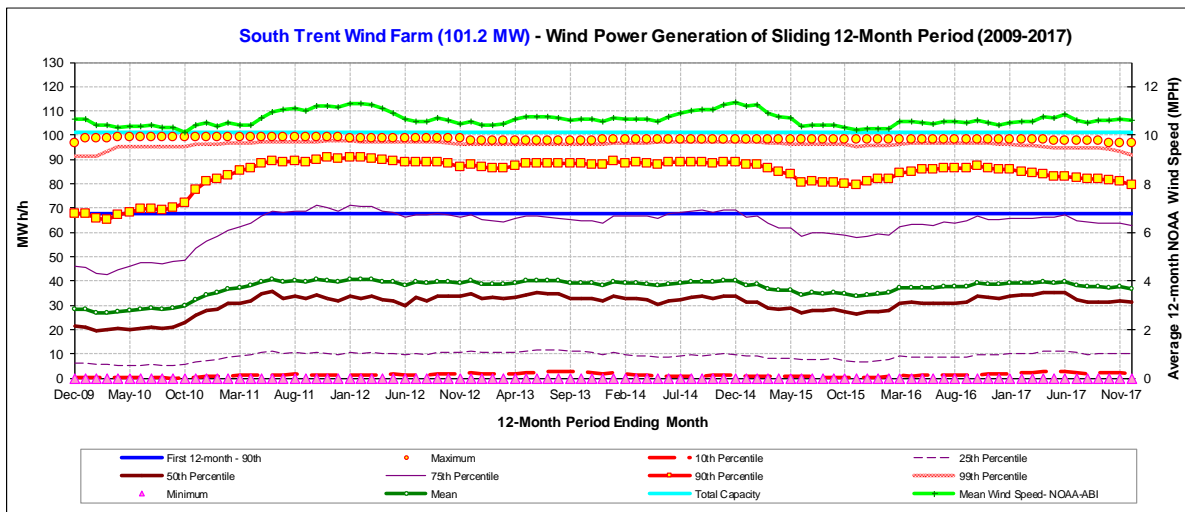


Figure 4-77: Sliding 12-month Hourly Wind Power Generation for South Trent Wind



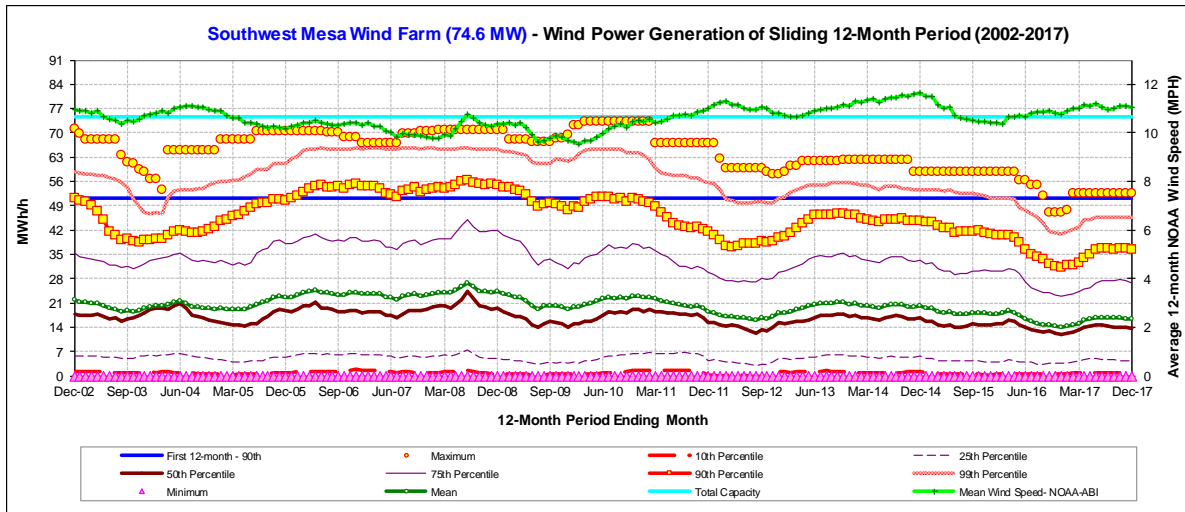


Figure 4-78: Sliding 12-month Hourly Wind Power Generation for Southwest Mesa Wind

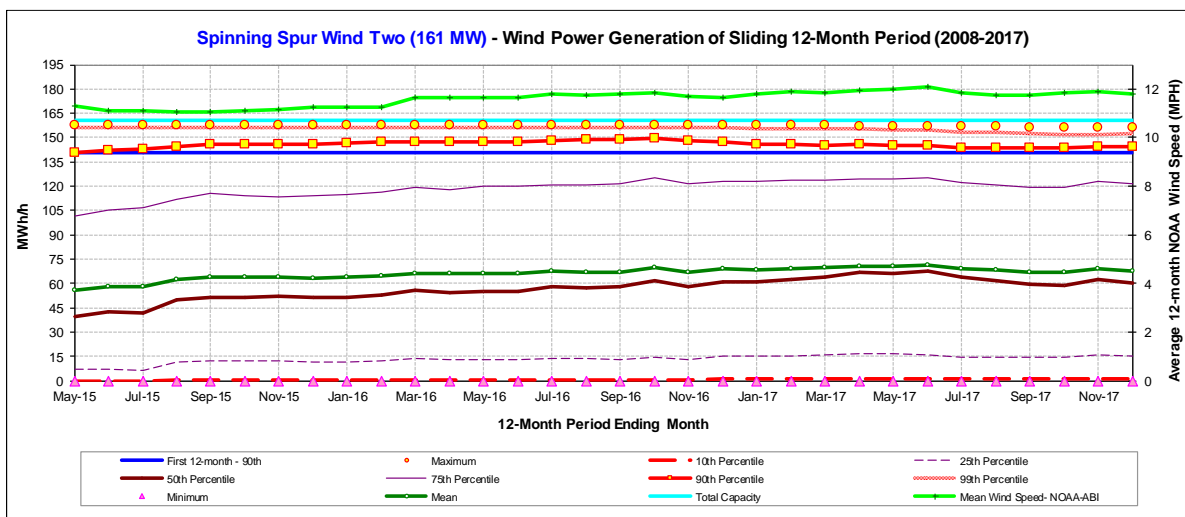


Figure 4-79: Sliding 12-month Hourly Wind Power Generation for Spinning Spur Wind Two

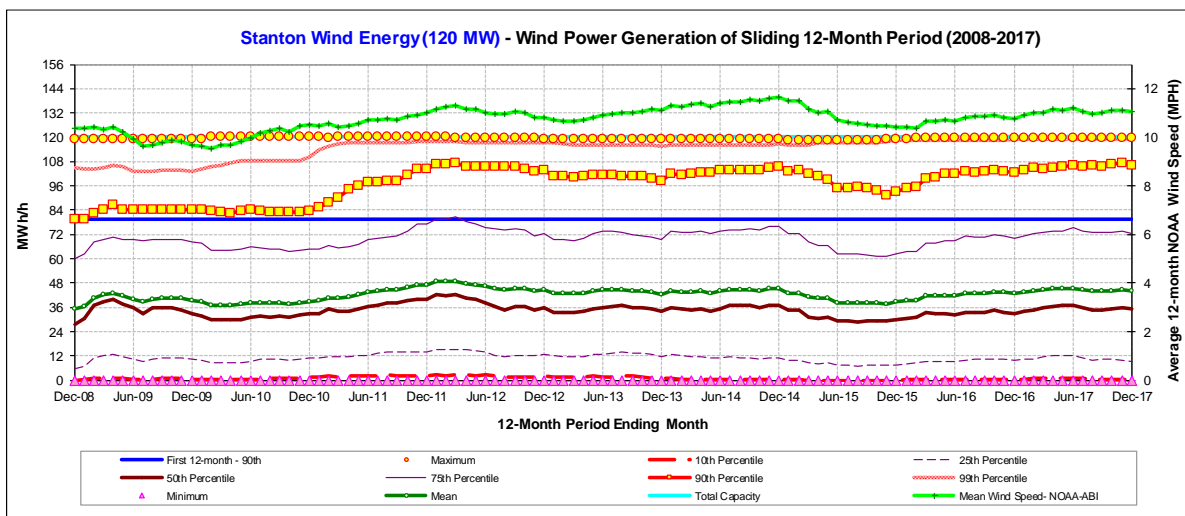


Figure 4-80: Sliding 12-month Hourly Wind Power Generation for Stanton Wind Energy

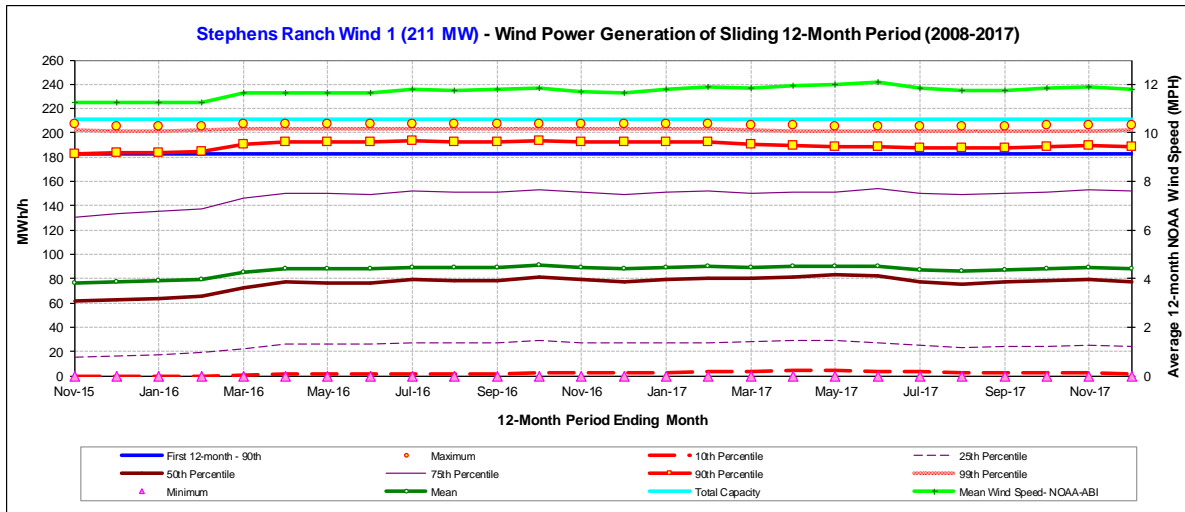


Figure 4-81: Sliding 12-month Hourly Wind Power Generation for Stephens Ranch Wind 1

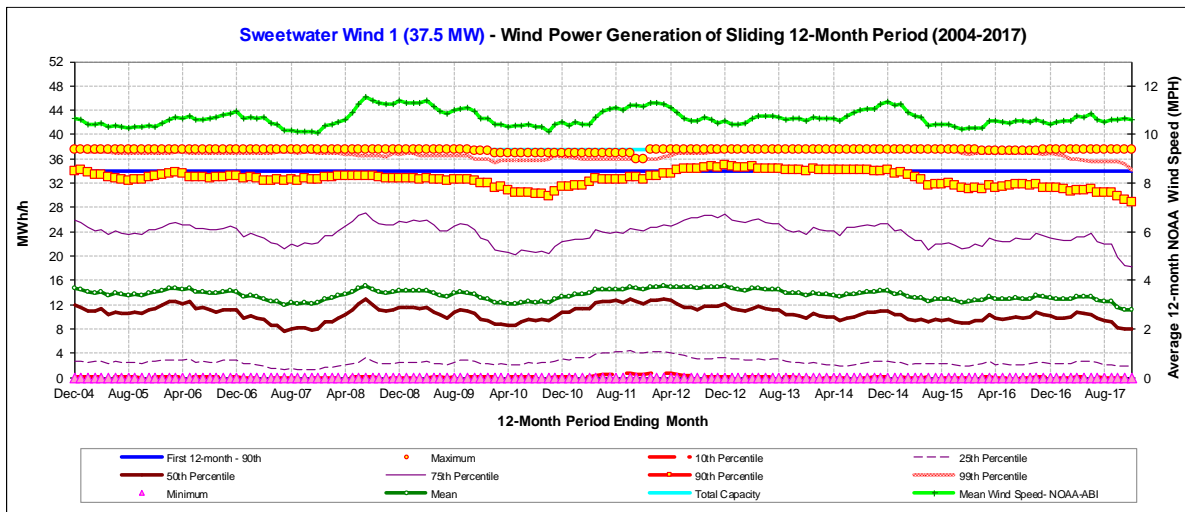


Figure 4-82: Sliding 12-month Hourly Wind Power Generation for Sweetwater Wind 1

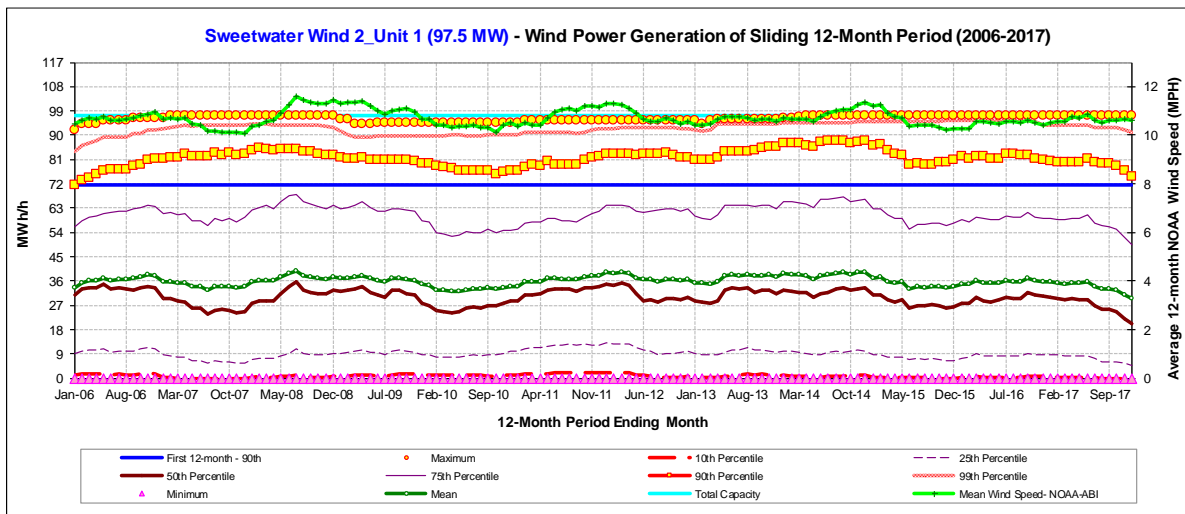


Figure 4-83: Sliding 12-month Hourly Wind Power Generation for Sweetwater Wind 2 (Unit 1)

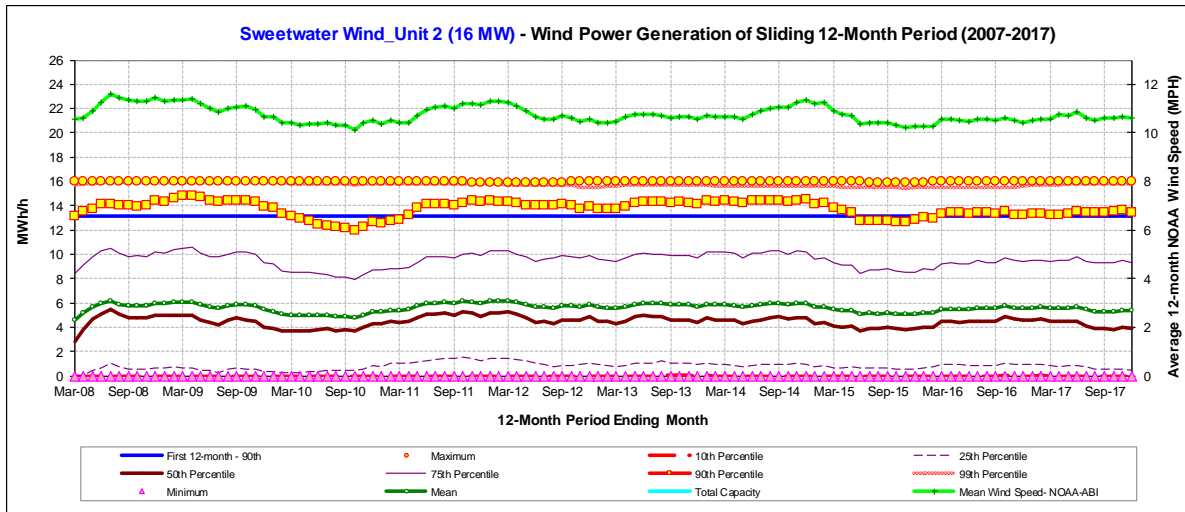


Figure 4-84: Sliding 12-month Hourly Wind Power Generation for Sweetwater Wind 2 (Unit 2)

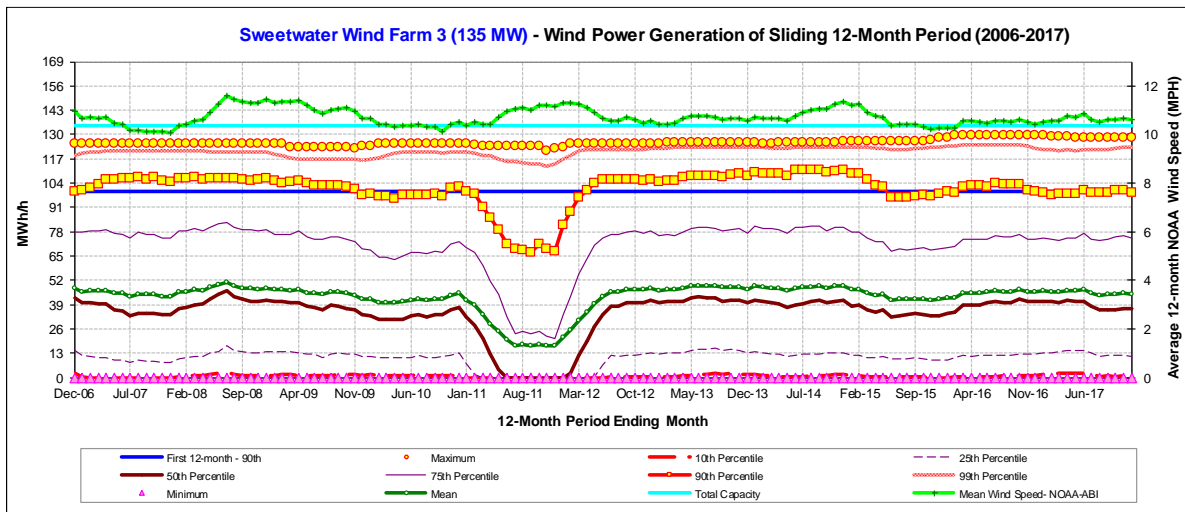


Figure 4-85: Sliding 12-month Hourly Wind Power Generation for Sweetwater Wind 3

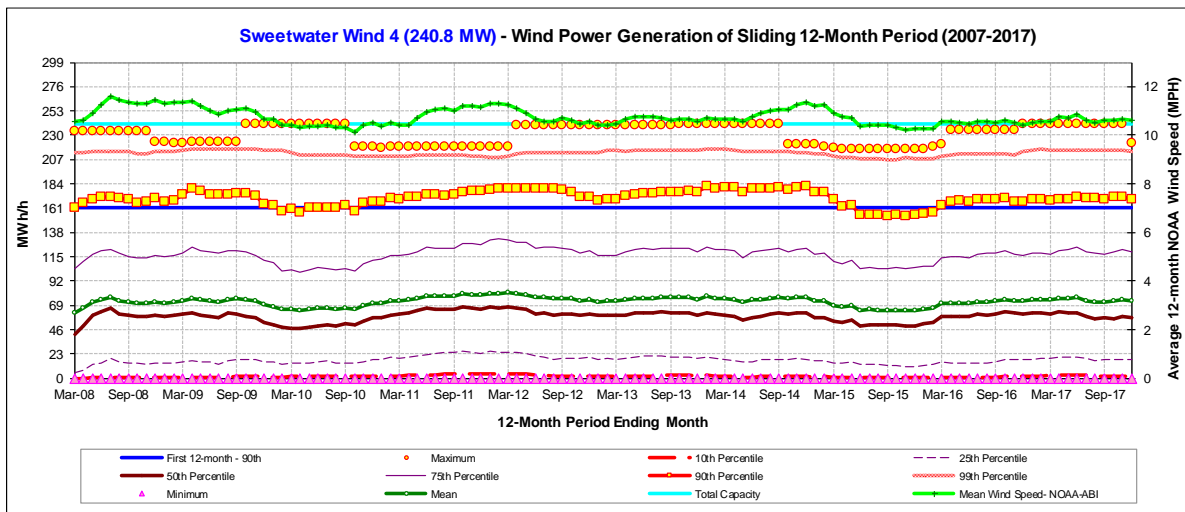


Figure 4-86: Sliding 12-month Hourly Wind Power Generation for Sweetwater Wind 4

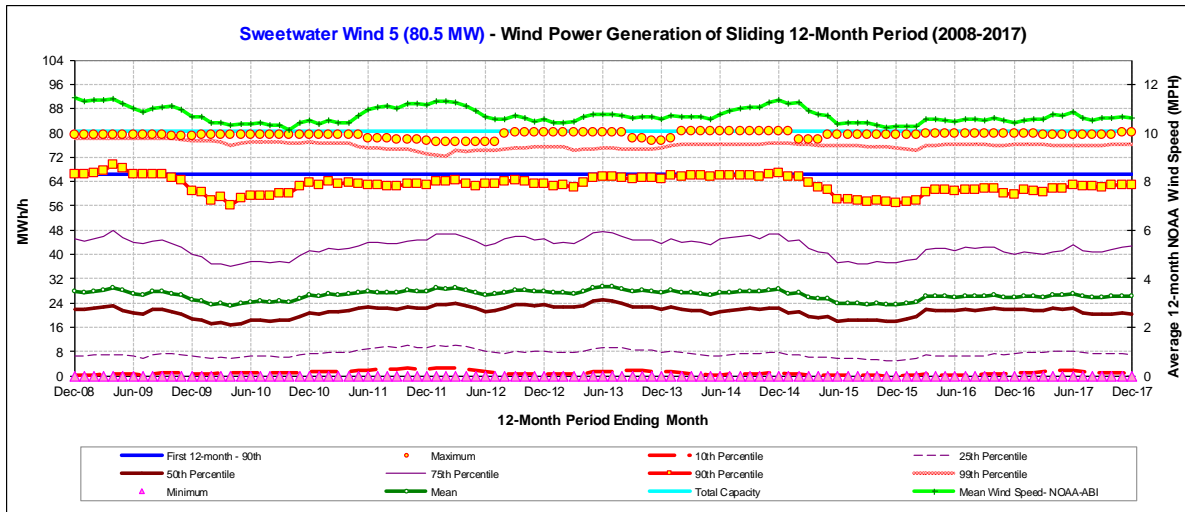


Figure 4-87: Sliding 12-month Hourly Wind Power Generation for Sweetwater Wind 5

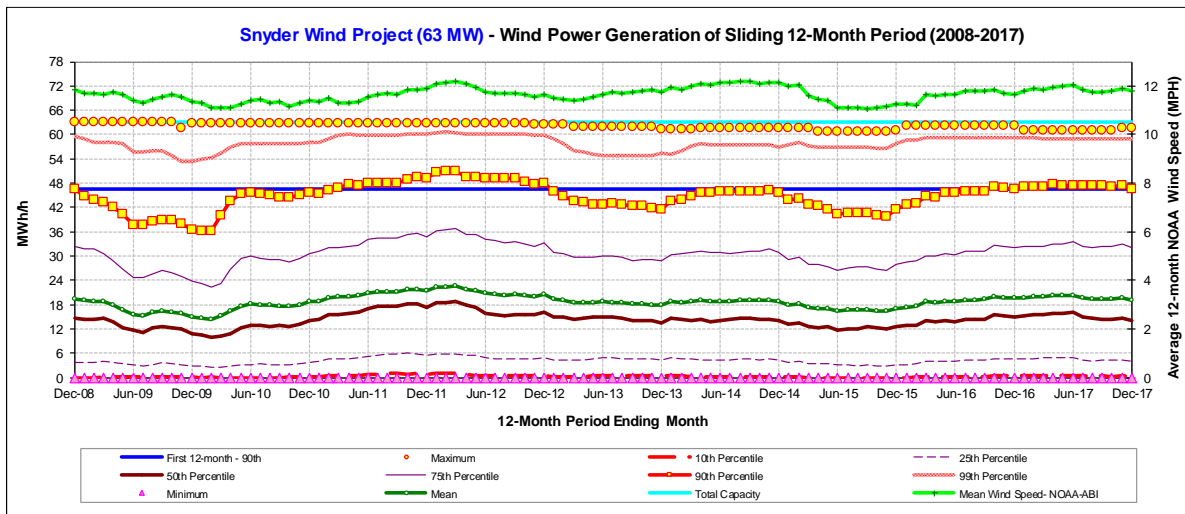


Figure 4-88: Sliding 12-month Hourly Wind Power Generation for Snyder Wind Project

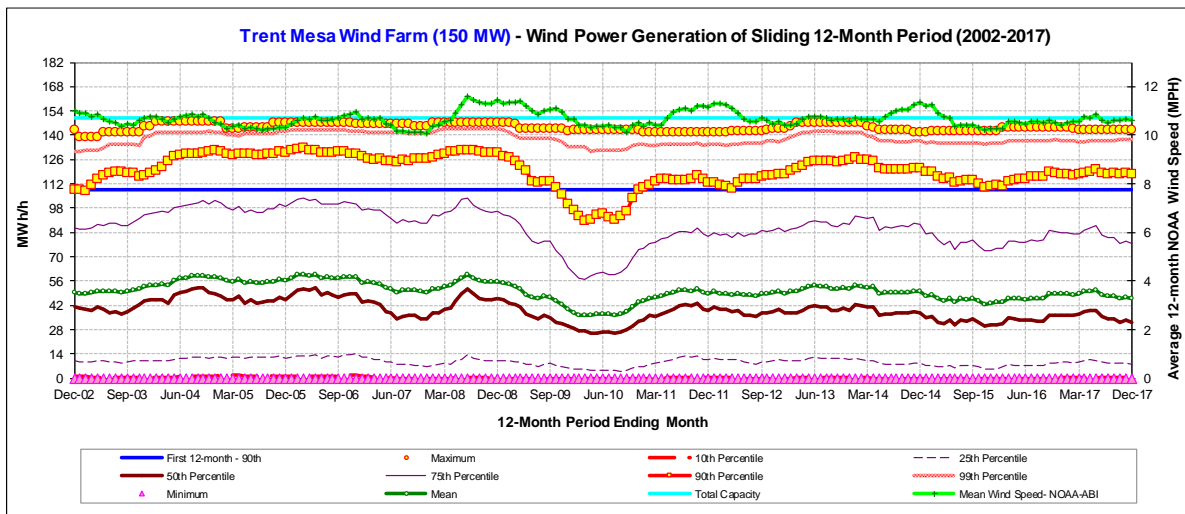


Figure 4-89: Sliding 12-month Hourly Wind Power Generation for Trent Mesa Wind

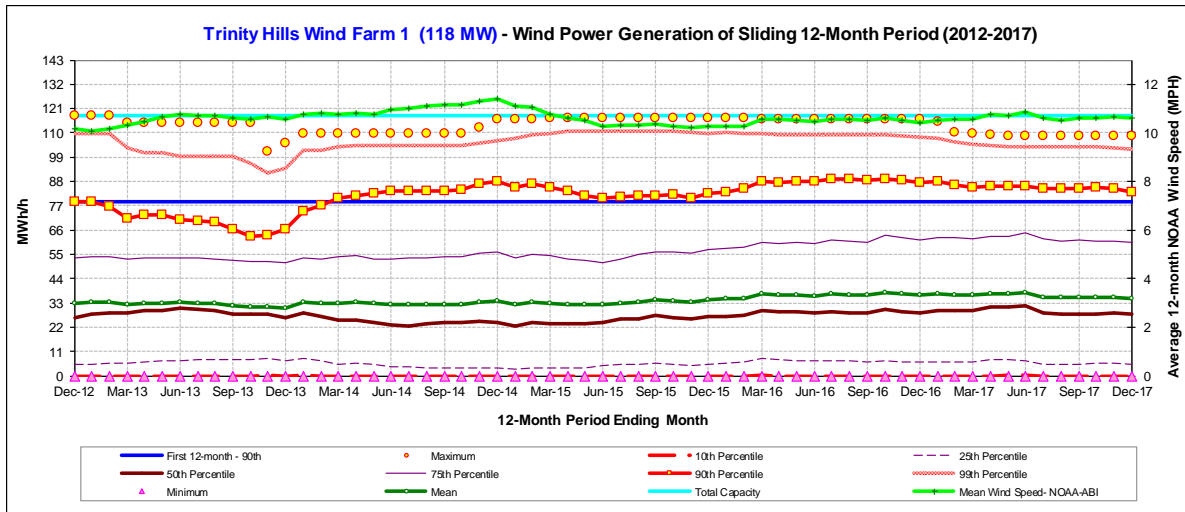


Figure 4-90: Sliding 12-month Hourly Wind Power Generation for Trinity Hills Wind Farm 1

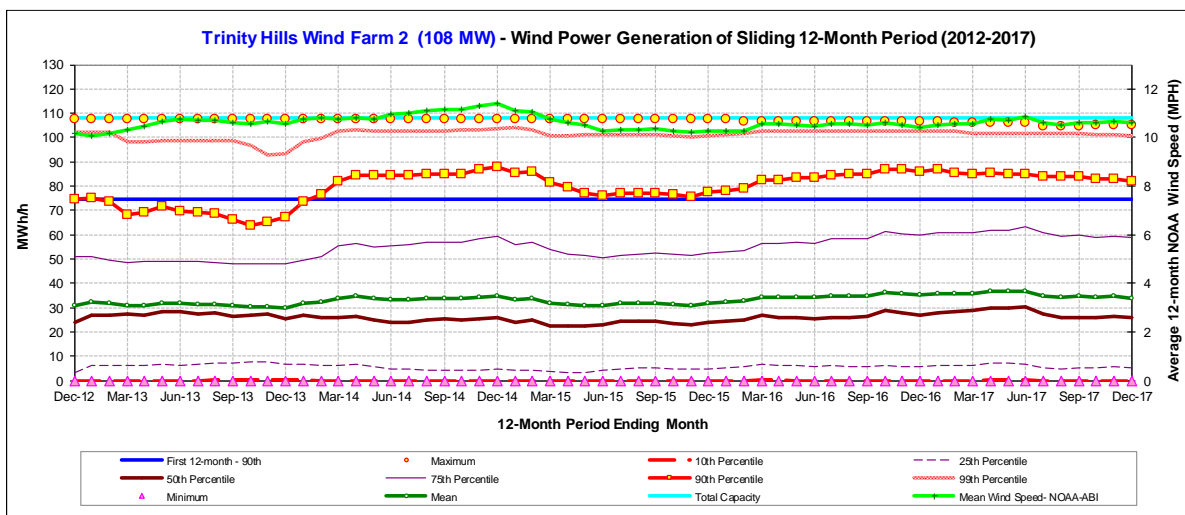


Figure 4-91: Sliding 12-month Hourly Wind Power Generation for Trinity Hills Wind Farm 2

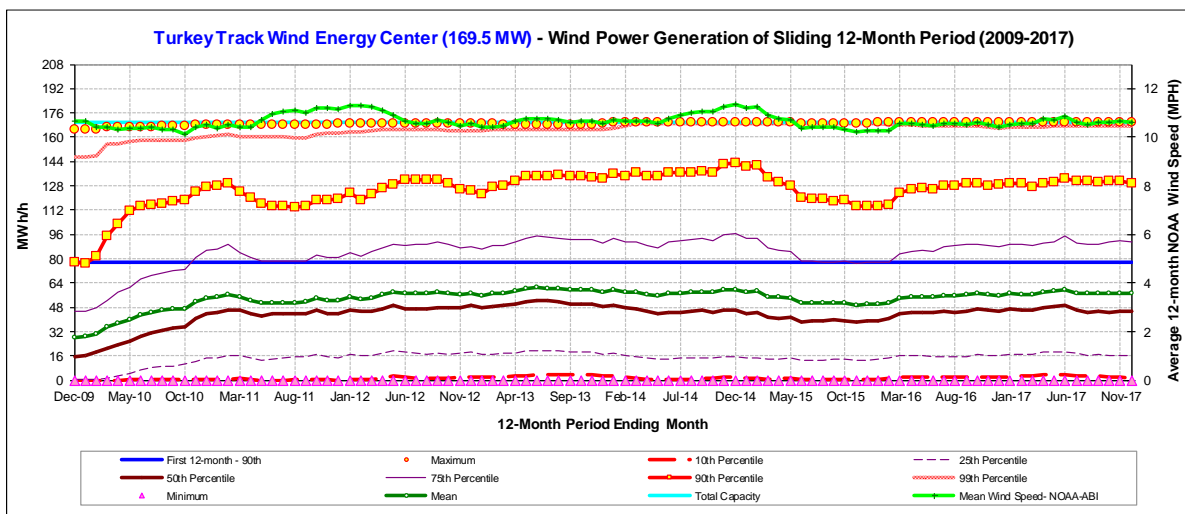


Figure 4-92: Sliding 12-month Hourly Wind Power Generation for Turkey Track Wind Energy Center

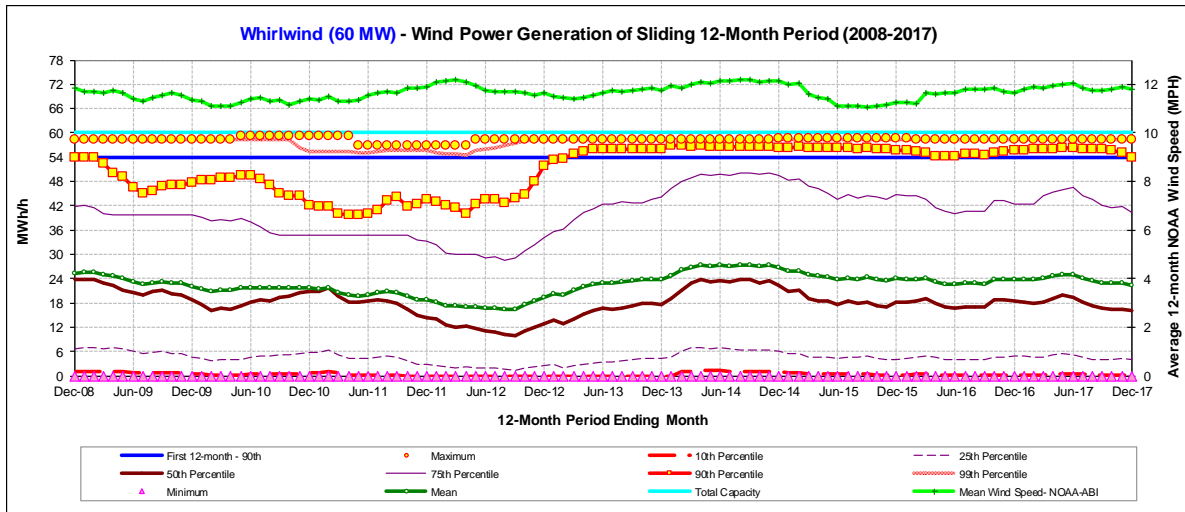


Figure 4-93: Sliding 12-month Hourly Wind Power Generation for Whirlwind Wind

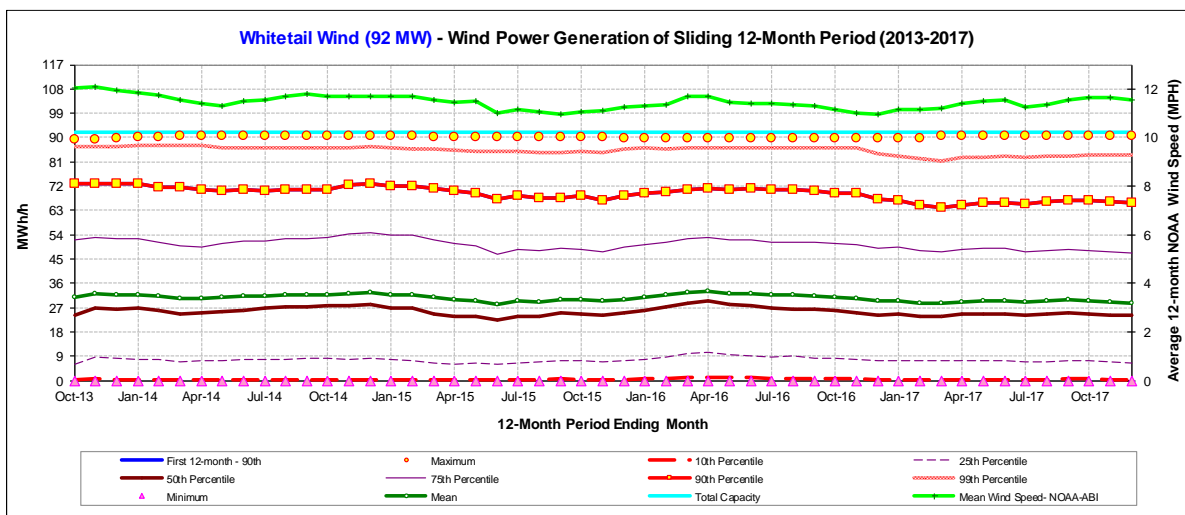


Figure 4-94: Sliding 12-month Hourly Wind Power Generation for Whitetail Wind

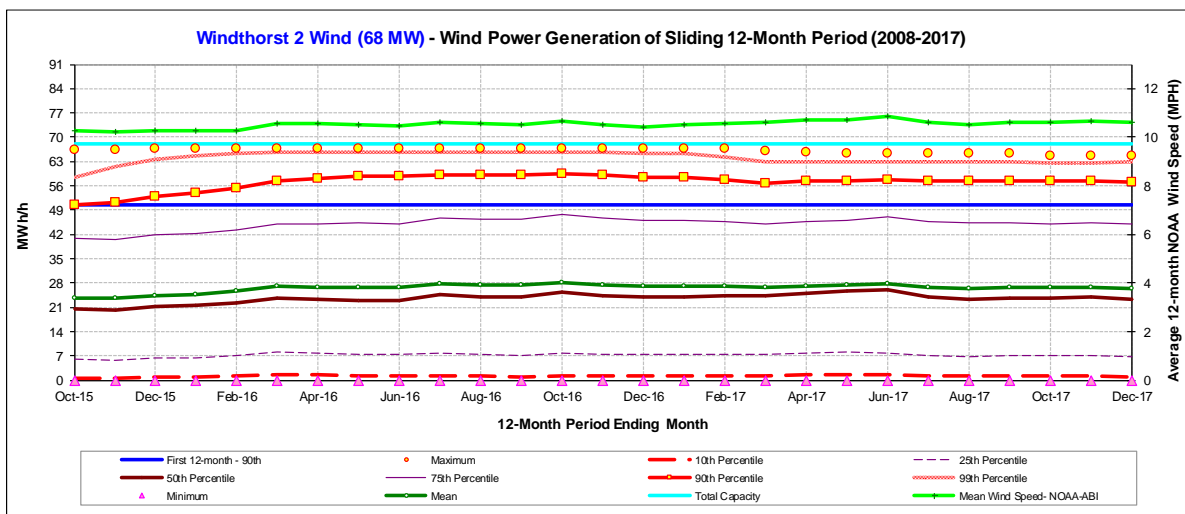


Figure 4-95: Sliding 12-month Hourly Wind Power Generation for Windthorst 2 Wind



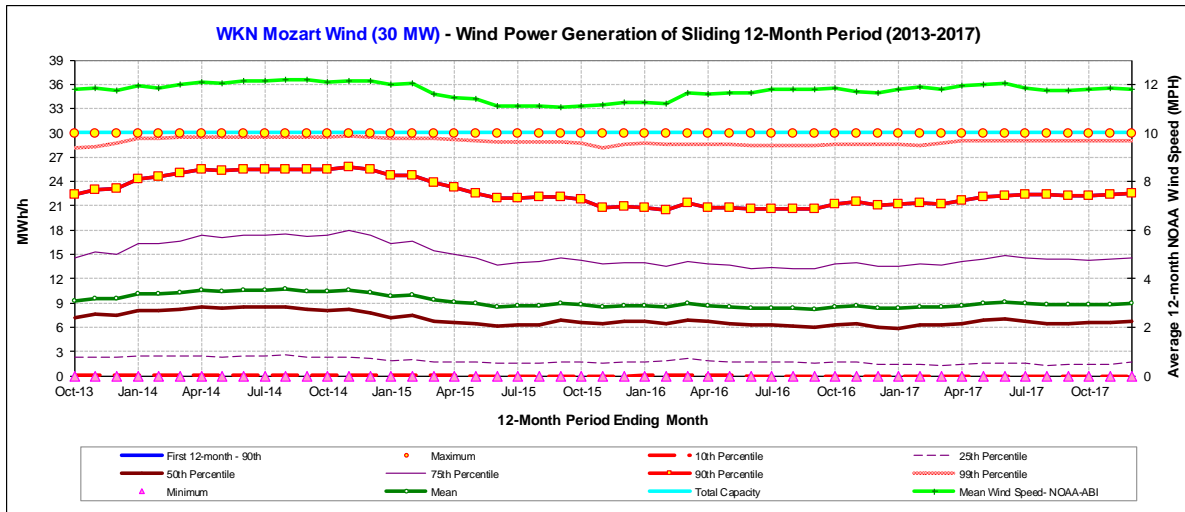


Figure 4-96: Sliding 12-month Hourly Wind Power Generation for WKN Mozart Wind

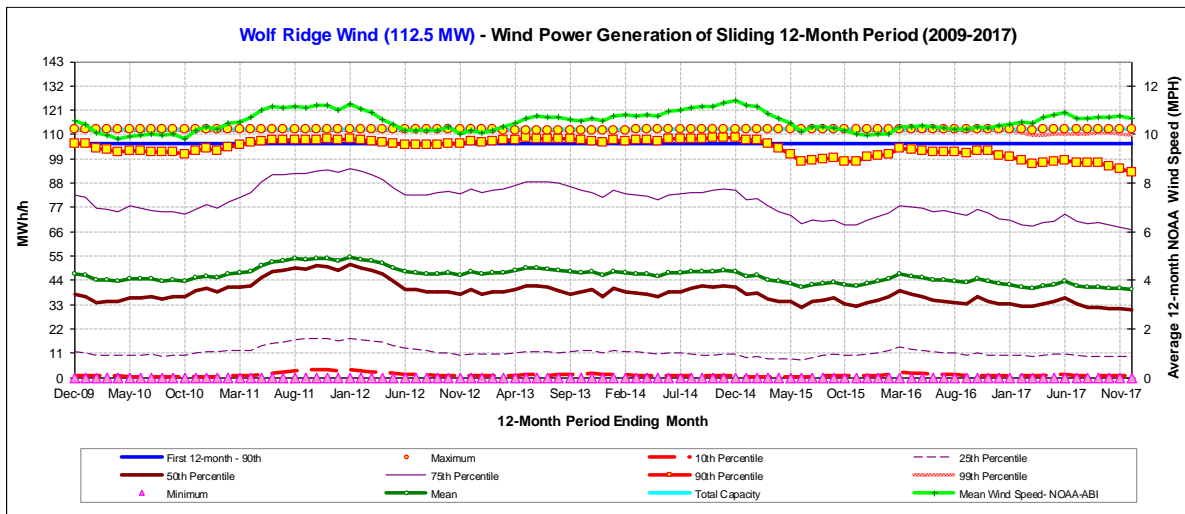


Figure 4-97: Sliding 12-month Hourly Wind Power Generation for Wolf Ridge Wind

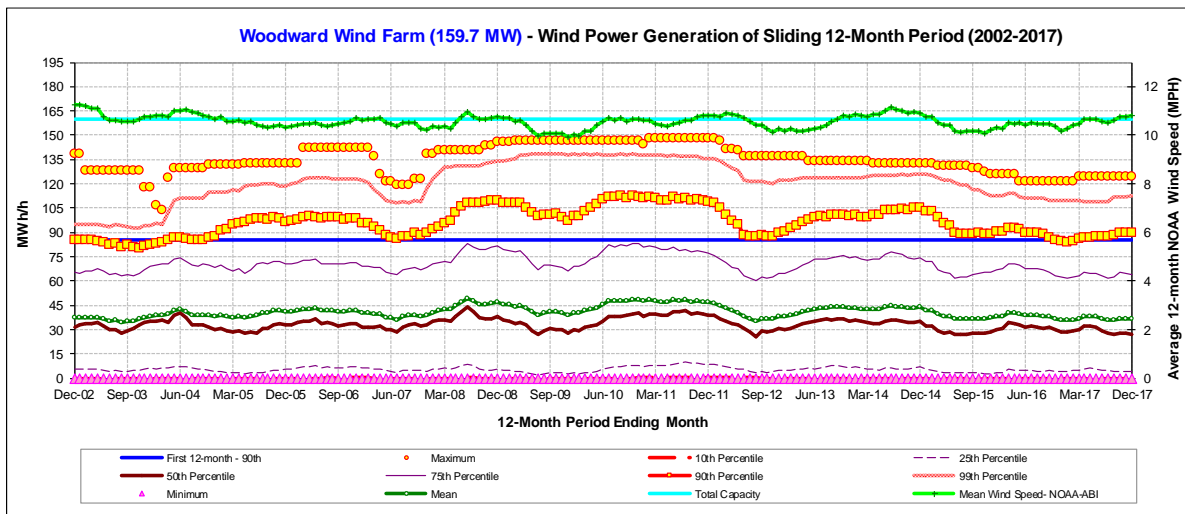


Figure 4-98: Sliding 12-month Hourly Wind Power Generation for Woodward Mountain Ranch

## 5 CALCULATING NO<sub>x</sub> EMISSIONS REDUCTION FROM WIND POWER

### 5.1 Calculation of NO<sub>x</sub> Emissions from Wind Power Using 2016 eGRID

The Energy Systems Laboratory has worked closely with the TCEQ and EPA to develop creditable procedures for calculating NO<sub>x</sub> reductions from electricity savings using the 2016 EPA's Emissions and Generation Resource Integrated Database (eGRID<sup>10</sup>). The calculation uses a simplified dispatch approach of the ERCOT grid to estimate NO<sub>x</sub> emission reductions across the ERCOT region in Texas. ERCOT is currently divided into four CL zones: Houston (H), North (N), South (S), and West (W). The 2016 eGrid table, which describes distribution of the NO<sub>x</sub> emission reductions per CL zone for each county in Texas, has four developed steps (EPA and ESL 2008):

1. assign energy savings to CL Zones
2. assign generation reductions within each CL Zone to individual plants
3. determine plant-specific NO<sub>x</sub> emission rates
4. assemble all CL Zones for total savings

The procedure presented in this section calculates annual and peak-day, county-wide NO<sub>x</sub> reductions from electricity savings from wind projects implemented in the CL Zones in ERCOT listed in the EPA's eGRID. For this purpose, a special version of eGRID<sup>11</sup> was developed that reflects the 2016 electricity and pollution from electric utilities in ERCOT. The NO<sub>x</sub> production for each power plant is provided from the 2016 eGRID database for four CL zones: Houston, North, West and South. This eGRID matrix was utilized to assign the power plant used by CL zones, once a CL zone had been chosen for a given county. Figure 5-1 shows a snapshot of the NO<sub>x</sub> emission distribution among Texas counties from generating one mega-watt-hour of electricity in the CL zone of Houston, which was derived from the 2016 Annual eGRID table. For example, the counties marked in red show higher NO<sub>x</sub> emissions of above 0.1 lbs/MWh. The counties marked in dark green were least impacted by the NO<sub>x</sub> emissions (less than 0.0005 lbs/MWh) from Houston. Figure 5-2, Figure 5-3 and Figure 5-4 show the same county-wide NO<sub>x</sub> emissions distribution from North, West and South, respectively.

To calculate the NO<sub>x</sub> emissions reduction from the wind projects within the ERCOT region, the total MWh wind power for each CL zone is summarized in Table 5-2 and Table 5-3 for modeled 2008 baseline and 2017 measured data. Both annual wind power and OSP wind power are presented. Table 5-1 shows the latest wind farm information from PUCT, updated in Jan 2018. Only the completed projects are shown in the ERCOT, WSCC and SPP regions, with total generation capacity of 22,519 MW by wind resource. The total MWh production in each CL zone was input in the corresponding cells in the eGRID table to calculate the total annual and OSP emissions reductions for the entire ERCOT region in 2008 model (using 2008 wind speed data) and 2017 (using measured data), as shown from Table 5-4 and Table 5-7.

According to the developed models, the total MWh savings in the base year 2008 for the wind farms within the ERCOT region are 66,242,675 MWh/yr and 118,624 MWh/day in the OSP, compared with total 61,318,323 MWh/yr savings and 117,729 MWh/day in the OSP in 2017 within ERCOT. The total NO<sub>x</sub> emissions reductions for modeled 2008 across all the counties amount to 34,066 tons/yr and 71.8 tons/day for the OSP. Compared to the modeled 2008, the total NO<sub>x</sub> emissions reductions in 2017 is lower by 8.2%, from 34,066 tons/yr to 31,263 tons/yr. For the OSP, the total NO<sub>x</sub> emissions reductions decreased by 13.9%, from 71.8 tons/day to 61.8 tons/day. The distribution of the NO<sub>x</sub> emissions reduction in the counties within the ERCOT region is shown in Figure 5-5 through Figure 5-10. The 2016 eGRID shows that the counties named Scurry, Potter and Wilbarger will get the most emissions benefit from the wind farms.

<sup>10</sup> For this report, the nonattainment area was modified using the current TCEQ information at [https://www.tceq.texas.gov/assets/public/comm\\_exec/pubs/rg/rg388/rg-388.pdf](https://www.tceq.texas.gov/assets/public/comm_exec/pubs/rg/rg388/rg-388.pdf)

<sup>11</sup> This 2016 eGRID table for Texas was retrieved by the US EPA at <https://www.epa.gov/energy/emissions-generation-resource-integrated-database-egrid>



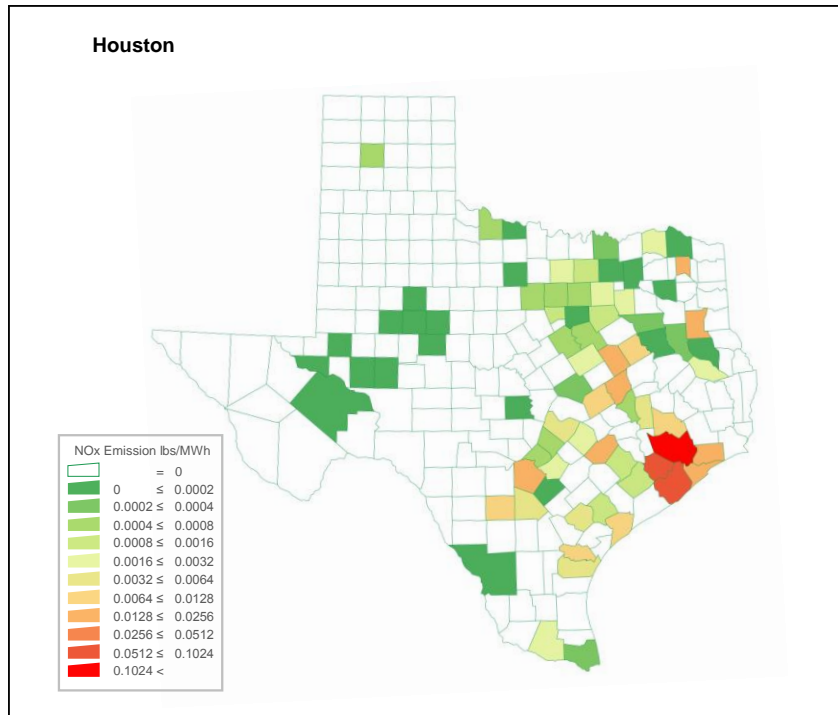


Figure 5-1: NOx Emissions from CL Zone - Houston in the 2016 Annual eGRID

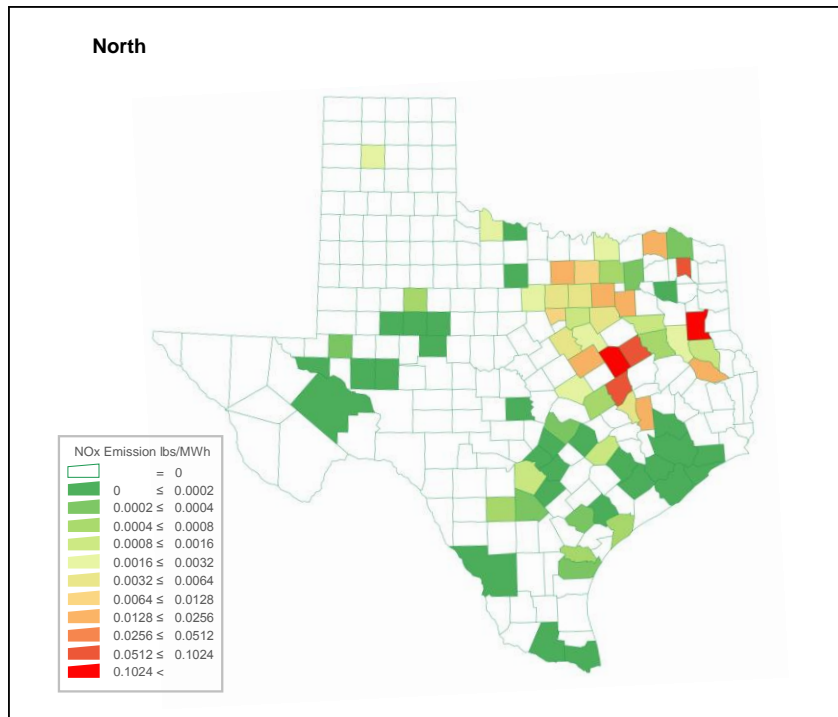


Figure 5-2: NOx Emissions from CL Zone - North in the 2016 Annual eGRID

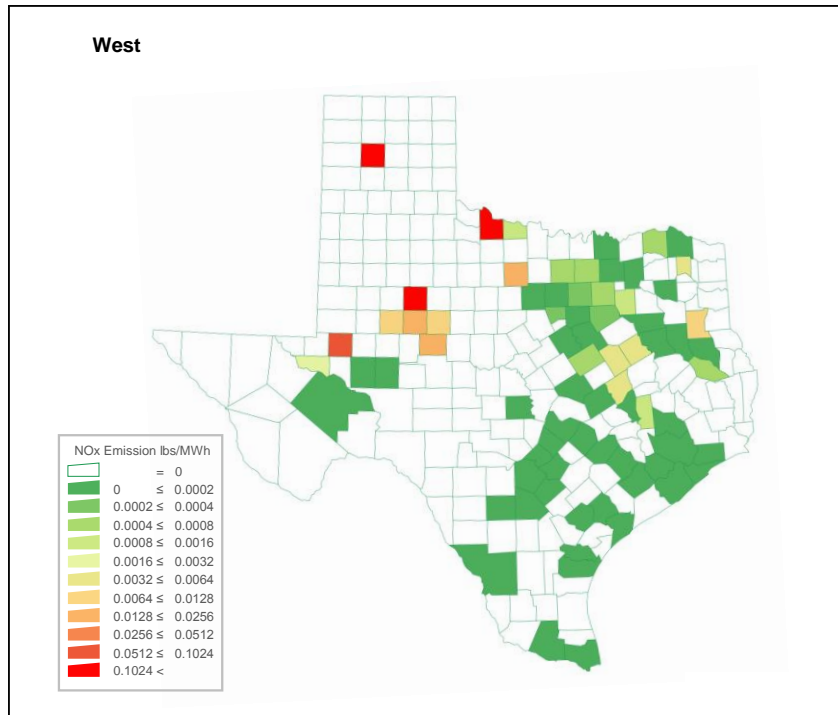


Figure 5-3: NOx Emissions from CL Zone - West in the 2016 Annual eGRID

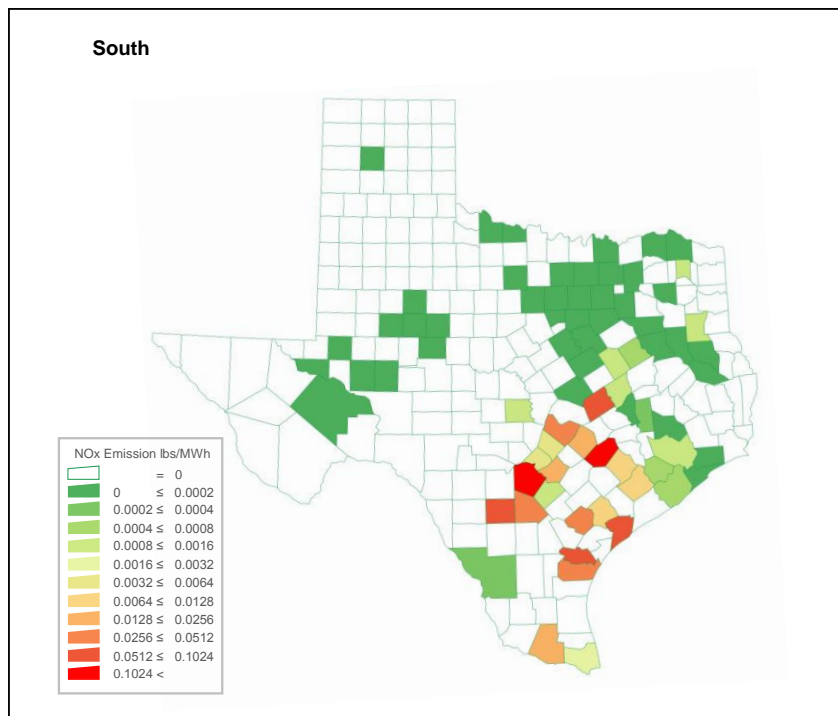


Figure 5-4: NOx Emissions from CL Zone - South in the 2016 Annual eGRID

Table 5-1: Wind Farm Information from the PUCT (Updated Jan 3th, 2018)

Facility	County	Resource	Capacity (MW)	Status	In Service	Region	Notes
Arava Wind Power Project	Culberson	Wind	35.00	Completed	Oct-05	ERCOT	
Big Spring Wind Power	Howard	Wind	34.00	Completed	Feb-09	ERCOT	
Big Spring Wind Power	Howard	Wind	6.60	Completed	Jun-09	ERCOT	
Bloware Mountain Wind Farm	Culberson	Wind	30.00	Completed	Jun-09	ERCOT	
Southwest Mesa Wind Project	Upton	Wind	75.00	Completed	Jun-09	ERCOT	
Nueco Mountain Wind Ranch	El Paso	Wind	1.30	Completed	Apr-01	WSCC	
Indian Mesa	Peecos	Wind	82.50	Completed	Jun-01	ERCOT	
Woodward Mountain Ranch	Peecos	Wind	160.00	Completed	Jun-01	ERCOT	
Trent Mesa	Nolan	Wind	150.00	Completed	Nov-01	ERCOT	
Desert Sky (Indian Mesa II)	Peecos	Wind	160.00	Completed	Dec-01	ERCOT	
King Mountain Wind Ranch	Upton	Wind	278.00	Completed	Dec-01	ERCOT	
Llano Estacado Wind Ranch	Carson	Wind	75.00	Completed	Jan-02	SPP	
Brazos Wind Ranch	Scurry	Wind	160.00	Completed	Dec-03	ERCOT	
Site 1000 Wind 1	Nolan	Wind	37.50	Completed	Dec-03	ERCOT	
Site 1000 Wind 2	Haskell	Wind	3.00	Completed	Dec-03	SPP	
Galahan Divide Wind Energy Center	Taylor	Wind	114.00	Completed	Feb-06	ERCOT	
Site 1000 Wind 2	Nolan	Wind	91.50	Completed	Feb-06	ERCOT	
Buffalo Gap 1	Taylor	Wind	120.00	Completed	Sep-06	ERCOT	
Horse Hollow Phase 1	Taylor	Wind	213.00	Completed	Oct-06	ERCOT	
Site 1000 Wind 3 (Cottontail Creek)	Nolan	Wind	136.00	Completed	Dec-06	ERCOT	
Horse Hollow Phase 2	Taylor	Wind	223.50	Completed	May-06	ERCOT	
Red Canyon 1	Borden	Wind	84.00	Completed	May-06	ERCOT	
Horse Hollow Phase 3	Taylor	Wind	299.00	Completed	Sep-06	ERCOT	
Forest Creek Wind Farm	Stearling	Wind	124.20	Completed	Dec-06	ERCOT	
Sand Bluff Wind Farm	Stearling	Wind	90.00	Completed	Dec-06	ERCOT	
Wildorado Wind Ranch	Ocham	Wind	161.00	Completed	Apr-07	SPP	
Site 1000 Wind 4 (Cottontail Creek)	Nolan	Wind	247.00	Completed	May-07	ERCOT	
Camp Springs	Scurry	Wind	130.00	Completed	Aug-07	ERCOT	
Buffalo Gap 2 (Cello 1)	Taylor	Wind	233.00	Completed	Aug-07	ERCOT	
Capricorn Ridge Wind	Stearling	Wind	364.00	Completed	Sep-07	ERCOT	previously Goat Mtn.
Barton Chapel Wind 1	Jack	Wind	120.00	Completed	Dec-07	ERCOT	
Lone Star - Mesquite Wind	Shackelford	Wind	200.00	Completed	Dec-07	ERCOT	
Snyder Wind Project	Scurry	Wind	63.00	Completed	Dec-07	ERCOT	
Site 1000 Wind 5	Nolan	Wind	65.00	Completed	Dec-07	ERCOT	
Whitfield	Floyd	Wind	60.00	Completed	Dec-07	ERCOT	
Champion Wind Farm	Scurry	Wind	126.00	Completed	Jan-08	ERCOT	
Roscoe Wind Farm 1	Scurry	Wind	206.00	Completed	Jan-08	ERCOT	
Stanton Wind Energy	Martin	Wind	120.00	Completed	Jan-08	ERCOT	
Silver Star Phase 1	Erath	Wind	60.00	Completed	Mar-08	ERCOT	
Buffalo Gap 3	Taylor	Wind	170.00	Completed	Apr-08	ERCOT	
Goat Wind	Stearling	Wind	40.00	Completed	Apr-08	ERCOT	
Capricorn Ridge Wind (exp)	Stearling	Wind	298.00	Completed	May-08	ERCOT	previously Goat Mtn.
Lone Star - Post Oak Wind	Shackelford	Wind	200.00	Completed	May-08	ERCOT	
Melicko Wind Energy	Dickens	Wind	150.00	Completed	May-08	ERCOT	
Camp Springs II	Scurry	Wind	120.00	Completed	Jun-08	ERCOT	
Parthen Creek	Howard	Wind	143.00	Completed	Jun-08	ERCOT	
Clouds Windpower 1	Howard	Wind	99.00	Completed	Aug-08	ERCOT	
Sherino Mesa Wind Farm	Peecos	Wind	150.00	Completed	Sep-08	ERCOT	
South Trent Wind Farm	Taylor	Wind	101.20	Completed	Oct-08	ERCOT	
Wolf Ridge Wind Farm	Cooke	Wind	113.00	Completed	Oct-08	ERCOT	
Butt Creek Wind Farm	Borden	Wind	180.00	Completed	Nov-08	ERCOT	
Elbow Creek Wind	Howard	Wind	117.30	Completed	Nov-08	ERCOT	
Gulf Wind 1	Kenedy	Wind	283.00	Completed	Nov-08	ERCOT	
Blackberry Wood Farm	Shackelford	Wind	165.00	Completed	Nov-08	ERCOT	
Inadale	Nolan	Wind	197.00	Completed	Nov-08	ERCOT	
Parthen Creek 2	Howard	Wind	116.00	Completed	Nov-08	ERCOT	
Parascal Wind Farm	Kenedy	Wind	202.00	Completed	Nov-08	ERCOT	
Pyrus	Scurry	Wind	248.00	Completed	Nov-08	ERCOT	
Turkey Track Energy Center	Nolan	Wind	169.50	Completed	Nov-08	ERCOT	
Norfolk Windpower	Erath	Wind	153.00	Completed	Nov-08	ERCOT	
Noble Great Plains Windpark	Haskell	Wind	114.00	Completed	Feb-09	SPP	
Goat Wind Phase 2	Stearling	Wind	70.00	Completed	Apr-09	ERCOT	
Parthen Creek 3	Concho	Wind	200.00	Completed	Aug-09	ERCOT	
Sunny Wind 1 & 8	Murren	Wind	49.50	Completed	Aug-09	SPP	
Papamore Creek Wind Farm	San Patricio	Wind	180.00	Completed	Sep-09	ERCOT	
Langford Wind Power	Tom Green	Wind	150.00	Completed	Oct-09	ERCOT	
Lone Star Windpark	Michell	Wind	251.00	Completed	Oct-09	ERCOT	
JD Wind 1-7, 9-11, Wege	Haskell	Wind	189.80	Completed	Dec-09	SPP	completed 2006-2009
Majestic Wind	Carson	Wind	79.50	Completed	Dec-09	SPP	
Parascal Wind Farm 2	Kenedy	Wind	202.00	Completed	Mar-10	ERCOT	
Papamore Creek Phase 1	San Patricio	Wind	180.00	Completed	Jun-10	ERCOT	
Little Pringle 1 2	Hutchinson	Wind	20.00	Completed	Sep-10	SPP	
Uctro Hill Wind	Webb	Wind	150.00	Completed	Oct-10	ERCOT	
Bals Wind Farm	Crosby	Wind	10.00	Completed	Jul-11	SPP	
GS Parhande Wind Ranch	Ocham	Wind	78.00	Completed	Sep-11	SPP	
Sherino Mesa Wind Farm 2	Peecos	Wind	158.00	Completed	Nov-11	ERCOT	
Trimb Hill Wind Farm	Yantis	Wind	228.00	Completed	Jan-12	ERCOT	
Frisco Wind Farm	Haskell	Wind	20.00	Completed	Feb-12	SPP	
Harbor Wind Project	Nueces	Wind	9.00	Completed	Mar-12	ERCOT	
Blago Valley Wind	Wilcox	Wind	200.00	Completed	Apr-12	ERCOT	also called Redfish
Aracachco Windfarm	Kiney	Wind	100.00	Completed	Dec-12	ERCOT	
Blue Summit Wind	Wilbarger	Wind	136.00	Completed	Dec-12	ERCOT	
Urus Wind Energy	Lynn	Wind	61.20	Completed	Dec-12	SPP	
Majestic Wind 1	Carson	Wind	79.50	Completed	Dec-12	SPP	
Mixart	Kent	Wind	30.00	Completed	Dec-12	ERCOT	15-yr FPA, AP Morgan EV
Serrate Wind Project	Jack	Wind	150.00	Completed	Dec-12	ERCOT	
Springing Spur Wind Ranch	Ocham	Wind	150.00	Completed	Dec-12	SPP	15-yr FPA, SRS
Whitetail Wind Project	Webb	Wind	82.00	Completed	Dec-12	ERCOT	25-yr FPA, Austin Energy
Lus Ventos 1	Wilcox	Wind	200.00	Completed	Jan-13	ERCOT	25-yr FPA, CPS Energy
Lus Ventos 2	Wilcox	Wind	200.00	Completed	Jan-13	ERCOT	FPA, Austin Energy
Bubcal Bluff	Clay	Wind	163.00	Completed	Mar-13	ERCOT	
Guldhawale Wind Energy	Mills	Wind	149.00	Completed	Jan-14	ERCOT	
Parthen Wind Farm	Carson	Wind	11.50	Completed	Jan-14	SPP	
Springing Spur Wind 2	Ocham	Wind	161.00	Completed	Jan-14	ERCOT	
Parhande Wind 1	Carson	Wind	218.00	Completed	Jul-14	ERCOT	
Parhande Wind 2	Carson	Wind	198.00	Completed	Nov-14	ERCOT	
Grandview Phase 1 (Comey Windfarm)	Carson	Wind	211.00	Completed	Dec-14	ERCOT	
Mam Wind 1 Project	Gray	Wind	288.00	Completed	Dec-14	ERCOT	
Palo Duro Wind	Ocham	Wind	250.00	Completed	Dec-14	SPP	
Stephens Ranch Wind Phase 1	Borden	Wind	211.00	Completed	Dec-14	ERCOT	
Windhorst 2	Archer	Wind	65.00	Completed	Dec-14	ERCOT	
Kesch Wind	Jack	Wind	102.00	Completed	Jan-15	ERCOT	
Jumbo Reed Wind (Hersford 2)	Castro	Wind	300.00	Completed	Apr-15	ERCOT	FPA, AE
Messate Creek Wind	Borden	Wind	211.00	Completed	Apr-15	ERCOT	
Hersford Wind Project (Hersford 1)	Deaf Smith	Wind	200.00	Completed	May-15	ERCOT	
Stephens Ranch Wind Phase 2	Borden	Wind	185.00	Completed	May-15	ERCOT	
Bowling Wind	Armstrong	Wind	150.00	Completed	Aug-15	ERCOT	
Logan's Gap Wind 1	Comanche	Wind	211.00	Completed	Sep-15	ERCOT	
Langhorn Energy Center North	Briscoe	Wind	200.00	Completed	Sep-15	ERCOT	
Rattlesnake Wind Ph 1	Cass	Wind	211.00	Completed	Sep-15	ERCOT	prev. Rattlesnake Den
Pleasant Hill Wind Energy	Crosby	Wind	20.00	Completed	Oct-15	SPP	
Springing Spur Wind 2	Ocham	Wind	150.00	Completed	Oct-15	ERCOT	PPAs GUS, GPL
Briscoe Wind	Briscoe	Wind	160.00	Completed	Nov-15	ERCOT	
Green Pastures W	Knox	Wind	300.00	Completed	Nov-15	ERCOT	
South Plains Wind 1	Floyd	Wind	200.00	Completed	Nov-15	ERCOT	
Shannon Wind	Clay	Wind	200.00	Completed	Dec-15	ERCOT	prev. South Clay Wind
Lus Ventos 3	Starr	Wind	200.00	Completed	Dec-15	ERCOT	25-yr FPA, Austin Energy
Sandero Wind Energy Project	Jim Hogg	Wind	78.00	Completed	Dec-15	ERCOT	
Javelina Wind	Zapata	Wind	250.00	Completed	Dec-15	ERCOT	
Cameroon County Wind	Cameroon	Wind	165.00	Completed	Jan-16	ERCOT	
Cobbecks Corner	Carson	Wind	200.00	Completed	May-16	ERCOT	
South Plains Wind 1 Phase a	Floyd	Wind	152.00	Completed	Jan-16	ERCOT	
South Plains Wind 1 Phase b	Floyd	Wind	148.00	Completed	Jan-16	ERCOT	
Buffal Wind Farm (Parascal 3)	Kenedy	Wind	202.00	Completed	Jan-16	ERCOT	
Lus Ventos IV	Starr	Wind	200.00	Completed	Jan-16	ERCOT	25-yr FPA, Austin Energy
Gunlight Mountain	Howard	Wind	120.00	Completed	Sep-16	ERCOT	
Lus Ventos V	Starr	Wind	200.00	Completed	Sep-16	ERCOT	
Wake Wind	Dickens	Wind	300.00	Completed	Oct-16	ERCOT	
Salt Fork Wind	Dorley and Gray	Wind	200.00	Completed	Dec-16	ERCOT	
Lyer Bluff Wind (Munster Wind)	Cooke	Wind	110.00	Completed	Dec-16	ERCOT	
Hidalgo & Starr Wind	Hidalgo	Wind	250.00	Completed	Dec-16	ERCOT	
Electra Wind 1	Wilbarger	Wind	230.00	Completed	Jan-17	ERCOT	
Horse Creek Wind	Haskell	Wind	230.00	Completed	Jan-17	ERCOT	
Bethel Wind Energy Facility	Castro	Wind	276.00	Completed	Jan-17	SPP	
Javelina 2 Wind	Zapata	Wind	200.00	Completed	Feb-17	ERCOT	
San Roman Wind 1	Cameroon	Wind	34.00	Completed	Feb-17	ERCOT	
Merah Del Norte	Parmer	Wind	200.00	Completed	Mar-17	ERCOT	Merah Wind B
Cotton Plains Wind	Floyd	Wind	50.00	Completed	Mar-17	ERCOT	Blanco Canyon Wind 1
Old Settler Wind	Floyd	Wind	150.00	Completed	Apr-17	ERCOT	Blanco Canyon Wind 2
Cotton Plains Wind	Floyd	Wind	50.00	Completed	Apr-17	ERCOT	Blanco Canyon Wind 1
Wake Wind	Dickens	Wind	300.00	Completed	Oct-16	ERCOT	prev. Happy Whiteface
Dermett Wind 1	Scurry	Wind	250.00	Completed	Aug-17	ERCOT	Amazon Wind Farm
Chapman Ranch Wind 1	Nueces	Wind	250.00	Completed	Oct-17	ERCOT	
Val Verde Wind	Val Verde	Wind	149.00	Completed	Oct-17	ERCOT	Rock Springs
Fluvanna Renewable 1	Scurry	Wind	155.00	Completed	Nov-17	ERCOT	
Willow Springs Wind	Haskell	Wind	230.00	Completed	Nov-17	ERCOT	

Table 5-2: Modeled 2008 Wind Power Production Assigned to Each CL Zone in the ERCOT Region

CL Zones	Annual Wind Power (MWh/yr)	OSP Wind Power (MWh/day)
Houston	0	0
North	3,615,205	6,299
West	50,293,040	83,891
South	12,334,430	28,435
Total	66,242,675	118,624

Table 5-3: 2017 Wind Power Production Assigned to Each CL Zone in the ERCOT Region

CL Zones	Annual Wind Power (MWh/yr)	OSP Wind Power (MWh/day)
Houston	0	0
North	3,302,256	5,939
West	45,713,040	78,616
South	12,303,027	33,174
Total	61,318,323	117,729

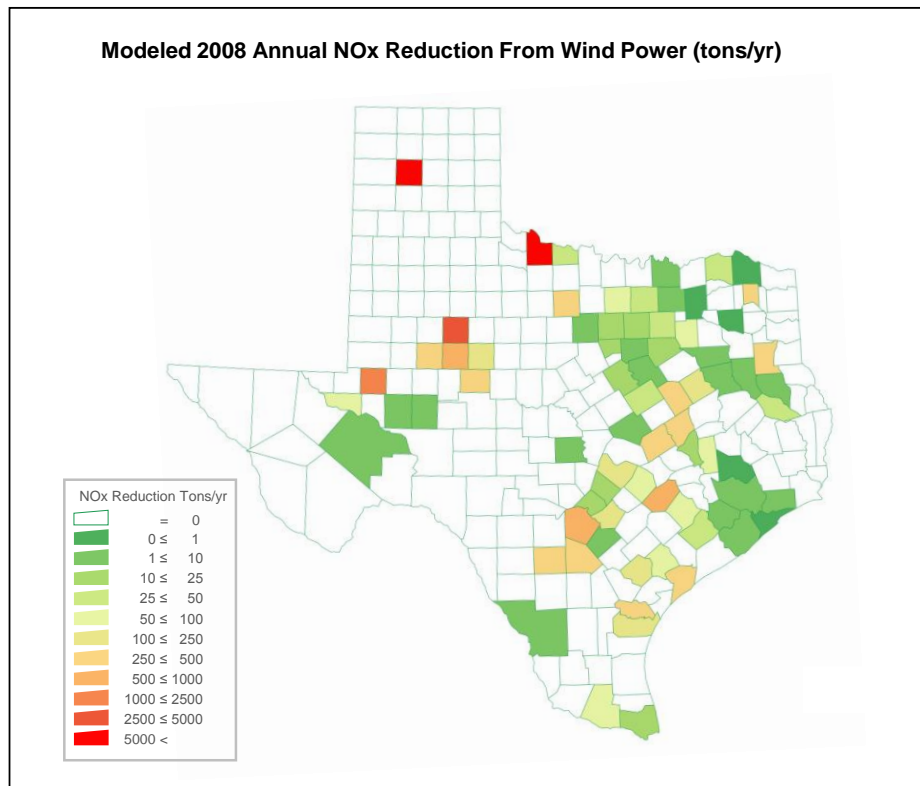


Figure 5-5: Modeled 2008 Annual NOx Reductions from Wind Power in Texas Map

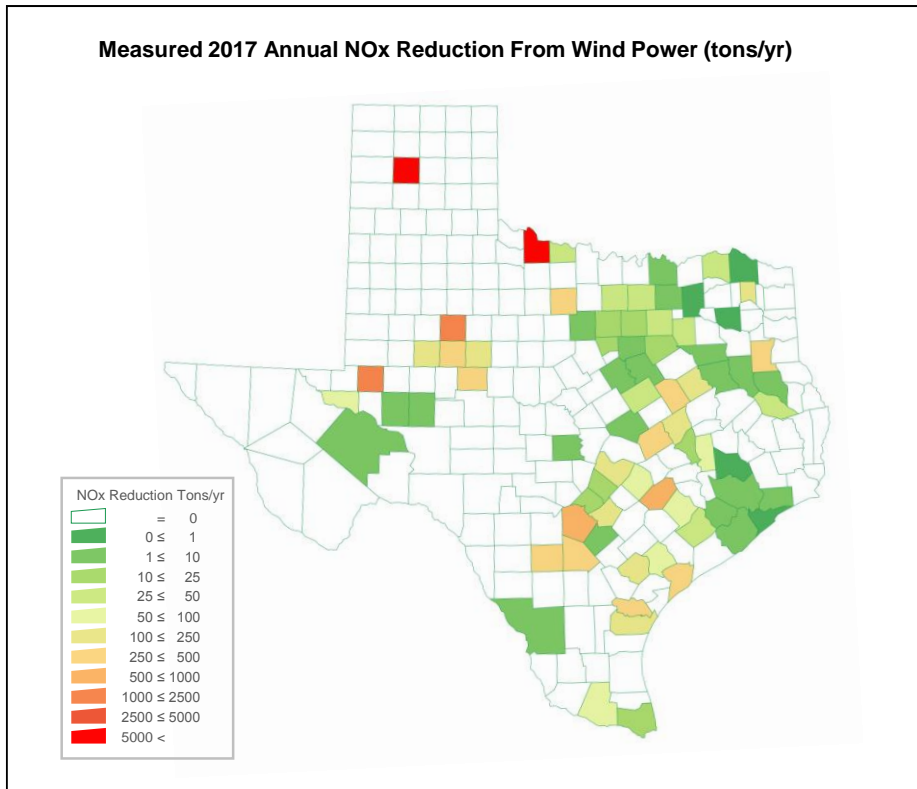


Figure 5-6: Measured 2017 Annual NOx Reductions from Wind Power in Texas Map

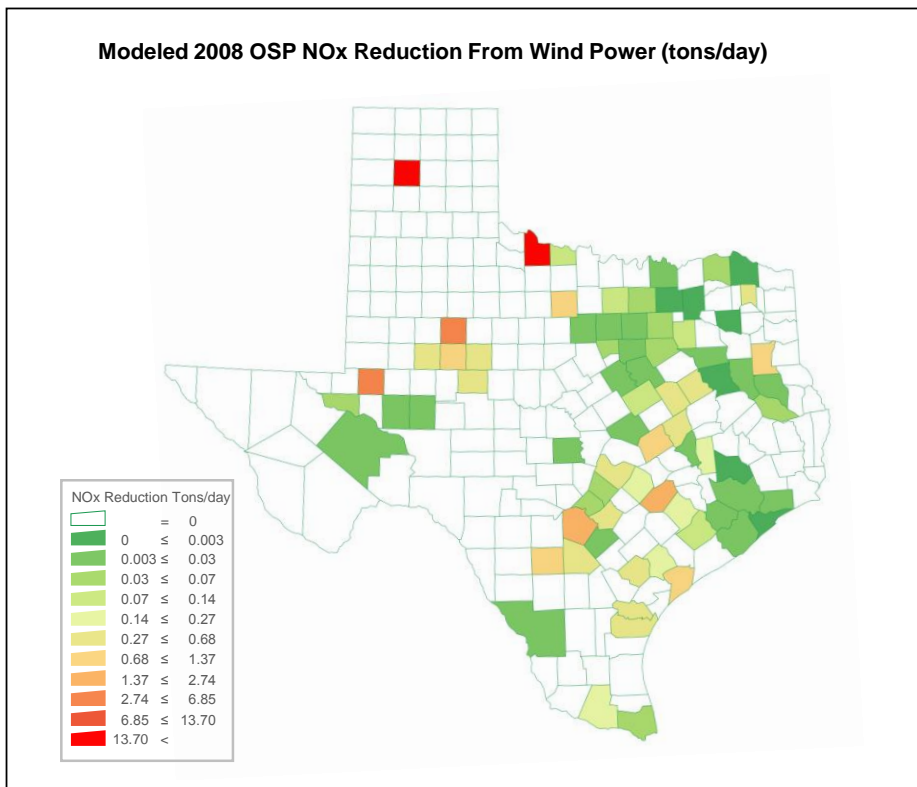


Figure 5-7: Modeled 2008 OSP NOx Reductions from Wind Power in Texas Map

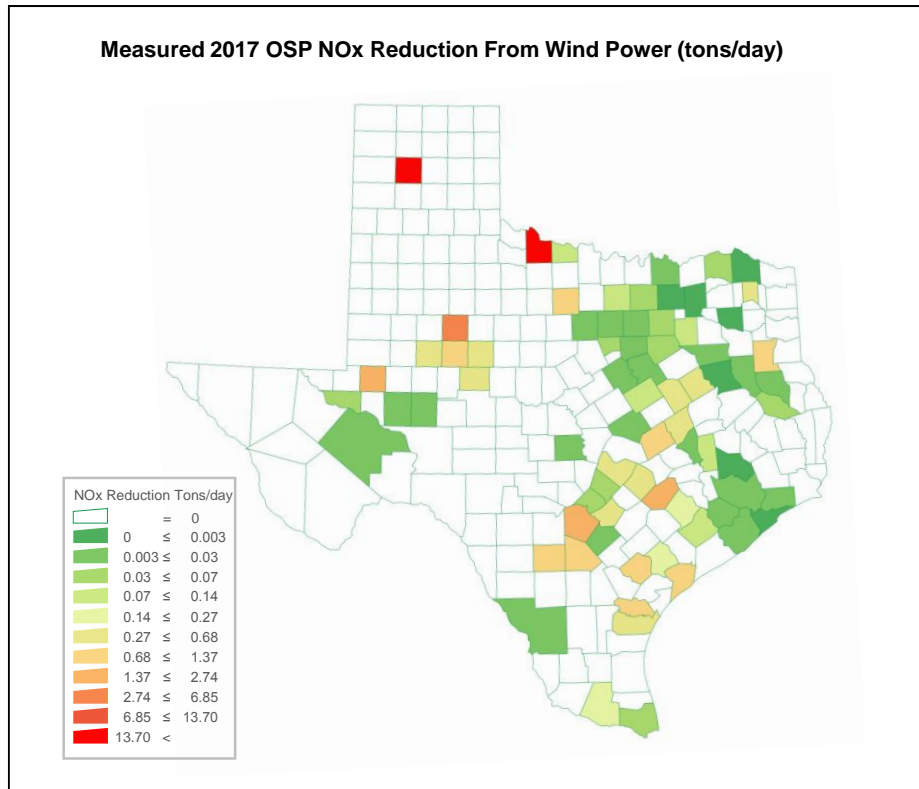


Figure 5-8: Measured 2017 OSP NOx Reductions from Wind Power in Texas Map

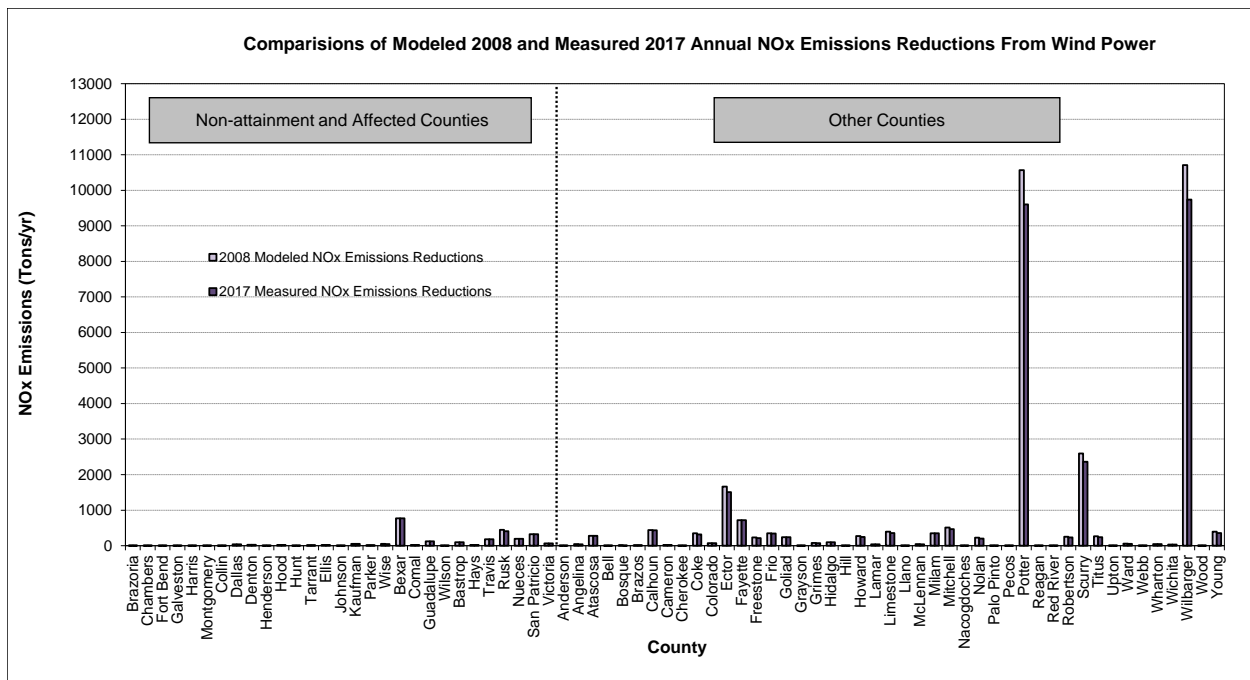


Figure 5-9: Comparisons of Modeled 2008 and Measured 2017 Annual NOx Emissions Reductions from Wind Power

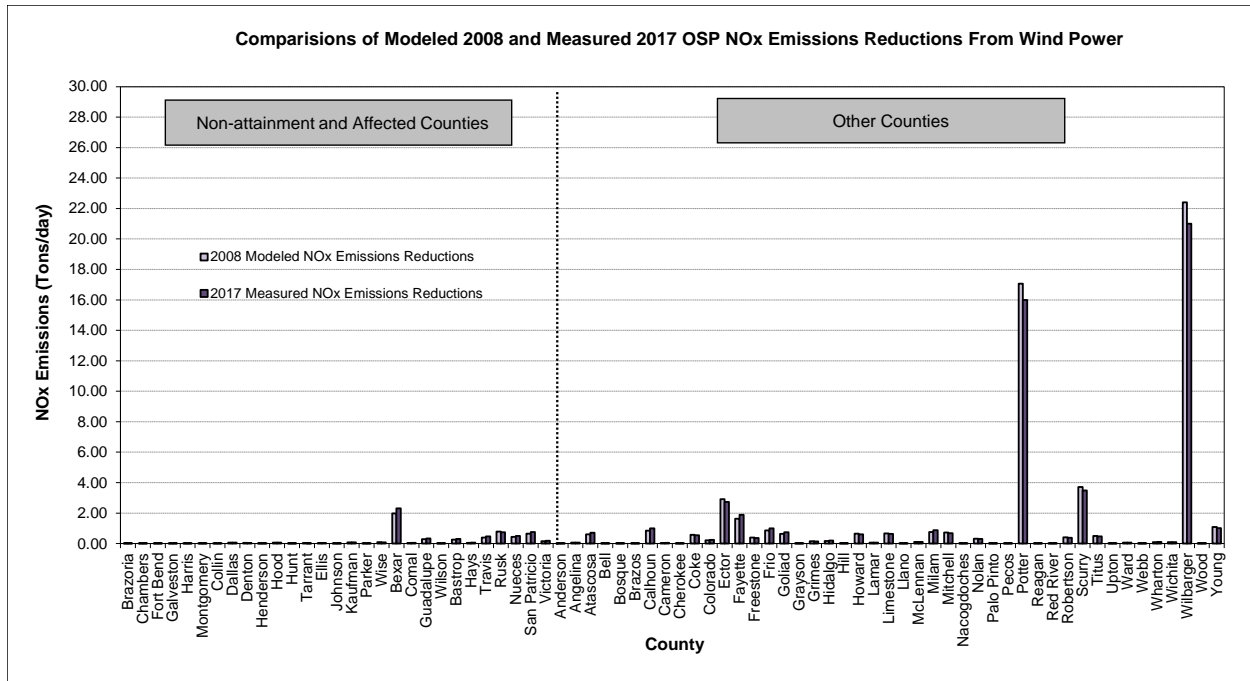


Figure 5-10: Comparisons of Modeled 2008 and Measured 2017 OSP NOx Emissions Reductions from Wind Power

Table 5-4: Distribution of the Annual Emission Reductions per CL Zone for each County (Base Year 2008)

Area	County	CL Zones					Total Nox Reductions (lbs)	Total Nox Reductions (Tons)				
		M	N	W	S							
Houston-Galveston Area	Brarora	0.0584658	0.0000000	0.0000074	26.8162	0.0000004	18.0191	0.0005477	6756.0495	6800.88	3.40	
	Chambers	0.0186322	0.0000000	0.0000024	8.5459	0.0000001	5.7424	0.0001746	2153.0505	2167.34	1.08	
	Fort Bend	0.0713459	0.0000000	0.0000091	32.7238	0.0000004	21.9888	0.0006884	8244.4249	8299.14	4.15	
	Galveston	0.0137868	0.0000000	0.0000017	6.3235	0.0000001	4.2491	0.0001292	1593.1371	1603.71	0.80	
	Harris	0.1154764	0.0000000	0.0000147	52.9649	0.0000007	35.5898	0.0010818	13343.9479	13432.50	6.72	
	Liberty - (Note 1)	-	-	-	-	-	-	-	-	-	-	-
	Montgomery	0.0105050	0.0000000	0.0000013	4.8183	0.0000001	3.2377	0.0000984	1213.9174	1221.97	0.61	
	Waller - (Note 1)	-	-	-	-	-	-	-	-	-	-	-
	Harden - (Note 1)	-	-	-	-	-	-	-	-	-	-	-
	Jefferson - (Note 1)	-	-	-	-	-	-	-	-	-	-	-
Beaumont/Port Arthur Area	Orange - (Note 1)	-	-	-	-	-	-	-	-	-	-	
	Orange - (Note 1)	-	-	-	-	-	-	-	-	-	-	
Dallas/Fort Worth Area	Collin	0.0001062	0.0000000	0.0000916	2355.4882	0.0000315	1582.7782	0.0000096	81.9917	4020.27	2.01	
	Dallas	0.0021209	0.0000000	0.0139108	47028.5914	0.0000294	31606.2271	0.0001327	1637.2807	80280.13	40.14	
	Denton	0.0016536	0.0000000	0.0000520	34545.2397	0.0000403	23151.5407	0.0000972	1199.3959	58806.09	29.40	
	Henderson	0.0002547	0.0000000	0.0012557	4535.5473	0.0000207	3050.3507	0.0000128	158.0156	7747.91	3.87	
	Hood	0.0011465	0.0000000	0.0079236	25427.2626	0.0002397	17085.9259	0.0000718	885.0524	43298.38	21.70	
	Hunt	0.0003548	0.0000000	0.0002126	771.9773	0.0000103	518.7305	0.0000022	26.8715	1317.58	0.66	
	Tarrant	0.0007633	0.0000000	0.0048626	16928.6969	0.0002282	11375.2448	0.0000476	589.2853	28933.21	14.45	
	Ellis	0.0010011	0.0000000	0.0061414	22202.4765	0.0002966	14918.9633	0.0000827	772.8385	37984.28	18.95	
	Johnson	0.0001415	0.0000000	0.0008863	3138.1219	0.0000419	2109.3343	0.0000089	109.2686	5357.72	2.68	
	Kaufman	0.0028327	0.0000000	0.0173774	62822.9936	0.0000394	42213.9367	0.0001773	2186.7842	107223.71	53.61	
	Parker	0.0006458	0.0000000	0.0039616	14321.8647	0.0001914	9623.5829	0.0000404	498.5249	24443.97	12.22	
	Rockwall - (Note 1)	-	-	-	-	-	-	-	-	-	-	
	Wise	0.0028775	0.0000000	0.0164249	5979.2331	0.0007933	39899.9004	0.0001676	2066.9115	101346.04	50.67	
El Paso Area	El Paso - (Note 1)	-	-	-	-	-	-	-	-	-	-	
	El Paso - (Note 1)	-	-	-	-	-	-	-	-	-	-	
San Antonio Area	Beaumont	0.0015685	0.0000000	0.0010511	3799.9045	0.0000508	2553.3474	0.0000478	153329.9812	1541553.23	770.80	
	Comal	0.0004218	0.0000000	0.0000284	102.8498	0.0000014	69.1100	0.0003389	41563.4392	41725.40	20.86	
	Guadalupe	0.0025417	0.0000000	0.0000174	619.7076	0.0000083	416.4128	0.0002988	250374.6873	251410.81	125.71	
	Wilson	0.0001734	0.0000000	0.0000117	42.2692	0.0000006	28.4028	0.00013845	17077.6265	17148.30	8.57	
Austin Area	Bastrop	0.0020114	0.0000000	0.0001357	490.4253	0.0000069	329.5415	0.0160641	198141.9814	198961.95	99.48	
	Calves - (Note 1)	-	-	-	-	-	-	-	-	-	-	
	Hays	0.0004548	0.0000000	0.0000307	110.8934	0.0000015	74.5148	0.00036234	44803.2127	44989.62	22.49	
	Travis	0.0037069	0.0000000	0.0002500	903.8099	0.0000121	607.3155	0.0296048	365157.9006	366669.03	183.33	
	Williamson - (Note 1)	-	-	-	-	-	-	-	-	-	-	
North East Texas Area	Harrison - (Note 1)	-	-	-	-	-	-	-	-	-	-	
	Rock	0.0234887	0.0000000	0.1448913	52819.6131	0.0069589	35002.1508	0.0014701	18132.5136	889084.28	444.04	
	Upshur - (Note 1)	-	-	-	-	-	-	-	-	-	-	
Corpus Christi Area	Nacato	0.0035261	0.0000000	0.0002648	967.2585	0.0000128	643.2303	0.0313565	386752.2409	386332.73	194.13	
	San Patricio	0.0065591	0.0000000	0.0004424	1598.2350	0.0000214	1074.6066	0.0523388	646123.9882	648787.83	324.40	
	Victoria	0.0013502	0.0000000	0.0000911	329.1954	0.0000044	221.2030	0.0107830	133001.7399	133552.14	66.78	
Victoria Area	Anderson	0.0001010	0.0000000	0.0006194	2239.1049	0.0000299	1504.5675	0.0000063	77.9402	3821.61	1.91	
	Andrews	-	-	-	-	-	-	-	-	-	-	
	Angelina	0.0024008	0.0000000	0.0147275	5343.0986	0.0007114	30776.7222	0.0001003	1853.3209	90873.14	45.44	
	Atascosa	0.0059115	0.0000000	0.0003771	1363.3052	0.0000182	916.0735	0.0446558	550803.4967	553082.87	276.54	
	Bell	0.0003222	0.0000000	0.0019766	7145.7358	0.0000955	4801.5801	0.0000202	248.7335	12196.05	6.10	
	Bosque	0.0006880	0.0000000	0.0034846	12997.6151	0.0001683	8464.9727	0.0000356	438.5061	21501.09	10.75	
	Brazos	0.0006415	0.0000000	0.0039355	14227.5561	0.0001901	9560.2122	0.0000402	495.2422	24283.01	12.14	
	Calhoun	0.0088634	0.0000000	0.0005978	2161.0558	0.0000289	1452.1234	0.0707865	87311.2619	876724.44	438.36	
	Cameron	0.0003811	0.0000000	0.0000257	92.9082	0.0000012	62.4297	0.0003433	37536.8529	37692.19	18.85	
	Cherokee	0.0003216	0.0000000	0.0019730	7132.7810	0.0000953	4792.8752	0.0000201	248.2825	12173.94	6.09	
	Cole	0.0000135	0.0000000	0.0000265	298.5446	0.0140228	70529.4754	0.0000006	10.3919	705548.41	352.77	
	Coleman	-	-	-	-	-	-	-	-	-	-	
	Colorado	0.0014171	0.0000000	0.0000956	345.5074	0.0000046	232.1638	0.0113173	139592.1247	140169.80	70.08	
	Crocket	-	-	-	-	-	-	-	-	-	-	
	Ector	0.0000634	0.0000000	0.0000891	1406.5754	0.0069687	3322694.6624	0.0000040	48.9610	3324150.20	1662.08	
	Fannin	-	-	-	-	-	-	-	-	-	-	
	Fayette	0.0169797	0.0000000	0.00009932	3654.5223	0.0000475	2988.4895	0.1184306	1438154.5543	1442347.56	721.02	
	Frisstione	0.0119960	0.0000000	0.0148103	27454.3723	0.0006135	18173.0280	0.0007032	9414.1545	491600.45	239.88	
	Frost	0.0079162	0.0000000	0.0004732	1715.8837	0.0000229	1149.4046	0.0603430	891151.5748	894011.78	347.01	
	Galiford	0.0048478	0.0000000	0.0003285	1161.5318	0.0000169	754.1036	0.0287148	477524.9011	479501.03	239.75	
	Grayson	0.0003588	0.0000000	0.0021996	7951.9077	0.0001962	5343.2877	0.0002254	276.7930	13571.99	6.73	
	Grimes	0.0049838	0.0000000	0.0251136	90790.9264	0.0012138	61007.0008	0.0002562	3160.3105	154958.24	77.48	
	Haskell	-	-	-	-	-	-	-	-	-	-	
	Haskell	-	-	-	-	-	-	-	-	-	-	
	Hidalgo	0.0019872	0.0000000	0.0001340	484.5218	0.0000065	325.5746	0.0158708	195756.8384	196566.93	98.28	
	Hill	0.0048184	0.0000000	0.0029566	10685.0123	0.0001428	7179.7986	0.0000302	371.9310	18276.74	9.12	
	Howard	0.0000104	0.0000000	0.0000639	230.8796	0.0108444	545397.3751	0.0000007	8.0366	545636.29	272.62	
	Other ERCOT counties	Jack	-	-	-	-	-	-	-	-	-	-
		Jones	-	-	-	-	-	-	-	-	-	-
		Lamar	0.0021680	0.0000000	0.0132996	48060.8138	0.0006424	32307.9229	0.0001357	1673.8287	82062.37	41.03
		Limestone	0.0207580	0.0000000	0.1273399	460356.9334	0.0061507	309339.0488	0.0012992	16024.5125	780723.49	392.88
		Llano	0.0001816	0.0000000	0.0000122	44.2690	0.0000006	29.7466	0.0014501	17885.6014	17959.62	8.98
		McLennan	0.0023690	0.0000000	0.0144710	52315.6781	0.0006990	35153.5417	0.0001476	1821.0387	89290.26	44.85
		Milam	0.0070396	0.0000000	0.0001448	1716.3863	0.0000229	1153.3265	0.0062211	693465.5466	695325.26	348.16
		Michell	0.0001196	0.0000000	0.0001204	435.3649	0.0204480	102844.3318	0.0000012	15.1545	102884.85	514.40
		Nacogdoches	0.0001458	0.0000000	0.0008944	3233.4294	0.0000432	2172.7042	0.0000091	112.5513	5518.69	2.76
		Nolan	0.0000085	0.0000000	0.0000524	189.3990	0.0008861	447409.4599	0.0000005	6.5927	447405.45	223.80
		Palo Pinto	0.0004954	0.0000000	0.0030391	10887.1303	0.0001469	7382.8068	0.0000310	382.4473	18752.38	9.38
		Pecos	0.0000032	0.0000000	0.0000011	3.8457	0.0001806	9084.4737	0.0000000	0.1339	9088.45	4.51
		Potter	0.0004032	0.0000000	0.0024732	8941.1476	0.0199647	2112301.8189	0.0000252	311.2294	21130554.20	10665.28
		Priddy	-	-	-	-	-	-	-	-	-	-
		Reagan	0.0000001	0.0000000	0.0000005	3.3084	0.0001554	7815.2823	0.0000000	0.1152	7818.71	3.91
		Red River	0.0000376	0.0000000	0.0002395	833.2896	0.0000111	559.6286	0.0000024	29.0556	1422.22	0.71
		Robertson	0.0134304	0.0000000	0.0823890	297862.9322	0.0039795	200142.4017	0.0008406	10367.8615	508363.20	254.18
		Scurry	0.0000991	0.000								



Table 5-5: Distribution of the Annual Emission Reductions per CL Zone for each County (Year 2017)

Area	County	CL Zones				Total Nox Reductions (lbs)	Total Nox Reductions (Tons)				
		H	N	W	S						
Houston-Galveston Area	Brarona	0.0584658	0.0000074	24.4948	0.0000004	16.3702	0.0005477	6738.8490	6779.72	3.30	
	Chambers	0.0186322	0.0000000	0.0000024	7.8061	0.0000001	5.2195	0.0001746	2147.5690	2160.59	1.08
	Fort Bend	0.0134549	0.0000000	0.0000009	29.8911	0.0000004	19.9864	0.0006684	8223.4351	8273.31	4.14
	Galveston	0.0137868	0.0000000	0.0000017	5.7761	0.0000001	3.8621	0.0001292	1589.0811	1598.72	0.80
	Harris	0.1154764	0.0000000	0.0000147	48.3800	0.0000007	32.3488	0.0010818	13309.9751	13390.70	6.70
	Liberty - (Note 1)	-	-	-	-	-	-	-	-	-	-
	Montgomery	0.0105050	0.0000000	0.0000013	4.4012	0.0000001	2.9428	0.0000984	1210.8269	1218.17	0.61
	Waller - (Note 1)	-	-	-	-	-	-	-	-	-	-
Beaumont/Port Arthur Area	Hardin - (Note 1)	-	-	-	-	-	-	-	-	-	
	Jefferson - (Note 1)	-	-	-	-	-	-	-	-	-	
	Orange - (Note 1)	-	-	-	-	-	-	-	-	-	
Dallas/Fort Worth Area	Collin	0.0001062	0.0000000	0.0000916	2151.5958	0.0000015	1438.6405	0.0000066	81.7636	3672.02	1.84
	Dallas	0.0021209	0.0000000	0.0139108	42964.8692	0.0000004	2872.9939	0.0001327	1633.1125	73205.99	36.46
	Denton	0.0016536	0.0000000	0.0000520	31471.7234	0.0000003	2104.3216	0.0000972	1198.2526	53711.16	26.86
	Henderson	0.0002547	0.0000000	0.0012557	4146.5823	0.0000007	2772.5666	0.0001129	157.8133	7076.76	3.54
	Hood	0.0011465	0.0000000	0.0070226	23226.2540	0.0000007	15529.9751	0.0000714	882.8390	39629.07	19.82
	Hunt	0.0002048	0.0000000	0.0002126	795.1514	0.0000003	471.4916	0.0000022	26.8021	1203.45	0.60
	Tarrant	0.0007633	0.0000000	0.0046826	15463.2716	0.0000022	10339.3437	0.0000478	587.7650	26390.36	13.23
	Ellis	0.0010011	0.0000000	0.0081414	26290.5287	0.0000066	13560.3489	0.0000627	770.8709	34611.74	17.31
	Johnson	0.0001415	0.0000000	0.0008863	2867.3852	0.0000019	1917.2450	0.0000089	108.9004	4893.62	2.45
	Kaufman	0.0028327	0.0000000	0.0173774	57384.7484	0.0000034	38369.6707	0.0001773	2181.2168	97935.64	48.97
	Parker	0.0006458	0.0000000	0.0039616	13082.0987	0.0000194	8747.1991	0.0000404	487.2507	22326.55	11.16
	Rockwall - (Note 1)	-	-	-	-	-	-	-	-	-	-
	Wise	0.0028775	0.0000000	0.0164249	54239.0955	0.0007933	36266.3650	0.0001676	2061.6403	92567.11	46.28
	El Paso Area	El Paso - (Note 1)	-	-	-	-	-	-	-	-	-
Big Bend - (Note 1)		-	-	-	-	-	-	-	-	-	
San Antonio Area	Beaumont	0.0156850	0.0000000	0.0010511	3470.9674	0.0000508	2320.8236	0.0000000	1531331.3543	1537123.15	768.68
	Comal	0.0004218	0.0000000	0.0000284	93.9466	0.0000014	62.8164	0.0003889	41447.6467	41604.41	20.80
	Gustavus	0.0025417	0.0000000	0.0001714	566.0629	0.0000083	378.4916	0.0002988	249737.2487	250681.80	126.34
	Wilson	0.0001734	0.0000000	0.0000117	38.6102	0.0000006	25.8163	0.0013845	17034.1479	17098.57	8.56
Austin Area	Bastrop	0.0020114	0.0000000	0.0001357	447.9718	0.0000066	299.5314	0.0166441	197637.5240	198385.03	99.19
	Calwell - (Note 1)	-	-	-	-	-	-	-	-	-	
	Hays	0.0004548	0.0000000	0.0000307	101.2939	0.0000015	67.7291	0.0006324	44689.1464	44858.17	22.43
	Travis	0.0037069	0.0000000	0.0002500	825.5720	0.0000121	552.0095	0.0296048	364228.2309	365605.81	182.80
North East Texas Area	Williamson - (Note 1)	-	-	-	-	-	-	-	-	-	
	Gregg - (Note 1)	-	-	-	-	-	-	-	-	-	
	Harrison - (Note 1)	-	-	-	-	-	-	-	-	-	
Corpus Christi Area	Rock	0.0234887	0.0000000	0.1448913	475626.4328	0.0069599	318156.0282	0.0014701	18086.3495	812068.81	406.03
	South - (Note 1)	-	-	-	-	-	-	-	-	-	
	Upshur - (Note 1)	-	-	-	-	-	-	-	-	-	
Victoria Area	Nacato	0.0032921	0.0000000	0.0002648	874.3939	0.0000128	584.6537	0.0313565	38767.5534	387226.64	193.61
	San Patricio	0.0065591	0.0000000	0.0004424	1460.7979	0.0000214	976.7462	0.0023838	644478.9981	648916.54	323.46
Other ERCOT counties	Victoria	0.0013602	0.0000000	0.0000911	306.6987	0.0000044	201.0588	0.0107830	132663.1295	133164.88	66.58
	Anderson	0.0001010	0.0000000	0.0006194	2045.2777	0.0000299	1367.5521	0.0000063	77.7418	3480.57	1.75
	Andrews	-	-	-	-	-	-	-	-	-	
	Angelina	0.0024008	0.0000000	0.0147275	48634.1328	0.0007114	32518.6694	0.0001503	1846.6025	83001.40	41.80
Atascosa	0.0059115	0.0000000	0.0003771	1245.2913	0.0000182	832.6501	0.0446558	549401.1837	551479.13	275.74	
Bell	0.0003222	0.0000000	0.0019766	6627.1683	0.0000955	4364.3181	0.0000202	248.1002	11139.59	5.57	
Bosque	0.0006880	0.0000000	0.0034846	11507.1080	0.0001683	7694.0962	0.0000356	437.3897	1968.60	9.82	
Brazos	0.0006415	0.0000000	0.0039355	12995.9539	0.0001901	8699.5993	0.0000402	493.9813	22179.53	11.09	
Calhoun	0.0088634	0.0000000	0.0005978	1973.9850	0.0000289	1319.8830	0.0707865	87088.3737	874182.24	437.09	
Cameron	0.0003811	0.0000000	0.0000257	84.8657	0.0000012	56.7445	0.0003433	37441.2864	37582.90	18.79	
Cherokee	0.0002136	0.0000000	0.0019730	6515.3349	0.0000953	4356.4059	0.0000201	247.6504	11119.39	5.56	
Cole	0.0000135	0.0000000	0.0000826	272.7012	0.0140228	641015.9425	0.0000008	10.3655	641299.01	320.65	
Coleman	-	-	-	-	-	-	-	-	-		
Colorado	0.0014171	0.0000000	0.0000956	315.5987	0.0000046	211.0215	0.0113173	139236.7317	139763.35	69.88	
Crocket	-	-	-	-	-	-	-	-	-		
Ector	0.0000634	0.0000000	0.0003891	1284.8158	0.0069667	3020109.2321	0.0000040	48.8364	3021442.88	1510.72	
Fannin	-	-	-	-	-	-	-	-	-		
Fayette	0.0167979	0.0000000	0.0009932	3246.8398	0.0000475	2170.9605	0.1164306	142346.3201	1437969.12	718.88	
Frisestone	0.0121960	0.0000000	0.0148123	247042.8089	0.0006135	165182.2780	0.0007032	9381.1865	421615.07	210.81	
Frost	0.0079162	0.0000000	0.0004732	1652.5991	0.0000029	1044.8144	0.0600340	699391.3454	699399.36	346.03	
Gallard	0.0046478	0.0000000	0.0003280	1079.8184	0.0000169	721.8746	0.0287148	476209.1520	478110.65	239.66	
Grayson	0.0003588	0.0000000	0.0021996	7263.5543	0.0001962	4856.6944	0.0002254	276.0908	12396.34	6.20	
Greene	0.0049838	0.0000000	0.0251138	82931.6403	0.0012138	55451.3204	0.0002962	3162.2645	141532.23	70.77	
Hardeman	-	-	-	-	-	-	-	-	-		
Haskell	-	-	-	-	-	-	-	-	-		
Hidalgo	0.0018872	0.0000000	0.0001340	442.5794	0.0000065	295.9258	0.0158708	195258.4535	195996.96	98.02	
Hill	0.0004818	0.0000000	0.0029556	9760.0688	0.0001428	6525.9609	0.0000302	370.9840	16657.01	8.33	
Howard	0.0000104	0.0000000	0.0000039	210.8936	0.0108444	495730.0670	0.0000007	8.0162	495948.98	247.97	
Jack	-	-	-	-	-	-	-	-	-		
Jones	-	-	-	-	-	-	-	-	-		
Lamar	0.0021680	0.0000000	0.0132996	43918.7190	0.0006424	29365.7606	0.0001357	1689.3678	74953.85	37.48	
Limestone	0.0020780	0.0000000	0.0127339	420508.0755	0.0001507	281168.6936	0.0012992	15983.7150	171761.48	358.83	
Llano	0.0001816	0.0000000	0.0000122	40.4369	0.0000006	27.0377	0.0014501	17840.0657	17907.54	8.96	
McLennan	0.0023690	0.0000000	0.0144710	47796.9941	0.0006990	31952.2395	0.0001476	1816.4024	81555.64	40.78	
Milam	0.0070398	0.0000000	0.0000448	1567.8080	0.0000229	1048.2973	0.0662211	691690.0512	694306.16	347.15	
Michell	0.0001196	0.0000000	0.0001204	397.6777	0.0204490	93487.7361	0.0000012	15.1159	93520.53	467.60	
Nacogdoches	0.0001458	0.0000000	0.0008844	2953.5290	0.0000432	1974.8442	0.0000091	112.2648	5040.64	2.52	
Nolan	0.0000085	0.0000000	0.0000524	173.0038	0.0008861	406665.5403	0.0000005	6.5759	406845.13	203.42	
Palo Pinto	0.0004954	0.0000000	0.0003091	10036.0342	0.0001469	6710.4821	0.0000310	381.4736	17127.99	8.56	
Pecos	0.0000002	0.0000000	0.0000011	3.5128	0.0001806	8257.1846	0.0000000	0.1135	8260.83	4.13	
Potter	0.0004032	0.0000000	0.0004732	8167.1611	0.4199647	19197863.5106	0.0000252	310.4370	18200341.11	9603.77	
Presidio	-	-	-	-	-	-	-	-	-		
Reagan	0.0000001	0.0000000	0.0000005	3.0220	0.0001554	7103.5737	0.0000000	0.1149	7106.71	3.65	
Red River	0.0000376	0.0000000	0.0002305	761.1526	0.0000111	508.9362	0.0000024	28.9317	1299.02	0.65	
Robertson	0.0134304	0.0000000	0.0823890	272069.4223	0.0039795	181916.1785	0.0008406	10341.4655	464327.07	232.16	
Scotty	0.0000991	0.0000000	0.0006678	2607.3042	0.1026204	4717697.2715	0.0000062	76			

Table 5-6: Distribution of the OSP Emission Reductions per CL Zone for each County (Base Year 2008)

Area	County	CL Zones				Total NOx Reductions (lbs)	Total NOx Reductions (Tons)				
		N	N	W	S						
Houston-Galveston Area	Brazoria	0.056294	0.0000	0.000072	0.0454	0.000003	0.0202	0.000524	15.1389	15.21	0.01
	Chambers	0.024685	0.0000	0.000031	0.0197	0.000002	0.0127	0.002211	6.5715	6.60	0.00
	Fort Bend	0.0916210	0.0000	0.0000116	0.0732	0.000006	0.0471	0.000684	24.4072	24.53	0.01
	Galveston	0.0118565	0.0000	0.0000015	0.0095	0.000001	0.0061	0.000111	3.1585	3.17	0.00
	Harris	0.1083409	0.0000	0.0000137	0.0868	0.000007	0.0557	0.001050	28.8613	29.00	0.01
	Liberty - (Note 1)	-	-	-	-	-	-	-	-	-	-
	Montgomery	0.0093310	0.0000	0.0000012	0.0075	0.000001	0.0048	0.000074	2.4897	2.50	0.00
	Waller - (Note 1)	-	-	-	-	-	-	-	-	-	-
	Hardin - (Note 1)	-	-	-	-	-	-	-	-	-	-
	Jefferson - (Note 1)	-	-	-	-	-	-	-	-	-	-
Beaumont/ Fort Arthur Area	Orange - (Note 1)	-	-	-	-	-	-	-	-	-	
	Collin	0.0000368	0.0000	0.0002257	1.4216	0.000109	0.9145	0.000023	0.9555	2.40	0.00
	Dallas	0.0019990	0.0000	0.0122625	77.2378	0.0005923	49.6988	0.001251	3.9574	130.48	0.07
	Denton	0.0012011	0.0000	0.0073662	46.4098	0.0005559	29.8564	0.000752	2.1375	78.40	0.04
	Henderson	0.0020292	0.0000	0.0012638	8.9845	0.0006205	5.2010	0.000131	0.3724	13.56	0.01
	Hood	0.0017828	0.0000	0.0105248	69.8110	0.0002277	44.2877	0.000115	3.1693	116.25	0.06
	Hunt	0.0000552	0.0000	0.0003287	2.1338	0.000164	1.3728	0.000035	0.0963	3.60	0.00
	Tarrant	0.0007598	0.0000	0.0046556	29.3237	0.0002246	18.9646	0.000475	1.3908	49.54	0.02
	Ellis	0.0011282	0.0000	0.0069087	43.5152	0.0003337	27.9943	0.000708	2.0042	73.51	0.04
	Johnson	0.0022237	0.0000	0.0013721	8.8425	0.0000663	5.5599	0.000140	0.3981	14.60	0.01
Dallas/ Fort Worth Area	Kaufman	0.0025504	0.0000	0.0156455	98.5455	0.0007557	63.3966	0.000158	4.5388	166.48	0.08
	Parker	0.0044992	0.0000	0.0030622	19.2974	0.0001479	12.4090	0.000012	0.8883	32.58	0.02
	Rockwall - (Note 1)	-	-	-	-	-	-	-	-	-	
	Wise	0.0026648	0.0000	0.0163471	102.9642	0.0007896	66.2303	0.0001668	4.7423	173.95	0.09
	El Paso - (Note 1)	-	-	-	-	-	-	-	-	-	
	Beaumont	0.0173770	0.0000	0.0011719	7.3816	0.0000566	4.7488	0.130790	3946.1583	3959.29	1.98
	Comal	0.0003148	0.0000	0.0000212	0.1337	0.0000010	0.0850	0.0025142	71.4904	71.71	0.04
	Guadalupe	0.0025314	0.0000	0.0001707	1.0753	0.0000062	0.6918	0.0020169	574.8647	576.63	0.29
	Wilson	0.0001481	0.0000	0.0000101	0.0633	0.0000005	0.0407	0.0011905	33.8528	33.96	0.02
	Bastrop	0.0023093	0.0000	0.00001507	0.9810	0.0000075	0.6311	0.018432	524.4290	526.04	0.26
Austin Area	Calderell - (Note 1)	-	-	-	-	-	-	-	-	-	
	Hays	0.0004586	0.0000	0.0000309	0.1948	0.0000015	0.1253	0.0026626	104.1454	104.47	0.05
	Travis	0.0034963	0.0000	0.0002358	1.4852	0.0000114	0.9555	0.0279226	793.9758	796.42	0.40
	Williamson - (Note 1)	-	-	-	-	-	-	-	-	-	
	Gregg - (Note 1)	-	-	-	-	-	-	-	-	-	
	Harrison - (Note 1)	-	-	-	-	-	-	-	-	-	
	Rock	0.0241170	0.0000	0.1479453	931.8534	0.0071480	599.4828	0.0010294	42.9190	1574.26	0.79
	Smith - (Note 1)	-	-	-	-	-	-	-	-	-	
	Upton - (Note 1)	-	-	-	-	-	-	-	-	-	
	Nacatoch	0.0037907	0.0000	0.0002560	1.6124	0.0000124	1.0373	0.0301337	861.9656	864.63	0.43
Corpus Christi Area	San Patricio	0.0057420	0.0000	0.0003973	2.4392	0.0000187	1.5692	0.045675	1303.9492	1307.96	0.65
	Victoria	0.0013918	0.0000	0.0000359	0.5913	0.0000045	0.3804	0.0111160	316.0826	317.05	0.16
	Anderson	0.0000896	0.0000	0.0000499	3.4638	0.0000266	2.2384	0.0000056	0.1695	5.85	0.00
	Andrews	-	-	-	-	-	-	-	-	-	
	Angelina	0.0020918	0.0000	0.0128320	80.8242	0.0006188	51.9960	0.0001309	3.7226	136.54	0.07
	Atascosa	0.0030556	0.0000	0.0000612	2.2750	0.0000174	1.4636	0.0427716	1216.2029	1219.94	0.61
	Bell	0.0003279	0.0000	0.0001113	12.6685	0.0000911	8.1499	0.0000205	0.5835	21.40	0.01
	Bosque	0.0005396	0.0000	0.0033099	20.8481	0.0001589	13.4121	0.0000338	0.9602	35.22	0.02
	Brewster	0.0006180	0.0000	0.0037909	23.8776	0.0001831	15.3610	0.0000387	1.0998	40.34	0.02
	Calhoun	0.0074943	0.0000	0.0000504	3.1835	0.0000244	2.0480	0.0598521	1701.8838	1707.12	0.85
Cameron	0.0003272	0.0000	0.0000221	0.1390	0.0000011	0.0894	0.0026129	74.2965	74.52	0.04	
Victoria Area	Cherokee	0.0003929	0.0000	0.0024956	15.1772	0.0001164	9.7638	0.0000246	0.6990	25.64	0.01
	Cole	0.0000132	0.0000	0.0000807	0.5086	0.0137102	1150.1535	0.0000008	0.0234	1150.69	0.58
	Colorado	0.0018297	0.0000	0.0001234	0.7772	0.0000060	0.5000	0.0146124	415.5008	416.78	0.21
	Crockett	-	-	-	-	-	-	-	-	-	
	Ector	0.0000965	0.0000	0.0004082	2.5698	0.0002797	5811.9136	0.0000042	0.1184	5814.80	2.91
	Fannin	-	-	-	-	-	-	-	-	-	
	Fayette	0.0124222	0.0000	0.0000910	6.0598	0.0000465	3.8979	0.1190033	3238.8218	3248.78	1.62
	Fredston	0.0119738	0.0000	0.0074617	482.8442	0.0005478	297.6304	0.0001404	21.3085	781.58	0.39
	Frio	0.0078418	0.0000	0.0005100	3.2121	0.0000246	2.0954	0.0003898	1717.1692	1722.45	0.86
	Goliad	0.0055754	0.0000	0.0000370	2.9884	0.0000162	1.5236	0.0445268	1266.1137	1270.01	0.64
Grayson	0.0003198	0.0000	0.0019626	12.3486	0.0000967	7.9442	0.0000200	0.5688	20.86	0.01	
Guadalupe	0.0044394	0.0000	0.0272337	171.5348	0.0013154	110.3524	0.0002778	7.9605	289.79	0.14	
Other ERCOT counties	Hardeman	-	-	-	-	-	-	-	-	-	
	Haskell	-	-	-	-	-	-	-	-	-	
	Hidalgo	0.0015064	0.0000	0.0001016	0.6399	0.0000449	0.4117	0.0120004	342.0836	343.14	0.17
	Hill	0.0004153	0.0000	0.0025477	16.0471	0.0001231	10.3235	0.0000260	0.7391	27.11	0.01
	Howard	0.0000147	0.0000	0.0000904	0.5698	0.0103564	1288.2605	0.0000009	0.0002	1288.86	0.64
	Jack	-	-	-	-	-	-	-	-	-	
	Jones	-	-	-	-	-	-	-	-	-	
	Lamar	0.0020634	0.0000	0.0126581	79.7290	0.0006114	51.2915	0.0001291	3.6722	134.69	0.07
	Limestone	0.0020491	0.0000	0.1248314	786.2671	0.0000296	505.8238	0.0012736	36.2199	1328.30	0.66
	Llano	0.0001567	0.0000	0.0000106	0.0668	0.0000005	0.0428	0.0012515	35.5867	35.70	0.02
McLennan	0.0034888	0.0000	0.0212790	134.0288	0.0010278	86.2238	0.0002171	6.1731	226.43	0.11	
Madison	0.0065761	0.0000	0.0004435	2.7935	0.0000214	1.7971	0.0525191	1493.3724	1497.96	0.75	
Michell	0.0000167	0.0000	0.0001024	0.6450	0.0173890	1458.7732	0.0000010	0.0297	1459.45	0.73	
Nacogdoches	0.0001939	0.0000	0.0011892	7.4904	0.0000574	4.8187	0.0000121	0.3450	12.65	0.01	
Nolan	0.0000074	0.0000	0.0000452	0.2850	0.0078522	644.4684	0.0000005	0.0131	644.77	0.32	
Palo Pinto	0.0007026	0.0000	0.0043104	27.1495	0.0002082	17.4659	0.0000440	1.2505	45.87	0.02	
Pecos	0.0000003	0.0000	0.0000016	0.0103	0.0002780	23.3255	0.0000000	0.0005	23.34	0.01	
Potter	0.0003904	0.0000	0.0023951	15.0859	0.4067024	34118.5142	0.0000244	0.6948	34134.29	17.07	
Presidio	-	-	-	-	-	-	-	-	-		
Reagan	0.0000002	0.0000	0.0000015	0.0095	0.0002570	21.5578	0.0000000	0.0004	21.57	0.01	
Red River	0.0000354	0.0000	0.0002170	1.3668	0.0000109	0.8793	0.0000022	0.0630	2.31	0.00	
Robertson	0.0123366	0.0000	0.0096785	476.8736	0.0008594	306.6581	0.0007721	21.9546	805.28	0.40	
Scurry	0.0000081	0.0000	0.0000518	3.2807	0.0886072	7433.3110	0.0000053	0.1814	7436.75	3.72	
Taylor	-	-	-	-	-	-	-	-	-		
Texas	0.0153000	0.0000	0.0938679	591.1786	0.0045336	380.3175	0.0000676	27.2284	998.72	0.50	
Tom Green	-	-	-	-	-	-	-	-	-		
Upton	0.0000002	0.0000	0.0000014	0.0089	0.0002401	20.1437	0.0000000	0.0004	20.15	0.01	
Ward	0.0000015	0.0000	0.0000091	0.0572	0.0015429	129.4310	0.0000001	0.0028	129.49	0.06	
Webb	0.0000329	0.0000	0.0000022	0.0140	0.0000001	0.0090	0.0000268	7.4733	7.50	0.00	
Wharton	0.0008579	0.0000	0.0000679	0.3644	0.0000028	0.2344	0.0008615	194.8211	195.42	0.10	
Wichita	0.0000021	0.0000	0.0000127	0.0799	0.0021547	180.7586	0.0000001	0.0037			

Table 5-7: Distribution of the OSP Emission Reductions per CL Zone for each County (Year 2017)

Area	County	CL Zones				Total Nox Reductions (lbs)	Total Nox Reductions (Tons)					
		H	N	W	S							
Houston-Galveston Area	Brazoria	0.056294	0.0000	0.000072	0.0428	0.000003	0.0274	0.000524	17.6619	17.73	0.00866	
	Chambers	0.024685	0.0000	0.000031	0.0181	0.000002	0.0119	0.000231	7.6667	7.70	0.003849	
	Fort Bend	0.0916210	0.0000	0.0000116	0.0690	0.0000006	0.0441	0.000684	28.4748	28.59	0.014294	
	Galveston	0.0118565	0.0000	0.0000015	0.0089	0.0000001	0.0057	0.000111	3.6849	3.70	0.001850	
	Harris	0.1083409	0.0000	0.0000137	0.0816	0.0000007	0.0522	0.0010150	33.6712	33.80	0.016902	
	Liberty - (Note 1)	-	-	-	-	-	-	-	-	-	-	-
	Montgomery	0.0093310	0.0000	0.0000012	0.0070	0.0000001	0.0045	0.0000874	2.9000	2.91	0.001456	
	Waller - (Note 1)	-	-	-	-	-	-	-	-	-	-	-
	Hardin - (Note 1)	-	-	-	-	-	-	-	-	-	-	-
	Jefferson - (Note 1)	-	-	-	-	-	-	-	-	-	-	-
Beaumont/ Fort Arthur Area	Orange - (Note 1)	-	-	-	-	-	-	-	-	-	-	
	Collin	0.0000368	0.0000	0.0002257	1.3404	0.0000109	0.8570	0.0000023	0.0764	2.27	0.001137	
	Dallas	0.0019996	0.0000	0.0122626	72.8277	0.0005923	46.5648	0.0001251	4.1950	123.54	0.061771	
	Denton	0.0012011	0.0000	0.0013662	43.7698	0.0005959	27.9793	0.0000752	2.4938	74.23	0.037116	
Dallas/ Fort Worth Area	Henderson	0.0002392	0.0000	0.0012638	7.6229	0.0000620	4.8740	0.0000131	0.4344	12.33	0.006466	
	Hood	0.0017829	0.0000	0.0109248	64.8822	0.0002277	41.4846	0.0001116	3.6975	110.06	0.050203	
	Hunt	0.0000552	0.0000	0.0003287	2.0117	0.0000164	1.2863	0.0000035	0.1146	3.41	0.001708	
	Tarrant	0.0007598	0.0000	0.0046556	27.6494	0.0002246	17.6796	0.0000475	1.5797	46.30	0.023462	
	Ellis	0.0011282	0.0000	0.0069087	41.0307	0.0003337	26.2343	0.0000708	2.3382	69.60	0.034802	
	Johnson	0.0002237	0.0000	0.0013721	8.1491	0.0000663	5.2104	0.0000140	0.4644	13.82	0.006912	
	Kaufman	0.0025504	0.0000	0.0156455	92.9189	0.0007557	59.4108	0.0001596	5.2992	157.62	0.078912	
	Parker	0.0004892	0.0000	0.0030622	18.1862	0.0001479	11.6279	0.0000012	1.0364	30.85	0.015425	
	Rockwall - (Note 1)	-	-	-	-	-	-	-	-	-	-	
	Wise	0.0026648	0.0000	0.0163471	97.0854	0.0007896	62.0748	0.0001668	5.5327	164.69	0.082346	
	El Paso Area	El Paso - (Note 1)	-	-	-	-	-	-	-	-	-	-
		Beaumont	0.0173770	0.0000	0.0011719	6.9602	0.0000566	4.4502	0.138790	4603.8117	4615.22	2.307611
	San Antonio Area	Comal	0.0003148	0.0000	0.0000212	0.1261	0.0000010	0.0806	0.0025142	83.4048	83.61	0.041806
		Guadalupe	0.0025314	0.0000	0.00001707	1.0138	0.0000082	0.6483	0.0020169	670.6697	672.33	0.336168
Wilson		0.0001481	0.0000	0.0000101	0.0587	0.0000005	0.0382	0.0011905	39.4946	39.59	0.019796	
Bastrop		0.0023093	0.0000	0.00001557	0.9250	0.0000075	0.5914	0.0184432	611.8274	613.34	0.306672	
Austin Area	Calderell - (Note 1)	-	-	-	-	-	-	-	-	-	-	
	Hays	0.0004586	0.0000	0.0000309	0.1837	0.0000015	0.1174	0.0036626	121.5019	121.80	0.060902	
	Travis	0.0034963	0.0000	0.0002356	1.4004	0.0000114	0.8954	0.0279226	926.2972	928.59	0.464296	
	Williamson - (Note 1)	-	-	-	-	-	-	-	-	-	-	
North East Texas Area	Gregg - (Note 1)	-	-	-	-	-	-	-	-	-	-	
	Harrison - (Note 1)	-	-	-	-	-	-	-	-	-	-	
	Rock	0.0241170	0.0000	0.1479453	878.6488	0.0071480	561.7390	0.0010294	50.0721	1490.51	0.745257	
Corpus Christi Area	Smith - (Note 1)	-	-	-	-	-	-	-	-	-	-	
	Upham - (Note 1)	-	-	-	-	-	-	-	-	-	-	
	Nacatoch	0.0037367	0.0000	0.0002560	1.5203	0.0000124	0.9721	0.0301337	1005.6179	1008.11	0.504056	
Victoria Area	San Patricio	0.0057420	0.0000	0.0003873	2.2998	0.0000187	1.4705	0.0456575	1521.2810	1525.03	0.762516	
	Victoria	0.0013918	0.0000	0.0000393	0.5575	0.0000045	0.3565	0.0111160	368.7598	369.67	0.184837	
Other ERCOT counties	Anderson	0.0000896	0.0000	0.0000499	3.2681	0.0000266	2.0883	0.0000056	0.1861	5.54	0.002770	
	Andrews	-	-	-	-	-	-	-	-	-	-	
	Angelina	0.0020918	0.0000	0.0128320	76.2094	0.0006188	48.7270	0.0001309	4.3430	129.28	0.064640	
	Atascosa	0.0030556	0.0000	0.0000612	2.1451	0.0000174	1.3716	0.0427716	1418.8911	1422.41	0.711204	
	Bell	0.0003279	0.0000	0.0001113	11.9452	0.0000911	7.6375	0.0000205	0.6807	20.26	0.010132	
	Bosque	0.0005396	0.0000	0.0033099	19.6578	0.0001589	12.5688	0.0000038	1.1203	33.30	0.016673	
	Brazos	0.0006180	0.0000	0.0037909	22.5143	0.0001831	14.3952	0.0000087	1.2830	38.19	0.019096	
	Calhoun	0.0074943	0.0000	0.0000504	3.0018	0.0000244	1.9193	0.0598521	1985.5141	1990.44	0.995218	
	Cameron	0.0003272	0.0000	0.0000221	0.1310	0.0000011	0.0838	0.0026129	86.6794	86.89	0.043447	
	Cherokee	0.0003929	0.0000	0.0024956	14.3106	0.0001164	9.1500	0.0000246	0.8155	24.28	0.012138	
	Cole	0.0000132	0.0000	0.0000807	0.4796	0.0137102	1077.8427	0.0000008	0.0273	1079.35	0.538175	
	Collin	-	-	-	-	-	-	-	-	-	-	
	Colorado	0.0018297	0.0000	0.0001234	0.7329	0.0000060	0.4686	0.0146124	484.7468	485.95	0.242974	
	Crockett	-	-	-	-	-	-	-	-	-	-	
	ECTOR	0.0000865	0.0000	0.0004082	2.4231	0.0002797	5446.5151	0.0000042	0.1381	5449.06	2.724538	
	Fannin	-	-	-	-	-	-	-	-	-	-	
	Fayette	0.0124222	0.0000	0.0000910	5.1728	0.0000465	3.6525	0.1199033	3778.9330	3787.36	1.893979	
	Frisco	0.0119738	0.0000	0.0074617	436.2301	0.0005479	278.9183	0.0001404	34.4697	740.01	0.370004	
	Frio	0.0078418	0.0000	0.0005100	3.0287	0.0000246	1.2065	0.0003898	2003.3468	2008.31	1.004168	
	Goliad	0.0055754	0.0000	0.0003780	2.2332	0.0000182	1.4278	0.0445288	1477.1192	1480.78	0.740390	
	Grayson	0.0003198	0.0000	0.0018626	11.6438	0.0000967	7.4447	0.0000200	0.6826	19.75	0.009876	
	Green	0.0044394	0.0000	0.0272337	161.7410	0.0013154	103.4145	0.0002778	9.2172	274.37	0.137188	
	Hardeman	-	-	-	-	-	-	-	-	-	-	
	Haskell	-	-	-	-	-	-	-	-	-	-	
	Hidalgo	0.0015064	0.0000	0.0001016	0.6034	0.0000049	0.3858	0.0120004	399.0943	400.08	0.200042	
	Hill	0.0004153	0.0000	0.0025477	15.1309	0.0001231	9.6744	0.0000260	0.8623	25.67	0.012834	
	Howard	0.0000147	0.0000	0.0000904	0.5371	0.0103564	1207.2668	0.0000009	0.0306	1207.83	0.000917	
	Jack	-	-	-	-	-	-	-	-	-	-	
	Jones	-	-	-	-	-	-	-	-	-	-	
	Lamar	0.0020634	0.0000	0.0126581	75.1769	0.0006114	48.0668	0.0001291	4.2842	127.53	0.063764	
	Limestone	0.0020491	0.0000	0.1248314	741.3748	0.0000296	474.0223	0.0012736	42.2492	1257.65	0.628823	
	Llano	0.0001567	0.0000	0.0000106	0.0628	0.0000005	0.0401	0.0012515	41.5174	41.62	0.020810	
	McLennan	0.0034888	0.0000	0.0212790	126.3763	0.0010278	80.8029	0.0002171	7.2019	214.38	0.107191	
	Milam	0.0065761	0.0000	0.0004435	2.6340	0.0000214	1.6841	0.0525191	1742.2528	1746.57	0.873285	
	Michell	0.0000167	0.0000	0.0001024	0.6082	0.0173890	1367.0592	0.0000010	0.0347	1367.70	0.683851	
	Nacogdoches	0.0001939	0.0000	0.0011892	7.0627	0.0000574	4.5158	0.0000121	0.4025	11.98	0.005990	
	Nolan	0.0000074	0.0000	0.0000452	0.2687	0.0078522	603.9502	0.0000005	0.0153	604.23	0.021117	
	Palo Pinto	0.0007026	0.0000	0.0043104	25.5994	0.0002082	16.3878	0.0000440	1.4588	43.43	0.021713	
	Pecos	0.0000003	0.0000	0.0000016	0.0097	0.0002780	21.8590	0.0000000	0.0006	21.87	0.010995	
	Potter	0.0003984	0.0000	0.0023951	14.2245	0.4067024	31973.4627	0.0000244	0.8106	31988.50	15.994249	
	Presidio	-	-	-	-	-	-	-	-	-	-	
	Reagan	0.0000002	0.0000	0.0000015	0.0090	0.0002570	20.2025	0.0000000	0.0005	20.21	0.010106	
	Real River	0.0000354	0.0000	0.0002170	1.2888	0.0000106	0.6240	0.0000022	0.0734	2.19	0.001093	
	Robertson	0.0123366	0.0000	0.0079695	448.4675	0.0008594	287.3195	0.0007721	25.6136	762.45	0.381223	
	Scurry	0.0000081	0.0000	0.0000518	3.0991	0.0886072	8965.9742	0.0000053	0.1796	8969.25	3.484625	
	Taylor	-	-	-	-	-	-	-	-	-	-	
	Texas	0.0153000	0.0000	0.0938679	587.4228	0.0045336	356.4087	0.0000676	31.7862	946.60	0.472798	
	Tom Green	-	-	-	-	-	-	-	-	-	-	
	Upton	0.0000002	0.0000	0.0000014	0.0084	0.0002401	18.8773	0.0000000	0.0005	18.89	0.000443	
	Ward	0.0000015	0.0000									

## 6 OTHER RENEWABLE SOURCES

Five specific renewable sources were determined: solar, biomass, hydroelectric, geothermal, and landfill gas-fired. To generate/save energy throughout the State of Texas, six types of renewable energy projects were identified: solar photovoltaic (PV) including solar power, solar thermal, biomass power, hydroelectric power, geothermal HVAC, and landfill gas-fired power projects. The generated/saved energy from the renewable energy projects impacts emissions reductions throughout the State of Texas. To determine the amount of NO<sub>x</sub> emission reductions using 2016 eGrid, this report collected installation and/or generation data of the renewable energy projects. Majority of the collected data were after the year 2000. However, projects before the year 2000 were also included in order to provide a complete record.

### 6.1 Implementation

This report included a lot of newly located renewable energy projects in the six renewable energy projects categories as already discussed. The information was collected using the following modes:

- information from the internet websites of manufacturers, distributors, and consultants related with renewable energy products
- some information was collected by personally emailing individuals, who were either manufacturers, distributors or consultants
- information published from environmental agencies like the Electric Reliability Council of Texas (ERCOT), the Environmental Protection Agency (EPA), National Renewable Energy Laboratory (NREL), which is available to the general public

It was mainly the same methodology/protocol followed for data collection used in the previous report. Most of the information collected from websites was very limited since the information did not include detailed project information such as system specifications data. To obtain more information, we emailed manufacturers, consultants, distributors, or officers in environmental agencies. Unfortunately, we were not able to take many responses back from the people whom we contacted. Therefore, most of the updated information in the present report was obtained from environmental agencies like ERCOT, EPA, and NREL.

Most of the present report data for solar photovoltaic projects were collected from the Open PV project database of National Renewable Energy Laboratory (NREL) (<https://openpv.nrel.gov/>). The solar thermal projects and geothermal projects throughout in the State of Texas were identified from various web sources. The present report data for three renewable resources (i.e., solar power, biomass, and hydroelectricity) were obtained from the Electric Reliability Council of Texas (ERCOT). The hourly electricity generation data for the renewable resources were collected for year 2017. The information for the landfill gas-fired power plant section was provided by the Environmental Protection Agency's (EPA's) project database for Landfill Methane Outreach Program (LMOP)

Using the collected data, the generated/saved energy from the renewable energy projects were estimated. To determine energy savings from solar photovoltaic and solar thermal, the eCalc tool was used. Then, NO<sub>x</sub> emission reductions throughout the State of Texas were evaluated based on the generated/saved energy. To determine NO<sub>x</sub> emission reductions, the 2016 eGrid was used. Figure 6-1 presents the work process to implement analysis of other renewable resources, including steps: project classification, data collection, data preparation, NO<sub>x</sub> emission reductions calculation, and result production.

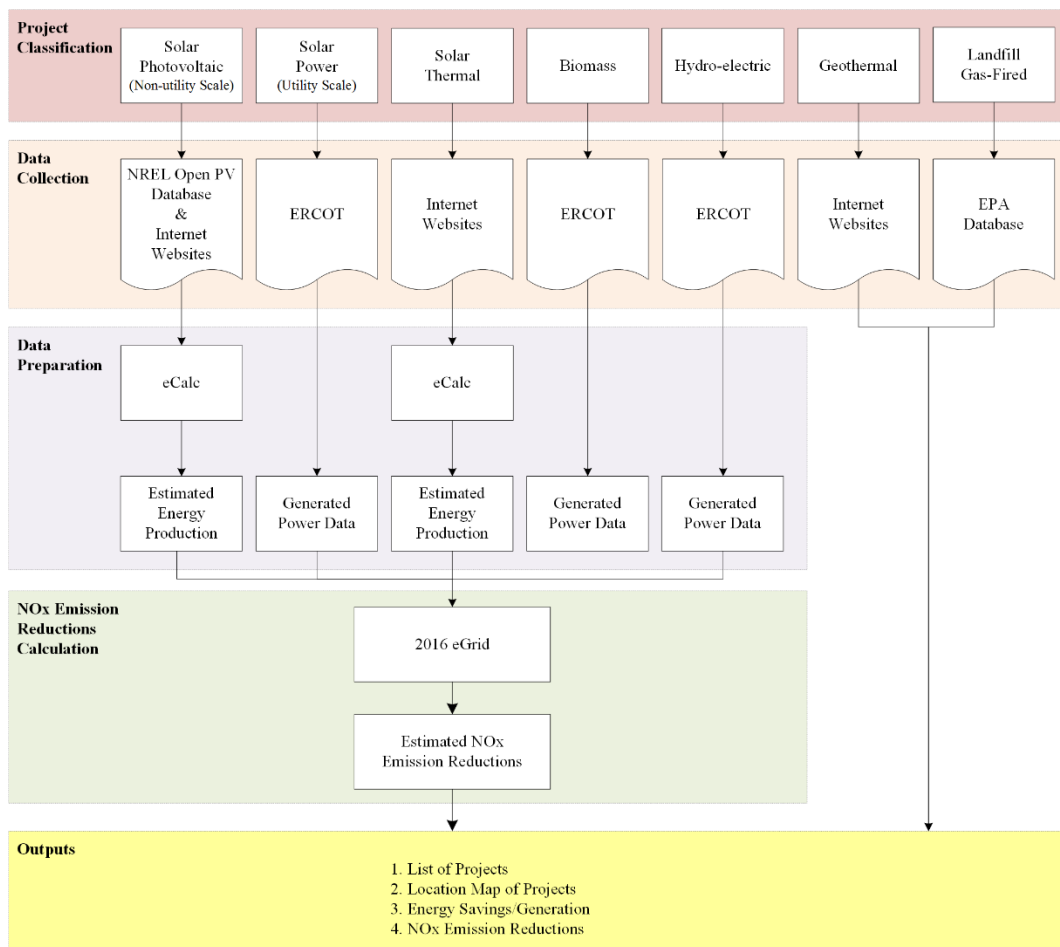


Figure 6-1: Chart of Work Flow for Other Renewable Energy Projects

## 6.2 Renewable Energy Projects

### 6.2.1 Solar Photovoltaic

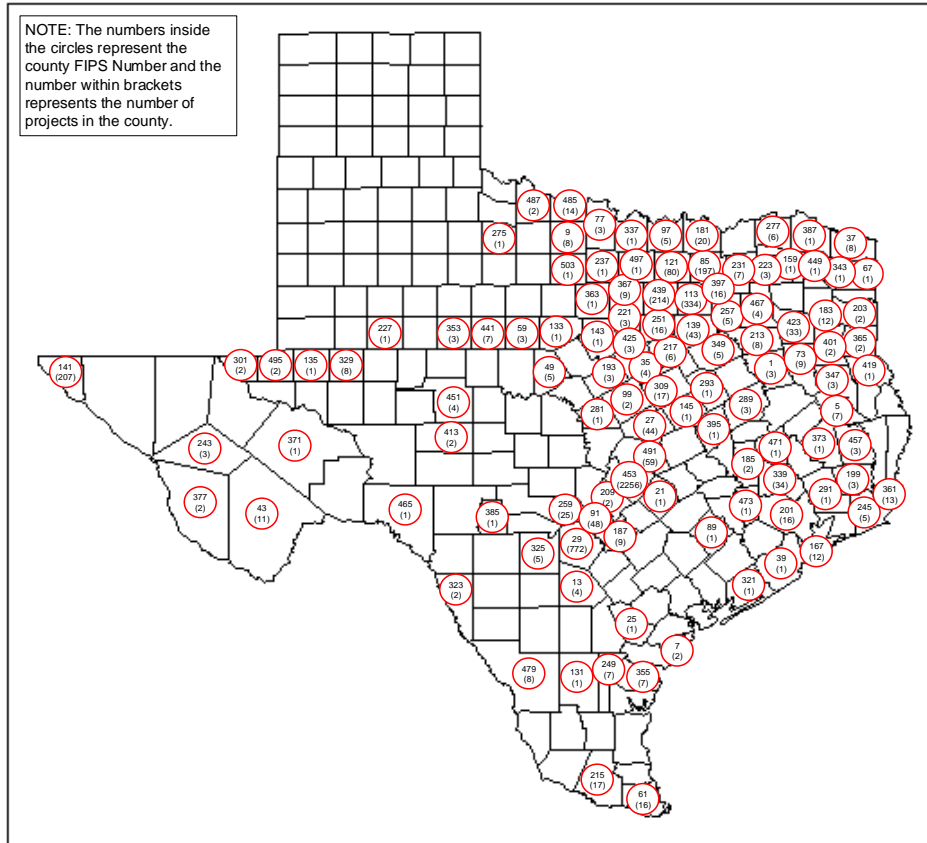
In the previous report published in 2017, a total of 4,750<sup>12</sup> projects were reported. This data was collected from various websites (e.g., Meridian Solar and others, described in the previous report) and the Open PV project database of National Renewable Energy Laboratory (NREL) (<https://openpv.nrel.gov/>). The database provides information of solar PV projects which have been implemented since 2004. The database includes individual solar PV projects (non-utility scale) and solar power plants (utility scale). The database contains information about the projects such as: zip code, size (kW DC), cost, date installed, latitude, and longitude. It is assumed that the data from the Open PV project from the NREL database is reliable and authentic. For the present report, new projects were identified from websites and also from the Open PV database. A total of 36 new projects were reported from the Open PV NREL database, which were commissioned in 2017. All of the identified solar PV projects can be found in Table 10-1 (APPENDIX C). In addition, Figure 6-2 shows the map of the solar PV projects installed in each county of Texas.

<sup>12</sup> The Open PV project database of National Renewable Energy Laboratory (NREL) (<https://openpv.nrel.gov/>), which was checked in June, 2018, provides updated PV projects for 2006, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2018. Thus, the total number of PV projects until 2017 is currently 4,786 in this report.

The generated energy which was estimated by the eCalc tool and the amount of NOx reduction from all the solar PV projects are presented in Table 6-1. The annual electric savings per county and the OSP electric savings per county, which were estimated from these projects, are presented in Figure 6-3 and in Figure 6-4, respectively. In addition, the corresponding annual NOx emission reductions are shown in Figure 6-5.

Table 6-1: Solar Photovoltaic Projects: Energy and NOx Reductions up to 2017

County for ECALC	Annual Energy Savings (for Base Year Conditions) and Annual Emissions Reductions		OSD Energy Savings (for Base Year Conditions) and OSD Emissions Reductions	
	Annual Elec. Generation (kWh/year)	2007 (lbs/year)	OSD Elec. Generation (kWh/day)	2007 (lbs/day)
		NOx		NOx
Bastrop	3,324	5	10	0.02
Bexar	161,423,969	266,406.62	488,102	749.23
Brazoria	8,883	15.37	26	0.04
Collin	48,571,443	78,974.05	148,377	240.26
Comal	771,558	1,273.34	2,333	2.00
Dallas	11,553,437	18,899.45	35,294	57.15
Denton	3,301,814	5,368.54	10,086	16.33
El Paso	34,081,604	0.00	97,777	0.00
Ellis	2,247,589	3,676.67	6,866	11.12
Fort Bend	8,052	14.04	24	0.04
Galveston	118,391	204.86	352	0.58
Gregg	248,164	0.00	756	0.00
Guadalupe	336,905	556.01	1,019	1.56
Hardin	41,144	49.49	123	0.14
Harris	1,719,763	2,068.76	5,114	5.78
Harrison	20,440	0.00	62	0.00
Henderson	143,826	235.27	438	0.71
Hood	410,530	667.50	1,254	2.03
Hunt	702,079	1,141.53	2,145	3.47
Jefferson	54,985	0.00	164	0.00
Johnson	163,952	266.58	501	0.81
Kaufman	51,946	84.97	159	0.26
Liberty	13,002	0.00	39	0.00
Montgomery	368,837	443.69	1,097	1.24
Nueces	3,933,243	4,721.22	11,927	14.61
Orange	119,064	0.00	355	0.00
Parker	367,542	601.24	1,123	1.82
Rockwall	162,154	265.26	495	0.80
Rusk	219,423	0.00	668	0.00
San Patricio	15,003	18.01	45	0.06
Smith	395,396	646.80	1,204	1.96
Tarrant	6,192,208	10,129.39	18,916	30.63
Travis	61,836,365	100,445.48	186,614	300.44
Upshur	341,126	0.00	1,039	0.00
Waller	12,078	21.06	36	0.06
Williamson	2,798,565	4,545.92	8,446	13.60
Wilson	34,445	56.85	104	0.16
<b>Total</b>	<b>342,792,246</b>	<b>501,803</b>	<b>1,033,088</b>	<b>1,457</b>



County	FIPS Code	No. of Projects	County	FIPS Code	No. of Projects	County	FIPS Code	No. of Projects
Anderson	1	3	Grimes	185	2	Nolan	353	3
Angelina	5	7	Guadalupe	187	9	Nueces	355	7
Aransas	7	2	Hamilton	193	3	Orange	361	13
Archer	9	8	Hardin	199	3	Palo Pinto	363	1
Atascosa	13	4	Harris	201	16	Panola	365	2
Bastrop	21	1	Harrison	203	2	Parker	367	9
Bee	25	1	Hays	209	2	Pecos	371	1
Bell	27	44	Henderson	213	8	Polk	373	1
Bexar	29	772	Hidalgo	215	17	Presidio	377	2
Bosque	35	4	Hill	217	6	Real	385	1
Bowie	37	8	Hood	221	3	Red River	387	1
Brazoria	39	1	Hopkins	223	3	Robertson	395	1
Brewster	43	11	Howard	227	1	Rockwall	397	16
Brown	49	5	Hunt	231	7	Rusk	401	2
Callahan	59	3	Jack	237	1	Schleicher	413	2
Cameron	61	16	Jeff Davis	243	3	Shelby	419	1
Cass	67	1	Jefferson	245	5	Smith	423	33
Cherokee	73	9	Jim Wells	249	7	Somervell	425	3
Clay	77	3	Johnson	251	16	Tarrant	439	214
Collin	85	197	Kaufman	257	5	Taylor	441	7
Colorado	89	1	Kendall	259	25	Titus	449	1
Comal	91	48	Knox	275	1	Tom Green	451	4
Cooke	97	5	Lamar	277	6	Travis	453	2256
Coryell	99	2	Lampasas	281	1	Tyler	457	3
Dallas	113	334	Leon	289	3	Val Verde	465	1
Denton	121	80	Liberty	291	1	Van Zandt	467	4
Duval	131	1	Limestone	293	1	Walker	471	1
Eastland	133	1	Loving	301	2	Waller	473	1
Ector	135	1	Matagorda	321	1	Webb	479	8
El Paso	141	207	Maverick	323	2	Wichita	485	14
Ellis	139	43	McLennan	309	17	Wilbarger	487	2
Erath	143	1	Medina	325	5	Williamson	491	59
Falls	145	1	Midland	329	8	Winkler	495	2
Franklin	159	1	Montague	337	1	Wise	497	1
Galveston	167	12	Montgomery	339	34	Young	503	1
Grayson	181	20	Nacogdoches	347	3			
Gregg	183	12	Navarro	349	5			

Figure 6-2: Solar Photovoltaic Projects throughout Texas up to 2017

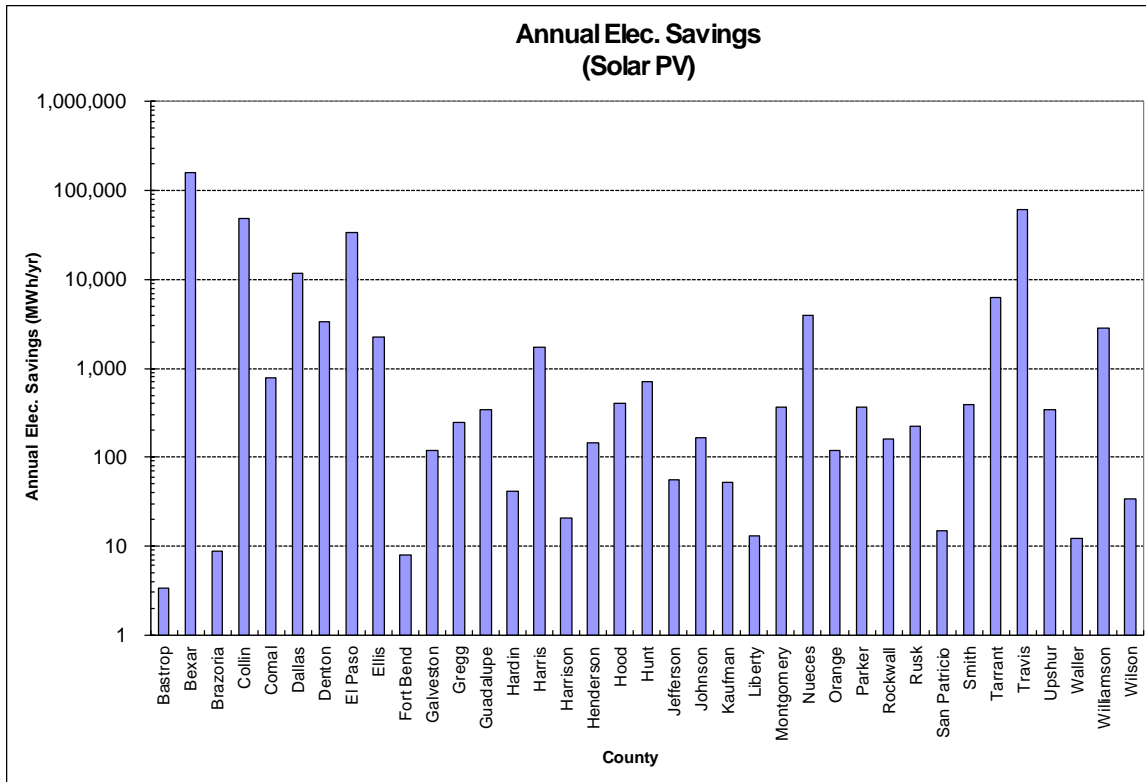


Figure 6-3: Annual Electric Savings per County from Solar Photovoltaic Projects up to 2017

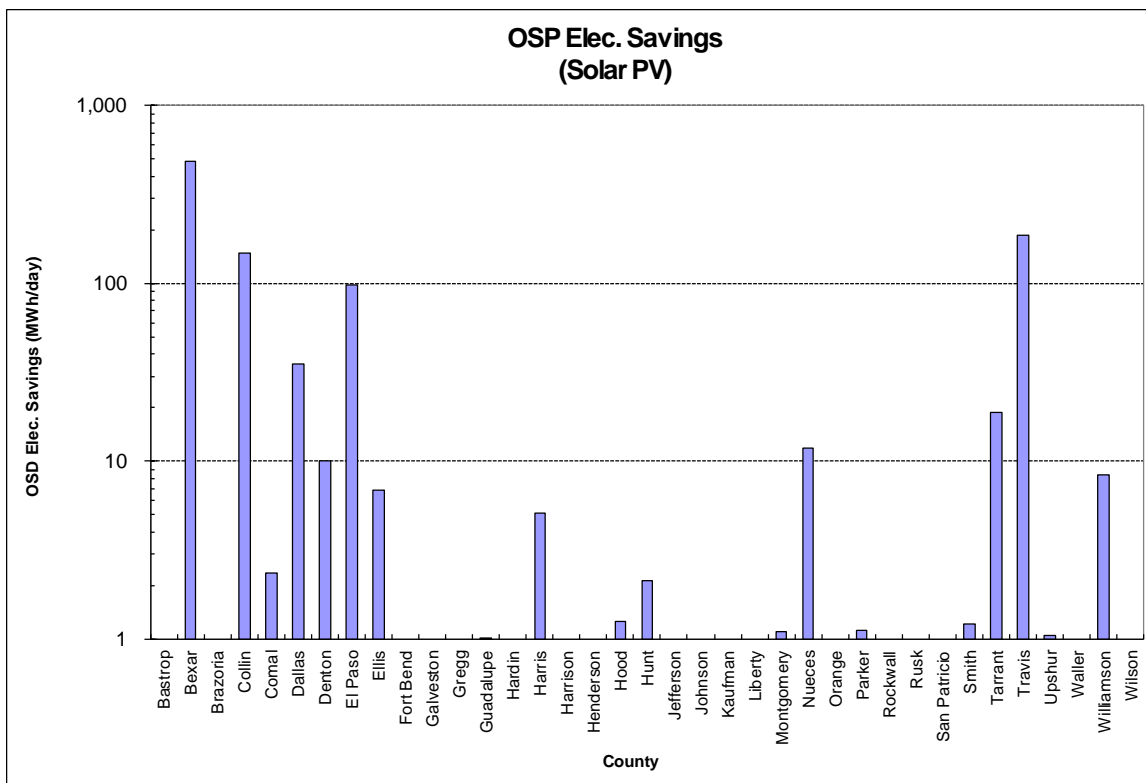


Figure 6-4: Ozone Season Period Electric Savings per County from Solar Photovoltaic Projects up to 2017





Table 6-2: Solar Power Plant Projects in the State of Texas up to 2017

SNo	Name of the Project	County	Year Commissioned	ERCOT Forecast Zone	Installed Capacity* (MW <sub>AC</sub> )	Power Generated in 2017 (MWh/year)
1	ACACIA_UNIT_1	Presidio	2012	West	10.0	23,577
2	BOOTLEG_UNIT1	Pecos	2017	West	121.1	255,963
3	CECSOLAR_DG_BECK1	Bexar	2016	South	1.0	2,092
4	COSERVSS_CSS1	Denton	2015	North	2.0	3,614
5	DG_BROOK_1UNIT	Bexar	2010	South	7.6	10,720
6	DG_ELMEN_1UNIT	Bexar	2010	South	7.3	11,874
7	DG_SOME1_1UNIT	Bexar	2012	South	5.6	10,952
8	DG_SOME2_1UNIT	Bexar	2012	South	5.0	9,838
9	DG_STHWG_UNIT1	Bexar	2014	South	4.4	8,753
10	DG_VALL1_1UNIT	Bexar	2012	South	9.9	19,280
11	DG_VALL2_1UNIT	Bexar	2012	South	9.9	19,272
12	DG_WALZM_UNIT1	Bexar	2014	South	5.5	11,543
13	ECLIPSE_UNIT1	Kinney	2014	South	37.6	72,852
14	FIFTHGS1_FGSOLAR1	Travis	2016	South	1.6	2,557
15	HELIOS_UNIT1	Uvalde	2015	South	95.0	210,521
16	HOVEY_UNIT1	Pecos	2014	West	22.0	34,665
17	HOVEY_UNIT2	Pecos	2017	West	7.4	10,967
18	LASSO_UNIT1	Missing	2017	Missing	50.0	75,069
19	LMESASLR_UNIT1	Dawson	2017	West	101.6	209,211
20	MARLIN_MARLIN	Missing	Missing	Missing	Missing	53
21	OCI_ALM1_UNIT1	Bexar	2013	South	39.2	71,820
22	PCOMM_1UNIT	Missing	Missing	Missing	Missing	122
23	REROCK_UNIT1	Pecos	2016	West	78.8	199,318
24	REROCK_UNIT2	Pecos	2016	West	78.8	196,980
25	SEALY_1UNIT	Austin	2015	South	1.6	966
26	SIRIUS_UNIT1	Pecos	2017	West	110.2	262,205
27	SIRIUS_UNIT2	Pecos	2017	West	49.1	33,289
28	SOLARA_UNIT1	Haskell	2016	West	106.4	249,115
29	SPTX12B_UNIT1	Upton	2017	West	157.5	166,458
30	WEBBER_S_WSP1	Travis	2011	South	26.7	62,849
31**	-	Collin	2017	North	1.1	2,116
32**	-	Dallas	2017	North	8.8	12,808
<b>Total</b>						<b>2,261,417</b>

\* Capacity, Demand and Reserve Report-May2018.xls from the webpage of the ERCOT (<http://www.ercot.com/gridinfo/resource/index.html>)

\*\* Project is retrieved from the Open PV project database of National Renewable Energy Laboratory (NREL) (<https://openpv.nrel.gov/>). The generation of the project is estimated.

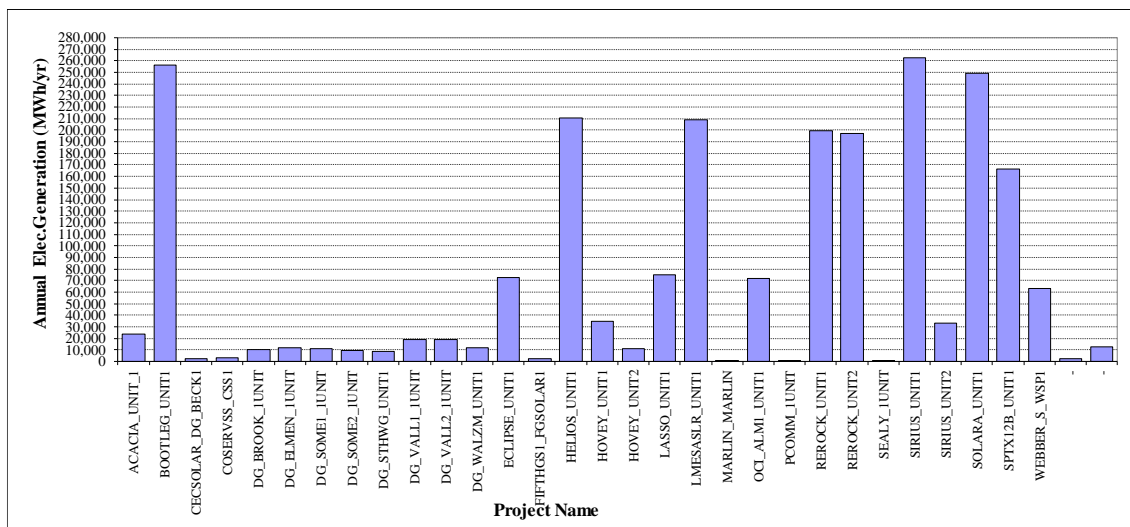
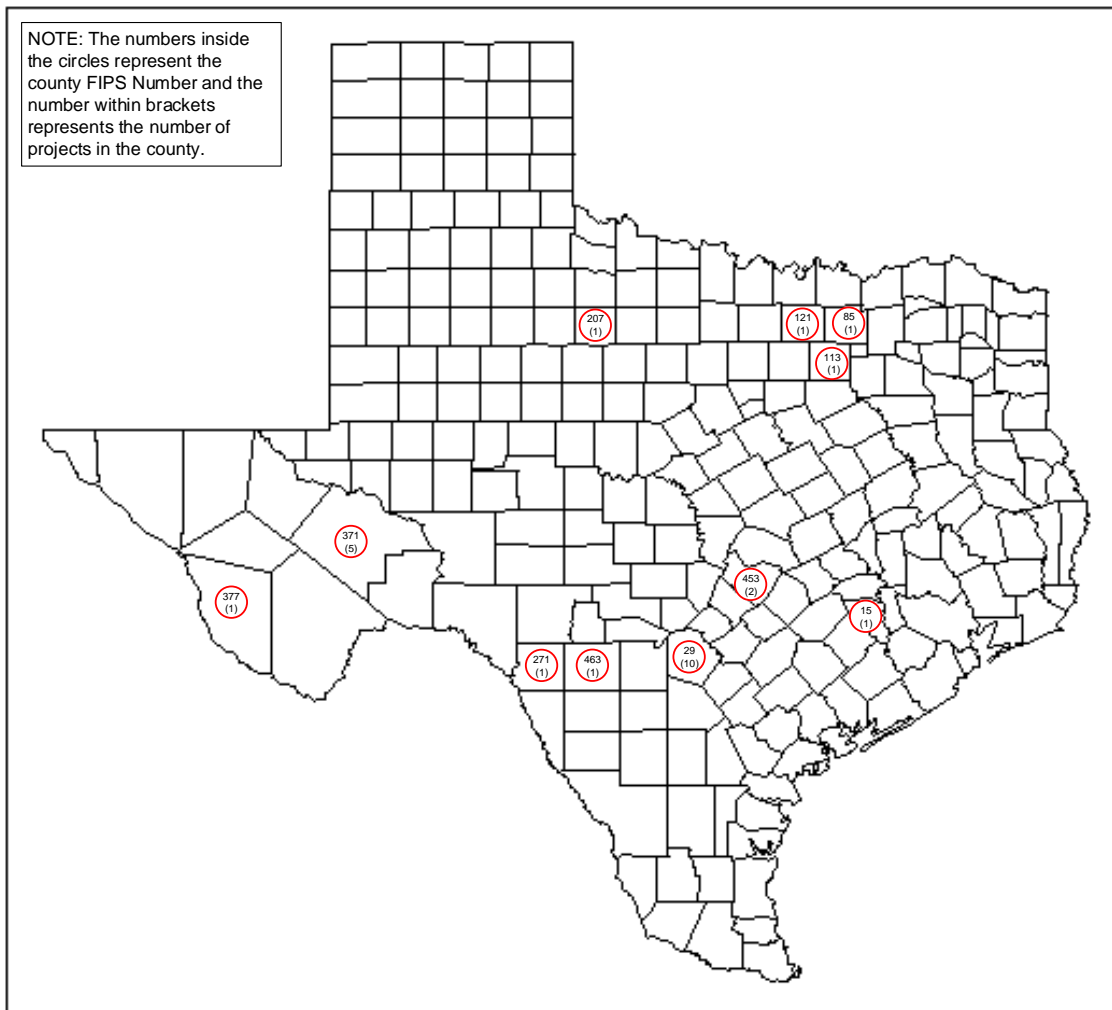


Figure 6-6: Annual Electricity Generation by Solar Power Plants in the State of Texas up to 2017



Legend

County	FIPS Code	No. of Projects
Austin	15	1
Bexar	29	10
Collin	85	1
Dallas	113	1
Denton	121	1
Haskell	207	1
Kinney	271	1
Pecos	371	7
Presidio	377	1
Travis	453	2
Uvalde	463	1

Figure 6-7: Solar Power Plant Projects throughout Texas up to 2017



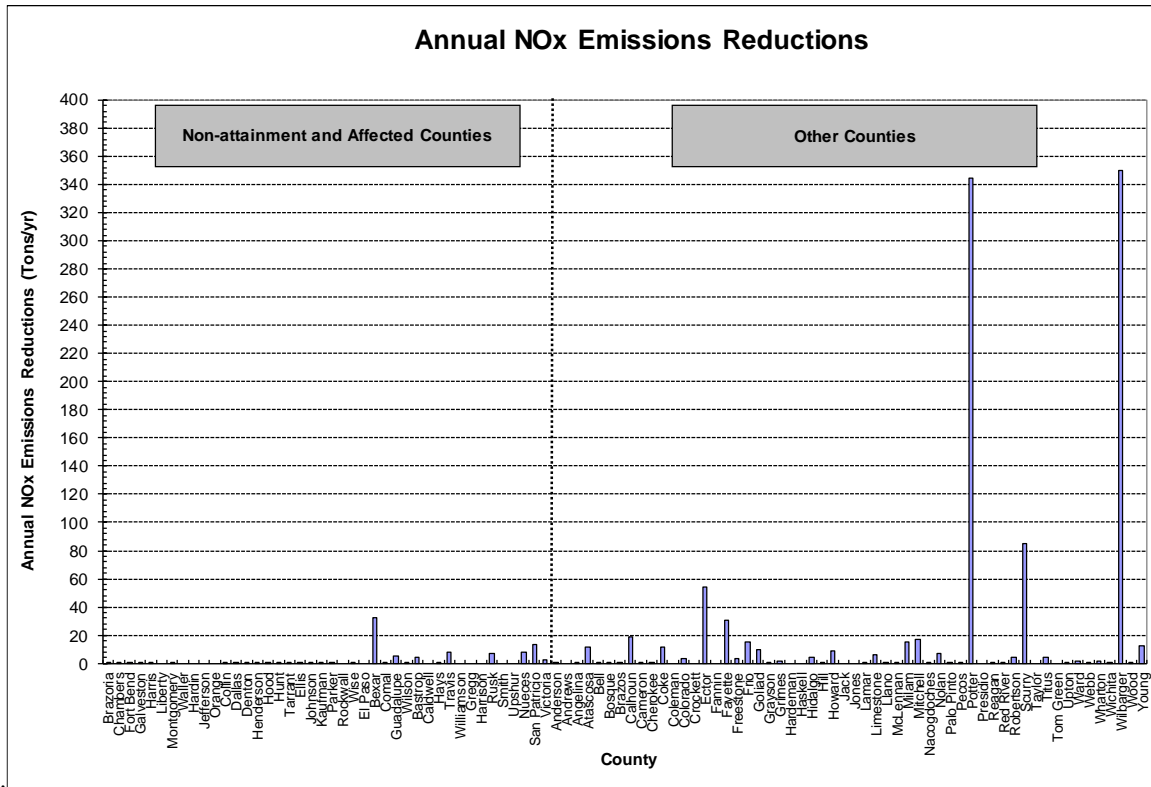


Figure 6-10: NOx Emissions Reductions per County from Solar Power Plant Projects up to 2017

6.2.1.1.1 ACACIA\_UNIT\_1

The power plant was in operation throughout the year. Figure 6-11 shows the hourly electricity generation profile and Figure 6-12 shows the daily total generation profile for the year 2017.

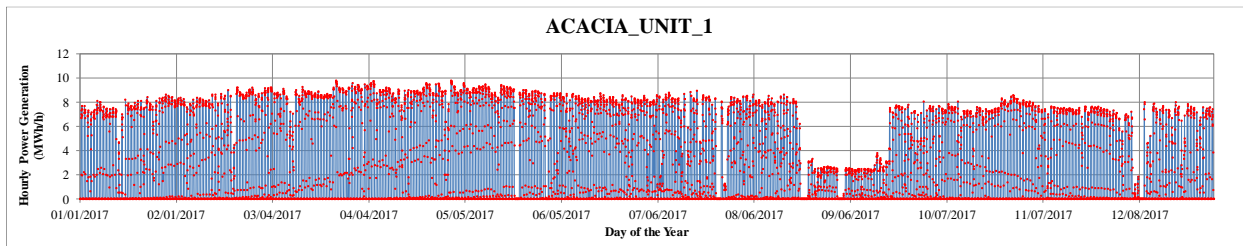


Figure 6-11: Hourly Electricity Generation Profile for Solar Photovoltaic Project ACACIA\_UNIT\_1

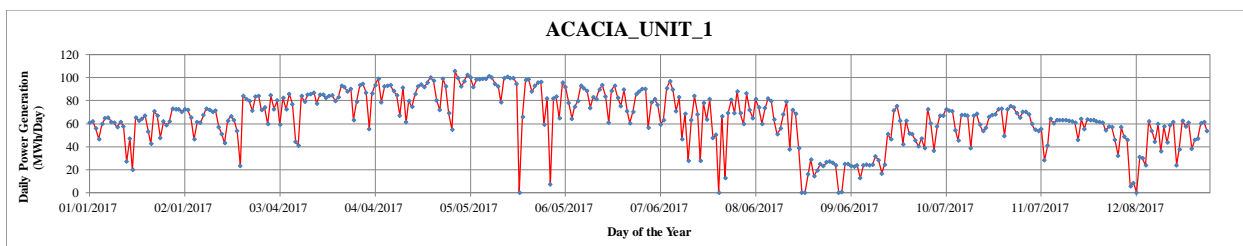


Figure 6-12: Daily Total Electricity Generation Profile for Solar Photovoltaic Project ACACIA\_UNIT\_1

### 6.2.1.1.2 BOOTLEG\_UNIT1

The power plant was newly installed in 2017. There were no power generation data during the period from 1st to 24th of January. Figure 6-17 shows the hourly electricity generation profile and Figure 6-18 shows the daily total generation profile for the year 2017.

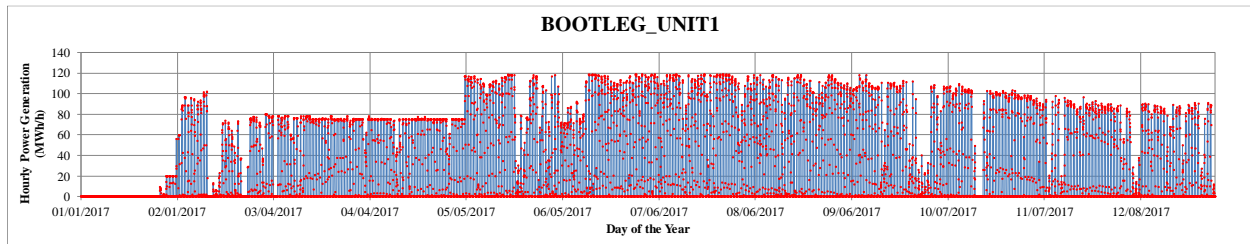


Figure 6-13: Hourly Electricity Generation Profile for Solar Photovoltaic Project BOOTHLEG\_UNIT1

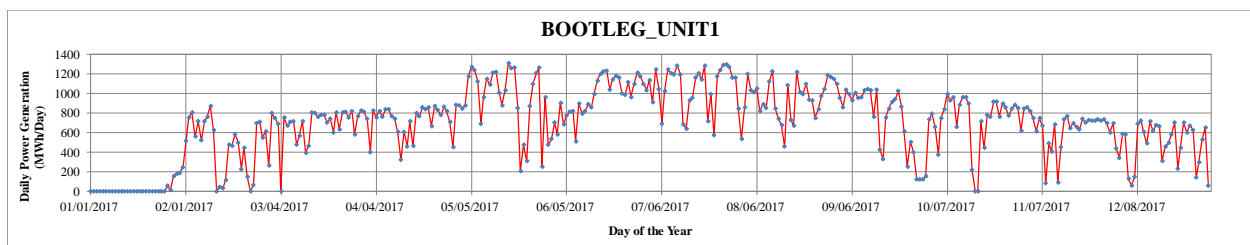


Figure 6-14: Daily Total Electricity Generation Profile for Solar Photovoltaic Project BOOTHLEG\_UNIT1

### 6.2.1.1.3 CECSOLAR\_DG\_BECK1

The power plant was in operation throughout the year. Figure 6-17 shows the hourly electricity generation profile and Figure 6-18 shows the daily total generation profile for the year 2017.

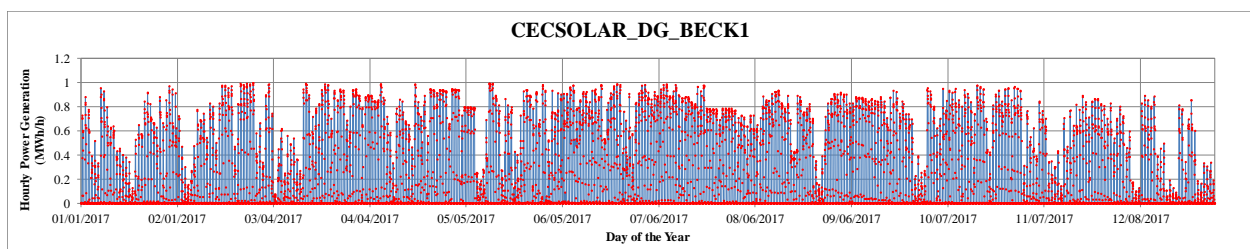


Figure 6-15: Hourly Electricity Generation Profile for Solar Photovoltaic Project CECSOLAR\_DG\_BECK1

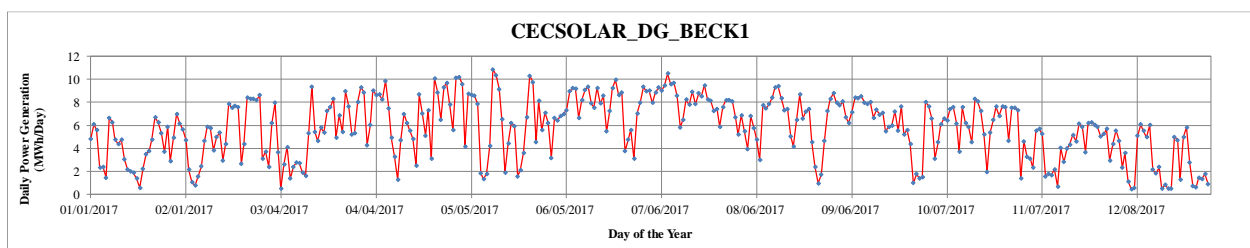


Figure 6-16: Daily Total Electricity Generation Profile for Solar Photovoltaic Project CECSOLAR\_DG\_BECK1

#### 6.2.1.1.4 COSERVSS\_CSS1

The power plant was in operation throughout the year. There were no power generation data during the period from 29<sup>th</sup> of October to 16<sup>th</sup> of November. Figure 6-17 shows the hourly electricity generation profile and Figure 6-18 shows the daily total generation profile for the year 2017.

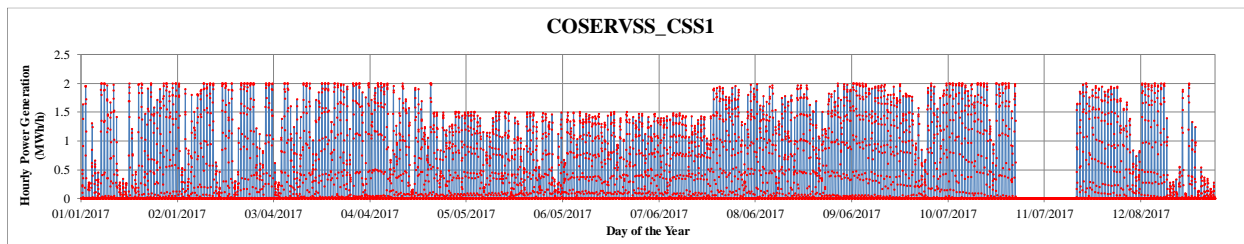


Figure 6-17: Hourly Electricity Generation Profile for Solar Photovoltaic Project COSERVSS\_CSS1

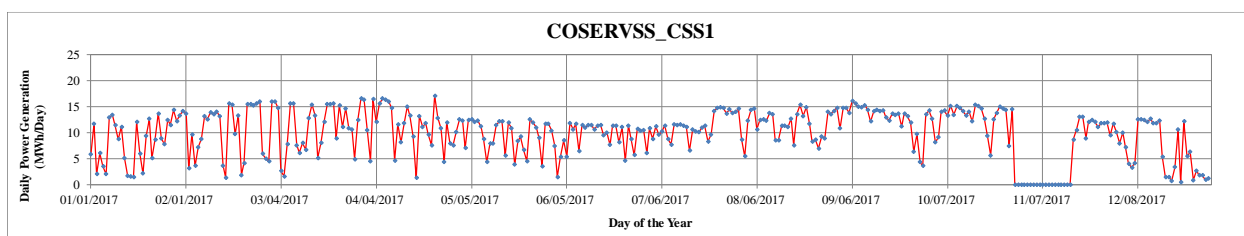


Figure 6-18: Daily Total Electricity Generation Profile for Solar Photovoltaic Project COSERVSS\_CSS1

#### 6.2.1.1.5 DG\_BROOK\_1UNIT

The power plant was in operation throughout the year. Figure 6-19 shows the hourly electricity generation profile and Figure 6-20 shows the daily total generation profile for the year 2017.

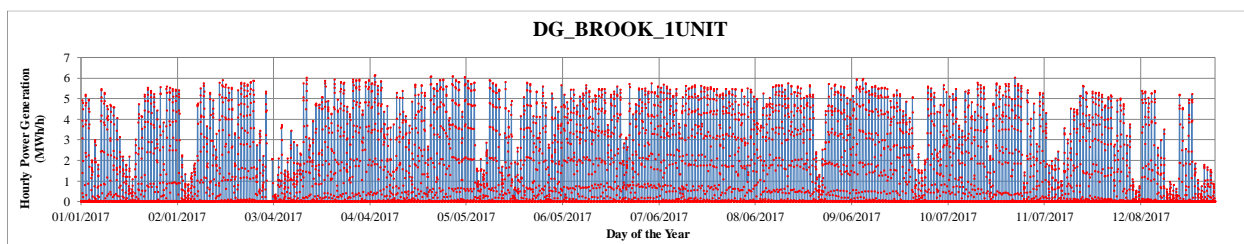


Figure 6-19: Hourly Electricity Generation Profile for Solar Photovoltaic Project DG\_BROOK\_1UNIT

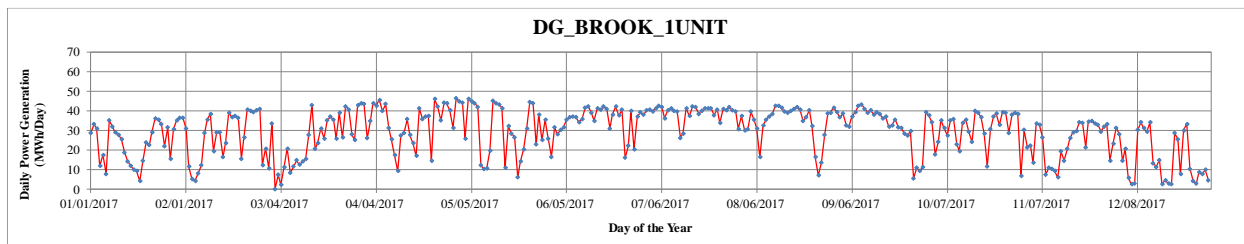


Figure 6-20: Daily Total Electricity Generation Profile for Solar Photovoltaic Project DG\_BROOK\_1UNIT



### 6.2.1.1.6 DG\_ELMEN\_1UNIT

The power plant was in operation throughout the year. Figure 6-21 shows the hourly electricity generation profile and Figure 6-22 shows the daily total generation profile for the year 2017.

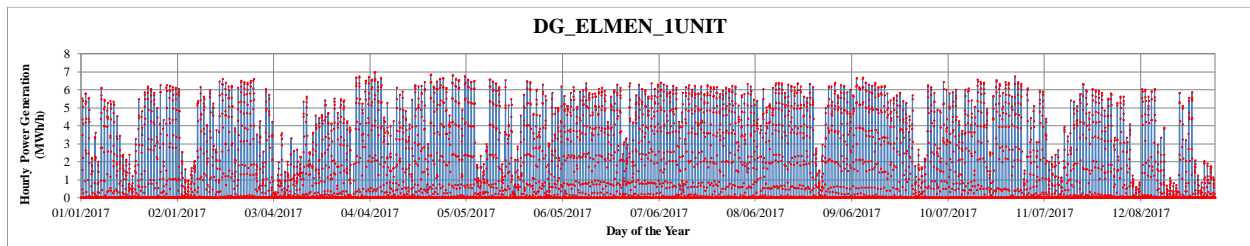


Figure 6-21: Hourly Electricity Generation Profile for Solar Photovoltaic Project DG\_ELMEN\_1UNIT

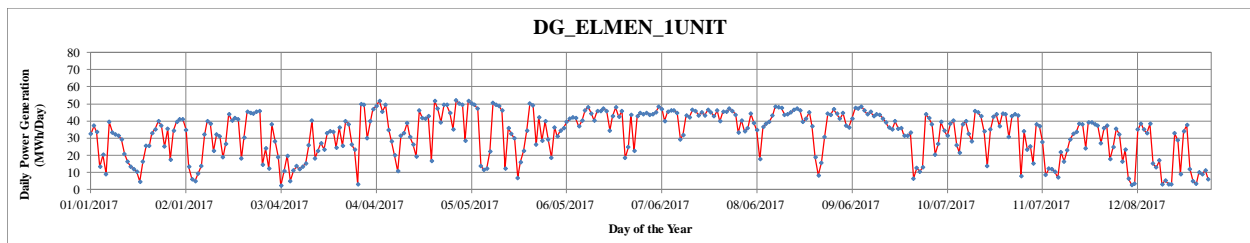


Figure 6-22: Daily Total Electricity Generation Profile for Solar Photovoltaic Project DG\_ELMEN\_1UNIT

### 6.2.1.1.7 DG\_SOME1\_1UNIT

The power plant was in operation throughout the year. Figure 6-23 shows the hourly electricity generation profile and Figure 6-24 shows the daily total generation profile for the year 2017.

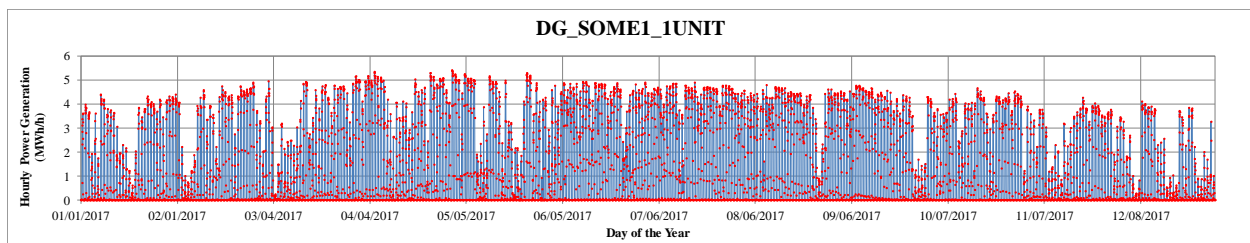


Figure 6-23: Hourly Electricity Generation Profile for Solar Photovoltaic Project DG\_SOME1\_1UNIT

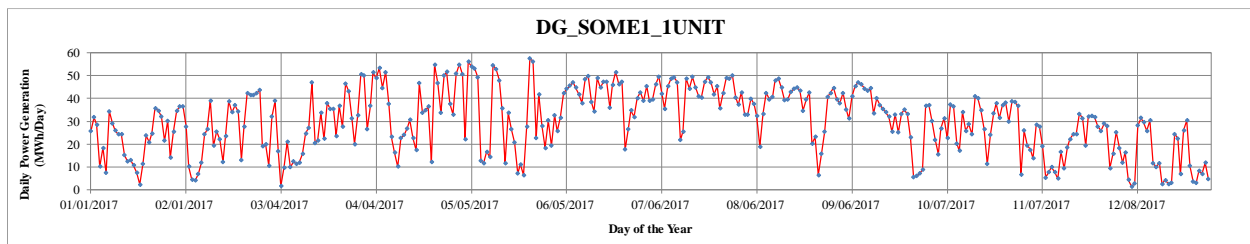


Figure 6-24: Daily Total Electricity Generation Profile for Solar Photovoltaic Project DG\_SOME1\_1UNIT

### 6.2.1.1.8 DG\_SOME2\_1UNIT

The power plant was in operation throughout the year. Figure 6-25 shows the hourly electricity generation profile and Figure 6-26 shows the daily total generation profile for the year 2017.

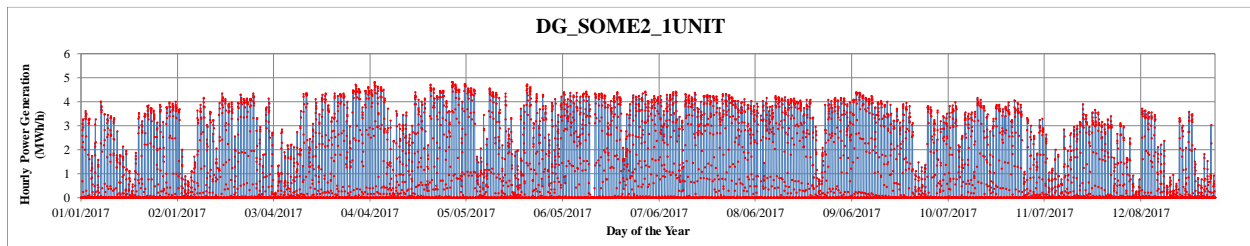


Figure 6-25: Hourly Electricity Generation Profile for Solar Photovoltaic Project DG\_SOME2\_1UNIT

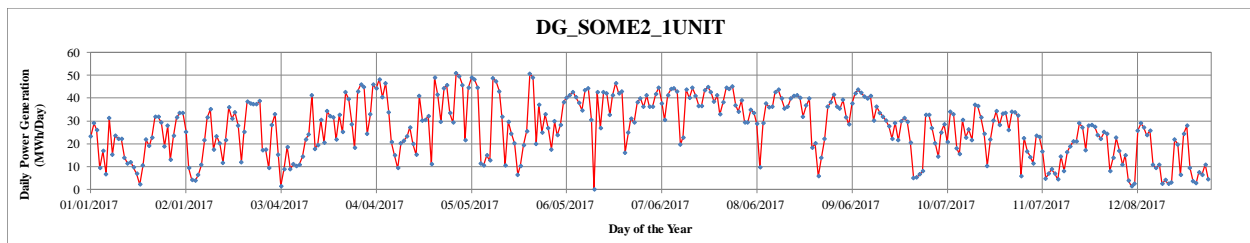


Figure 6-26: Daily Total Electricity Generation Profile for Solar Photovoltaic Project DG\_SOME2\_1UNIT

### 6.2.1.1.9 DG\_STHWG\_UNIT1

The power plant was in operation throughout the year. Figure 6-27 shows the hourly electricity generation profile and Figure 6-28 shows the daily total generation profile for the year 2017.

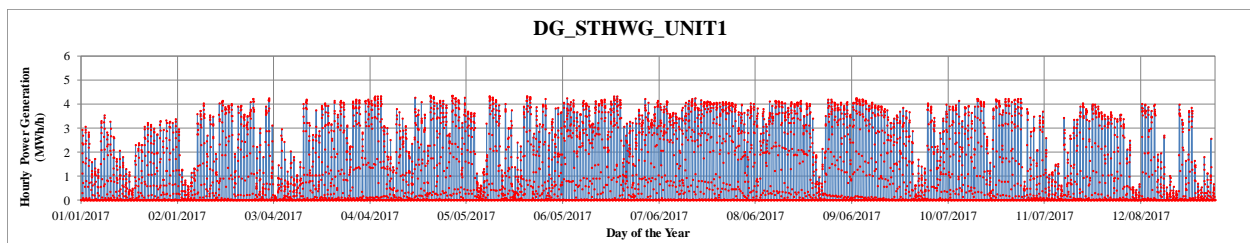


Figure 6-27: Hourly Electricity Generation Profile for Solar Photovoltaic Project DG\_STHWG\_UNIT1

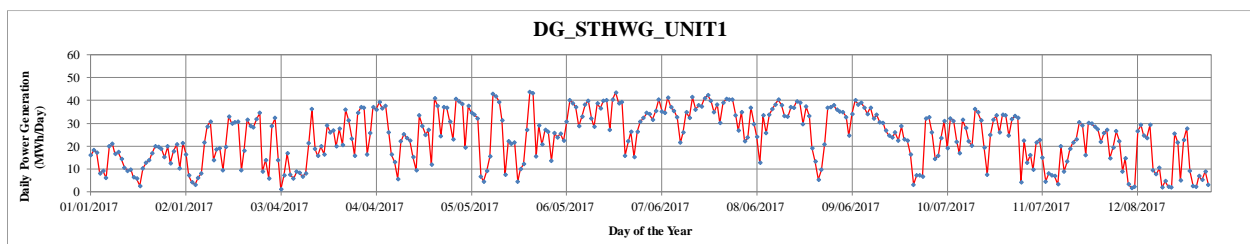


Figure 6-28: Daily Total Electricity Generation Profile for Solar Photovoltaic Project DG\_STHWG\_UNIT1

### 6.2.1.1.10 DG\_VALL1\_1UNIT

The power plant was in operation throughout the year. Figure 6-29 shows the hourly electricity generation profile and Figure 6-30 shows the daily total generation profile for the year 2017.

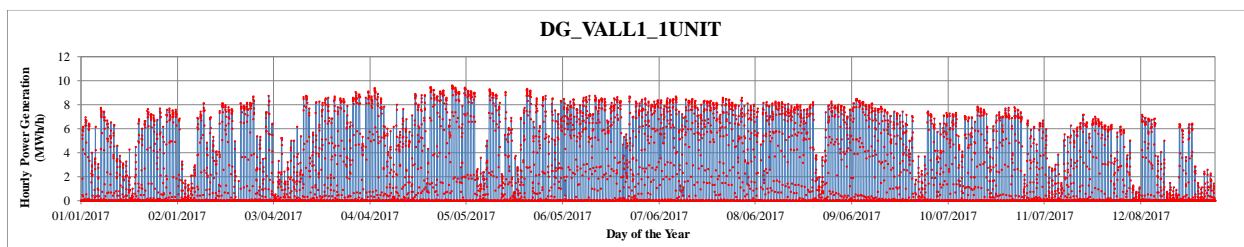


Figure 6-29: Hourly Electricity Generation Profile for Solar Photovoltaic Project DG\_VALL1\_1UNIT

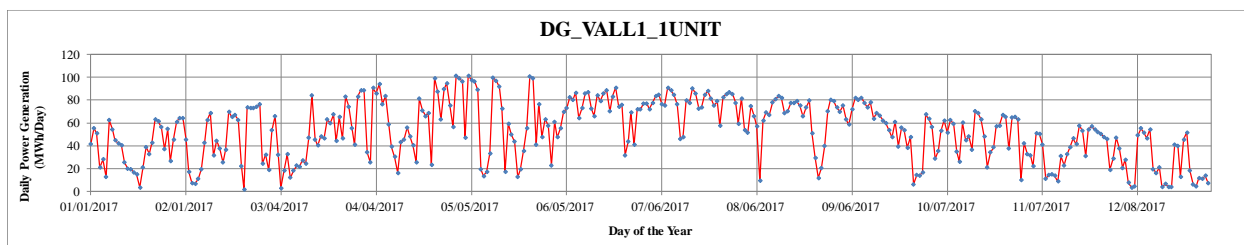


Figure 6-30: Daily Total Electricity Generation Profile for Solar Photovoltaic Project DG\_VALL1\_1UNIT

### 6.2.1.1.11 DG\_VALL2\_1UNIT

The power plant was in operation throughout the year. Figure 6-31 shows the hourly electricity generation profile and Figure 6-32 shows the daily total generation profile for the year 2017.

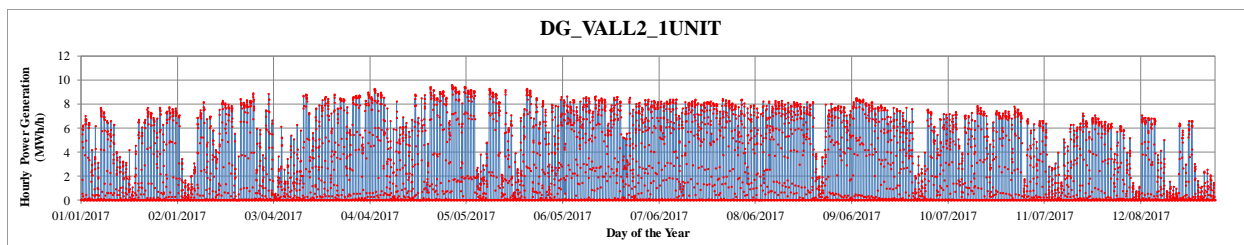


Figure 6-31: Hourly Electricity Generation Profile for Solar Photovoltaic Project DG\_VALL2\_1UNIT

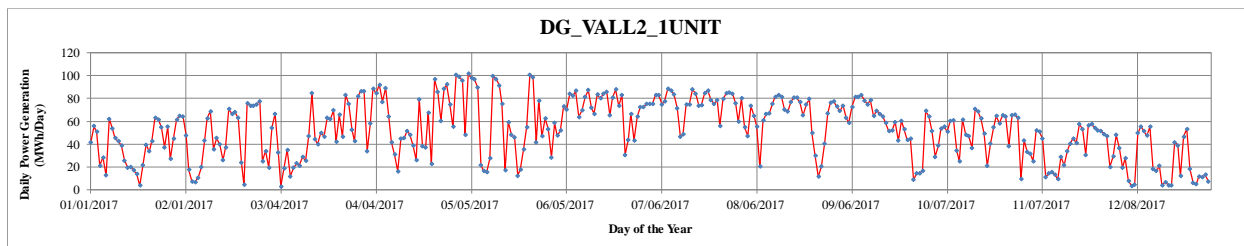


Figure 6-32: Daily Total Electricity Generation Profile for Solar Photovoltaic Project DG\_VALL2\_1UNIT

### 6.2.1.1.12 DG\_WALZM\_UNIT1

The power plant was in operation throughout the year. Figure 6-33 shows the hourly electricity generation profile and Figure 6-34 shows the daily total generation profile for the year 2017.

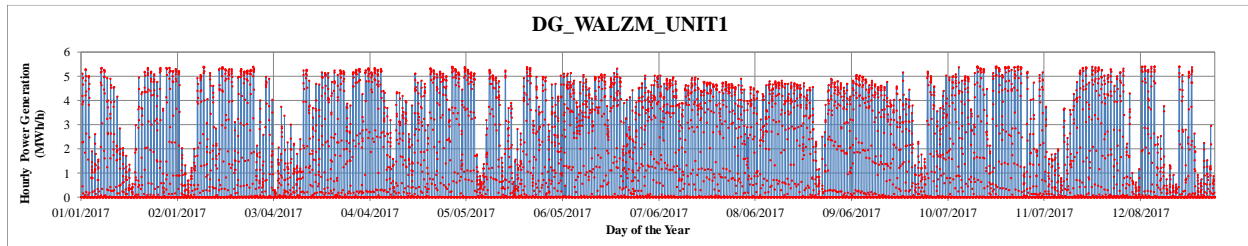


Figure 6-33: Hourly Electricity Generation Profile for Solar Photovoltaic Project DG\_WALZM\_UNIT1

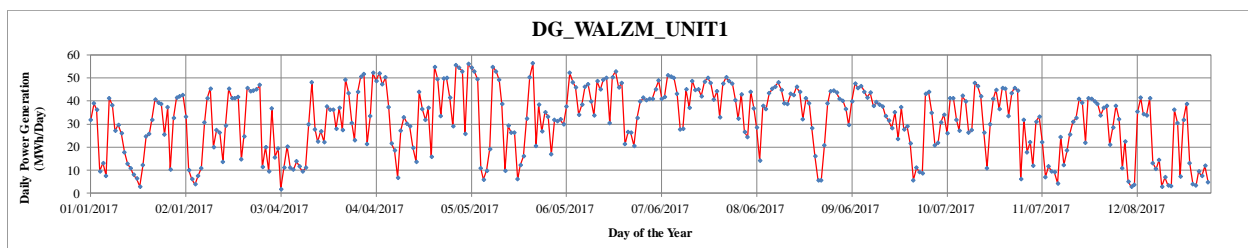


Figure 6-34: Daily Total Electricity Generation Profile for Solar Photovoltaic Project DG\_WALZM\_UNIT1

### 6.2.1.1.13 ECLIPSE\_UNIT1

The power plant was in operation throughout the year. Figure 6-35 shows the hourly electricity generation profile and Figure 6-36 shows the daily total generation profile for the year 2017.

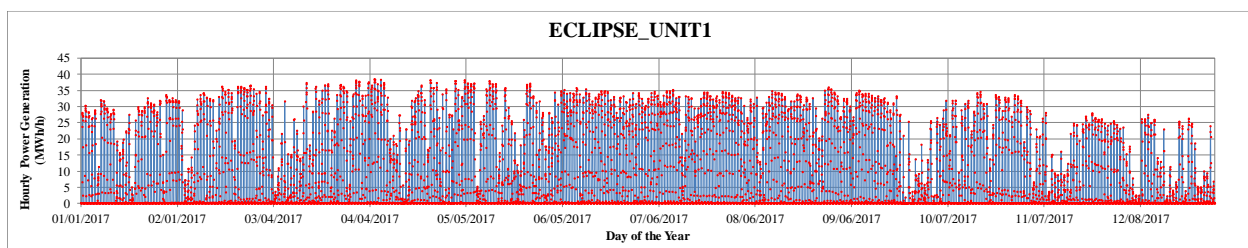


Figure 6-35: Hourly Electricity Generation Profile for Solar Photovoltaic Project ECLIPSE\_UNIT1

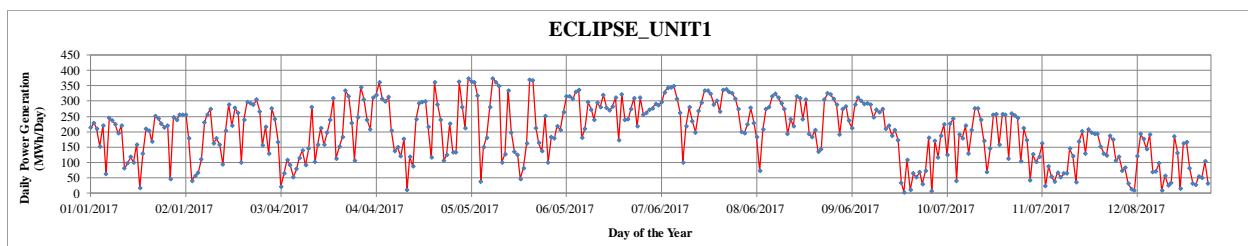


Figure 6-36: Daily Total Electricity Generation Profile for Solar Photovoltaic Project ECLIPSE\_UNIT1

### 6.2.1.1.14 FIFTHGS1\_FGSOLAR1

The power plant was in operation throughout the year. There were no power generation data during the period from 14<sup>th</sup> to 30<sup>th</sup> of November. Figure 6-41 shows the hourly electricity generation profile and Figure 6-42 shows the daily total generation profile for the year 2017.

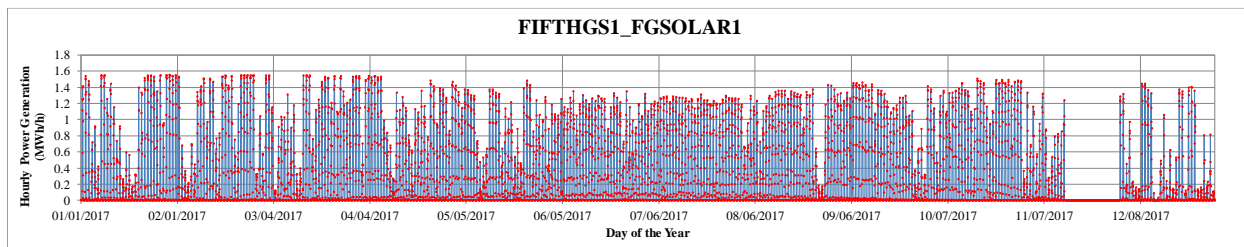


Figure 6-37: Hourly Electricity Generation Profile for Solar Photovoltaic Project FIFTHGS1\_FGSOLAR1

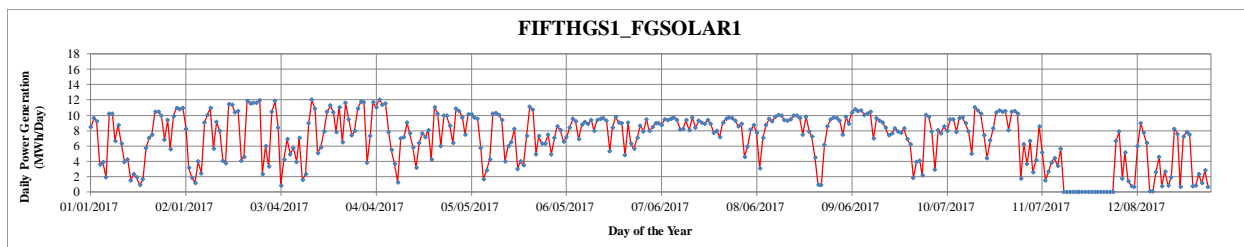


Figure 6-38: Daily Total Electricity Generation Profile for Solar Photovoltaic Project FIFTHGS1\_FGSOLAR1

#### 6.2.1.1.15 HELIOS\_UNIT1

The power plant was in operation throughout the year. Figure 6-39 shows the hourly electricity generation profile and Figure 6-40 shows the daily total generation profile for the year 2017.

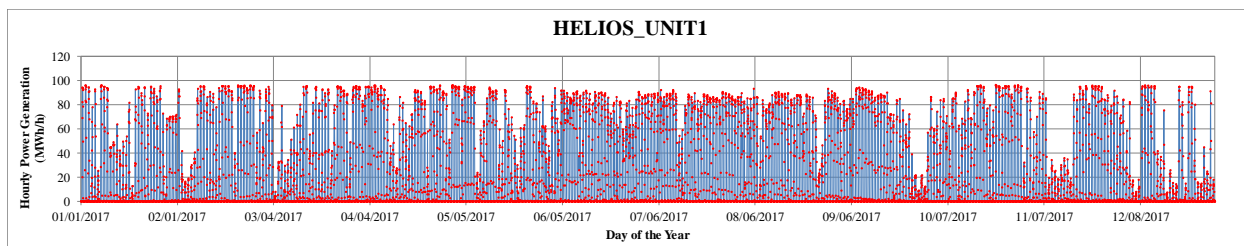


Figure 6-39: Hourly Electricity Generation Profile for Solar Photovoltaic Project HELIOS\_UNIT1

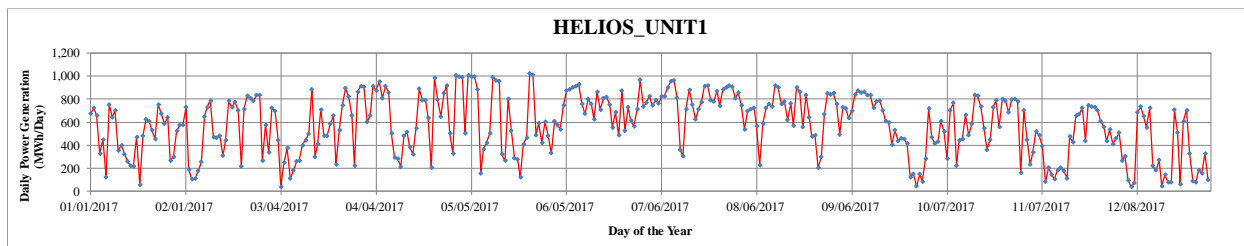


Figure 6-40: Daily Total Electricity Generation Profile for Solar Photovoltaic Project HELIOS\_UNIT1



## 6.2.1.1.16 HOVEY\_UNIT1

The power plant was in operation throughout the year. Figure 6-41 shows the hourly electricity generation profile and Figure 6-42 shows the daily total generation profile for the year 2017.

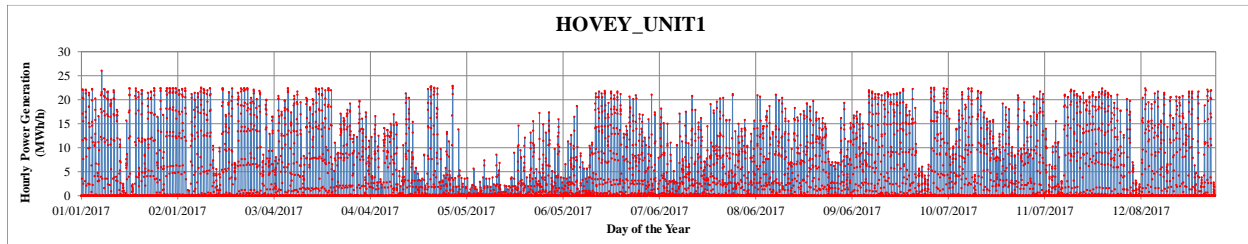


Figure 6-41: Hourly Electricity Generation Profile for Solar Photovoltaic Project HOVEY\_UNIT1

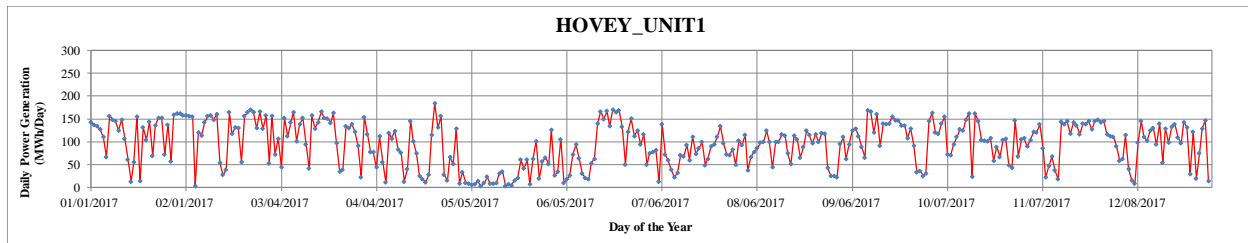


Figure 6-42: Daily Total Electricity Generation Profile for Solar Photovoltaic Project HOVEY\_UNIT1

## 6.2.1.1.17 HOVEY\_UNIT2

The power plant was in operation throughout the year. Figure 6-43 shows the hourly electricity generation profile and Figure 6-44 shows the daily total generation profile for the year 2017.

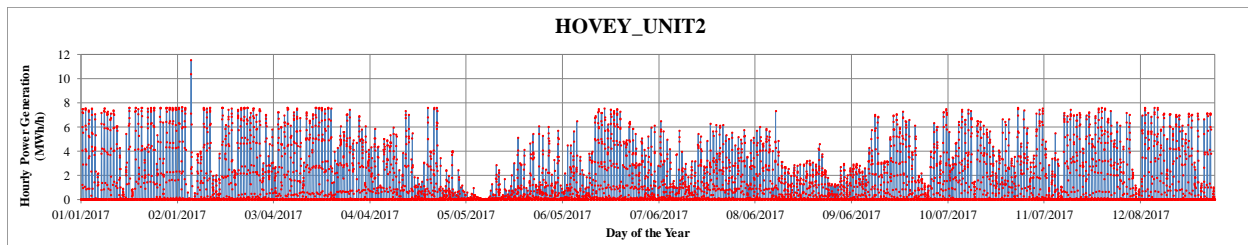


Figure 6-43: Hourly Electricity Generation Profile for Solar Photovoltaic Project HOVEY\_UNIT2

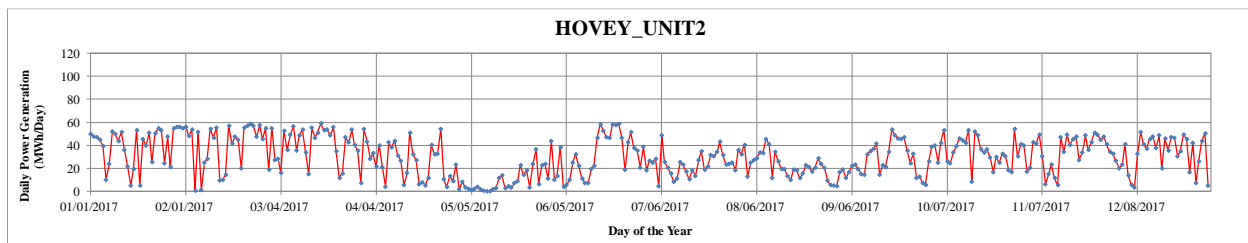


Figure 6-44: Daily Total Electricity Generation Profile for Solar Photovoltaic Project HOVEY\_UNIT2

6.2.1.1.18 LASSO\_UNIT1

The power plant was in operation throughout the year. There were no power generation data during the period from 1<sup>st</sup> of January to 29<sup>th</sup> of March. Figure 6-49 shows the hourly electricity generation profile and Figure 6-50 shows the daily total generation profile for the year 2017.

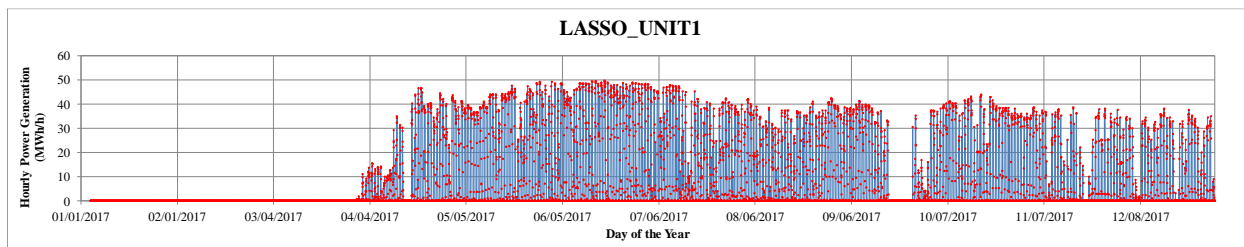


Figure 6-45: Hourly Electricity Generation Profile for Solar Photovoltaic Project LASSO\_UNIT1

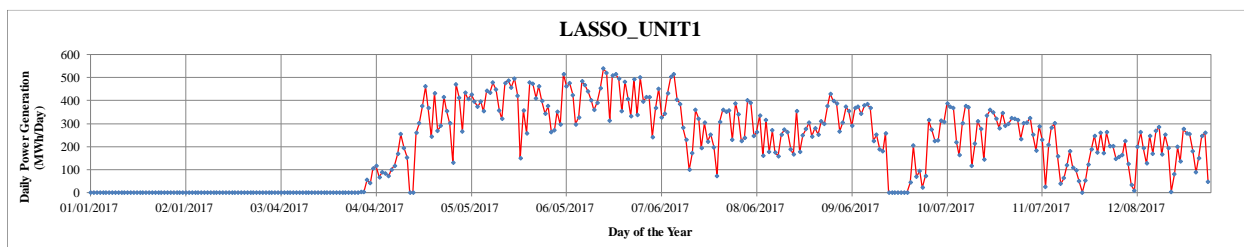


Figure 6-46: Daily Total Electricity Generation Profile for Solar Photovoltaic Project LASSO\_UNIT1

6.2.1.1.19 LMESASLR\_UNIT1

The power plant was in operation throughout the year. There were no power generation data during the period from 1<sup>st</sup> of January to 14<sup>th</sup> of February. Figure 6-49 shows the hourly electricity generation profile and Figure 6-50 shows the daily total generation profile for the year 2017.

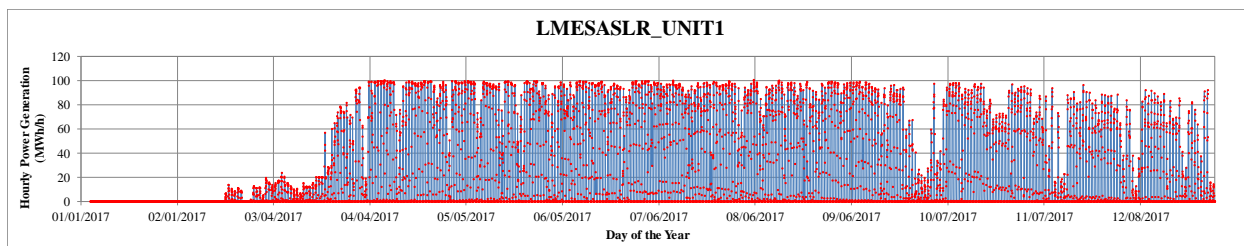


Figure 6-47: Hourly Electricity Generation Profile for Solar Photovoltaic Project LMESASLR\_UNIT1

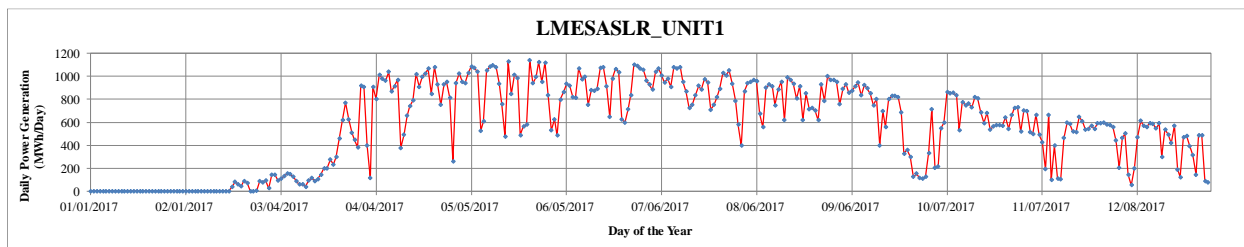


Figure 6-48: Daily Total Electricity Generation Profile for Solar Photovoltaic Project LMESASLR\_UNIT1

### 6.2.1.1.20 OCI\_ALM1\_UNIT1

The power plant was in operation throughout the year. Figure 6-49 shows the hourly electricity generation profile and Figure 6-50 shows the daily total generation profile for the year 2017.

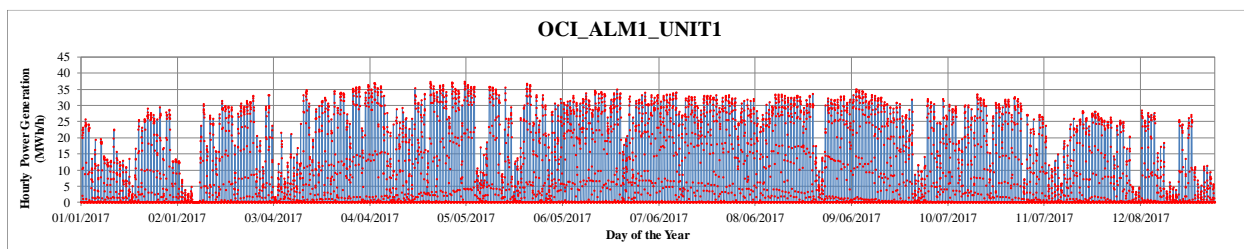


Figure 6-49: Hourly Electricity Generation Profile for Solar Photovoltaic Project OCI\_ALM1\_UNIT1

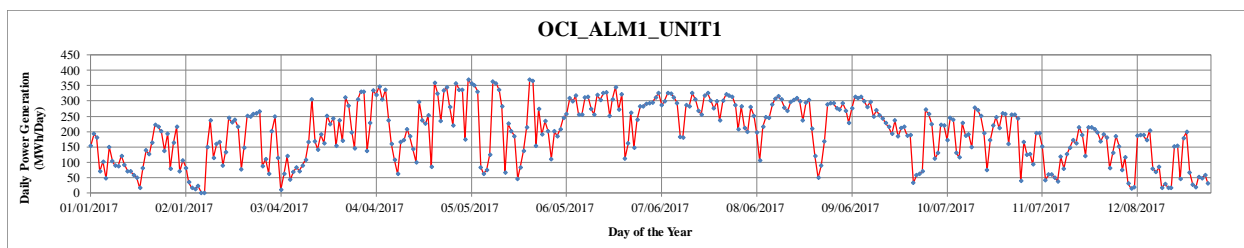


Figure 6-50: Daily Total Electricity Generation Profile for Solar Photovoltaic Project OCI\_ALM1\_UNIT1

### 6.2.1.1.21 REROCK\_UNIT1

The power plant was in operation throughout the year. Figure 6-51 shows the hourly electricity generation profile and Figure 6-52 shows the daily total generation profile for the year 2017.

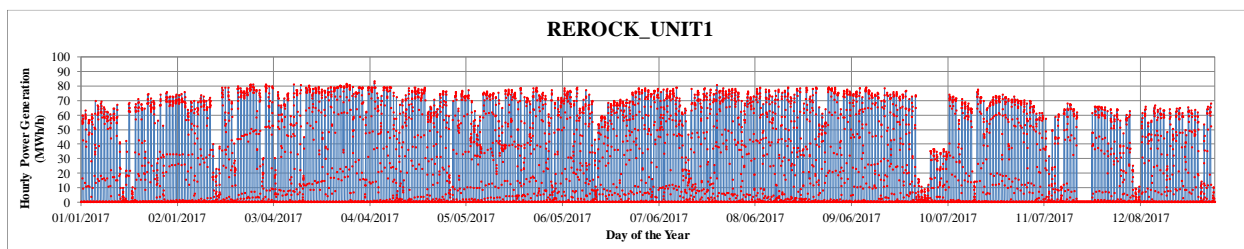


Figure 6-51: Hourly Electricity Generation Profile for Solar Photovoltaic Project REROCK\_UNIT1

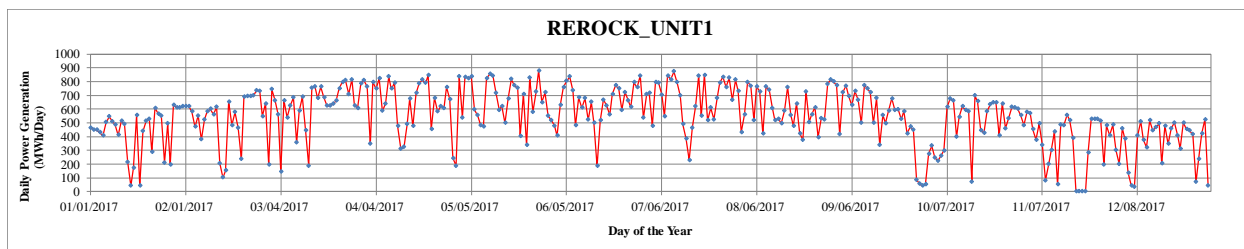


Figure 6-52: Daily Total Electricity Generation Profile for Solar Photovoltaic Project REROCK\_UNIT1



### 6.2.1.1.22 REROCK\_UNIT2

The power plant was in operation throughout the year. Figure 6-53 shows the hourly electricity generation profile and Figure 6-54 shows the daily total generation profile for the year 2017.

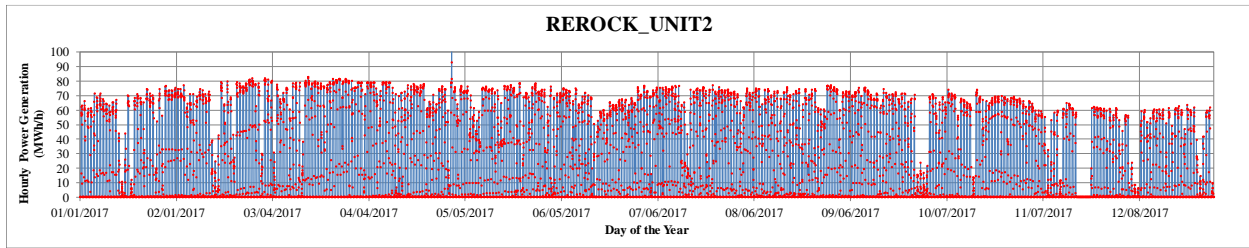


Figure 6-53: Hourly Electricity Generation Profile for Solar Photovoltaic Project REROCK\_UNIT2

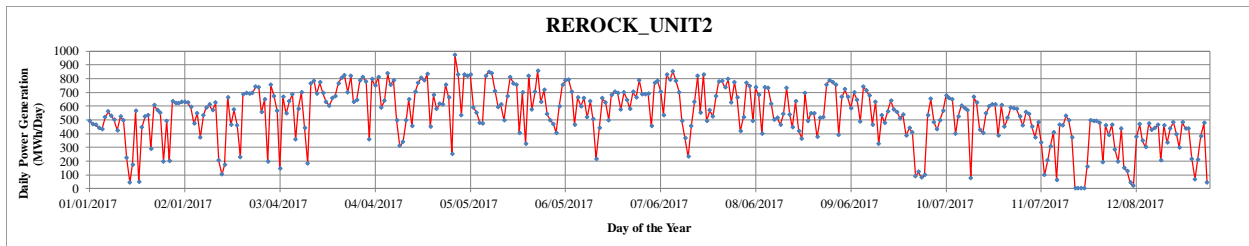


Figure 6-54: Daily Total Electricity Generation Profile for Solar Photovoltaic Project REROCK\_UNIT2

### 6.2.1.1.23 SEALY\_1UNIT

The power plant was in operation throughout the year. There were no power generation data since May 24<sup>th</sup>. Figure 6-55 shows the hourly electricity generation profile and Figure 6-56 shows the daily total generation profile for the year 2017.

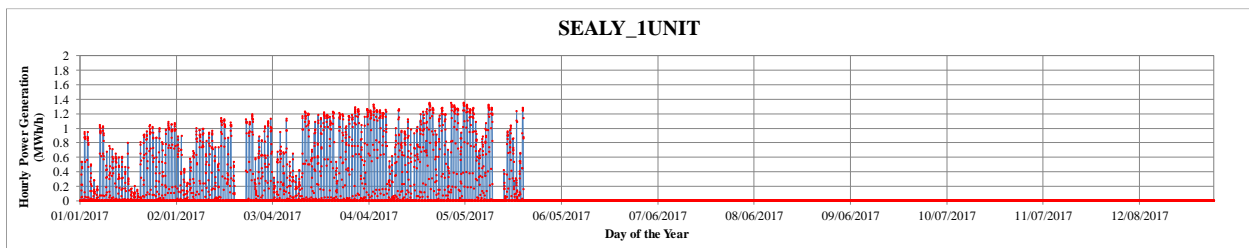


Figure 6-55: Hourly Electricity Generation Profile for Solar Photovoltaic Project SEALY\_1UNIT

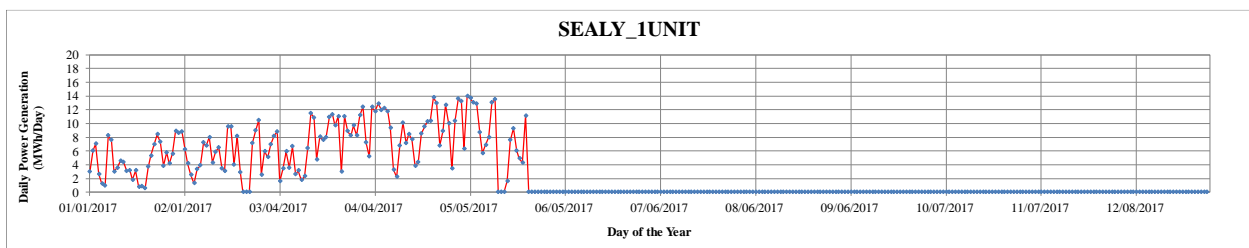


Figure 6-56: Daily Total Electricity Generation Profile for Solar Photovoltaic Project SEALY\_1UNIT

### 6.2.1.1.24 SIRUS\_UNIT1

The power plant was in operation throughout the year. Figure 6-57 shows the hourly electricity generation profile and Figure 6-77 shows the daily total generation profile for the year 2017.

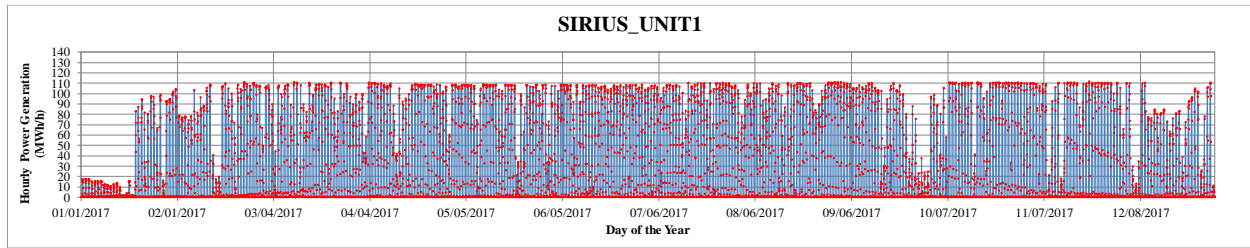


Figure 6-57: Hourly Electricity Generation Profile for Solar Photovoltaic Project SIRUS\_UNIT1

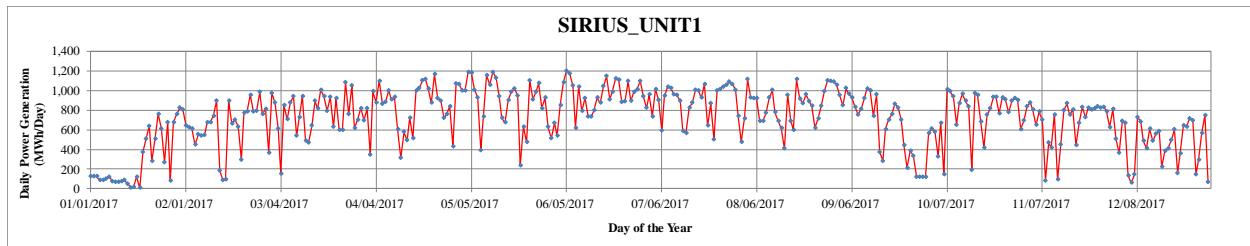


Figure 6-58: Daily Total Electricity Generation Profile for Solar Photovoltaic Project SIRUS\_UNIT1

### 6.2.1.1.25 SIRUS\_UNIT2

The power plant was newly installed in 2017. There were no power generation data during the period from 1st of January to 24th of August. Figure 6-59 shows the hourly electricity generation profile and Figure 6-77 shows the daily total generation profile for the year 2017.

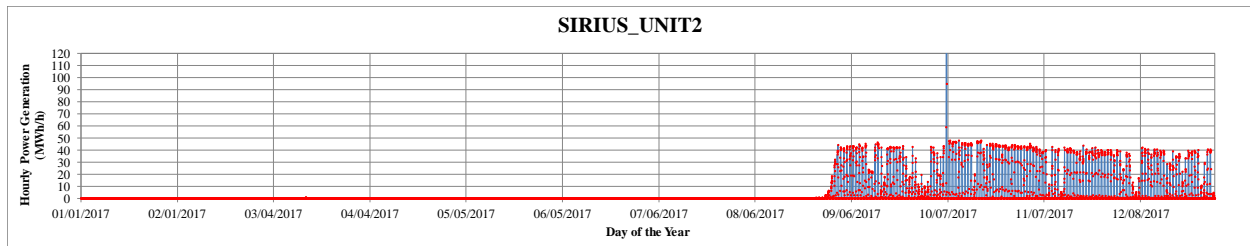


Figure 6-59: Hourly Electricity Generation Profile for Solar Photovoltaic Project SIRUS\_UNIT2

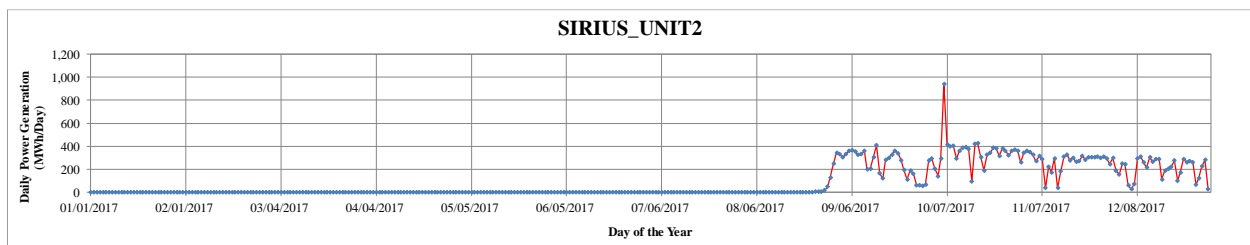


Figure 6-60: Daily Total Electricity Generation Profile for Solar Photovoltaic Project SIRUS\_UNIT2

### 6.2.1.1.26 SOLARA\_UNIT1

The power plant was in operation throughout the year. Figure 6-78 shows the hourly electricity generation profile and Figure 6-62 shows the daily total generation profile for the year 2017.

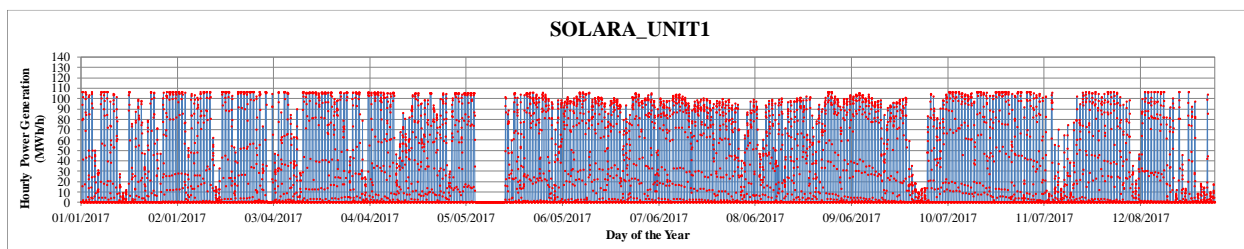


Figure 6-61: Hourly Electricity Generation Profile for Solar Photovoltaic Project SOLARA\_UNIT1

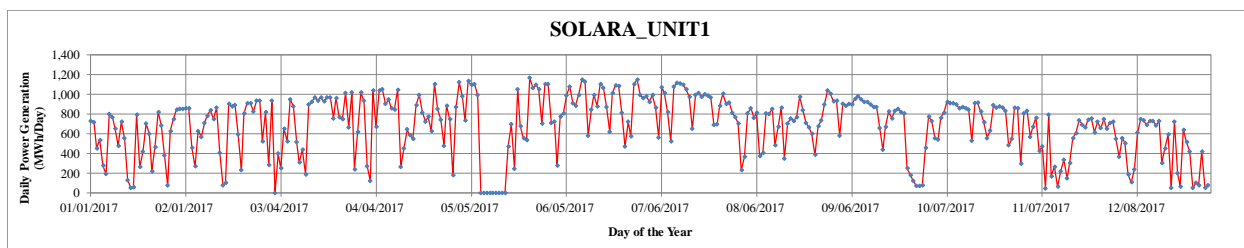


Figure 6-62: Daily Total Electricity Generation Profile for Solar Photovoltaic Project SOLARA\_UNIT1

### 6.2.1.1.27 SPTX12B\_UNIT1

The power plant was newly installed in 2017. There were no power generation data during the period from 1st of January to 7<sup>th</sup> of July. Figure 6-57 shows the hourly electricity generation profile and Figure 6-77 shows the daily total generation profile for the year 2017.

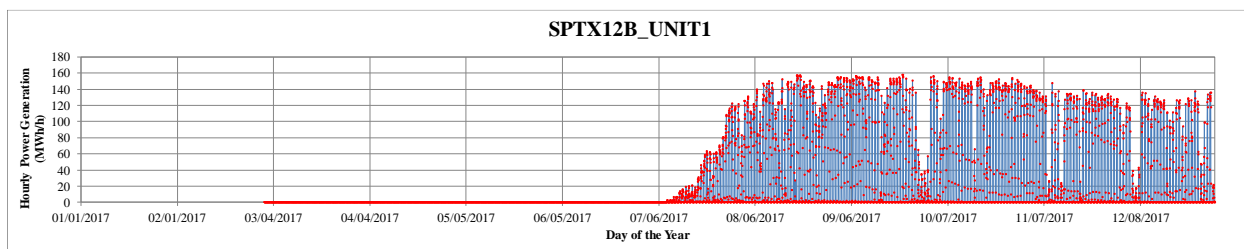


Figure 6-63: Hourly Electricity Generation Profile for Solar Photovoltaic Project SPTX12B\_UNIT1

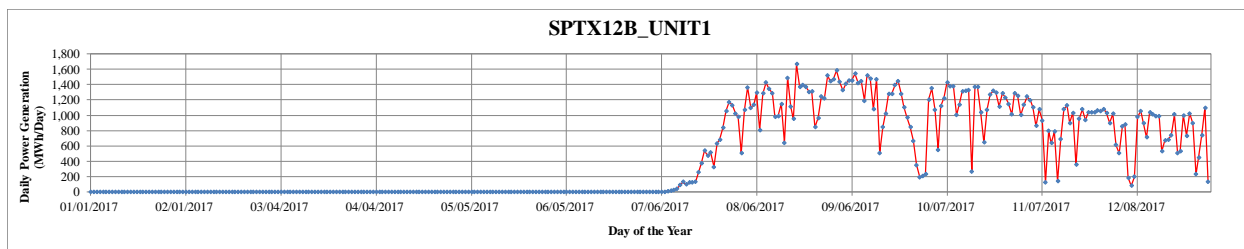


Figure 6-64: Daily Total Electricity Generation Profile for Solar Photovoltaic Project SPTX12B\_UNIT1

## 6.2.1.1.28 WEBBER\_S\_WSP1

The power plant was in operation throughout the year. Figure 6-65 shows the hourly electricity generation profile and Figure 6-66 shows the daily total generation profile for the year 2017.

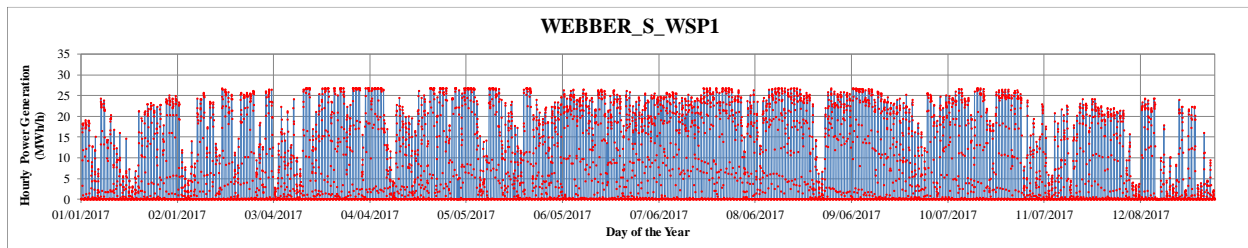


Figure 6-65: Hourly Electricity Generation Profile for Solar Photovoltaic Project WEBBER\_S\_WSP1

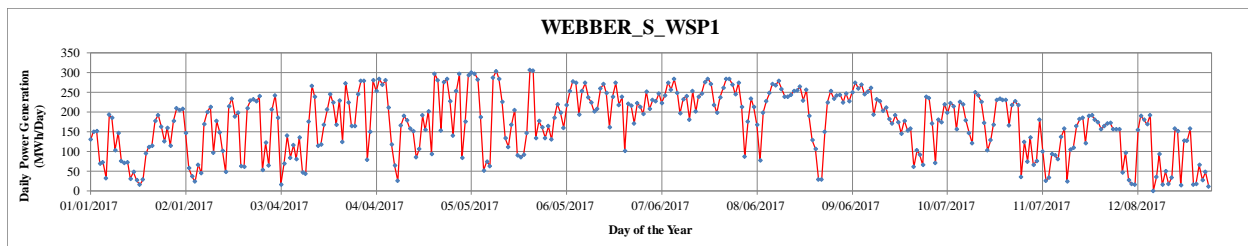


Figure 6-66: Daily Total Electricity Generation Profile for Solar Photovoltaic Project WEBBER\_S\_WSP1

## 6.2.1.1.29 WLNTSPRG\_1UNIT

The power plant was in operation throughout the year. Figure 6-67 shows the hourly electricity generation profile and Figure 6-68 shows the daily total generation profile for the year 2017.

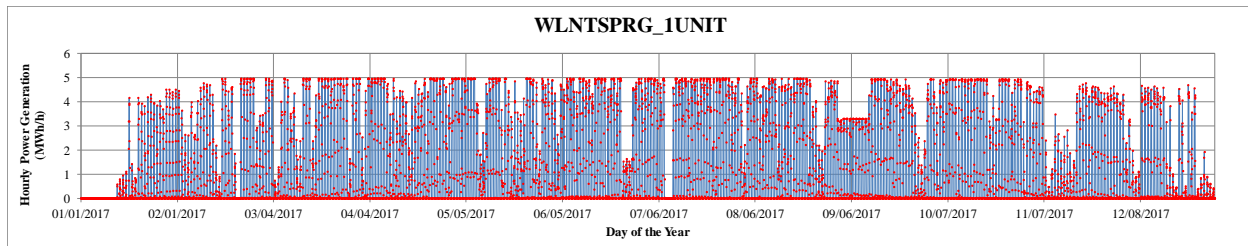


Figure 6-67: Hourly Electricity Generation Profile for Solar Photovoltaic Project WLNTSPRG\_1UNIT

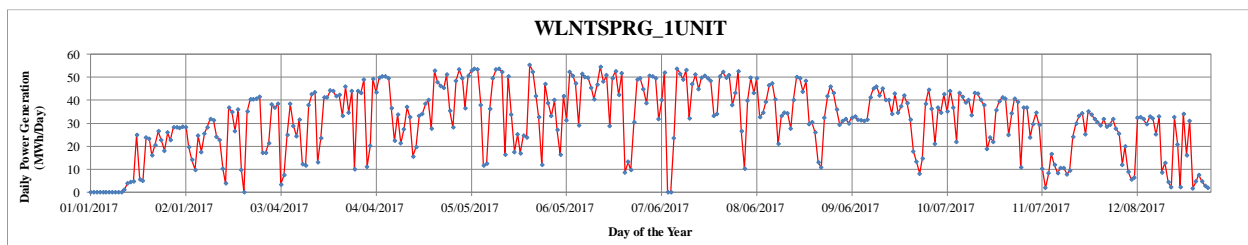


Figure 6-68: Daily Total Electricity Generation Profile for Solar Photovoltaic Project WLNTSPRG\_1UNIT

## 6.2.2 Solar Thermal

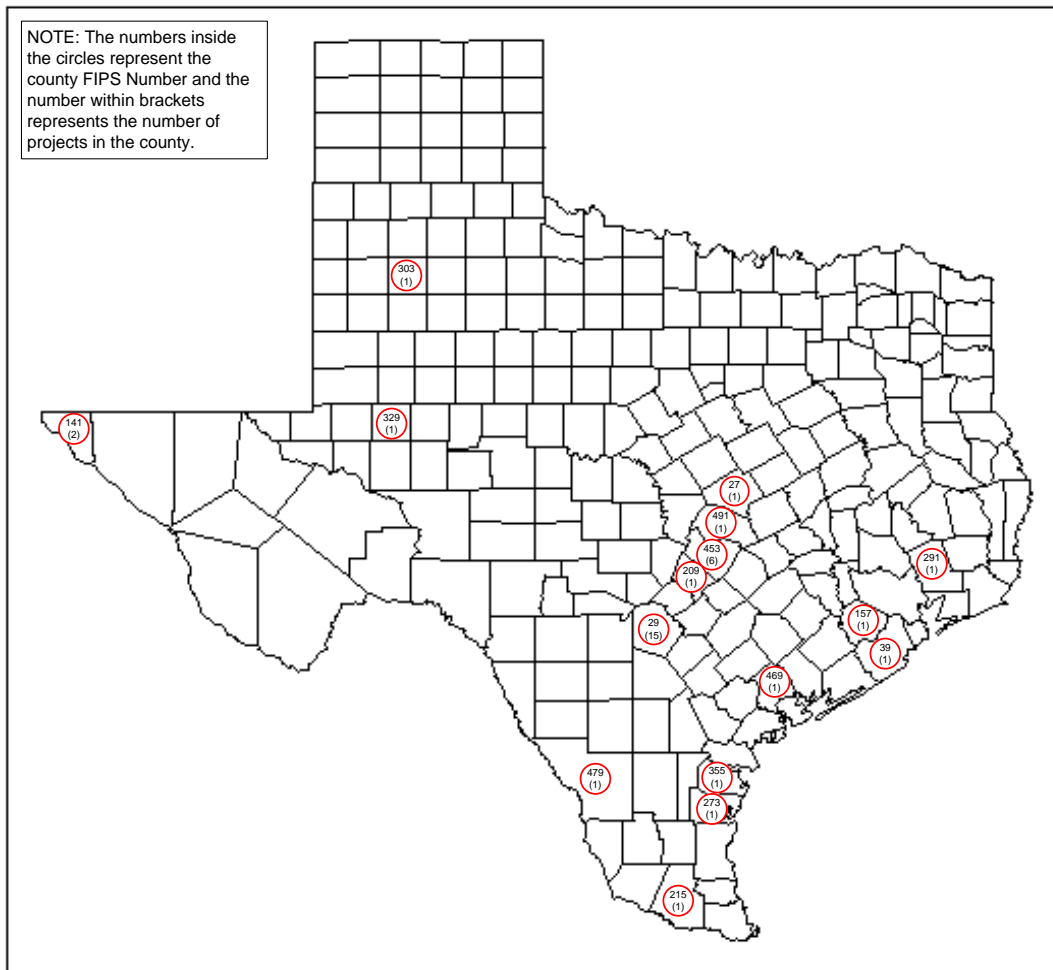
Solar thermal projects are to generate thermal energy so that buildings utilize the thermal energy to heat water or air for their use. Many of the solar thermal projects throughout in the State of Texas were identified from various web sources. In the present report for the year 2017, unfortunately, none of new solar thermal projects was found. As a result, the present report has the same number of solar thermal projects with the previous report, which was 38 projects.

The list of all the projects is shown in Table 10-2 (APPENDIX C). Figure 6-69 shows the map of the solar thermal projects identified in each county of Texas. The generated energy which was estimated by the eCalc tool and the amount of NO<sub>x</sub> emission reduction from all the solar thermal projects are presented in Table 6-3.

The annual electric savings per county and the OSP electric savings per county, which were estimated from these projects, are presented in Figure 6-70 and in Figure 6-71, respectively. In addition, the corresponding annual NO<sub>x</sub> emission reductions are shown in Figure 6-72.

Table 6-3: Solar Thermal Projects: Energy and NO<sub>x</sub> Reductions up to 2017

County for ECALC	Annual Energy Savings (for Base Year Conditions) and Annual Emissions Reductions		OSD Energy Savings (for Base Year Conditions) and OSD Emissions Reductions	
	Annual Elec. Generation (kWh/year)	2007 (lbs/year)	OSD Elec. Generation (kWh/day)	2007 (lbs/day)
		NO <sub>x</sub>		NO <sub>x</sub>
Bexar	60,388	99.71	161.19	0.23
El Paso	137,390	0.00	378.00	0.00
Fort Bend	9,434	16.45	25.20	0.04
Hays	276	0.35	0.74	0.00
Nueces	12,250	14.71	33.60	0.05
Parker	9,806	16.02	27.00	0.04
Travis	1,768	2.87	1.02	0.00
Victoria	336	0.40	0.93	0.00
Williamson	276	0.45	0.74	0.00
<b>Total</b>	<b>231,923</b>	<b>151</b>	<b>628</b>	<b>0</b>



Legend

County	FIPS Code	No. of Projects
Bell	27	1
Bexar	29	15
Brazoria	39	1
El paso	141	2
Fort Bend	157	1
Hays	209	1
Hidalgo	215	1
Kleberg	273	1
Liberty	291	1
Lubbock	303	1
Midland	329	1
Nueces	355	1
Travis	453	6
Victoria	469	1
Webb	479	1
Williamson	491	1
N/A	-	2

Figure 6-69: Solar Thermal Projects throughout Texas up to 2017

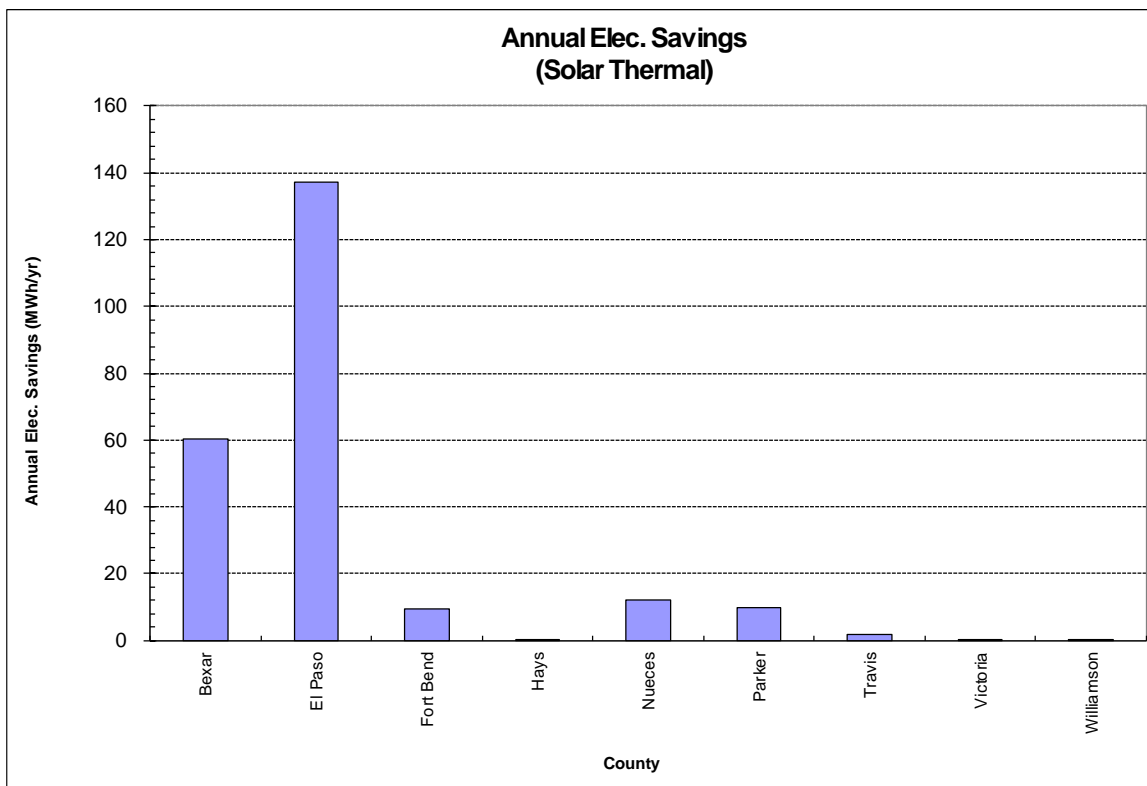


Figure 6-70: Annual Electric Savings per County from Solar Thermal Projects up to 2017

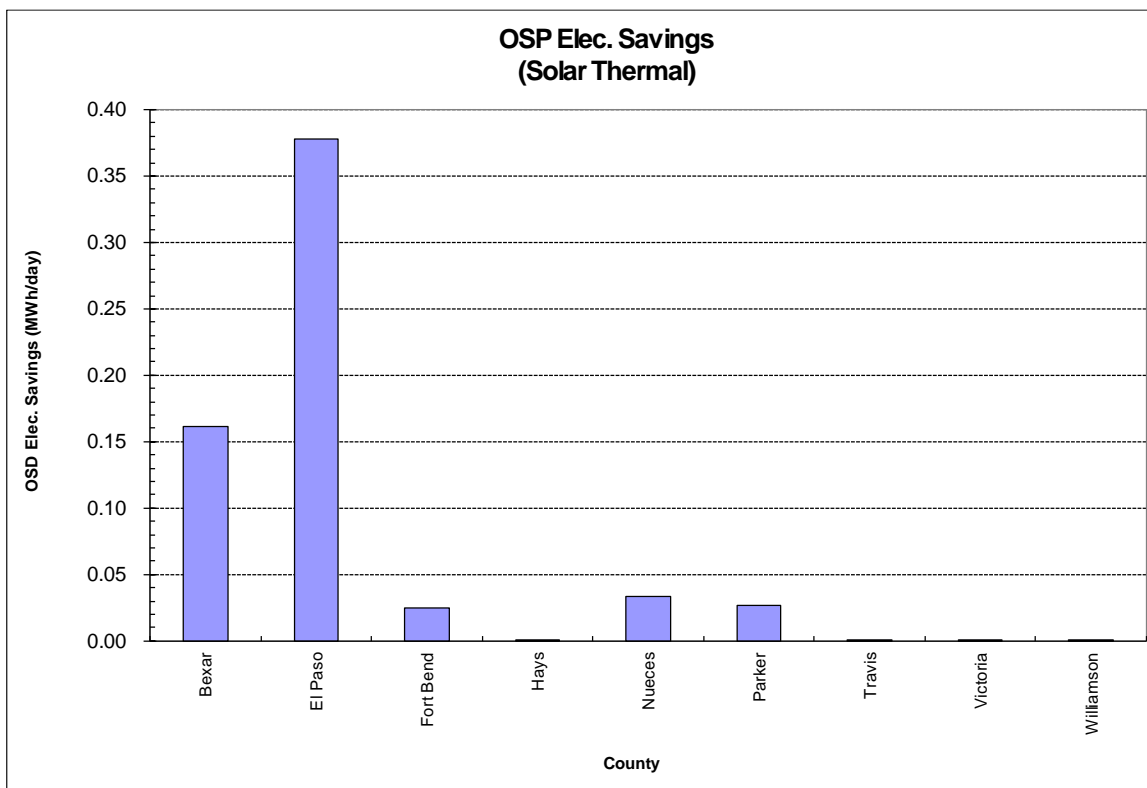


Figure 6-71: Ozone Season Period Electric Savings per County from Solar Thermal Projects up to 2017

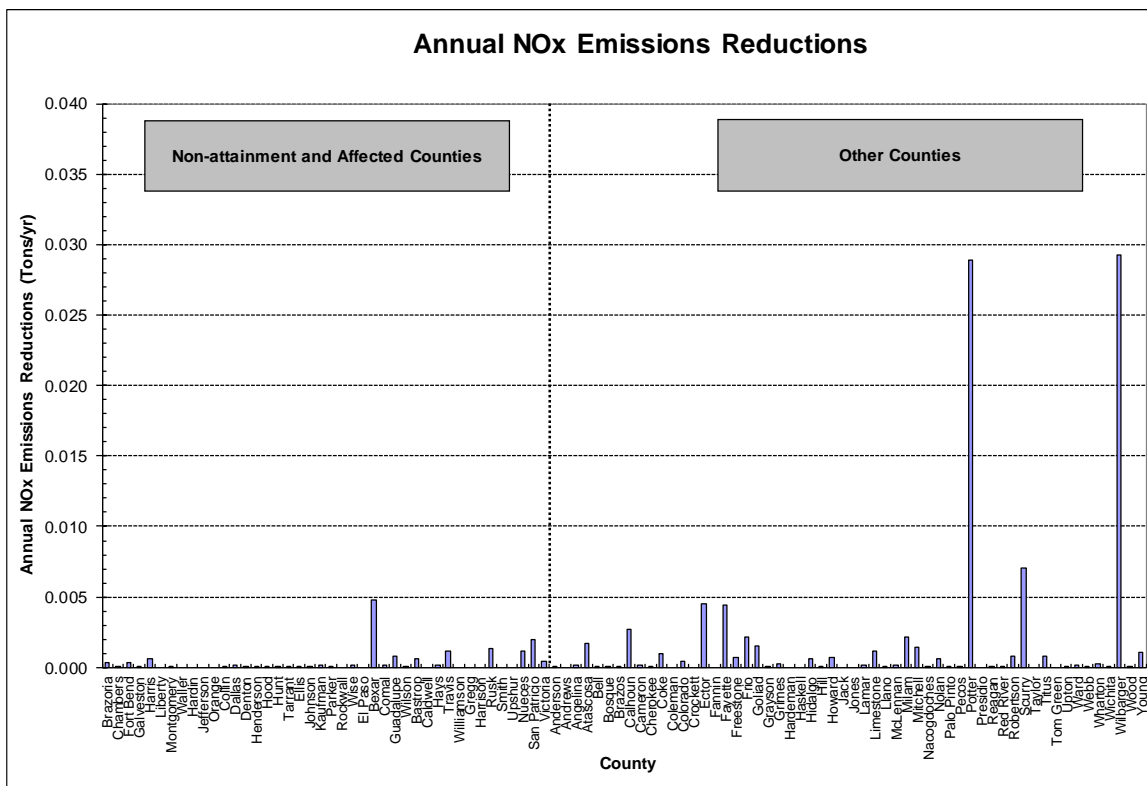


Figure 6-72: NOx Emissions Reductions per County from Solar Thermal Projects up to 2017

### 6.2.3 Biomass

The data from 14 biomass power plants in the State of Texas were obtained. Table 6-4 shows the list of the biomass projects with their names, respective county, year commissioned, the forecast zone they serve, installed capacity and total electricity produced for the year 2017. Figure 6-73 shows the annual electricity generation of the identified biomass projects in the State of Texas. In addition, Figure 6-74 shows the map of number of the biomass projects for each county. The total annual electricity generation from all the biomass projects for the year 2017 was 544,193 MWh/year.

The annual electric savings per county and the OSP electric savings per county, which were estimated from these projects, are presented in Figure 6-75 and in Figure 6-76, respectively.



Table 6-4: Biomass Projects in the State of Texas up to 2017

SNo	Name of the Project	County	Year Commissioned	ERCOT Forecast Zone	Installed Capacity (MW <sub>AC</sub> )	Power Generated in 2017 (MWh/year)
1	AV_DG1	Galveston	2002	Houston	6.7*	26,630
2	DG_78252_4UNITS	Bexar	2013	South	4.2*	19,062
3	DG_BIO2_4UNITS	Denton	2009	North	6.4*	43,095
4	DG_BIOE_2UNITS	Denton	1988	North	6.2*	32,869
5	DG_FERIS_4_UNITS	Dallas	2007	North	6.4*	47,040
6	DG_FREIH_2UNITS	Comal	2011	South	3.2*	24,096
7	DG_HBR_2UNITS	Denton	2011	North	6.0*	24,732
8	DG_MEDIN_1UNIT	Bexar	2005	South	9.6*	58,595
9	DG_S_SNR_UNIT1	Cameron	1973	South	4.5**	1,634
10	DG_SPRIN_4UNITS	Travis	2007	South	6.4*	41,300
11	DG_WALZE_4UNITS	Bexar	2002	South	9.8*	57,970
12	DG_WSTHL_3UNITS	Parker	2010	North	4.8*	32,775
13	HB_DG1	Harris	2002	Houston	10.0*	44,704
14	NACPW_UNIT1	Nacogdoches	2012	North	105.0*	89,690
<b>Total</b>					<b>189</b>	<b>544,193</b>

\* CapacityDemandandReserveReport-May2018.xls from the webpage of the ERCOT (<http://www.ercot.com/gridinfo/resource/index.html>)

\*\* Winter\_2013-2014\_Final\_Seasonal\_Assessment.xls from the webpage of the ERCOT Reports and Presentations (<http://www.ercot.com/news/presentations>)

\*\*\* ML111290898.pdf from the webpage of the U.S. Nuclear Regulatory Commission (<http://pbadupws.nrc.gov/docs/ML1112/ML111290898.pdf>)

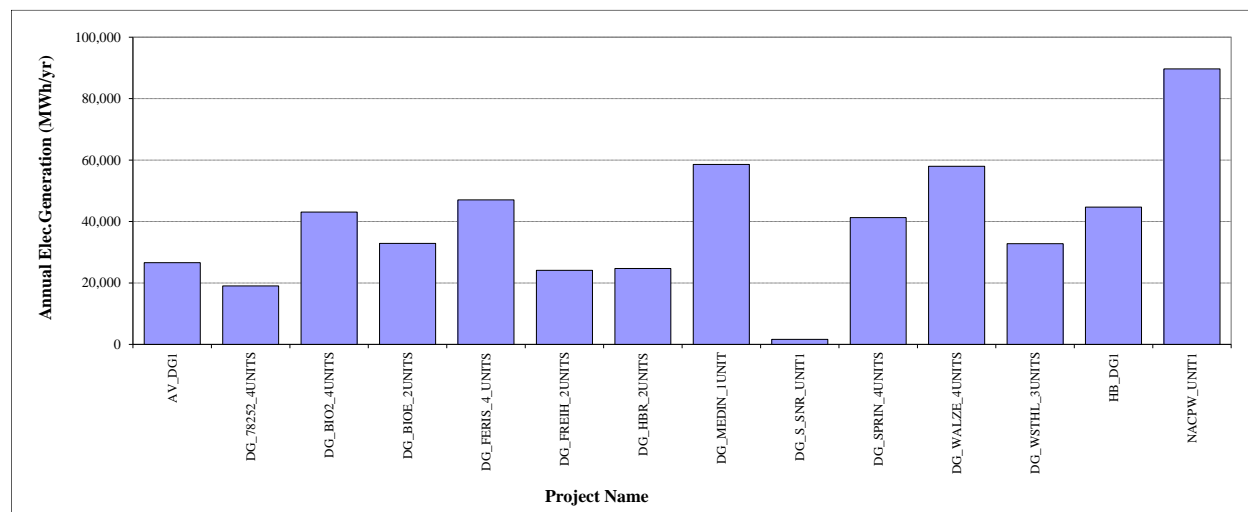
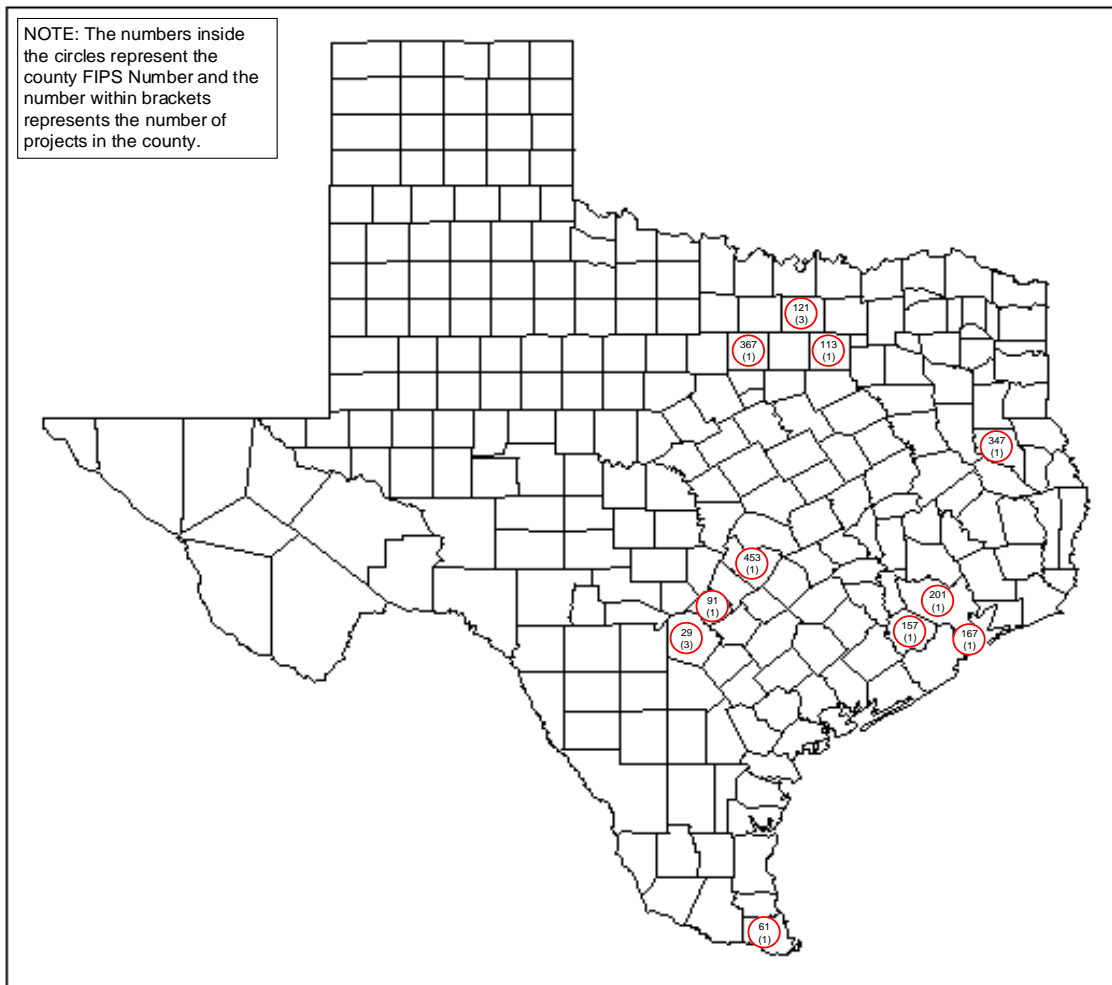


Figure 6-73: Annual Electricity Generation by Biomass Projects in the State of Texas up to 2017



Legend

County	FIPS Code	No. of Projects
Bexar	29	3
Cameron	61	1
Comal	91	1
Dallas	113	1
Denton	121	3
Galveston	167	1
Harris	201	1
Nacogdoches	347	1
Parker	367	1
Travis	453	1

Figure 6-74: Biomass Projects throughout Texas up to 2017

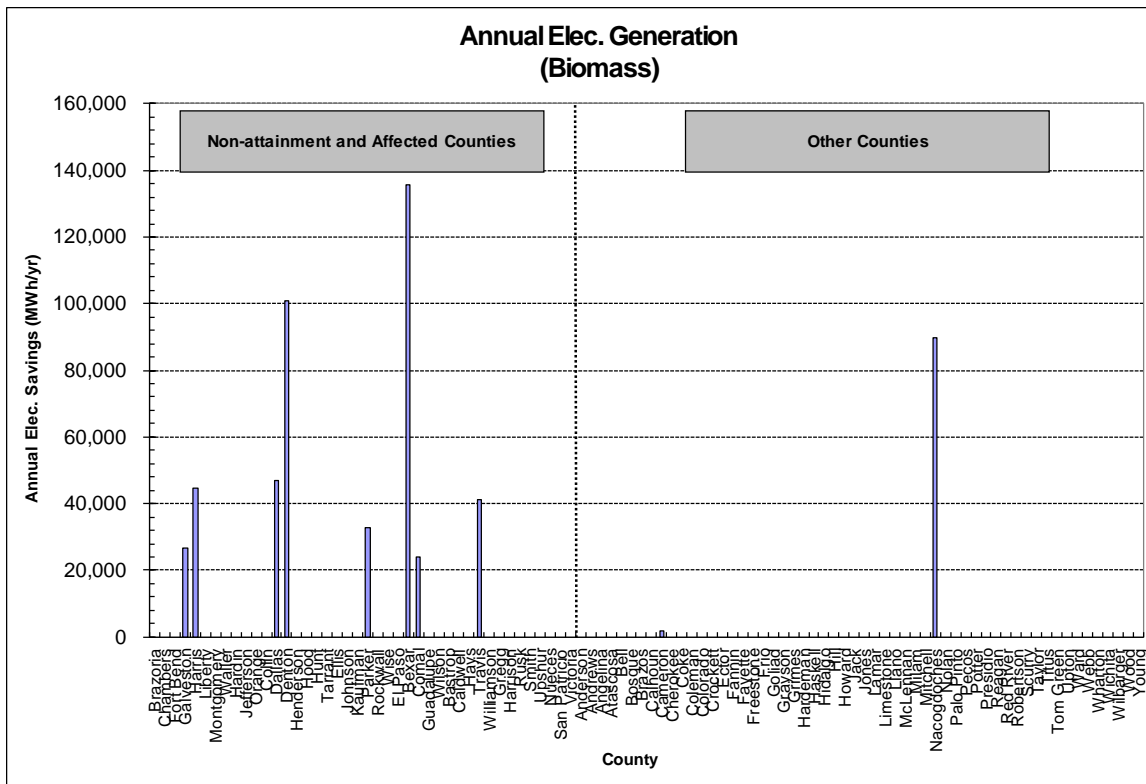


Figure 6-75: Annual Electric Savings per County from Biomass Projects up to 2017

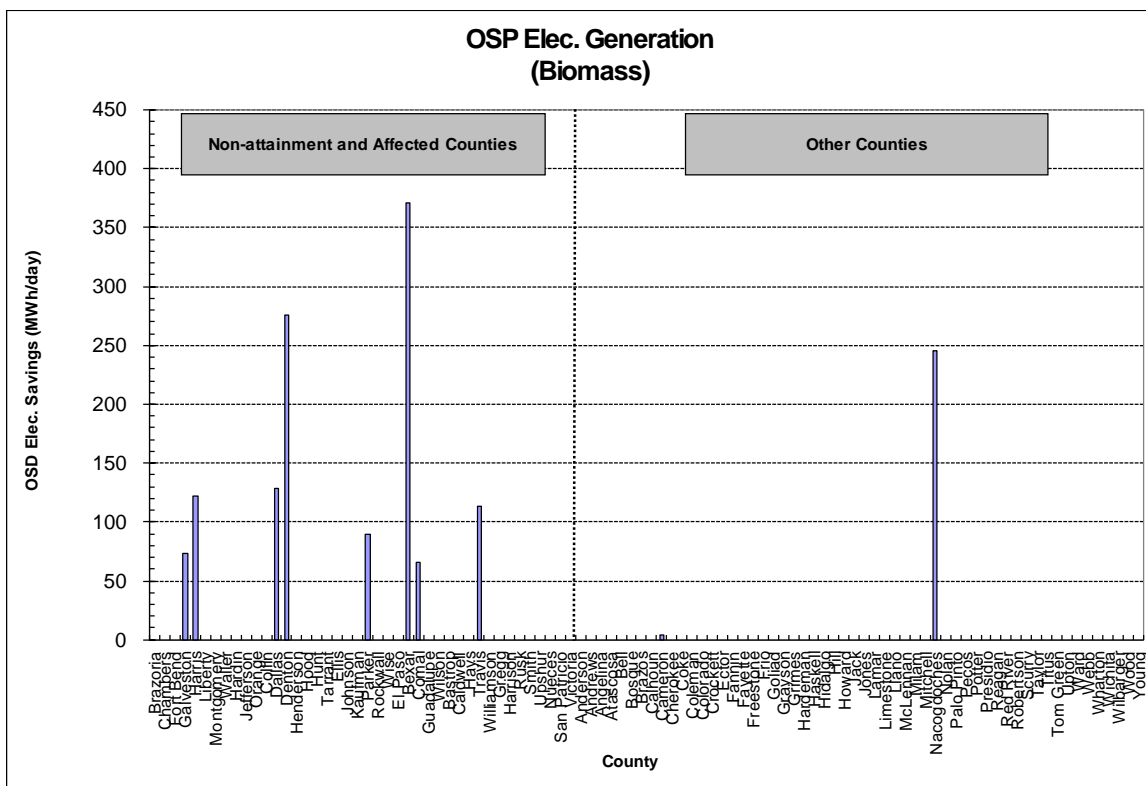


Figure 6-76: Ozone Season Period Electric Savings per County from Biomass Projects up to 2017

### 6.2.3.1 AV\_DG1

The Biomass power project AV\_DG1 was in operation throughout the year. Figure 6-77 shows hourly electricity generation profile and Figure 6-78 shows daily total generation profile for the year 2017.

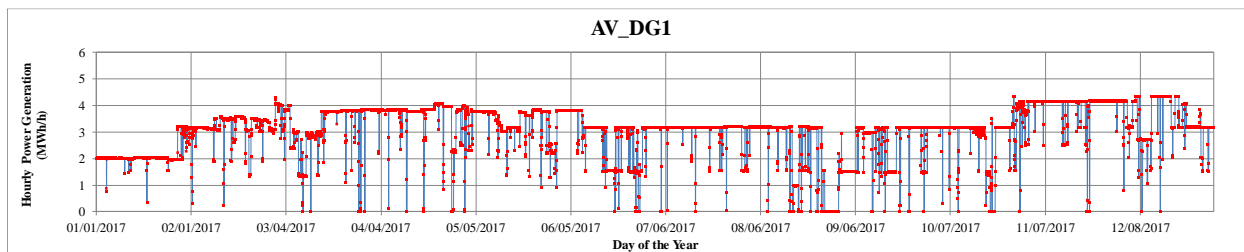


Figure 6-77: Hourly Electricity Generation Profile for Biomass Project AV\_DG1

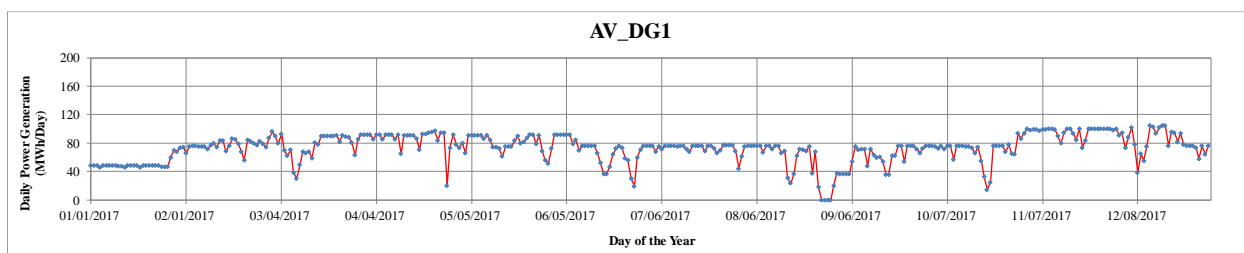


Figure 6-78: Daily Total Electricity Generation Profile for Biomass Project AV\_DG1

### 6.2.3.2 DG\_78252\_4UNITS

The Biomass power project DG\_78252\_4UNITS was in operation throughout the year. Figure 6-79 shows hourly electricity generation profile and Figure 6-80 shows daily total generation profile for the year 2017.

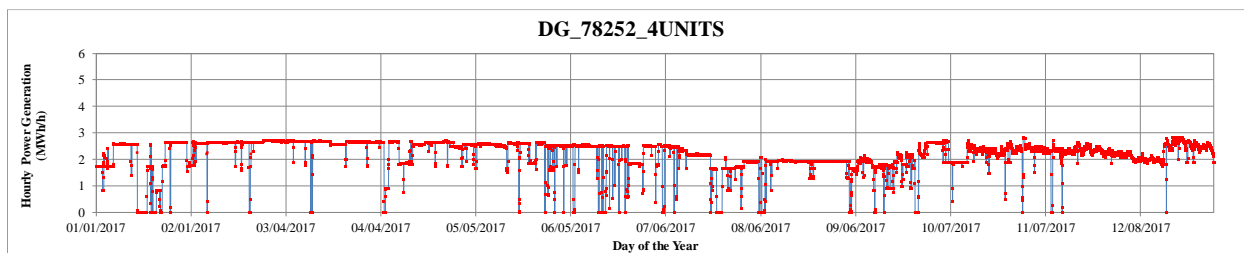


Figure 6-79: Hourly Electricity Generation Profile for Biomass Project DG\_78252\_4UNITS

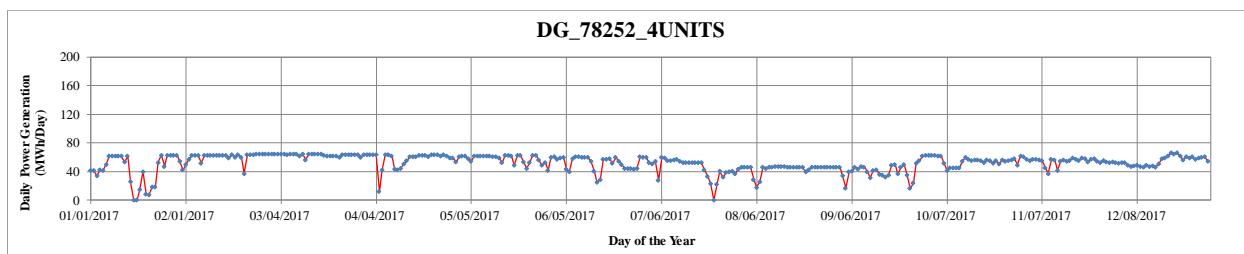


Figure 6-80: Daily Total Electricity Generation Profile for Biomass Project DG\_78252\_4UNITS

### 6.2.3.4 DG\_BIO2\_4UNITS

The Biomass power project DG\_BIO2\_UNITS was in operation throughout the year. Figure 6-81 shows hourly electricity generation profile and Figure 6-82 shows daily total generation profile for the year 2017.

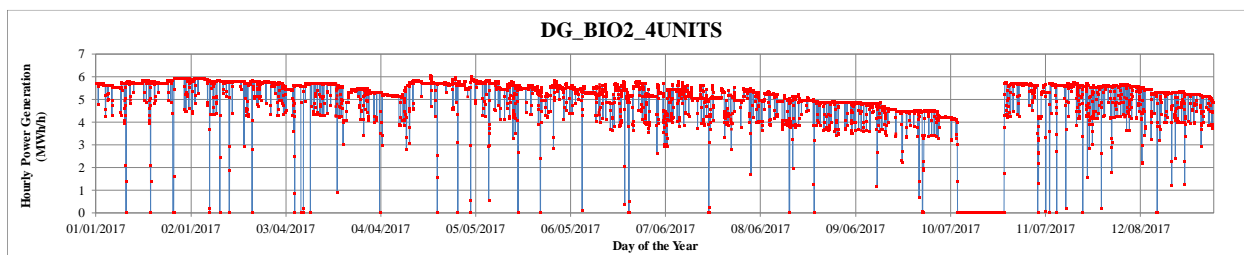


Figure 6-81: Hourly Electricity Generation Profile for Biomass Project DG\_BIO2\_4UNITS

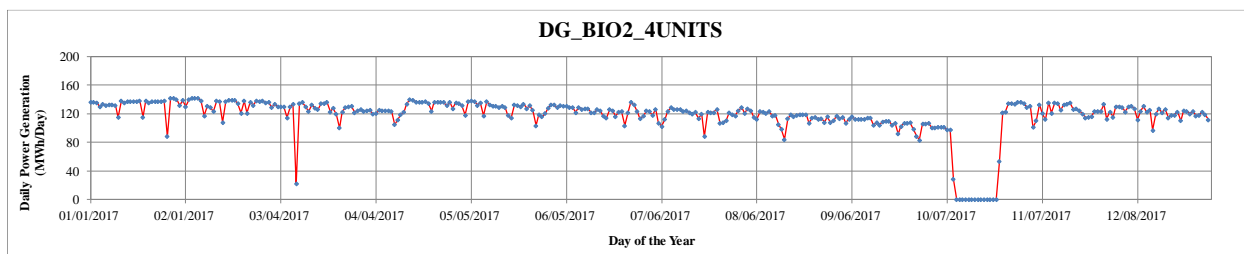


Figure 6-82: Daily Total Electricity Generation Profile for Biomass Project DG\_BIO2\_4UNITS

### 6.2.3.5 DG\_BIOE\_2UNITS

The Biomass power project DG\_BIOE\_2UNITS was in operation throughout the year. Figure 6-83 shows hourly electricity generation profile and Figure 6-84 shows daily total generation profile for the year 2017.

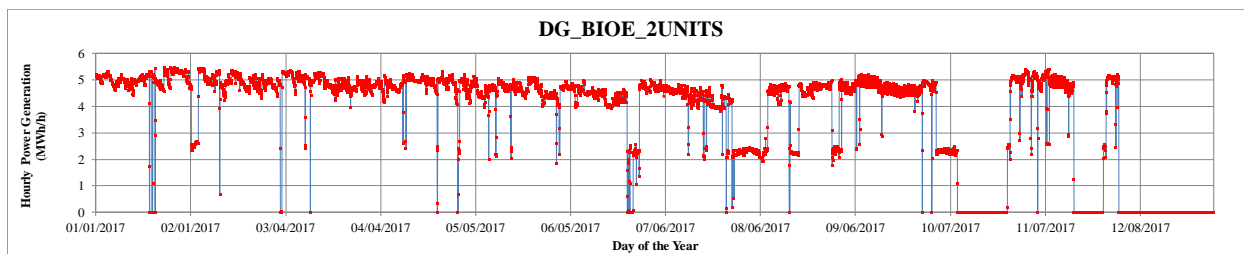


Figure 6-83: Hourly Electricity Generation Profile for Biomass Project DG\_BIOE\_2UNITS

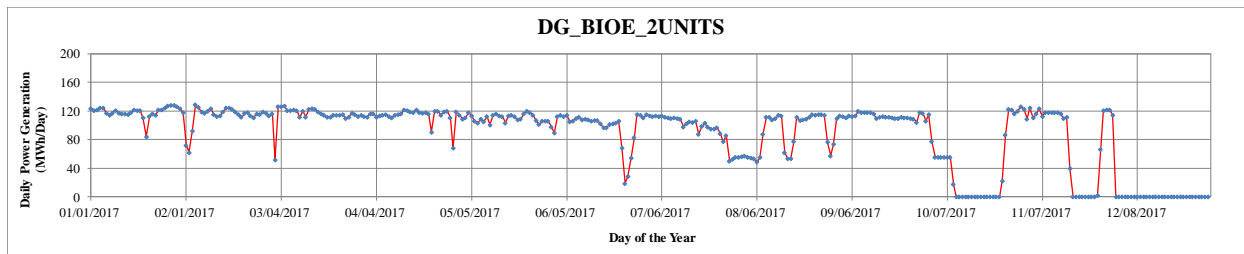


Figure 6-84: Daily Total Electricity Generation Profile for Biomass Project DG\_BIOE\_2UNITS

### 6.2.3.6 DG\_FERIS\_4\_UNITS

The Biomass power project DG\_FERIS\_4\_UNITS was in continuous operation throughout the year. Figure 6-85 shows hourly electricity generation profile and Figure 6-86 shows daily total generation profile for the year 2017.

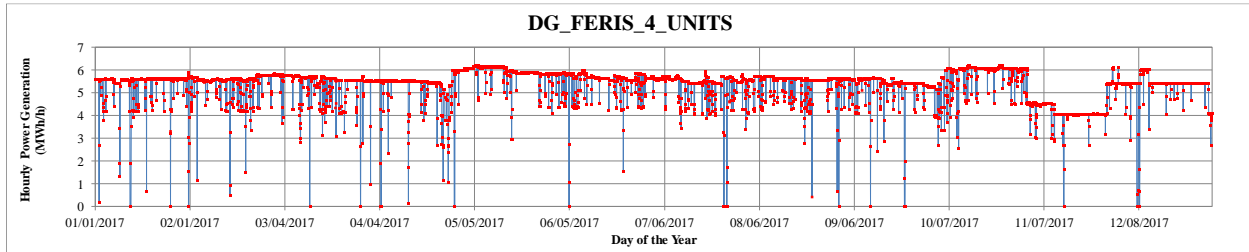


Figure 6-85: Hourly Electricity Generation Profile for Biomass Project DG\_FERIS\_4\_UNITS

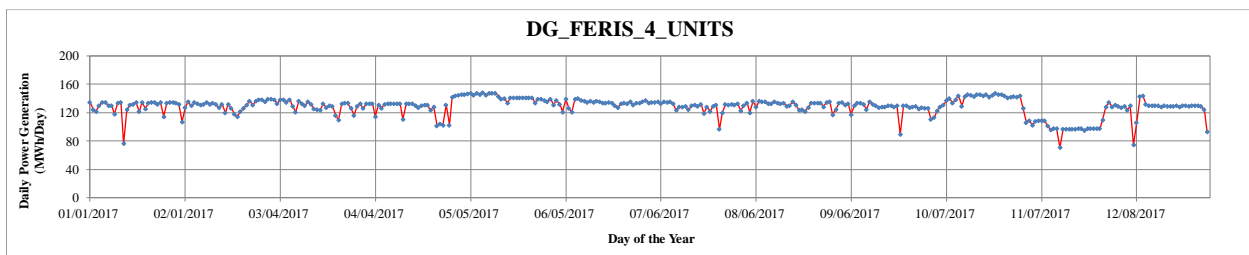


Figure 6-86: Daily Total Electricity Generation Profile for Biomass Project DG\_FERIS\_4\_UNITS

### 6.2.3.7 DG\_FREIH\_2UNITS

The Biomass power project DG\_FREIH\_2UNITS was mostly operated throughout the entire year. Figure 6-87 shows hourly electricity generation profile and Figure 6-88 shows daily total generation profile for the year 2017.

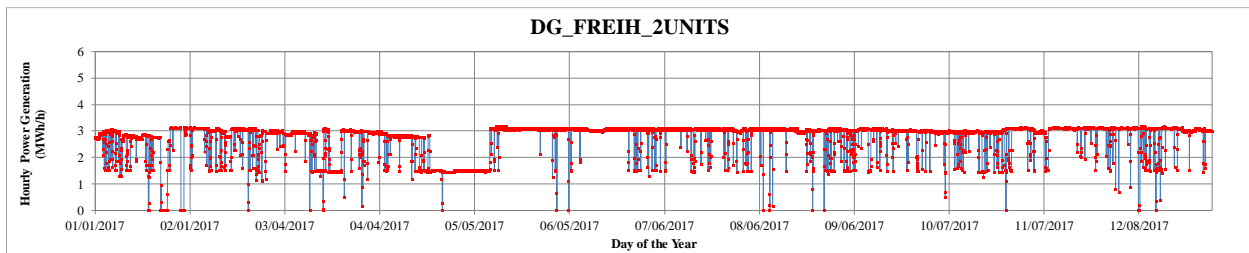


Figure 6-87: Hourly Electricity Generation Profile for Biomass Project DG\_FREIH\_2UNITS

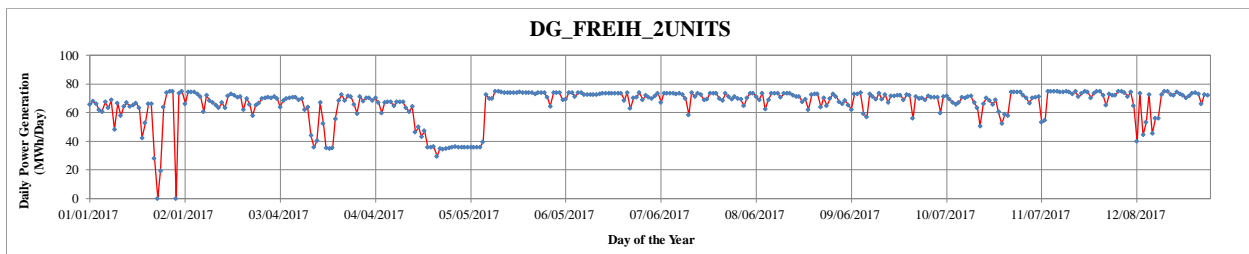


Figure 6-88: Daily Total Electricity Generation Profile for Biomass Project DG\_FREIH\_2UNITS

### 6.2.3.8 DG\_HBR\_2UNITS

The Biomass power project DG\_HBR\_2UNITS was in operation throughout the year. Figure 6-89 shows hourly electricity generation profile and Figure 6-90 shows daily total generation profile for the year 2017.

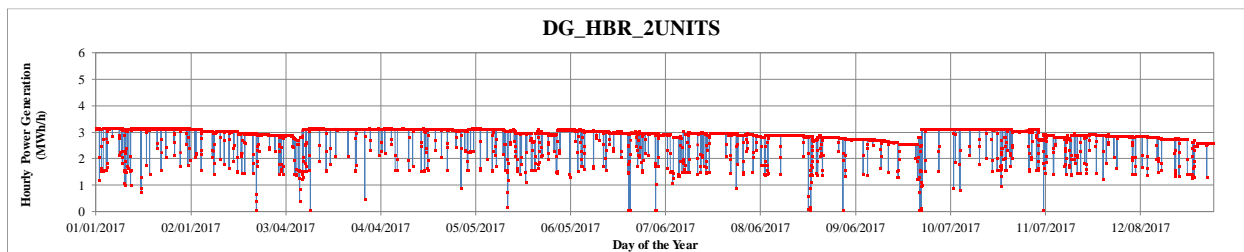


Figure 6-89: Hourly Electricity Generation Profile for Biomass Project DG\_HBR\_2UNITS

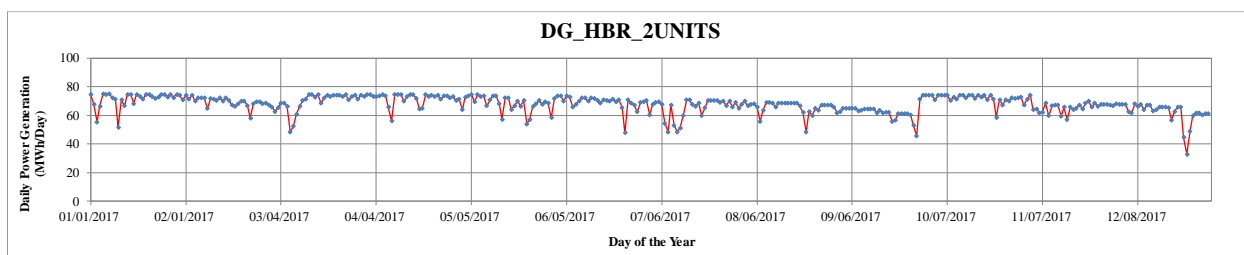


Figure 6-90: Daily Total Electricity Generation Profile for Biomass Project DG\_HBR\_2UNITS

### 6.2.3.9 DG\_MEDIN\_1UNIT

The Biomass power project DG\_MEDIN\_1UNIT was in operation throughout the year. Figure 6-91 shows hourly electricity generation profile and Figure 6-92 shows daily total generation profile for the year 2017.

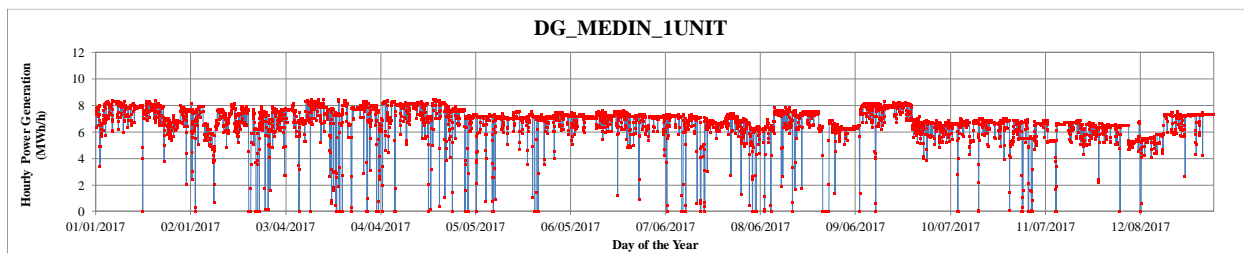


Figure 6-91: Hourly Electricity Generation Profile for Biomass Project DG\_MEDIN\_1UNIT

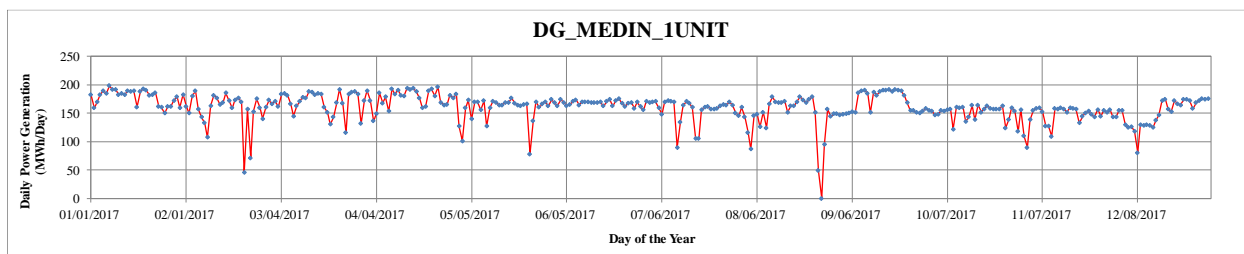


Figure 6-92: Daily Total Electricity Generation Profile for Biomass Project DG\_MEDIN\_1UNIT

### 6.2.3.10 DG\_S\_SNR\_UNIT1

The Biomass power project DG\_S\_SNR\_UNIT1 for majority of the time during the year did not have power generation except for few days occurring in different months. Figure 6-93 shows hourly electricity generation profile and Figure 6-94 shows daily total generation profile for the year 2017.

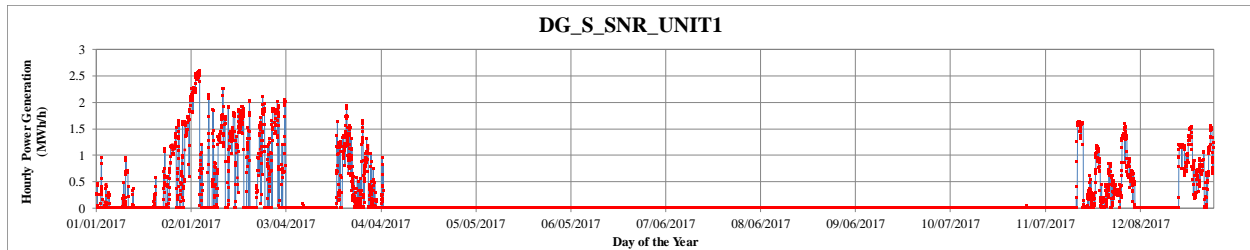


Figure 6-93: Hourly Electricity Generation Profile for Biomass Project DG\_S\_SNR\_UNIT1

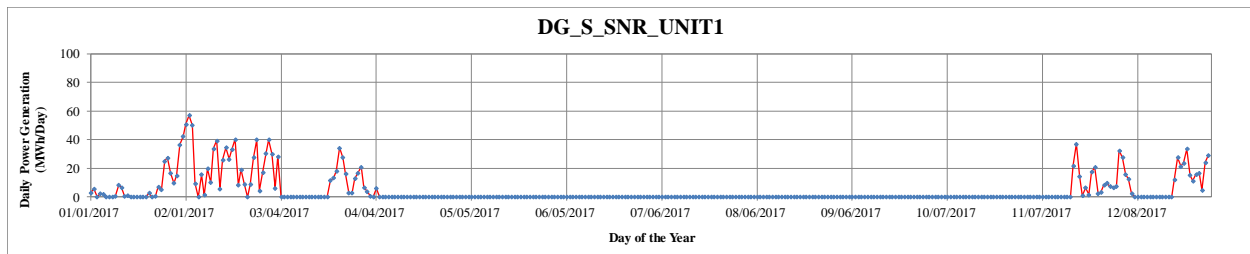


Figure 6-94: Daily Total Electricity Generation Profile for Biomass Project DG\_S\_SNR\_UNIT1

### 6.2.3.11 DG\_SPRIN\_4UNITS

The Biomass power project DG\_SPRIN\_4UNITS was in operation throughout the year. Figure 6-95 shows hourly electricity generation profile and Figure 6-96 shows daily total generation profile for the year 2017.

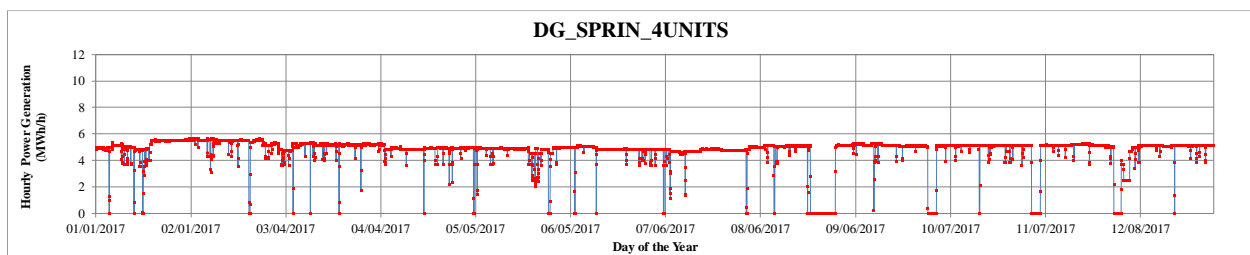


Figure 6-95: Hourly Electricity Generation Profile for Biomass Project DG\_SPRIN\_4UNITS

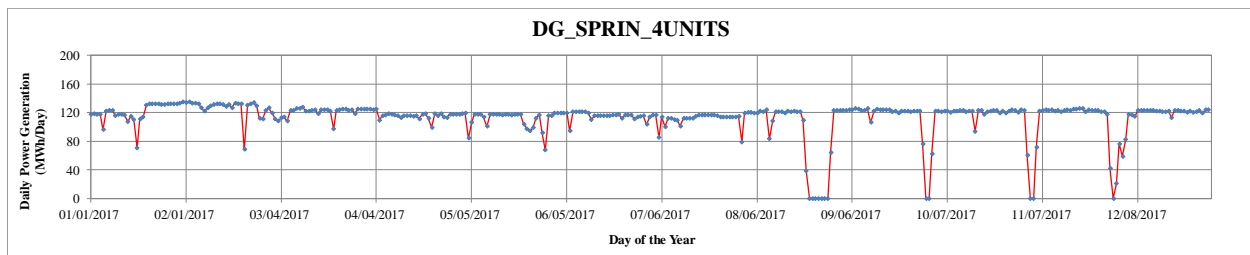


Figure 6-96: Daily Total Electricity Generation Profile for Biomass Project DG\_SPRIN\_4UNITS



### 6.2.3.12 DG\_WALZE\_4UNITS

The Biomass power project DG\_WALZE\_4UNITS was in continuous operation throughout the entire year. Figure 6-97 shows hourly electricity generation profile and Figure 6-98 shows daily total generation profile for the year 2017.

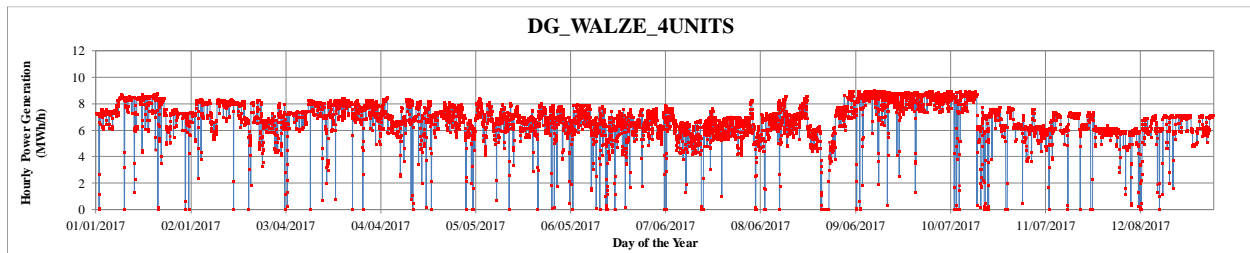


Figure 6-97: Hourly Electricity Generation Profile for Biomass Project DG\_WALZE\_4UNITS

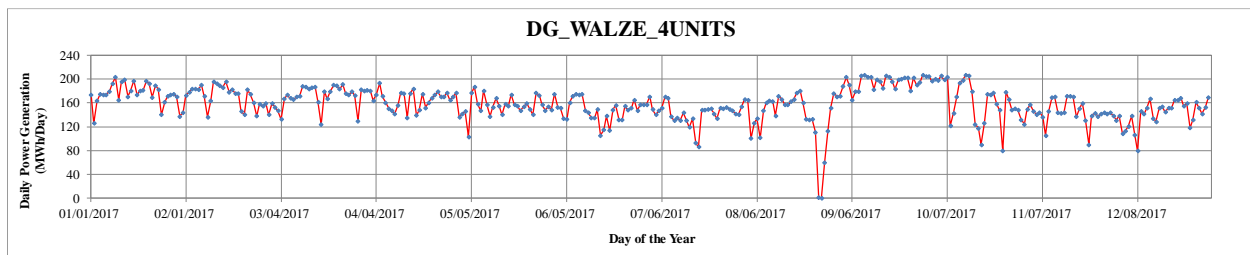


Figure 6-98: Daily Total Electricity Generation Profile for Biomass Project DG\_WALZE\_4UNITS

### 6.2.3.13 DG\_WSTHL\_3UNITS

The Biomass power project DG\_WSTHL\_3UNITS was in operation throughout the entire year. Two levels of power generation were observed throughout the year. Figure 6-99 shows hourly electricity generation profile and Figure 6-100 shows daily total generation profile for the year 2017.

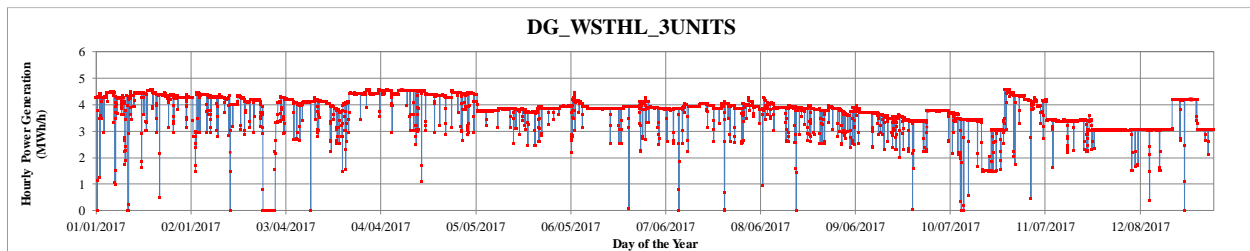


Figure 6-99: Hourly Electricity Generation Profile for Biomass Project DG\_WSTHL\_3UNITS

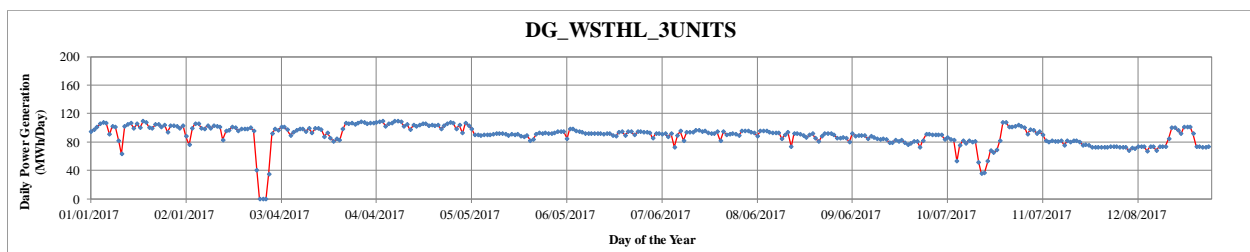


Figure 6-100: Daily Total Electricity Generation Profile for Biomass Project DG\_WSTHL\_3UNITS

### 6.2.3.14 HB\_DG1

The Biomass power project HB\_DG1 was in operation throughout the entire year. Figure 6-101 shows hourly electricity generation profile and Figure 6-102 shows daily total generation profile for the year 2017.

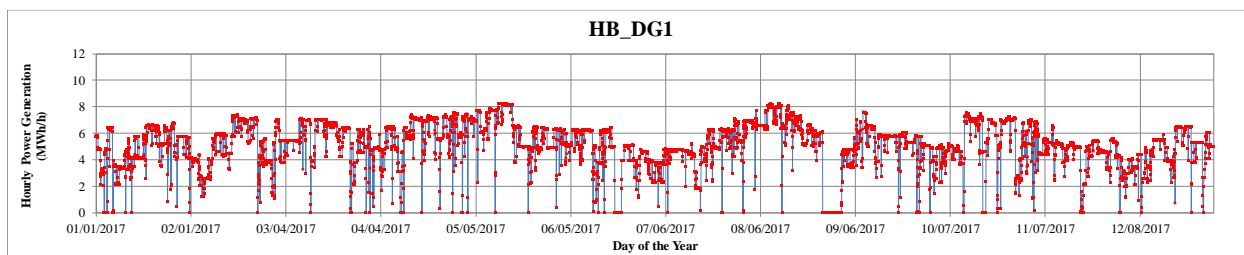


Figure 6-101: Hourly Electricity Generation Profile for Biomass Project HB\_DG1

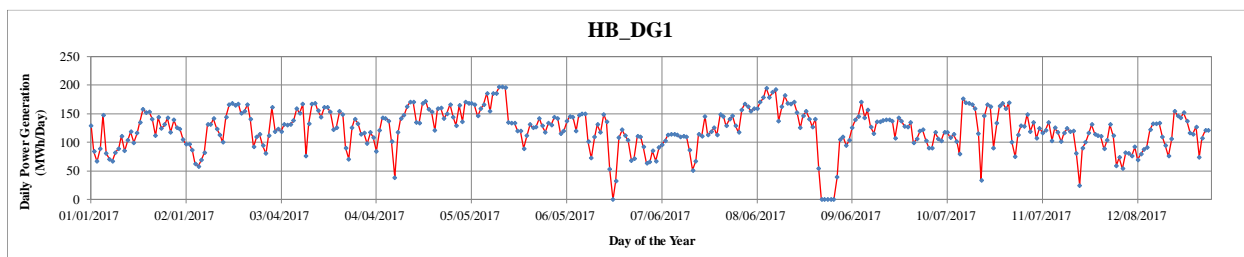


Figure 6-102: Daily Total Electricity Generation Profile for Biomass Project HB\_DG1

### 6.2.3.15 NACPW\_UNIT1

The Biomass power project NACPW\_UNIT1 was in operation throughout the year. Figure 6-103 shows hourly electricity generation profile and Figure 6-104 shows daily total generation profile for the year 2017.

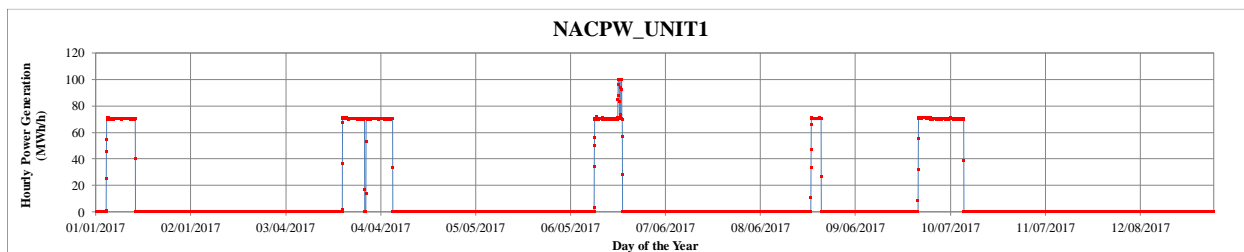


Figure 6-103: Hourly Electricity Generation Profile for Biomass Project NACPW\_UNIT1

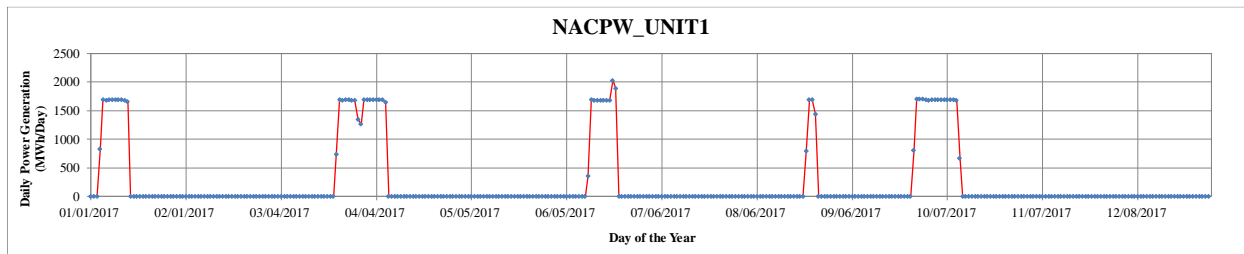


Figure 6-104: Daily Total Electricity Generation Profile for Biomass Project NACPW\_UNIT1

#### 6.2.4 Hydroelectric

The data from 29 hydroelectric power plants in the State of Texas were obtained. Table 6-5 shows the list of hydroelectric projects with their names, respective county, year commissioned, the forecast zone they serve, installed capacity and total electricity produced for the year 2017. Figure 6-105 shows the annual electricity generation of the identified hydroelectric projects in the State of Texas. In addition, Figure 6-106 shows the map of number of the hydroelectric projects for each county. The total annual electricity generation from all the hydroelectric plants for the year 2017 was 855,842 MWh/year. Based on the power generation data from the hydroelectric power plants, one significant pattern was observed. Most of the hydroelectric plants were intermittently operated for few hours of the day.

The annual electric savings per county and the OSP electric savings per county, which were estimated from these projects, are presented in Figure 6-107 and in Figure 6-108, respectively. In addition, the corresponding annual NO<sub>x</sub> emission reductions are shown in Figure 6-109. It should be noted that 11 hydroelectric power plants (i.e., AMISTAD\_AMISTAG1, AMISTAD\_AMISTAG2, DG\_LKWDT\_2UNITS, EAGLE\_HY\_EAGLE\_HY1, FALCON\_FALCONG1, FALCON\_FALCONG2, FALCON\_FALCONG3, MARBFA\_MARBFAG1, MARBFA\_MARBFAG2, WIRTZ\_WIRTZ\_G1, and WIRTZ\_WIRTZ\_G2) were excluded for estimating the annual/OSD electric savings and the NO<sub>x</sub> emission reductions using the eGrid since these plants are located in the Burnet, Gonzales, Maverick, Starr, and Val Verde counties which are not included in the list of the eGrid counties.

Table 6-5: Hydroelectricity Power Projects in the State of Texas up to 2017

SNo	Name of the Project	County	Year Commissioned	ERCOT Forcast Zone	Installed Capacity (MW <sub>AC</sub> )	Power Generated in 2017 (MWh/year)
1	AMISTAD_AMISTAG1	Val Verde	1983	South	37.9	74,711
2	AMISTAD_AMISTAG2	Val Verde	1983	South	37.9	77,087
3	AUSTPL_AUSTING1	Travis	1940	South	8.0	4,378
4	AUSTPL_AUSTING2	Travis	1940	South	9.0	19,650
5	BUCHAN_BUCHANG1	Llano	1938	South	16.0	9,524
6	BUCHAN_BUCHANG2	Llano	1938	South	16.0	7,920
7	BUCHAN_BUCHANG3	Llano	1950	South	17.0	2,209
8	CANYHY_CANYHYG1	Comal	1989	South	6.0	13,489
9	DG_LKWDT_2UNITS	Gonzales	1931	South	4.8	9,210
10	DG_LWSVL_1UNIT	Denton	1991	North	2.2	8,186
11	DG_MCQUE_5UNITS	Guadalupe	1928	South	7.7	27,868
12	DG_OAKHL_1UNIT	Tarrant	2014	North	1.4	1,588
13	DG_SCHUM_2UNITS	Guadalupe	1928	South	3.6	15,938
14	DNDAM_DENISOG1	Grayson	1944	North	40.0	131,241
15	DNDAM_DENISOG2	Grayson	1948	North	40.0	171,247
16	EAGLE_HY_EAGLE_HY1	Maverick	2005	South	9.6	41,236
17	FALCON_FALCONG1	Starr	1954	South	12.0	19,924
18	FALCON_FALCONG2	Starr	1954	South	12.0	26,509
19	FALCON_FALCONG3	Starr	1954	South	12.0	26,217
20	INKSDA_INKS_G1	Llano	1938	South	14.0	9,430
21	MARBFA_MARBFAG1	Burnet	1951	South	21.0	5,966
22	MARBFA_MARBFAG2	Burnet	1951	South	20.0	8,380
23	MARSFO_MARSFOG1	Travis	1941	South	36.0	15,946
24	MARSFO_MARSFOG2	Travis	1941	South	36.0	11,416
25	MARSFO_MARSFOG3	Travis	1941	South	29.0	62,215
26	WIRTZ_WIRTZ_G1	Burnet	1951	South	29.0	10,474
27	WIRTZ_WIRTZ_G2	Burnet	1951	South	29.0	11,060
28	WND_WHITNEY1	Bosque	1953	North	20.0	15,849
29	WND_WHITNEY2	Bosque	1953	North	15.0	16,974
<b>Total</b>					<b>542</b>	<b>855,842</b>

\* SARA\_PreliminaryFall2017.pdf from the webpage of the ERCOT  
 (http://www.ercot.com/content/gridinfo/resource/2016/adequacy/sara/SARA-FinalSpring2017.pdf)

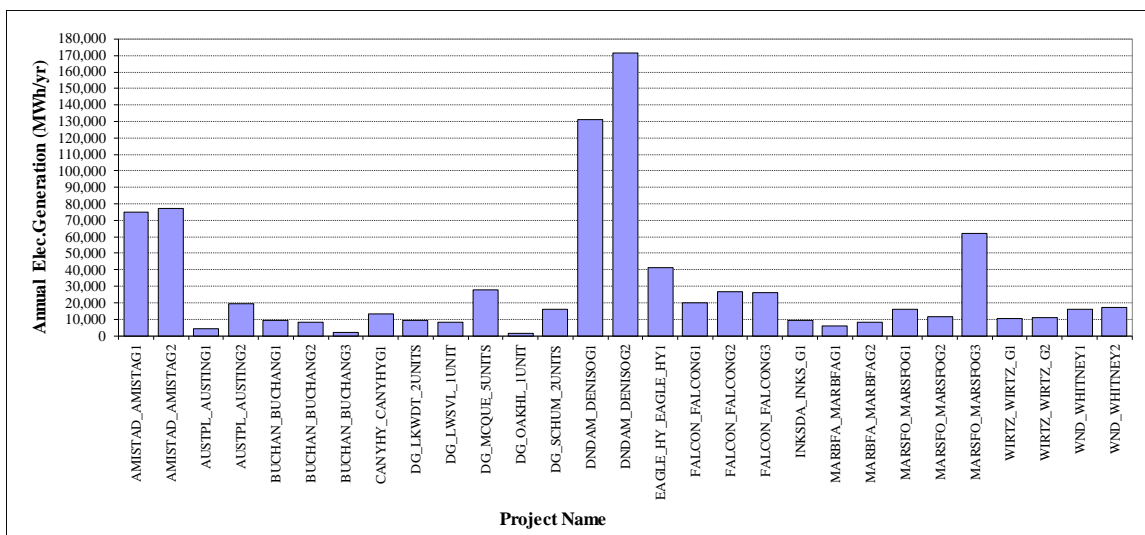
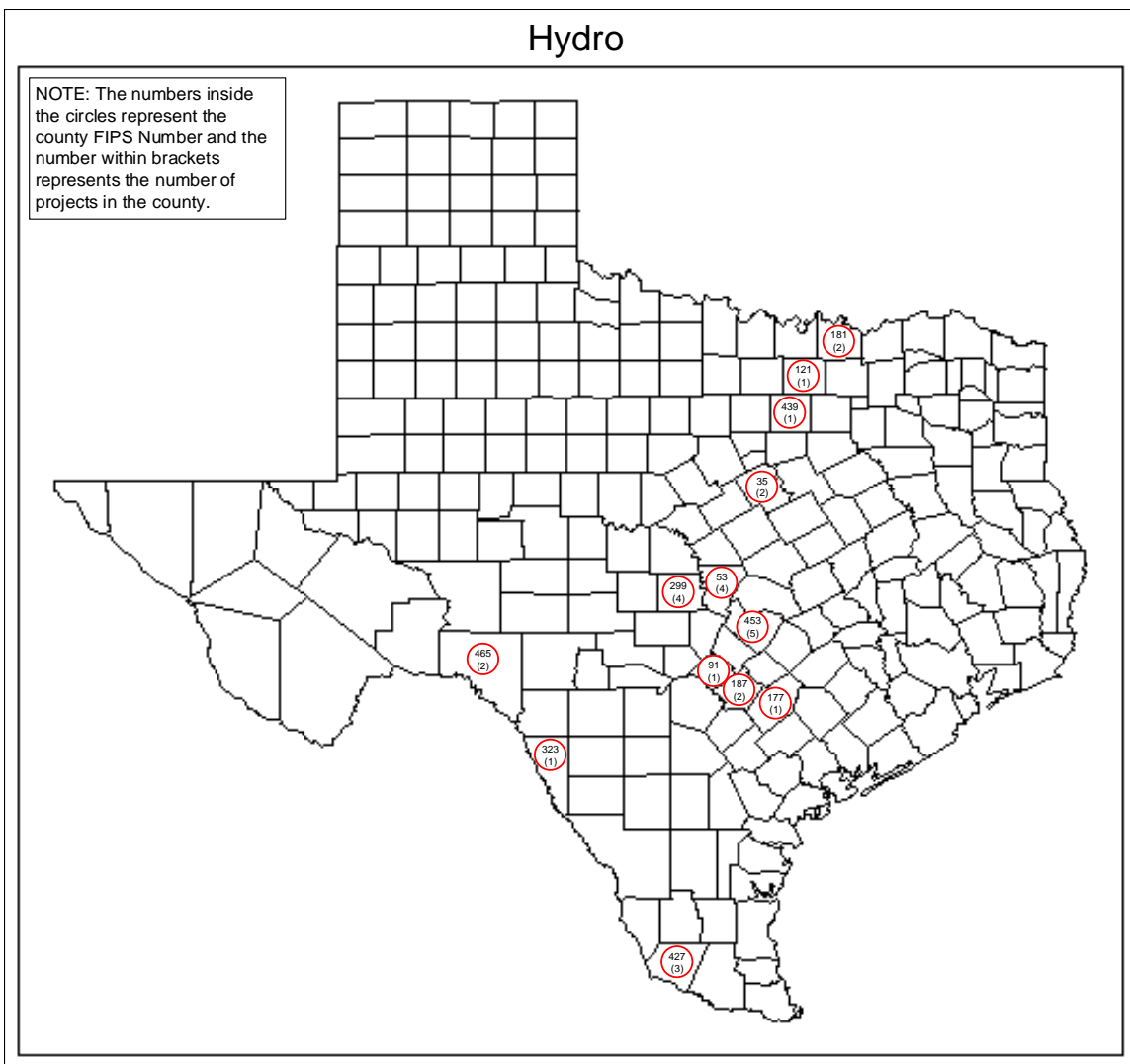


Figure 6-105: Annual Electricity Generation by Hydroelectric Projects in the State of Texas up to 2017



Legend

County	FIPS Code	No. of Projects
Bosque	35	2
Burnet	53	4
Comal	91	1
Denton	121	1
Gonzales	177	1
Grayson	181	2
Guadalupe	187	2
Llano	299	4
Maverick	323	1
Starr	427	3
Tarrant	439	1
Travis	453	5
Val Verde	465	2

Figure 6-106: Hydroelectric Projects throughout Texas up to 2017



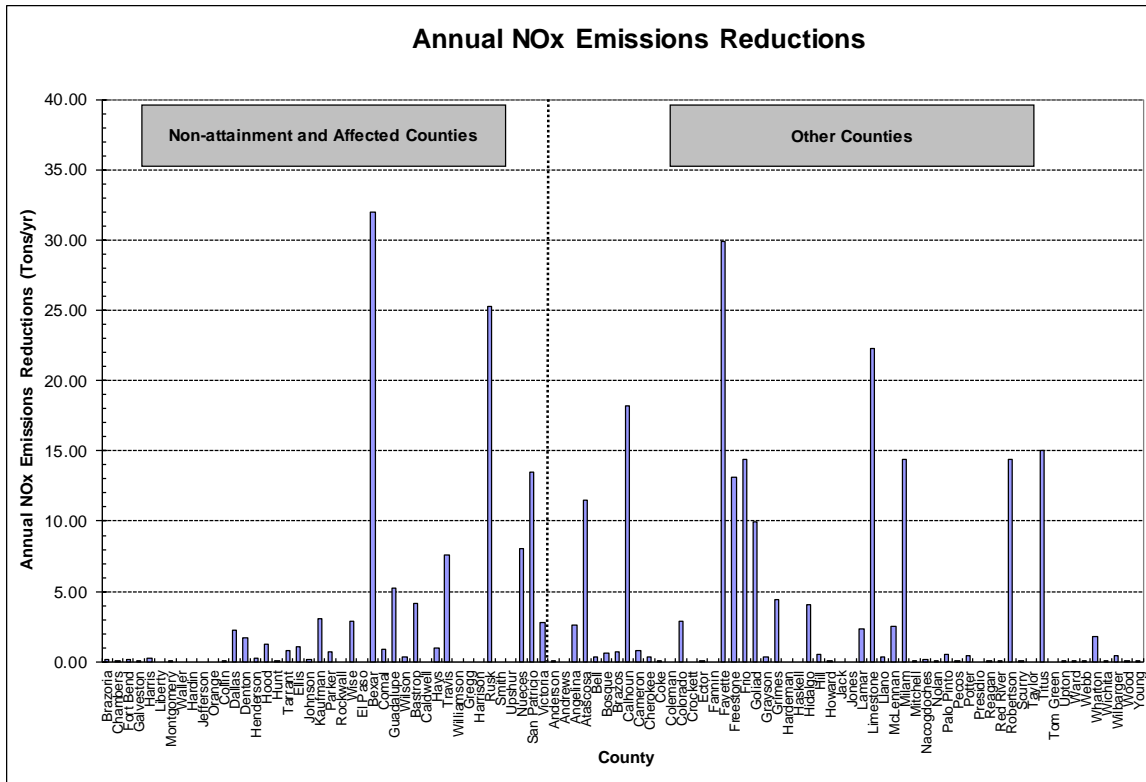


Figure 6-109: NOx Emissions Reductions per County from Hydroelectric Projects up to 2017

6.2.4.1 AMISTAD\_AMISTAG1

The hydro power project AMISTAD\_AMISTAG1, was in operation for majority of the time during the year except several days in every month. Figure 6-110 shows hourly electricity generation profile. Figure 6-111 shows daily total generation profile for the year 2017.

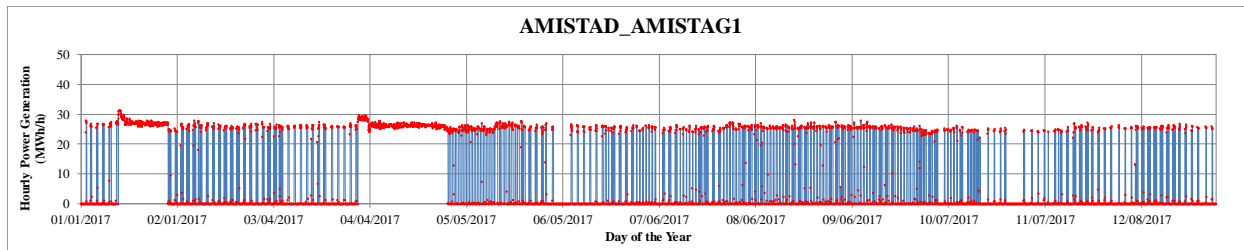


Figure 6-110: Hourly Electricity Generation Profile for Hydroelectric Project AMISTAD\_AMISTAG1

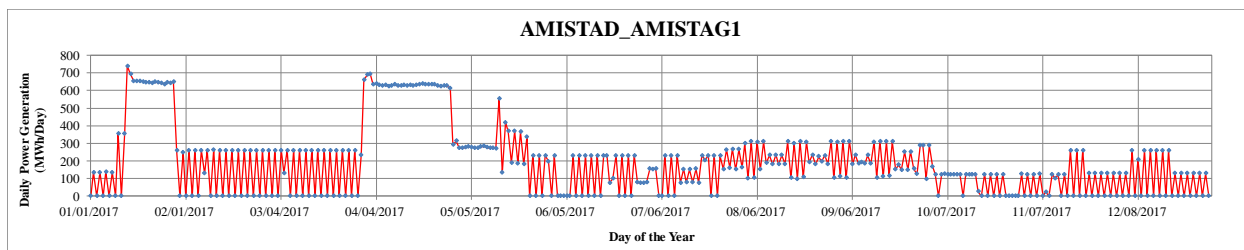


Figure 6-111: Daily Total Electricity Generation Profile for Hydroelectric Project AMISTAD\_AMISTAG1

### 6.2.4.2 AMISTAD\_AMISTAG2

The hydro power project AMISTAD\_AMISTAG2, was also in operation for majority of the time during the year except several days in every month. Figure 6-112 shows hourly electricity generation profile. Figure 6-113 shows daily total generation profile for the year 2017.

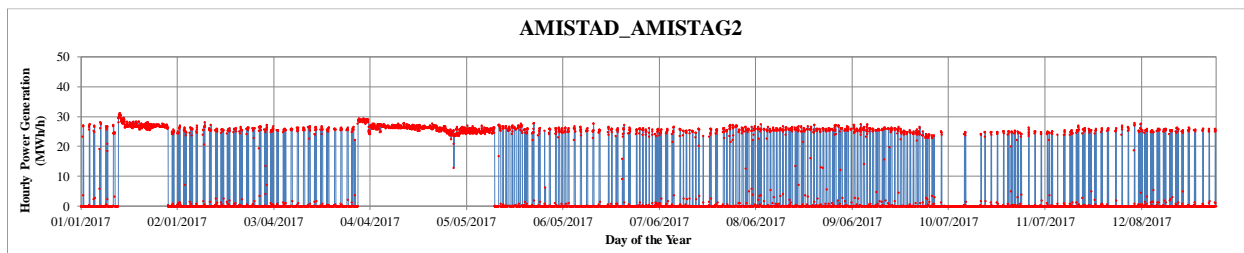


Figure 6-112: Hourly Electricity Generation Profile for Hydroelectric Project AMISTAD\_AMISTAG2

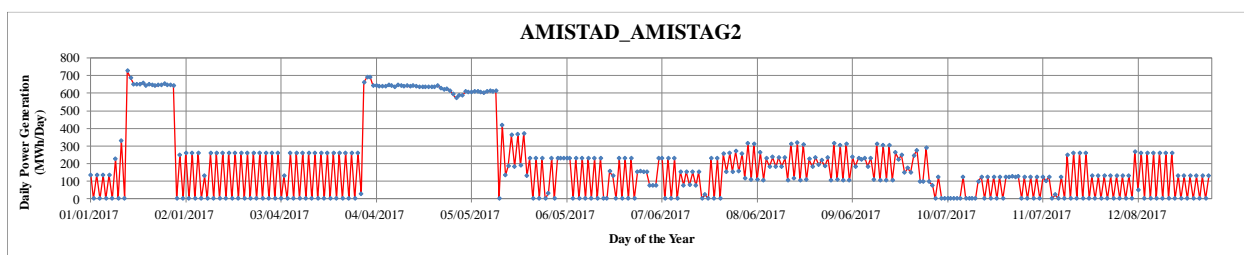


Figure 6-113: Daily Total Electricity Generation Profile for Hydroelectric Project AMISTAD\_AMISTAG2

### 6.2.4.3 AUSTPL\_AUSTING1

The hydro power project AUSTPL\_AUSTING1 was not operated for most of the year excluding a few days. Most power was generated during the months of January, February, and April. Figure 6-114 shows hourly electricity generation profile. Figure 6-115 shows daily total generation profile for the year 2017.

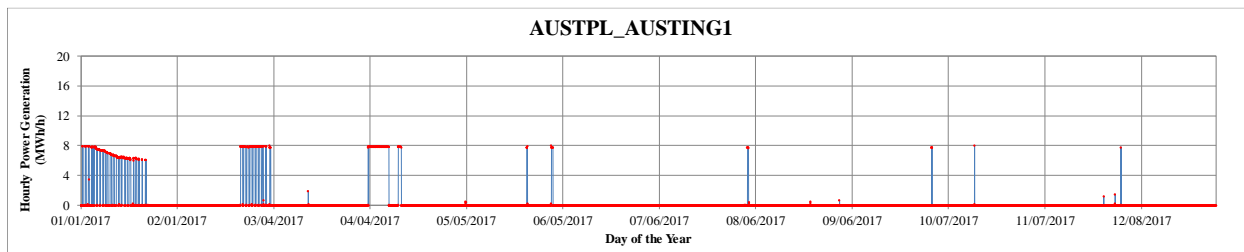


Figure 6-114: Hourly Electricity Generation Profile for Hydroelectric Project AUSTPL\_AUSTING1

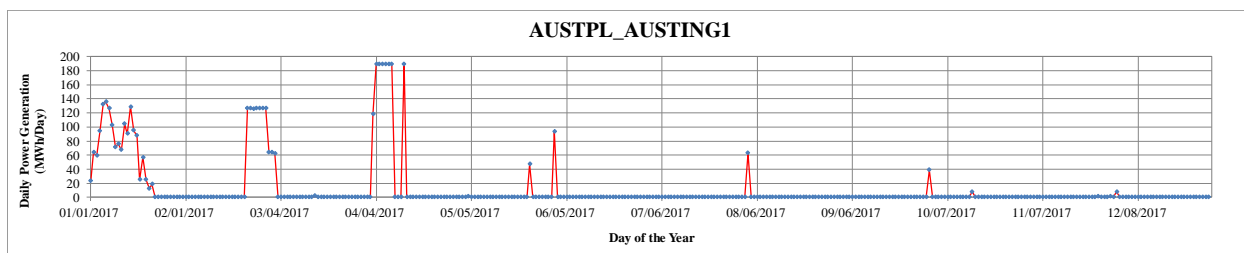


Figure 6-115: Daily Total Electricity Generation Profile for Hydroelectric Project AUSTPL\_AUSTING1



#### 6.2.4.4 AUSTPL\_AUSTING2

The hydro power project AUSTPL\_AUSTING2 was in operation during about the only half of the entire year. Most power was generated during the months of January to August. Figure 6-116 shows hourly electricity generation profile. Figure 6-117 shows daily total generation profile for the year 2017.

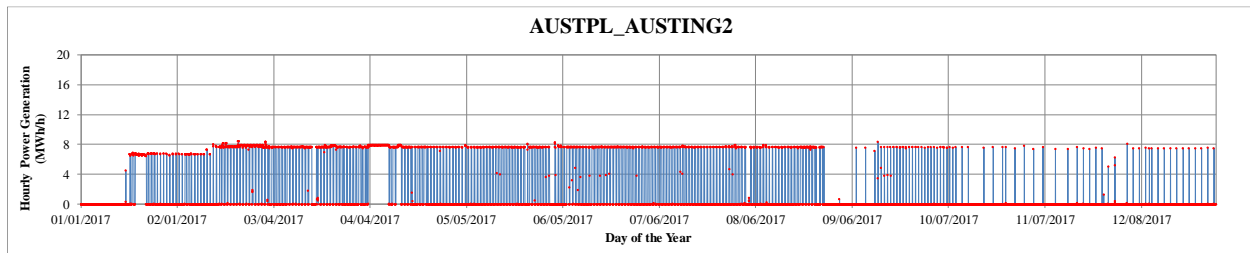


Figure 6-116: Hourly Electricity Generation Profile for Hydroelectric Project AUSTPL\_AUSTING2

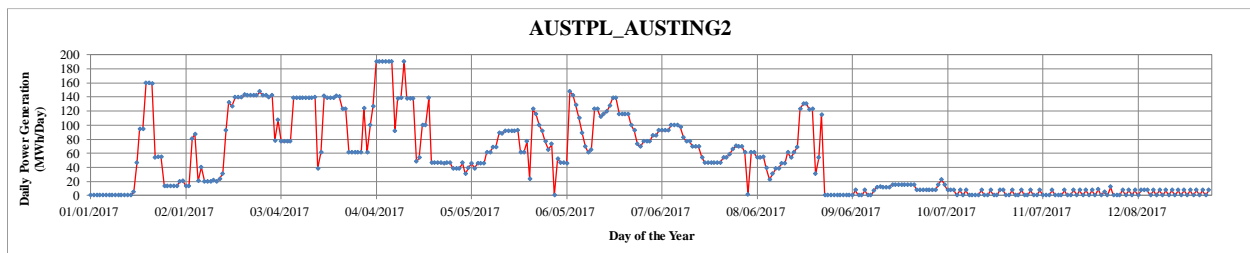


Figure 6-117: Daily Total Electricity Generation Profile for Hydroelectric Project AUSTPL\_AUSTING2

#### 6.2.4.5 BUCHAN\_BUCHANG1

The hydro power project BUCHAN\_BUCHANG1 was not operated for most of the year excluding a few days in February-August. Figure 6-118 shows hourly electricity generation profile and Figure 6-119 shows daily total generation profile for the year 2017.

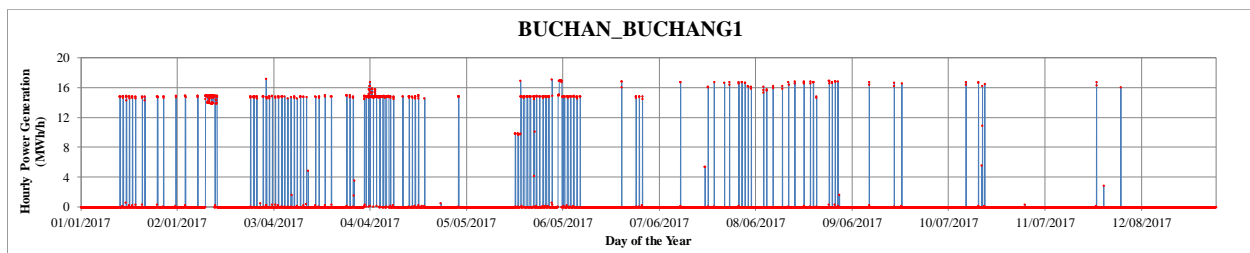


Figure 6-118: Hourly Electricity Generation Profile for Hydroelectric Project BUCHAN\_BUCHANG1

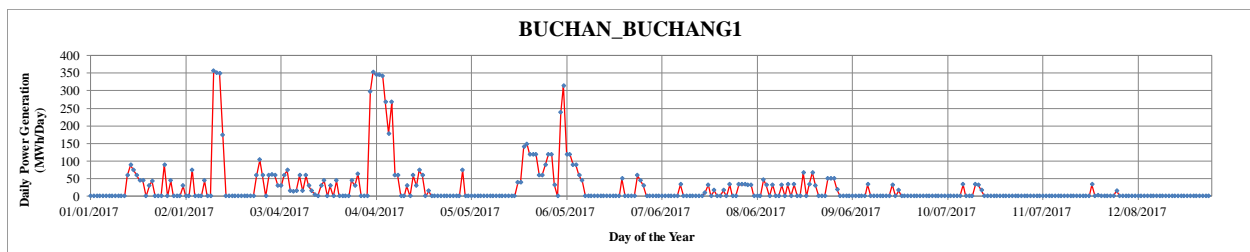


Figure 6-119: Daily Total Electricity Generation Profile for Hydroelectric Project BUCHAN\_BUCHANG1

### 6.2.4.6 BUCHAN\_BUCHANG2

The hydro power project BUCHAN\_BUCHANG2 was not in operation for majority of the time during the year except several days from March to June. Figure 6-120 shows hourly electricity generation profile and Figure 6-121 shows daily total generation profile for the year 2017.

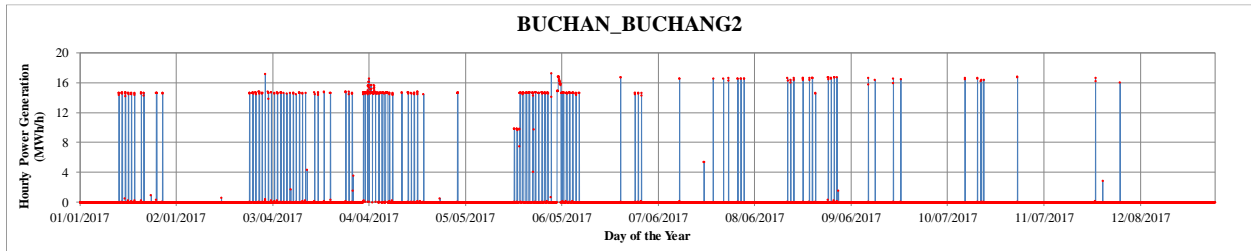


Figure 6-120: Hourly Electricity Generation Profile for Hydroelectric Project BUCHAN\_BUCHANG2

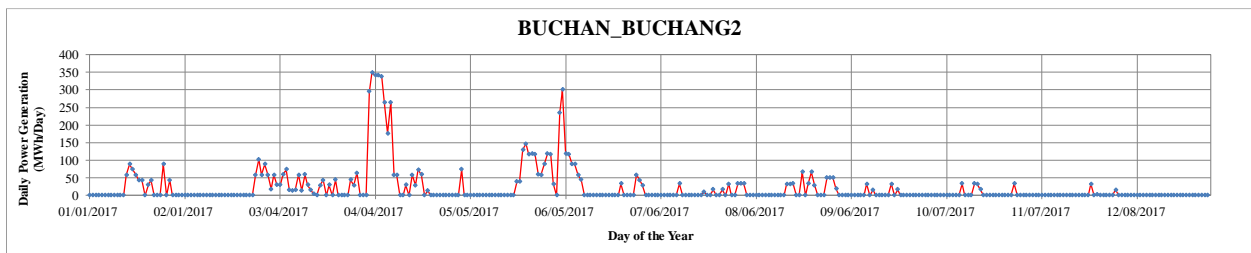


Figure 6-121: Daily Total Electricity Generation Profile for Hydroelectric Project BUCHAN\_BUCHANG2

### 6.2.4.7 BUCHAN\_BUCHANG3

The hydro power project BUCHAN\_BUCHANG3 was also not in operation for majority of the time during the year. Figure 6-122 shows hourly electricity generation profile and Figure 6-123 shows daily total generation profile for the year 2017.

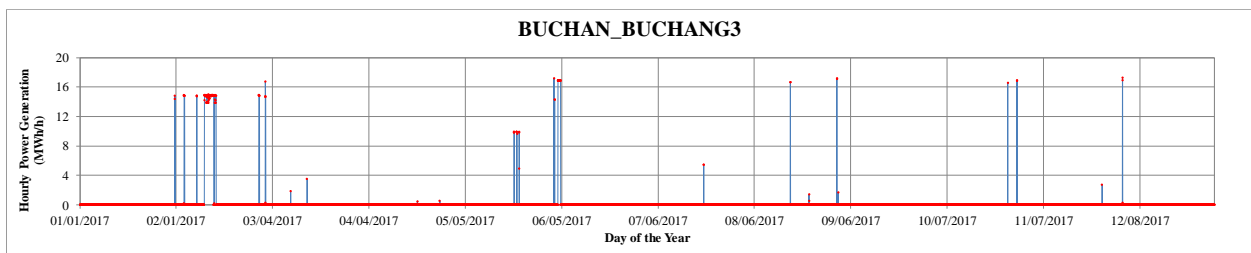


Figure 6-122: Hourly Electricity Generation Profile for Hydroelectric Project BUCHAN\_BUCHANG3

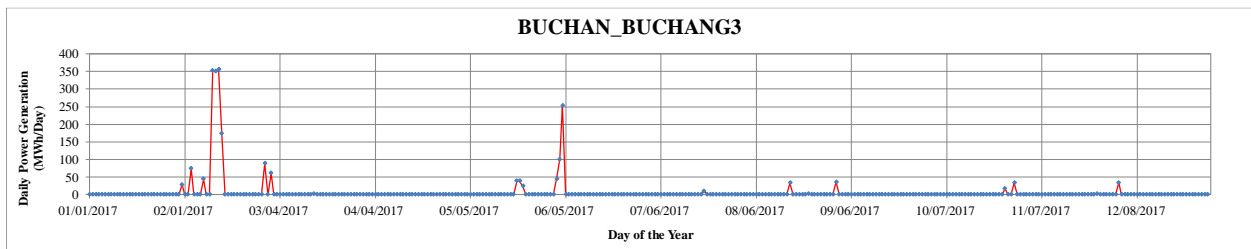


Figure 6-123: Daily Total Electricity Generation Profile for Hydroelectric Project BUCHAN\_BUCHANG3

### 6.2.4.8 CANYHY\_CANYHYG1

The hydro power project CANYHY\_CANYHYG1 was in operation for majority of the time during the year except for the many days during May to June. Figure 6-124 shows hourly electricity generation profile and Figure 6-125 shows daily total generation profile for the year 2017.

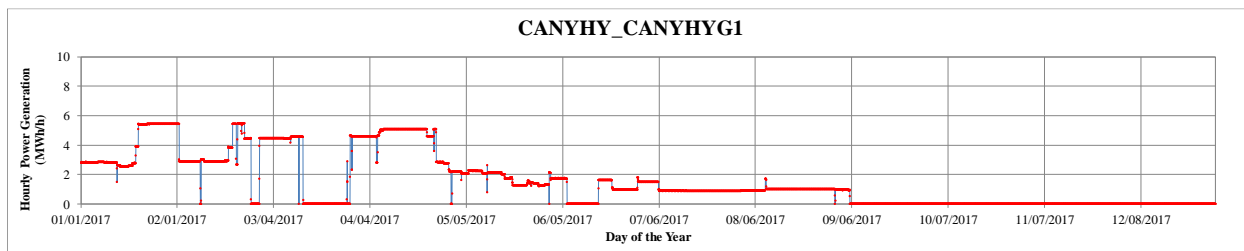


Figure 6-124: Hourly Electricity Generation Profile for Hydroelectric Project CANYHY\_CANYHYG1

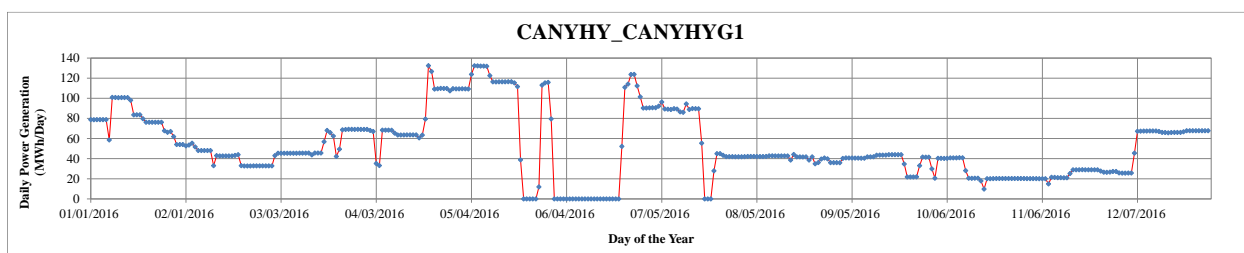


Figure 6-125: Daily Total Electricity Generation Profile for Hydroelectric Project CANYHY\_CANYHYG1

### 6.2.4.9 DG\_LKWDT\_2UNITS

The hydro power project DG\_LKWDT\_2UNITS was in operation for majority of the time during the year. Figure 6-126 shows hourly electricity generation profile and Figure 6-127 shows daily total generation profile for the year 2017.

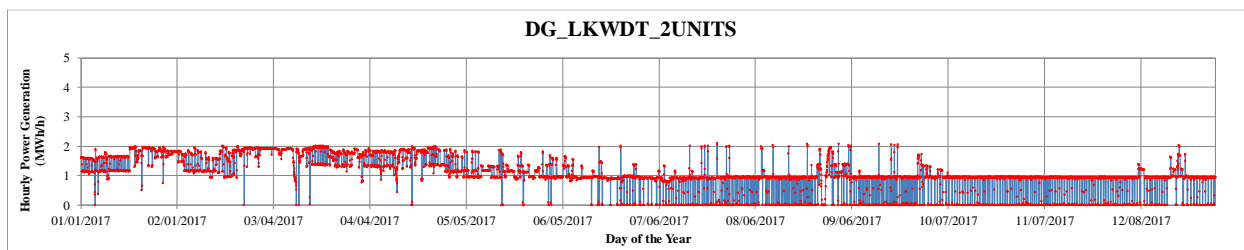


Figure 6-126: Hourly Electricity Generation Profile for Hydroelectric Project DG\_LKWDT\_2UNITS

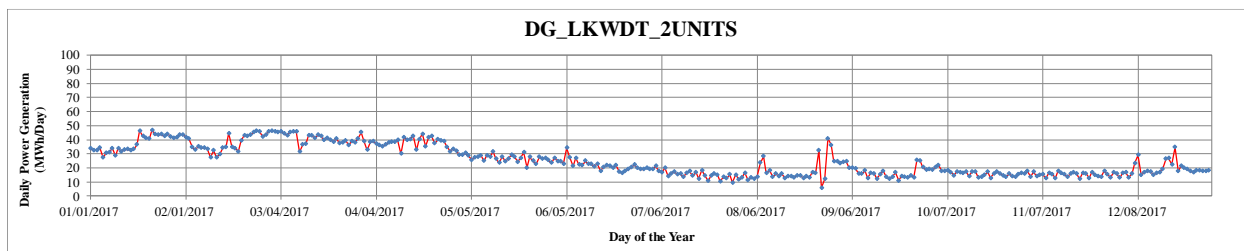


Figure 6-127: Daily Total Electricity Generation Profile for Hydroelectric Project DG\_LKWDT\_2UNITS

### 6.2.4.10 DG\_LWSVL\_1UNIT

The hydro power project DG\_LWSVL\_1UNIT was also not in operation for majority of the time during the year except for the many days during July. Figure 6-128 shows hourly electricity generation profile and Figure 6-129 shows daily total generation profile for the year 2017.

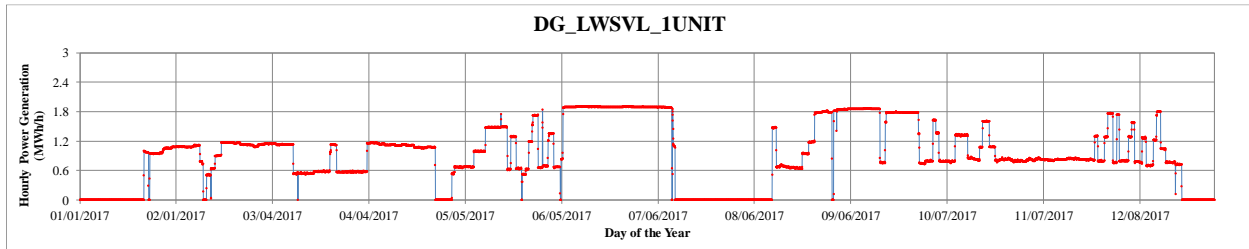


Figure 6-128: Hourly Electricity Generation Profile for Hydroelectric Project DG\_LWSVL\_1UNIT

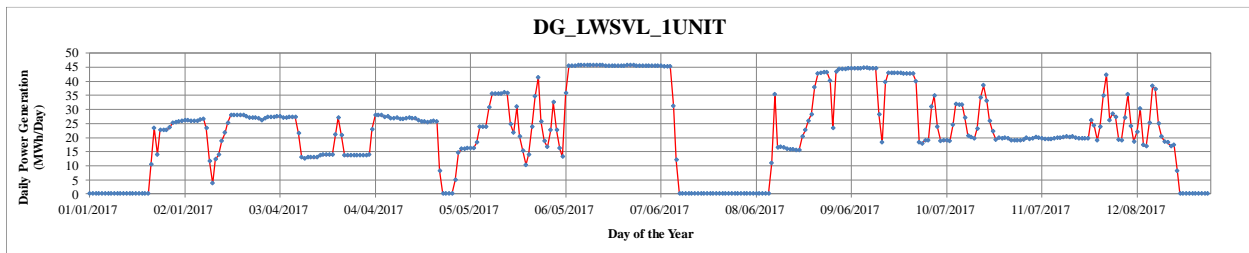


Figure 6-129: Daily Total Electricity Generation Profile for Hydroelectric Project DG\_LWSVL\_1UNIT

### 6.2.4.11 DG\_MCQUE\_5UNITS

The hydro power project DG\_MCQUE\_5UNITS was also in operation for majority of the time during the year. Figure 6-130 shows hourly electricity generation profile and Figure 6-131 shows daily total generation profile for the year 2017.

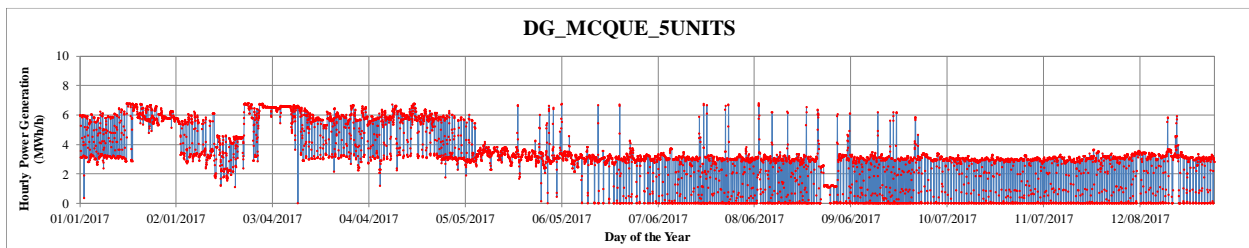


Figure 6-130: Hourly Electricity Generation Profile for Hydroelectric Project DG\_MCQUE\_5UNITS

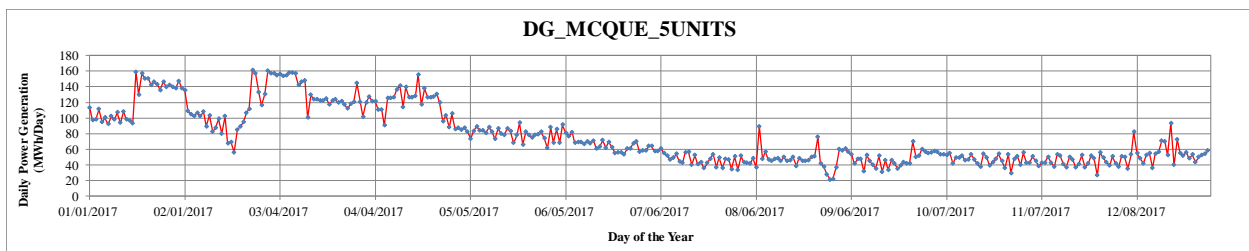


Figure 6-131: Daily Total Electricity Generation Profile for Hydroelectric Project DG\_MCQUE\_5UNITS

### 6.2.4.12 DG\_OAKHL\_1UNIT

The hydro power project DG\_OAKHL\_1UNIT was also not in operation for majority of the time during the year. Figure 6-132 shows hourly electricity generation profile and Figure 6-133 shows daily total generation profile for the year 2017.

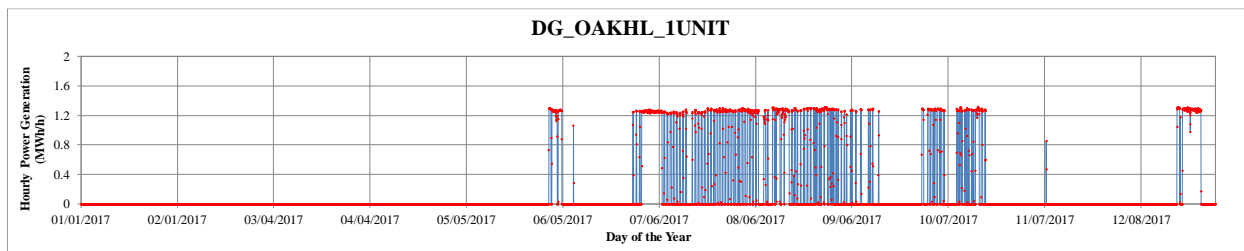


Figure 6-132: Hourly Electricity Generation Profile for Hydroelectric Project DG\_OAKHL\_1UNIT

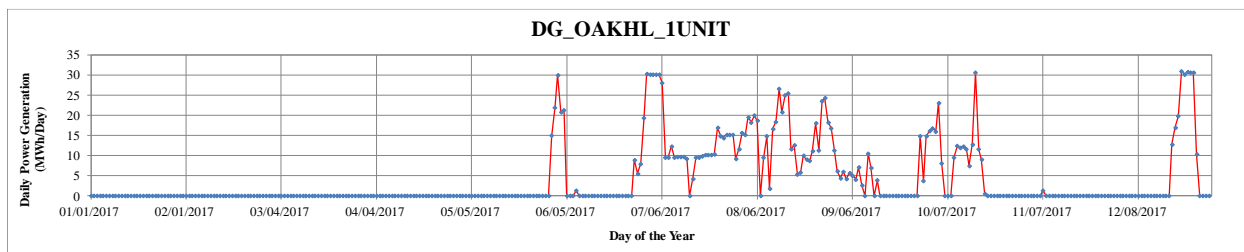


Figure 6-133: Daily Total Electricity Generation Profile for Hydroelectric Project DG\_OAKHL\_1UNIT

### 6.2.4.13 DG\_SCHUM\_2UNITS

The hydro power project DG\_SCHUM\_2UNITS was in continuous operation throughout the entire year. Figure 6-134 shows hourly electricity generation profile and Figure 6-135 shows daily total generation profile for the year 2017.

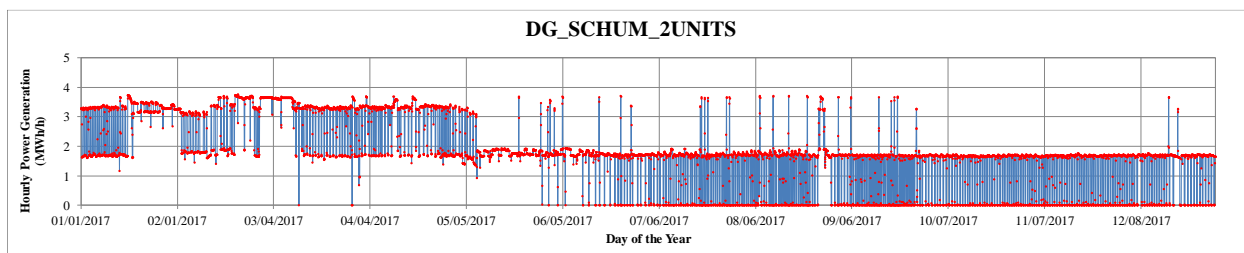


Figure 6-134: Hourly Electricity Generation Profile for Hydroelectric Project DG\_SCHUM\_2UNITS

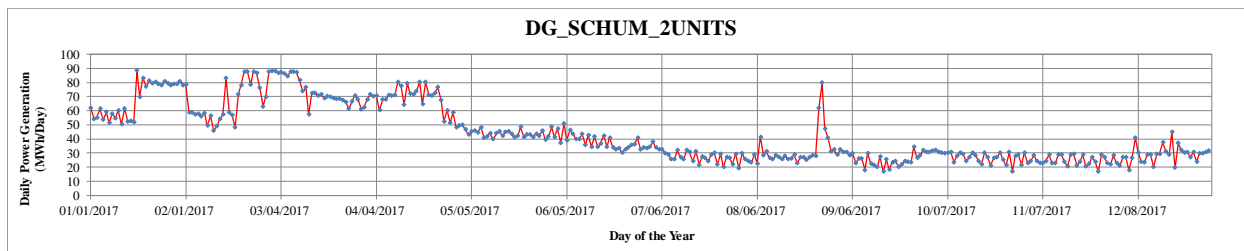


Figure 6-135: Daily Total Electricity Generation Profile for Hydroelectric Project DG\_SCHUM\_2UNITS

#### 6.2.4.14 DNDAM\_DENISOG1

The hydro power project DNDAM\_DENISOG1 was in operation from January 1<sup>st</sup> to October 1<sup>st</sup>. Figure 6-136 shows hourly electricity generation profile and Figure 6-137 shows daily total generation profile for the year 2017.

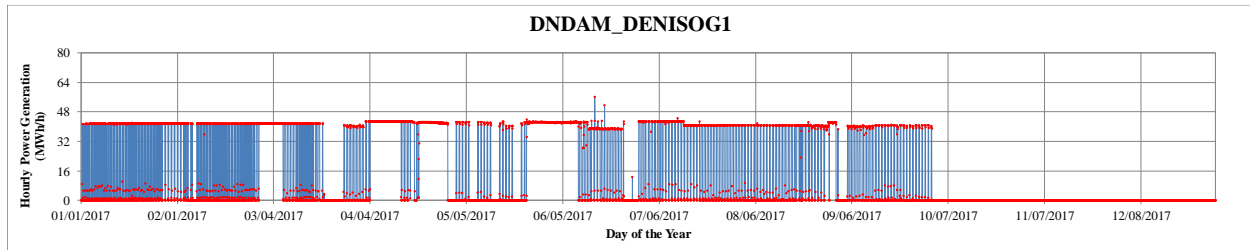


Figure 6-136: Hourly Electricity Generation Profile for Hydroelectric Project DNDAM\_DENISOG1

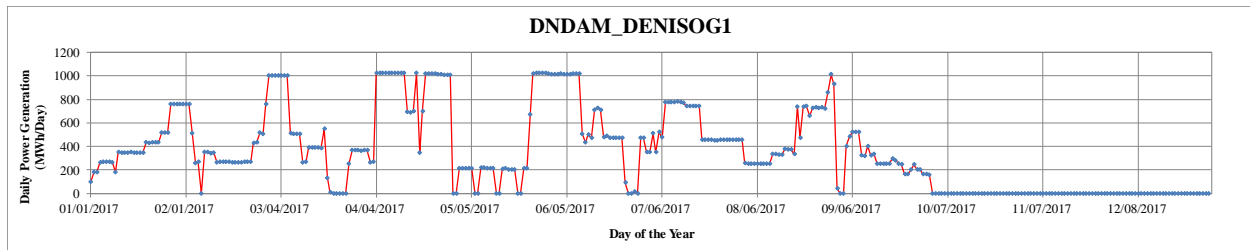


Figure 6-137: Daily Total Electricity Generation Profile for Hydroelectric Project DNDAM\_DENISOG1

#### 6.2.4.15 DNDAM\_DENISOG2

The hydro power project DNDAM\_DENISOG2 was in continuous operation throughout the entire year. Figure 6-138 shows hourly electricity generation profile and Figure 6-139 shows daily total generation profile for the year 2017.

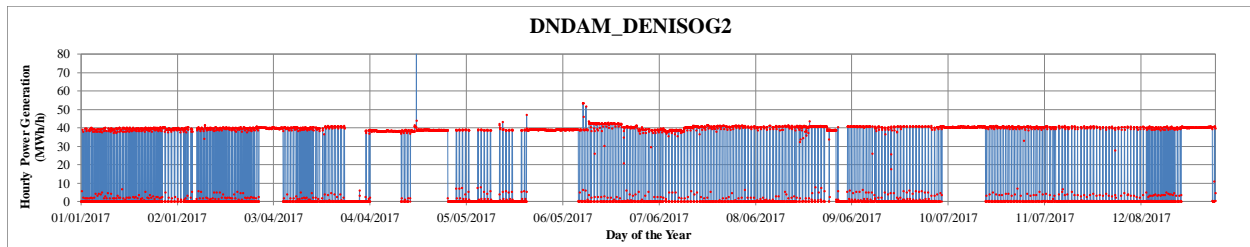


Figure 6-138: Hourly Electricity Generation Profile for Hydroelectric Project DNDAM\_DENISOG2

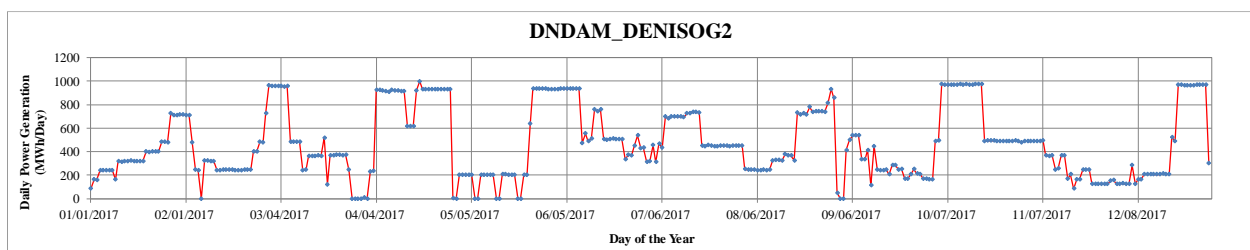


Figure 6-139: Daily Total Electricity Generation Profile for Hydroelectric Project DNDAM\_DENISOG2

### 6.2.4.16 EAGLE\_HY\_EAGLE\_HY

The hydro power project EAGLE\_HY\_EAGLE\_HY was in continuous operation for majority of the time during the year except for several days in May, August, and December. Figure 6-140 shows hourly electricity generation profile and Figure 6-141 shows daily total generation profile for the year 2017.

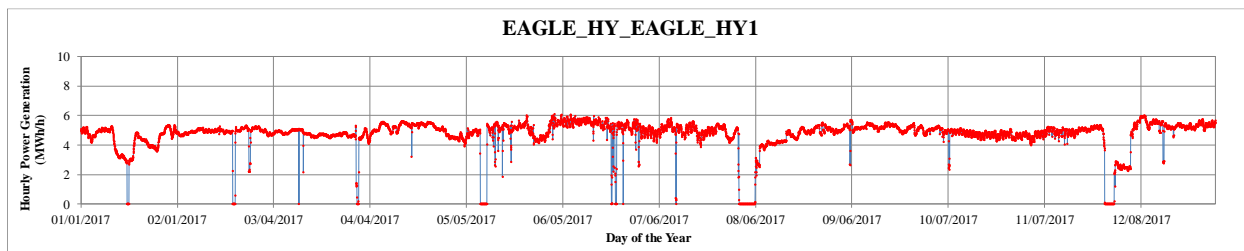


Figure 6-140: Hourly Electricity Generation Profile for Hydroelectric Project EAGLE\_HY\_EAGLE\_HY

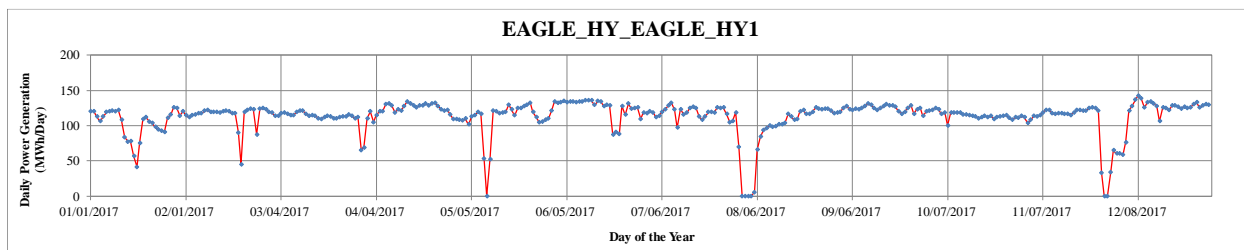


Figure 6-141: Daily Total Electricity Generation Profile for Hydroelectric Project EAGLE\_HY\_EAGLE\_HY

### 6.2.4.17 FALCON\_FALCONG1

The hydro power project FALCON\_FALCONG1 was in operation only for few months in the entire year. Figure 6-142 shows hourly electricity generation profile and Figure 6-143 shows daily total generation profile for the year 2017.

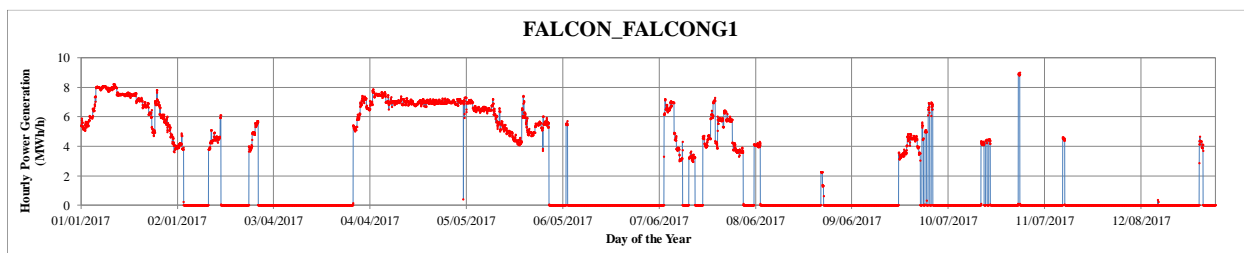


Figure 6-142: Hourly Electricity Generation Profile for Hydroelectric Project FALCON\_FALCONG1

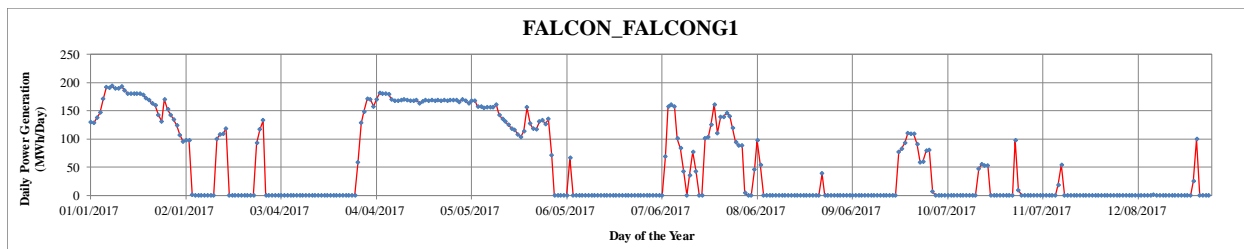


Figure 6-143: Daily Total Electricity Generation Profile for Hydroelectric Project FALCON\_FALCONG1

### 6.2.4.18 FALCON\_FALCONG2

The hydro power project FALCON\_FALCONG2 was not in operation for majority of the time during the year. Figure 6-144 shows hourly electricity generation profile and Figure 6-145 shows daily total generation profile for the year 2017.

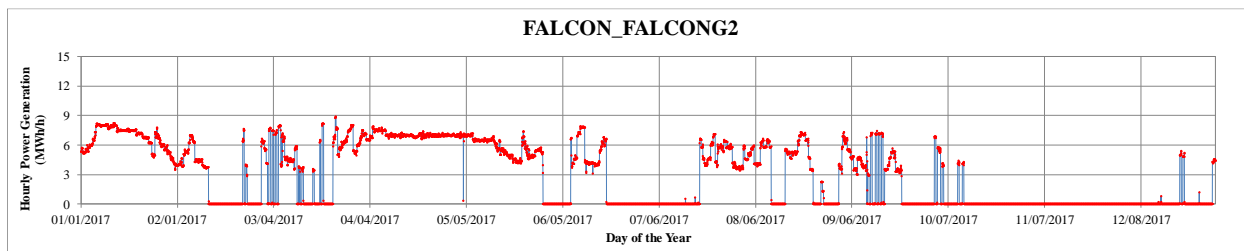


Figure 6-144: Hourly Electricity Generation Profile for Hydroelectric Project FALCON\_FALCONG2

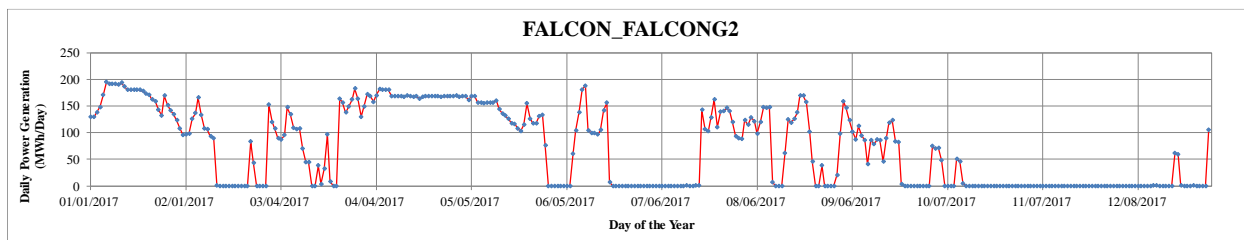


Figure 6-145: Daily Total Electricity Generation Profile for Hydroelectric Project FALCON\_FALCONG2

### 6.2.4.19 FALCON\_FALCONG3

Similar to FALCON\_FALCONG2, the hydro power project FALCON\_FALCONG3 was not in operation for majority of the time during the year. Figure 6-146 shows hourly electricity generation profile and Figure 6-147 shows daily total generation profile for the year 2017.

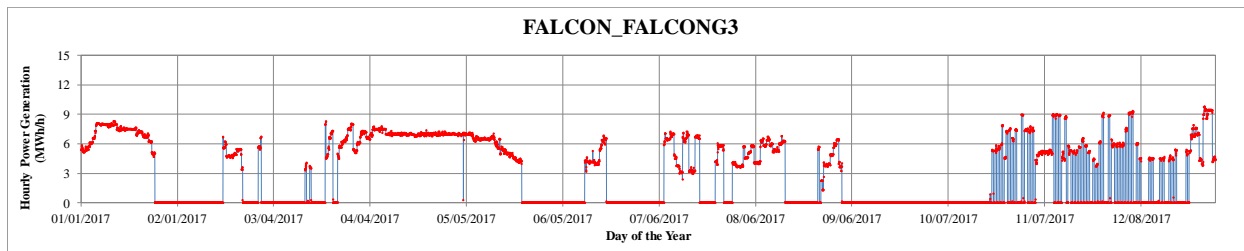


Figure 6-146: Hourly Electricity Generation Profile for Hydroelectric Project FALCON\_FALCONG3

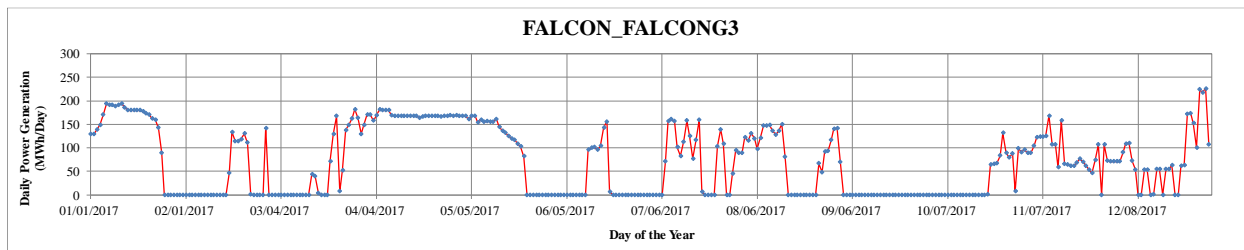


Figure 6-147: Daily Total Electricity Generation Profile for Hydroelectric Project FALCON\_FALCONG3



#### 6.2.4.20 INKSDA\_INKS\_G1

The hydro power project INKSDA\_INKS\_G1 was mostly in operation. The electricity generation was very consistent. Figure 6-148 shows hourly electricity generation profile and Figure 6-149 shows daily total generation profile for the year 2017.

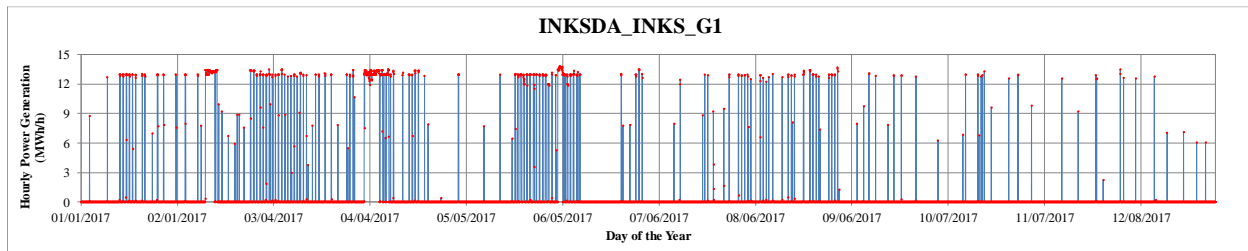


Figure 6-148: Hourly Electricity Generation Profile for Hydroelectric Project INKSDA\_INKS\_G1

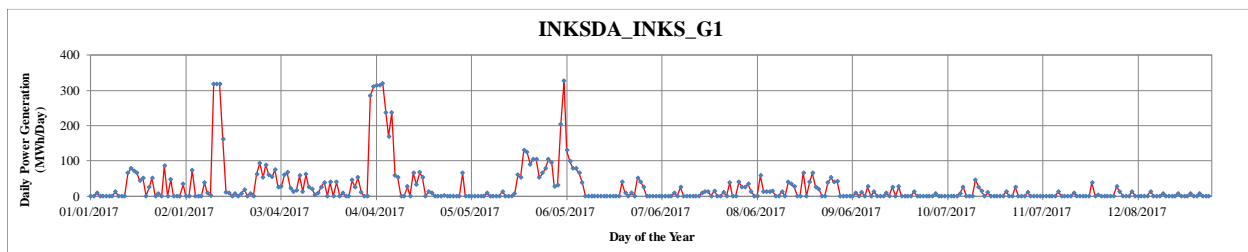


Figure 6-149: Daily Total Electricity Generation Profile for Hydroelectric Project INKSDA\_INKS\_G1

#### 6.2.4.21 MARBFA\_MARBFAG1

The hydro power project MARBFA\_MARBFAG1 was not in operation for majority of the time during the year. Figure 6-150 shows hourly electricity generation profile and Figure 6-151 shows daily total generation profile for the year 2017.

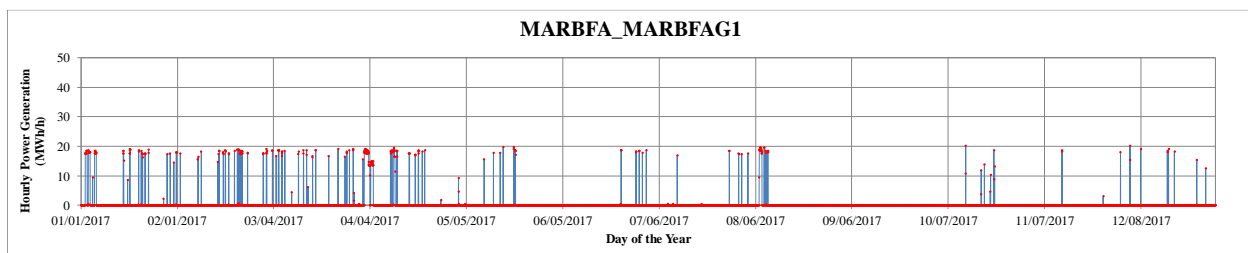


Figure 6-150: Hourly Electricity Generation Profile for Hydroelectric Project MARBFA\_MARBFAG1

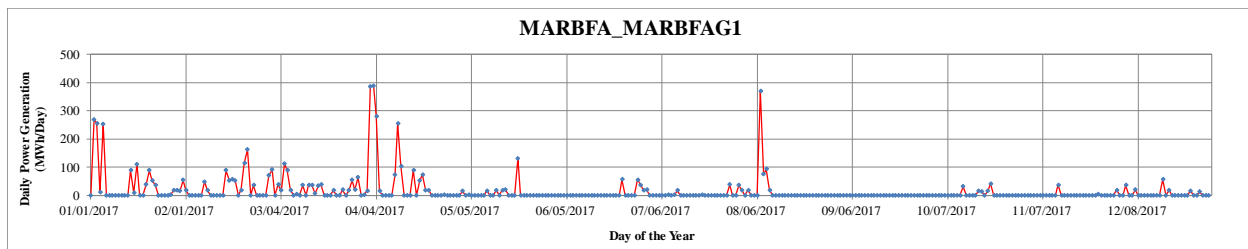


Figure 6-151: Daily Total Electricity Generation Profile for Hydroelectric Project MARBFA\_MARBFAG1

### 6.2.4.22 MARBFA\_MARBFAG2

The hydro power project MARBFA\_MARBFAG2 was in operation during about the only half of the entire year. Figure 6-152 shows hourly electricity generation profile and Figure 6-153 shows daily total generation profile for the year 2017.

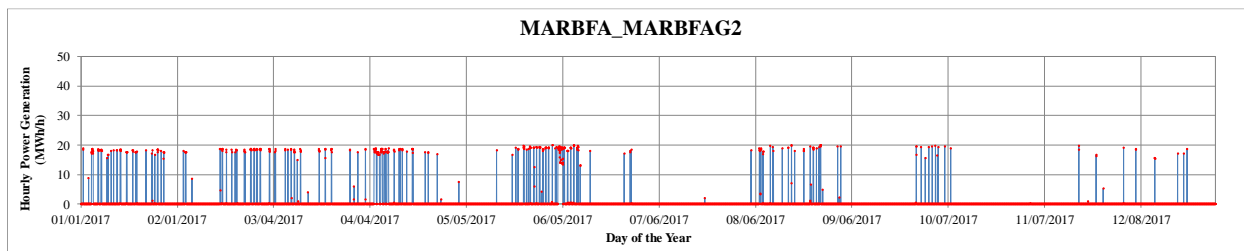


Figure 6-152: Hourly Electricity Generation Profile for Hydroelectric Project MARBFA\_MARBFAG2

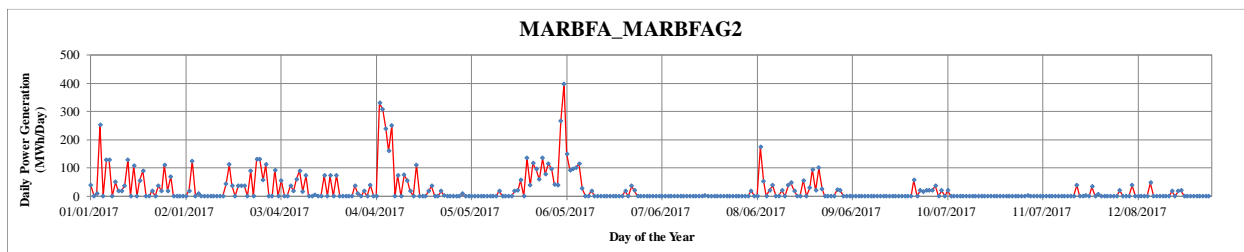


Figure 6-153: Daily Total Electricity Generation Profile for Hydroelectric Project MARBFA\_MARBFAG2

### 6.2.4.23 MARSFO\_MARSFOG1

The hydro power project MARSFO\_MARSFOG1 was also not in operation for majority of the time during the year with intermittent electric generation. Figure 6-154 shows hourly electricity generation profile and Figure 6-155 shows daily total generation profile for the year 2017.

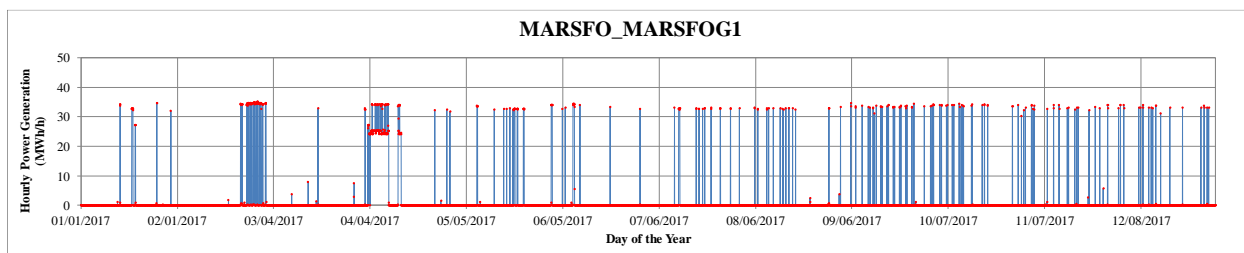


Figure 6-154: Hourly Electricity Generation Profile for Hydroelectric Project MARSFO\_MARSFOG1

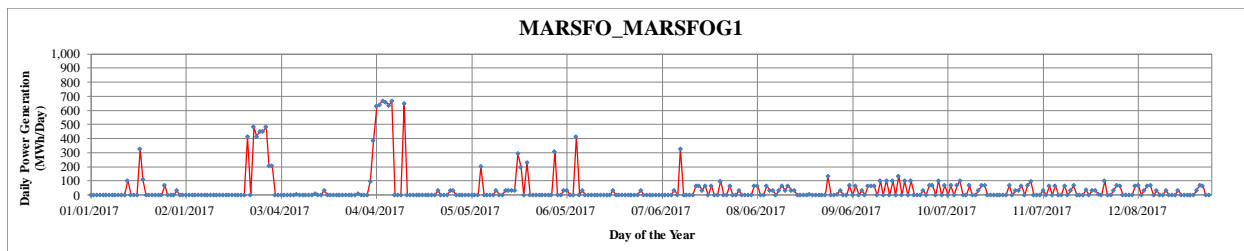


Figure 6-155: Daily Total Electricity Generation Profile for Hydroelectric Project MARSFO\_MARSFOG1

#### 6.2.4.24 MARSFO\_MARSFOG2

The hydro power project MARSFO\_MARSFOG2 was also not in operation for majority of the time during the year with intermittent electric generation. Figure 6-156 shows hourly electricity generation profile and Figure 6-157 shows daily total generation profile for the year 2017.

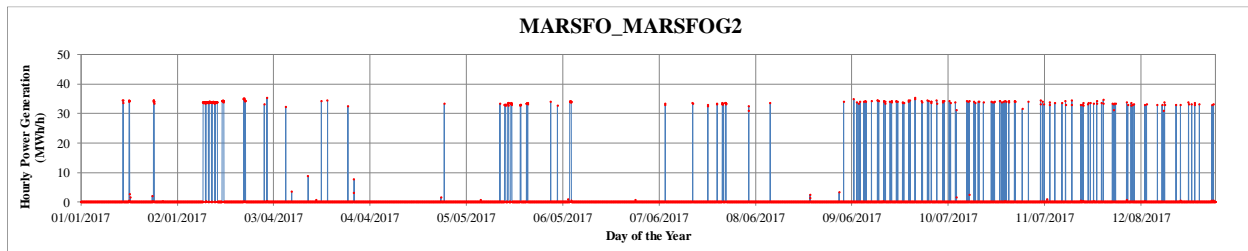


Figure 6-156: Hourly Electricity Generation Profile for Hydroelectric Project MARSFO\_MARSFOG2

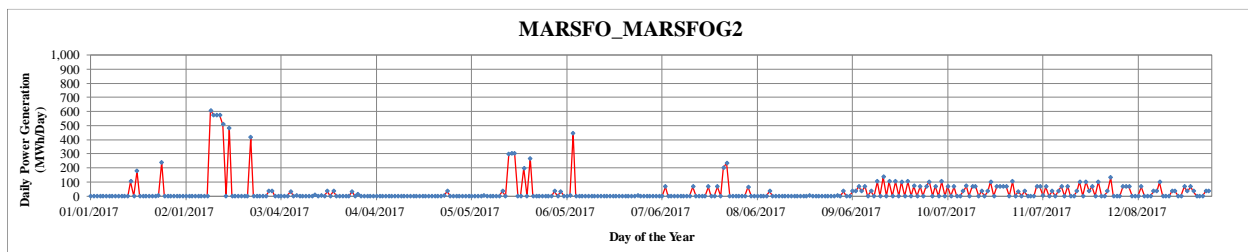


Figure 6-157: Daily Total Electricity Generation Profile for Hydroelectric Project MARSFO\_MARSFOG2

#### 6.2.4.25 MARSFO\_MARSFOG3

The hydro power project MARSFO\_MARSFOG3 was also not in operation from January 1<sup>st</sup> to September 5<sup>th</sup>. Figure 6-158 shows hourly electricity generation profile and Figure 6-159 shows daily total generation profile for the year 2017.

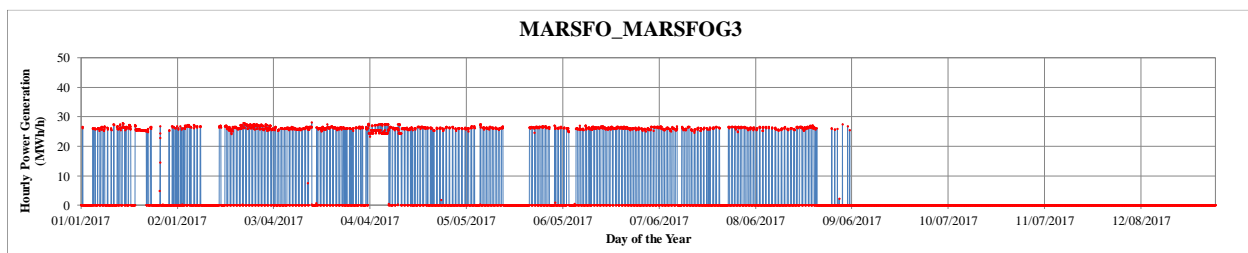


Figure 6-158: Hourly Electricity Generation Profile for Hydroelectric Project MARSFO\_MARSFOG3

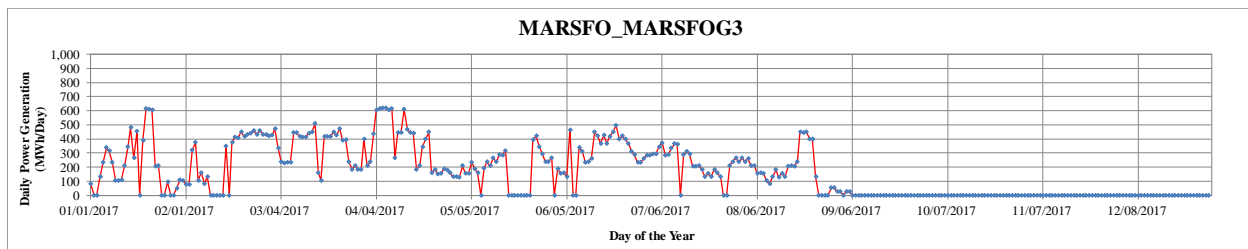


Figure 6-159: Daily Total Electricity Generation Profile for Hydroelectric Project MARSFO\_MARSFOG3

### 6.2.4.26 WIRTZ\_WIRTZ\_G1

The hydro power project WIRTZ\_WIRTZ\_G1 was in intermittent operations throughout the entire year with few days in operation for each month. Figure 6-160 shows hourly electricity generation profile and Figure 6-161 shows daily total generation profile for the year 2017.

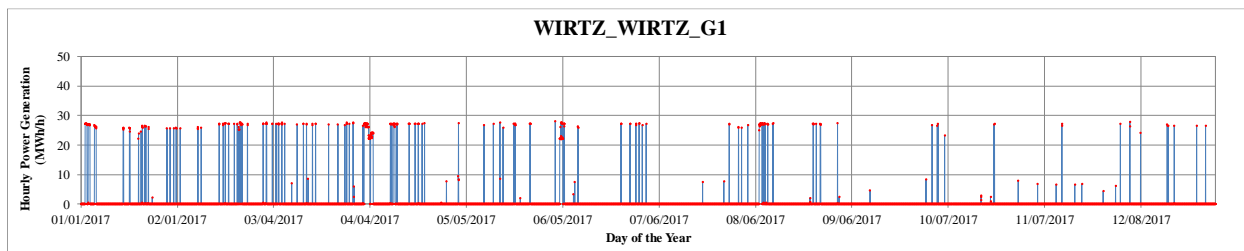


Figure 6-160: Hourly Electricity Generation Profile for Hydroelectric Project WIRTZ\_WIRTZ\_G1

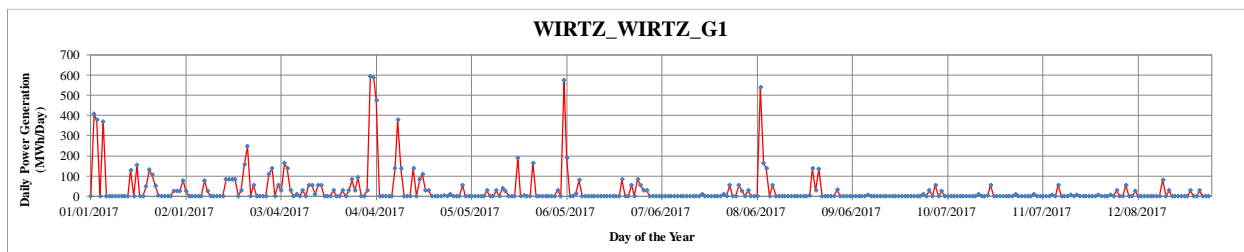


Figure 6-161: Daily Total Electricity Generation Profile for Hydroelectric Project WIRTZ\_WIRTZ\_G1

### 6.2.4.27 WIRTZ\_WIRTZ\_G2

The hydro power project WIRTZ\_WIRTZ\_G2 was also in intermittent operations throughout the entire year with few days in operation for each month. Figure 6-162 shows hourly electricity generation profile and Figure 6-163 shows daily total generation profile for the year 2017.

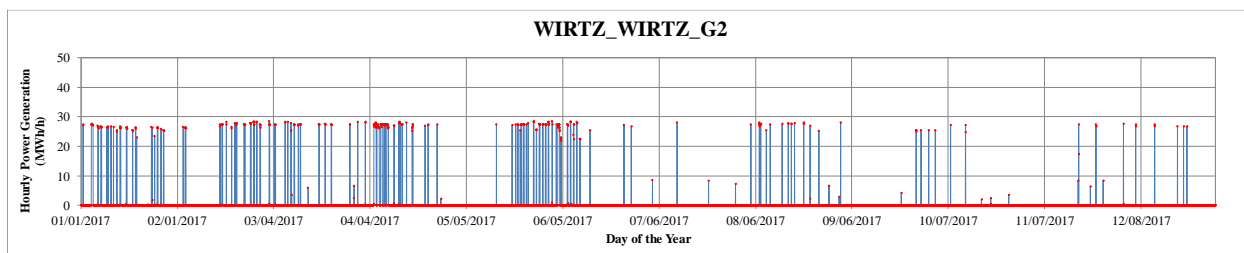


Figure 6-162: Hourly Electricity Generation Profile for Hydroelectric Project WIRTZ\_WIRTZ\_G2

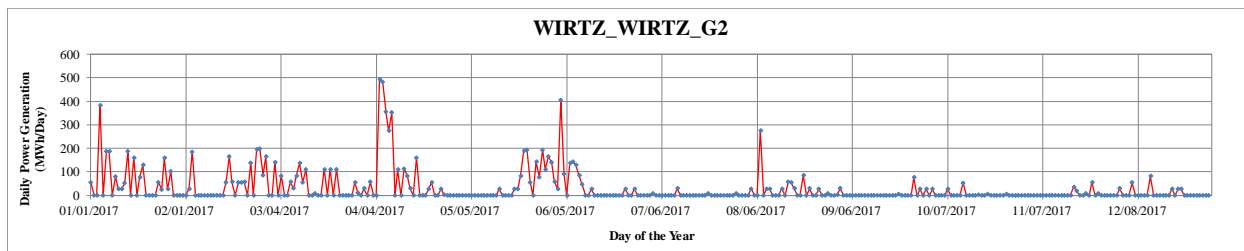


Figure 6-163: Daily Total Electricity Generation Profile for Hydroelectric Project WIRTZ\_WIRTZ\_G2

### 6.2.4.28 WND\_WHITNEY1

The hydro power project WND\_WHITNEY1 was in operation during about the only half of the entire year. Figure 6-164 shows hourly electricity generation profile and Figure 6-165 shows daily total generation profile for the year 2017.

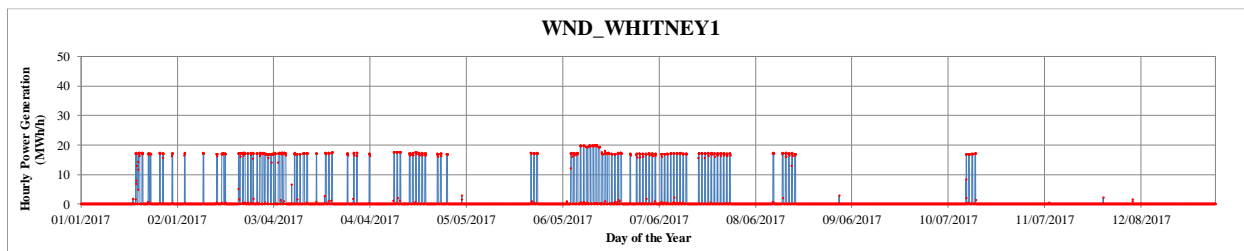


Figure 6-164: Hourly Electricity Generation Profile for Hydroelectric Project WND\_WHITNEY1

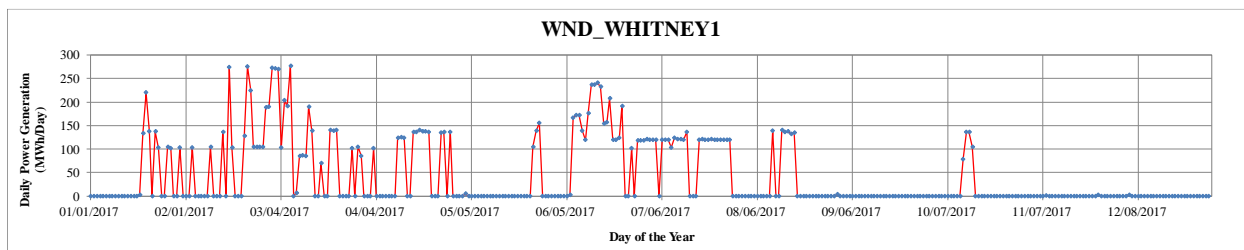


Figure 6-165: Daily Total Electricity Generation Profile for Hydroelectric Project WND\_WHITNEY1

### 6.2.4.29 WND\_WHITNEY2

The hydro power project WND\_WHITNEY2 was also in operation during about the only half of the entire year. Figure 6-166 shows hourly electricity generation profile and Figure 6-167 shows daily total generation profile for the year 2017.

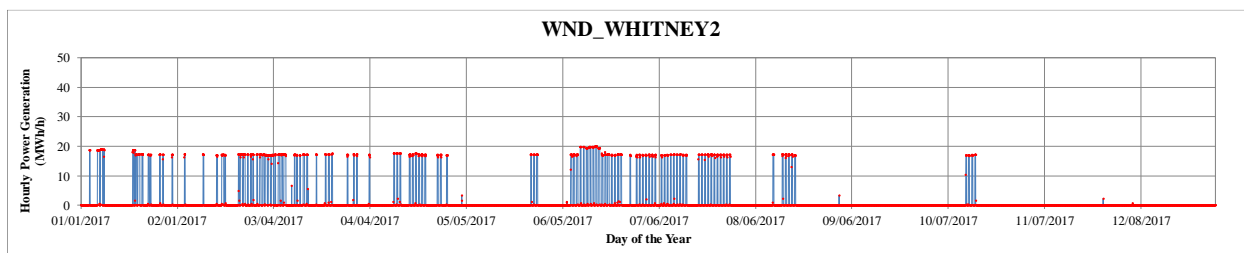


Figure 6-166: Hourly Electricity Generation Profile for Hydroelectric Project WND\_WHITNEY2

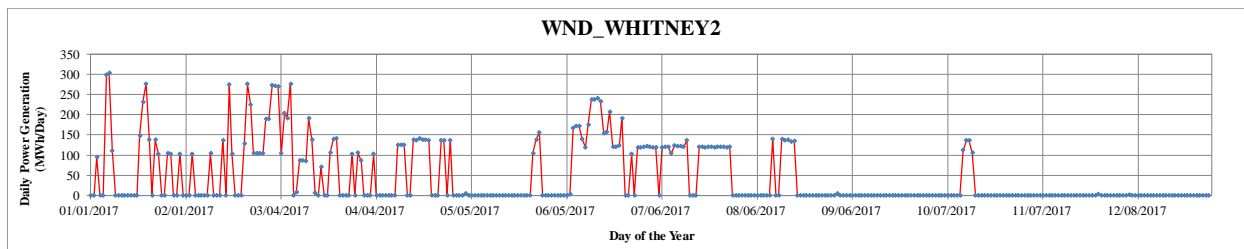


Figure 6-167: Daily Total Electricity Generation Profile for Hydroelectric Project WND\_WHITNEY2

### 6.2.5 Geothermal

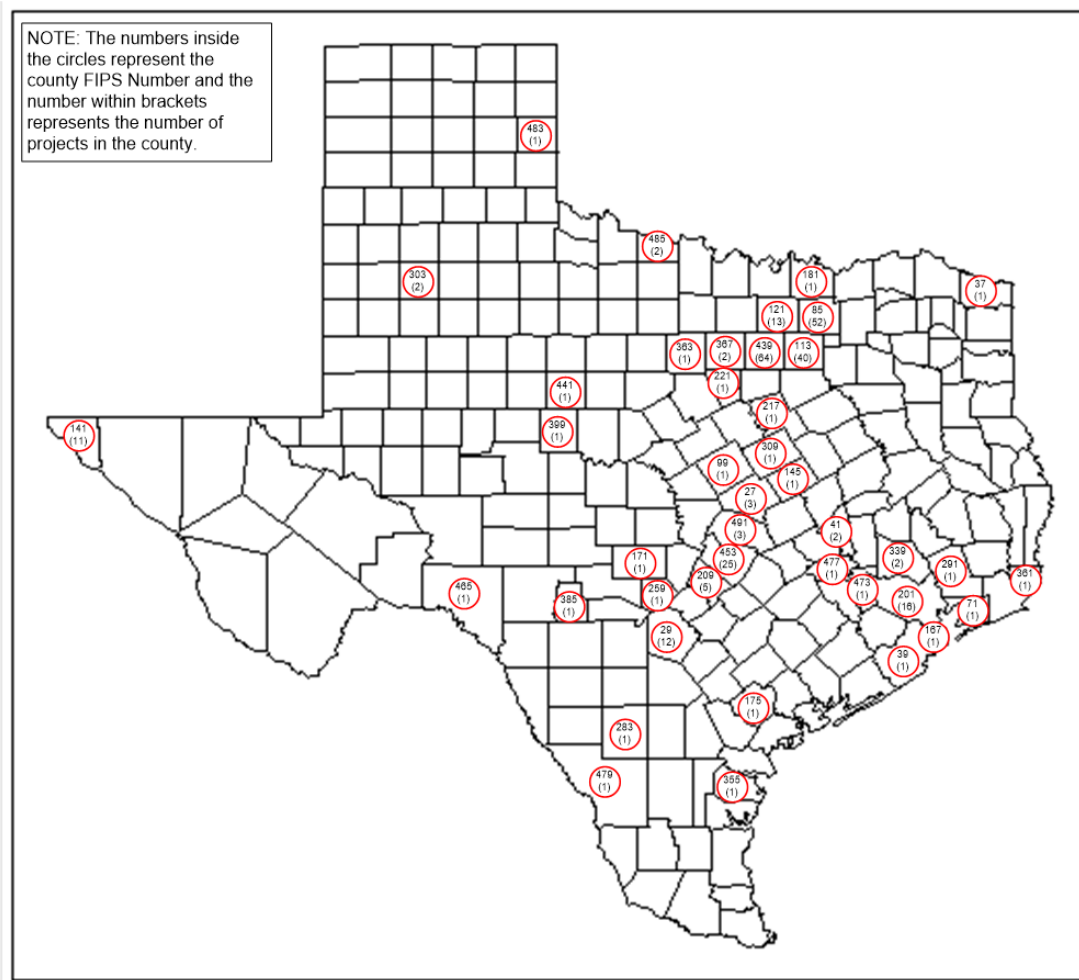
The total number of the identified geothermal projects for the present report was 286. Most of the geothermal projects throughout the State of Texas were identified from various web sources. For 2017 no new geothermal project was found.

Table 11-4 (in Appendix C) shows the list of the geothermal projects with their names, respective county, implementation year, installed capacity, and service area. In addition, Figure 6-168 shows the location of the geothermal projects for each county. We could not find either annual or OSD electricity savings and the NO<sub>x</sub> emission reductions per county from the geothermal projects, which were not possible to be estimated.

### 6.2.6 Landfill Gas-Fired

The information for the landfill gas-fired power plant section was found in the Environmental Protection Agency's (EPA's) project database for Landfill Methane Outreach Program (LMOP). The information includes all the landfill gas-fired power plants in operational, candidate, potential, construction, shutdown, and planned status. The EPA updated the projects information, and this report located the updated project information till March 2017.

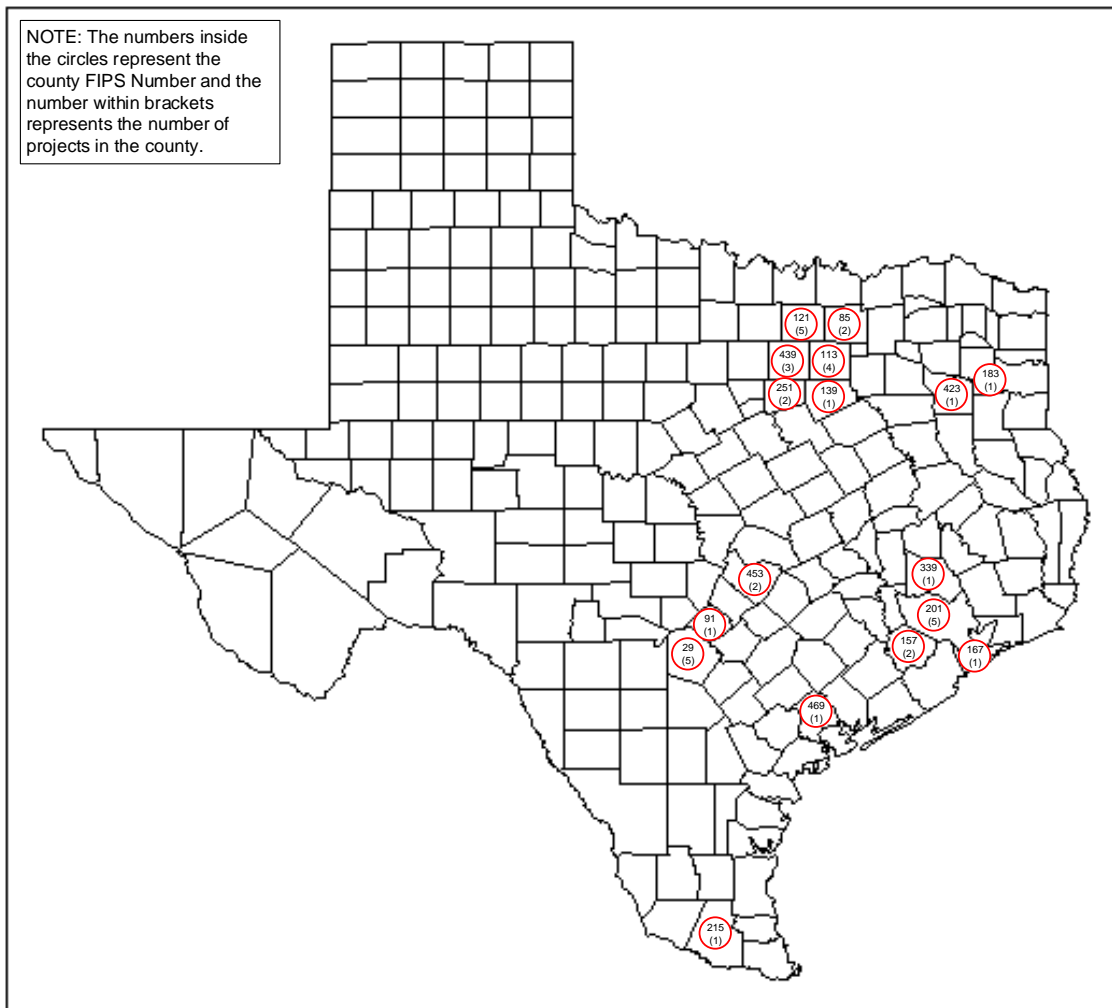
Based on the EPA project database, 38 operational, 50 candidate, 38 potential, 3 construction, 14 shutdown, 4 planned, and 1 other landfill gas-fired projects were identified. All of the landfill gas-fired power plants are listed in Table 11-5 through Table 11-11 (Appendix C), respectively. Figure 6-169 shows in the Texas map the location and the number of landfilling projects in each county which are operational. This report did not include either annual or OSD electricity savings and NO<sub>x</sub> emission reductions per county from the landfill gas-fired projects, which could not be estimated.



Legend

County	FIPS Code	No. of Projects	County	FIPS Code	No. of Projects
Bell	27	3	Liberty	291	1
Bexar	29	12	Lubbock	303	2
Bowie	37	1	McLennan	309	1
Brazoria	39	1	Montgomery	339	2
Brazos	41	2	Nueces	355	1
Chambers	71	1	Orange	361	1
Collin	85	52	Palo pinto	363	1
Coryell	99	1	Parker	367	2
Dallas	113	40	Real	385	1
Denton	121	13	Runnels	399	1
El Paso	141	11	Tarrant	439	64
Falls	145	1	Taylor	441	1
Galveston	167	1	Travis	453	26
Gillespie	171	1	Val Verde	465	1
Goliad	175	1	Waller	473	1
Grayson	181	1	Washington	477	1
Harris	201	16	Webb	479	1
Hays	209	5	Wheeler	483	1
Hill	217	1	Wichita	485	2
Hood	221	1	Williamson	491	3
Kendall	259	1	N/A	-	5
La Salle	283	1			

Figure 6-168: Geothermal Projects Installed throughout Texas up to 2017



Legend

County	FIPS Code	No. of Projects
Bexar	29	5
Collin	85	2
Comal	91	1
Dallas	113	4
Denton	121	5
Ellis	139	1
Fort Bend	157	2
Galveston	167	1
Gregg	183	1
Harris	201	5
Hidalgo	215	1
Johnson	251	2
Montgomery	339	1
Smith	423	1
Tarrant	439	3
Travis	453	2
Victoria	469	1

Figure 6-169: Landfill Gas-Fired Projects Installed throughout Texas up to 2017



### 6.3 Results

We increased the number of renewable energy projects from 2015 to 2017. Around 46 new renewable energy projects in Texas, which were not part of the previous report published in July 2017, were identified, located and included in the present report. The details of the new project can be found in Table 6-6.

Table 6-6: Comparison of the Projects Identified from Previous and Present Reports

Renewable Energy Source	Number of Projects in 2016, (a)	Number of New Projects in 2017, (b)	Total Number of Projects in 2017, (a+b)
Solar Photovoltaic <sup>1</sup>	4750	34	4784
Solar Power	23	9	32
Solar Thermal	38	0	38
Biomass <sup>2</sup>	18	0	14
Hydroelectric	29	0	29
Geothermal	286	0	286
Landfill Gas-Fired <sup>3</sup>	35	3	38

Note:

<sup>1</sup> The Open PV project database of National Renewable Energy Laboratory (NREL) (<https://openpv.nrel.gov/>), which was checked in March, 2018, provides updated PV projects for 2006, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, and 2017. Thus, the total number of PV projects until 2017, including PV projects from various websites, is now 4,786. Previously, it was 4,750.

<sup>2</sup> Four Biomass projects had no generation. Therefore, they are excluded from the list for this year.

<sup>3</sup> Landfill gas-fired projects information from EPA have seven sub-categories for their status: operational, candidates, potential, construction, shutdown, planned, and other. EPA rearranged/added/removed some projects information within the seven sub-categories. Operational projects were considered for the number of the projects.

This report also presents county-wide annual/OSD energy savings and annual NOx emission reductions for solar photovoltaic including solar power, solar thermal, biomass, and hydroelectric projects. The annual/OSD energy savings calculation for solar photovoltaic and solar thermal was conducted using the eCalc tool. The power generation data for the other renewable energy projects (solar power, biomass, and hydroelectric), which were obtained from the ERCOT, were used to evaluate the annual/OSD energy generation. Then, the annual NOx emission reductions calculation was conducted with the special version of Texas 2016 eGrid, based on their energy savings/generation.

In 2017, the total annual/OSD energy savings from each renewable projects across all the counties were:

- solar photovoltaic projects (non-utility scale): 342,792 MWh/yr and 1,033 MWh/day; in addition, solar power projects (utility scale): 2,186,173 MWh/yr and 5,990 MWh/day,
- solar thermal projects : 232 MWh/yr and 0.6 MWh/day,
- biomass projects : 544,193 MWh/yr and 1,491 MWh/day, and
- hydroelectric projects: 855,842 MWh/yr and 2,345 MWh/day.

In 2017, the annual NOx emission reductions from renewable projects across all the counties were:

- solar photovoltaic projects (non-utility scale): 129.7 tons/yr; in addition, solar power projects (utility scale): 1,118.4 tons/yr,
- solar thermal projects: 0.1 tons/yr and,
- hydroelectric projects: 305.4 tons/yr.

These savings and reductions do not represent all of the solar photovoltaic and solar thermal projects in the State of Texas. They only reflect the projects based on the investigated resources.

## 7 REFERENCES

USEPA 2008 "Estimation of Annual Reductions of NOx Emissions in ERCOT for the HB3693 Electricity Savings Goals", December 2008, Energy Systems Laboratory Report No. ESL-TR-08-12-04

Haberl, Jeff; Baltazar, Juan-Carlos; Yazdani, Bahman; Claridge, David; Kheiri, Farshad; Shin, Minjae; Jung, Sungkyun, "Statewide Air Emissions Calculations from Wind and other Renewables", August 2017, Energy Systems Laboratory Report No. ESL-TR-17-08-01.

Useful information was obtained from the following websites:

- <http://www.meridiansolar.com/portfolio/>
- <http://205.254.135.7/cneaf/electricity/page/eia860.html>
- <http://www.iegltd.com/project.refer.geo.master.pdf>
- <http://www.iegltd.com/html/information.html>
- <http://geoheat.oit.edu/state/tx/tx.htm>
- <http://www.southwestpv.com/SolarSite/SolarSiteMain.aspx>
- <http://www.fhp-mfg.com/>
- <http://www.txspc.com/renewable-energy-links.html>
- <http://www.cincosolar.com/>
- <http://www.sunrisesolartx.com/commercial/>
- [http://apps1.eere.energy.gov/buildings/publications/pdfs/building\\_america/ba\\_bc\\_imagine\\_hot-humid.pdf](http://apps1.eere.energy.gov/buildings/publications/pdfs/building_america/ba_bc_imagine_hot-humid.pdf)
- <http://www.abengoasolar.com/corp/web/en/index.html>
- [http://geo-energy.org/plants\\_dev.aspx#Texas](http://geo-energy.org/plants_dev.aspx#Texas)
- [http://www.woodheatandair.com/trane/ground-source\\_design.pdf](http://www.woodheatandair.com/trane/ground-source_design.pdf)
- <http://www.energyhomes.org/projects.html>
- <http://greenteamacgeothermal.com/commercial-geothermal-installation/>
- <http://www.solar-estimate.org/index.php?page=casestudies>
- <https://www.texasrenewables.com/reports.asp>

## 8 REVIEW OF ERCOT'S RENEWABLE ENERGY CREDIT PROGRAM INFORMATION

### 8.1 Introduction

In this section, the information posted on ERCOT's Renewable Energy Credit Program site, [www.texasrenewables.com](http://www.texasrenewables.com), was reviewed for use in the Laboratory's report to the TCEQ. In particular, information posted under the "Public Reports" tab was downloaded and assembled into an appropriate format for review. This includes ERCOT's 2001 through 2017 reports to the Legislature, which were converted into tabular format for analysis and insertion into this report. Similarly, information from ERCOT's listing of REC generators was inspected to determine how it compared with other sources of information the Laboratory has assembled.

### 8.2 Summary of Renewable Projects in Texas

Each year ERCOT is required to compile a list of grid-connected sources that generate electricity from renewable energy and report it to the Legislature.

Table 8-1 shows power generator list, Table 8-2 shows quarterly electricity generation by renewable sources from year from 2001 until 2017. Table 8-3 contains the data reported by ERCOT from 2001 through 2017. Figure 8-1, Figure 8-2, Figure 8-3 and Figure 8-4 have been included to better illustrate the annual data collected by ERCOT. In Figure 8-1 the annual total electricity generation of all the renewable sources is shown. In Figure 8-2, the annual electric generation of renewable sources excluding wind is shown. In Figure 8-3, the annual electric generation of renewable sources excluding wind and hydro is shown. Similarly, in Figure 8-4, the annual electric generation of renewable sources excluding wind, hydro and biomass is shown. This was done to understand the contribution of individual energy source to the total electricity generated. In the figures and tables, it is clear to see that the electricity generated by wind each year is the largest single source of renewable energy in Texas, which has grown from 565,597 MWh in 2001 to 66,076,742 MWh in 2017. This is followed by:

- Biomass energy has grown from 39,496 MWh in 2003 to 216,431 MWh in 2017;
- Hydroelectric energy has grown from 30,639 MWh in 2001 to 444,453 MWh in 2017;
- Landfill gas energy has grown from 29,412 MWh in 2002 to 446,119 MWh in 2017; and
- Solar energy has grown from 87 MWh in 2002 to 2,289,394 MWh in 2017.

Other sources of information present some differences in values of the renewable electricity generated in Texas. It has been found some discrepancies between U.S. DOE Energy Information Administration and ERCOT sources on wind generation, but it has been a small difference. The wind electricity generation data from the ERCOT website is similar to the generation data from the EIA website or slightly higher. The EIA wind generation for 2017 is 67,092 thousand MWh in net generation, and ERCOT is about 1.53% higher.

Table 8-1: ERCOT REC Generator List up to 2017 (Reference: <https://www.texasrenewables.com/publicReports/rpt1.asp>)

Company Name	Power Generating Company Name	Power Generating Company Code	Generator Site Name	Generator Site Code	Facility Identification Number	Unit Contact Information	Technology Type	Facility Noncompetitive Certification Data
Aspen Power LLC	Aspen Power LLC	7.91294E+12	Lufkin Biomass	LFBIO	156	Neil Leibman	Biomass	38864
Bio Energy (Austin) LLC	Bio Energy Austin LLC	DG_WALZE	DG_WALZE	DG_WALZE	38	Dennis Bollinger	Biomass	25512
Biofuels Power Corporation	Biofuels Power Inc.	20174	BFP Conroe	35861	116	Christopher Dufour	Biomass	35861
Biofuels Power Corporation	Biofuels Power Corporation	20174	Oak Ridge North	DG_RA	118	Chris Dufour	Biomass	34211
East Texas Electric Cooperative, Inc.	East Texas Electric Cooperative	East Texas Electric Cooperative	Woodville Renewable Power Plant	Woodville Renewable Power Plant	220	LA Williams	Biomass	42692
MeadWestvaco Texas LP	MeadWestvaco Texas LP	Evadale Opertions	MeadWestvaco Evadale Pulp and Paper Mill	Evadale Texas	63	JiNia Bradford	Biomass	31646
Nacogdoches Power LLC	Nacogdoches Power LLC	8.32386E+12	Nacogdoches Power LLC	NACPW	176	Jay McFarland	Biomass	36159
Nelson Gardens Energy, LLC	Nelosl Gardens Energy, LLC	Nelson Gardens Energy	DG_78252	DG_78252	208	W. Gary Craig	Biomass	42188
Orange County Container Group LLC	Orange County Container Group LLC	Corrugated Services Inc	Liner Mill Bio-boiler	Liner Mill Bio-boiler	149	Mike Brasovan	Biomass	37531
Rio Grande Valley Sugar Growers Inc.	RGVSG	2	DG_S_SNR	DG_S_SNR	162	Mark Nittler	Biomass	39181
Rio Grande Valley Sugar Growers Inc.	RGVSG	1	Santa Rosa Sugar Mill	Santa Rosa Old TG Building	175	Mark Nittler	Biomass	40005
Rio Grande Valley Sugar Growers, Inc.	RGVSugar	RGVSugar	RGVSugar	RGVSugar	97	Steve Bearden	Biomass	33421
Rio Grande Valley Sugar Growers, Inc.	RGVSG	2	Santa Rosa	2	152	Mark Nittler	Biomass	39181
Snider Industries, LLP	Snider Industries, LLP	Snider_1	Snider_1	Snider_1	109	Julianna Parr	Biomass	35526
Guadalupe-Blanco River Authority	Guadalupe-Blanco River Authority	05-631-1608-3000	DG_Schumansville	DG_Schum	3	Allen Ognoskie	Hydro	20028
Guadalupe-Blanco River Authority	Guadalupe-Blanco River Authority	05-631-1608-3000	DG-MCQUEENEY	DG_MCQUE	4	Allen Ognoskie	Hydro	20028
Guadalupe-Blanco River Authority	Guadalupe-Blanco River Authority	05-631-1608-3000	DG_LAKEWOOD TAP	DG_LKWDT	11	Allen Ognoskie	Hydro	20028
Guadalupe-Blanco River Authority	Guadalupe-Blanco River Authority	05-631-1608-3000	CANYON	DG_CANYON	12	Allen Ognoskie	Hydro	20028
Maverick County Water Control	Maverick County Water	861499895	EAGLE_HY	EAGLE_HY_EAGLE_HY1	92	Maverick County Water	Hydro	34674
Small Hydro of Texas, Inc.	Small Hydro of Texas, Inc.	71	DG_CUERO CSW	CUECPL	13	Linda A. Parker	Hydro	24191

Table 8-1: ERCOT REC Generator List up to 2017 (cont.)

Company Name	Power Generating Company Name	Power Generating Company Code	Generator Site Name	Generator Site Code	Facility Identification Number	Unit Contact Information	Technology Type	Facility Noncompetitive Certification Data
Tarrant Regional Water District	Tarrant Regional Water District	DG_OAKHL	Arlington Outlet Hydroelectric Facility	DG_OAKHL	237	Gabriel Savage	Hydro	44787
Bio Energy (Texas), LLC	Bio Energy (Texas) LLC	32079	Covel Gardens Landfill Gas Power Station	DG_MEDIN	61	John M. Love	Landfill gas	20140
Cromeco, Inc.	Cromeco, Inc.	Cromeco, Inc.	Cromeco, Inc.	Cromeco, Inc.	76	Steve Cromeens	Landfill gas	29520
Denton Power, LLC	Denton Power, LLC	Denton Power	Denton Power	Denton Power	140	Frank Prior	Landfill gas	36717
Fort Worth Methane LLC	G2 Energy (FW Regional) LLC	77-998-1765	DG_RDLML_1 Unit	FW Regional	64	Michael Caplan	Landfill gas	32558
Gas Recovery Systems, Inc.	Gas Recovery Systems	20066	Sunset Farms Electric	Sunset Farms Electric	37	Michael Caplan	Landfill gas	24199
McKinney LFG, LLC	McKinney LFG, LLC	McKinney LFG, LLC	McKinney LFG, LLC	DG_MKNSW	160	Sharon R. Frank	Landfill gas	39210
Renovar Arlington, Ltd.	Renovar Arlington, Ltd.	Rnvr-1	Village Creek	Vcreek	53	Robb Finnemore	Landfill gas	31083
Renovar Arlington, Ltd.	Renovar Arlington, Ltd.	Rnvr-2	Village Creek	Vcreek	54	Robb Finnemore	Landfill gas	31083
Trinity Oaks LLC	G2 Energy (Trinity Oaks) LLC	828961529	Trinity Oaks LFG Generating Facility	DG_KLBRG	136	Michael Caplan	Landfill gas	36679
TX LFG Energy, LP - Atascocita	Viridis Energy, LP - Atascocita	93-01-87393	ATASCOCITA	HB	29	Sharon Frank	Landfill gas	26813
TX LFG Energy, LP - Baytown	Viridis Energy, LP - Baytown	01-62-16561	BAYTOWN	TRM	33	Sharon Frank	Landfill gas	26811
TX LFG Energy, LP - Blue Bonnet	Viridis Energy, LP - Blue Bonnet	93-01-27472	BLUE BONNET	LB	34	Sharon Frank	Landfill gas	26809
TX LFG Energy, LP - Conroe	Viridis Energy, LP - Conroe	Conroe	Conroe	Conroe	35	Sharon Frank	Landfill gas	26808
TX LFG Energy, LP - Security	Viridis Energy, LP - Security	SECURITY	SECURITY	SECURITY	36	Sharon Frank	Landfill gas	26810
TX LFG Energy, LP - Coastal Plains	Viridis Energy, LP - Coastal Plains	93-01-16145	COASTAL PLAINS	ALVIN	32	Sharon Frank	Landfill gas	26812
WM Renewable Energy, LLC	WM Renewable Energy, LLC	WM Renewable Energy Offset	DG_BIOE	DG_BIOE_2UNITS	26	Clayton Gumpert	Landfill gas	42395
WM Renewable Energy, LLC	WM Renewable Energy, L.L.C.	Skyline	Skyline	DG_FERIS	83	Josh Kuba	Landfill gas	20161
WM Renewable Energy, LLC	WM Renewable Energy II, LLC	Austin	Austin	DG_SPRIN	95	Steven Korsgaard	Landfill gas	34906
WM Renewable Energy, LLC	WM Renewable Energy, L.L.C.	???	DFW II	DG_BIO2	143	Jim Kilpatrick	Landfill gas	36832

Table 8-1: ERCOT REC Generator List up to 2017 (cont.)

Company Name	Power Generating Company Name	Power Generating Company Code	Generator Site Name	Generator Site Code	Facility Identification Number	Unit Contact Information	Technology Type	Facility Noncompetitive Certification Data
WM Renewable Energy, LLC	WM Renewable Energy, LLC IV	Westside	Westside	DG_WSTHL	155	Phil Keim	Landfill gas	37711
WM Renewable Energy, LLC	WM Renewable Energy, LLC VI	DG_HBR	Farmers Branch Landfill gas-to-energy	DG_HBR	157	LaToya Glenn	Landfill gas	38696
WM Renewable Energy, LLC	WM Renewable Energy, L.L.C. V	Mesquite Creek	Mesquite Creek	DG_FREIH	187	Tim Hopkins	Landfill gas	38611
1 Solar Holdings LLC	1 Solar Holdings LLC	1 Solar Holdings LLC	Commerce Solar Farm	Commerce Solar Farm	1326	Hemal Doshi	Solar	47513
Alamo 6 LLC	OCI Alamo 6 LLC	20358	West Texas Solar	SIRIUS	1276	Russell Tomlinson	Solar	44745
Barilla Solar, LLC	Barilla Solar, LLC	Barilla Solar	HOVEY UNIT 1	BARL	219	Jeff King	Solar	42202
BNB Lamesa Solar LLC	BNB Lamesa Solar LLC	20404	LAMESA SOLAR	LMESASLR	1268	Chase Smith	Solar	46180
Bryan Solar LLC	Bryan Solar, LLC	Bryan Solar, LLC	Bryan Solar, LLC	Bryan Solar, LLC	203	Scott Pryor	Solar	40598
CED Alamo 3 LLC	OCI Alamo 3 LLC	OCI Alamo 3	WALZEM SOLAR	DG_WALZM	223	Patrick Kim	Solar	42749
CED Alamo 5 LLC	CED Alamo 5 LLC	CED Alamo 5	Alamo 5	Alamo5	1253	Cathy Williams	Solar	44277
CED Alamo 7 LLC	CED Alamo 7, LLC	7.97691E+11	PAINT CREEK SOLAR	SOLARA	1280	Patrick	Solar	45295
CED Upton County Solar, LLC	CED Upton county Solar, LLC	CED Upton County Solar	SP-TX-12B	SP-TX-12B	1299	Patrick Kim	Solar	46949
Clean Energy Collective	CEC Solar #1112, LLC	CEC Solar #1112, LLC	CEC Solar #1112, LLC	CEC Solar #1112, LLC	1260	William Serene	Solar	45326
Clean Energy Collective	CEC SOLAR 1111 LLC	CEC SOLAR 1111 LLC	DG_BECK1	CECSOLAR	1263	William Serene	Solar	45594
Constellation Solar Texas, LLC	Constellation Solar Texas, LLC	Johnson City I	Johnson City I	Johnson City I	1337	Lisa Horst	Solar	48165
Constellation Solar Texas, LLC	Constellation Solar Texas, LLC	Johnson City II	Johnson City II	Johnson City II	1338	Lisa Horst	Solar	48164
Constellation Solar Texas, LLC	Constellation Solar Texas, LLC	Perrin I	Perrin I	Perrin I	1339	Lisa Horst	Solar	48170
Constellation Solar Texas, LLC	Constellation Solar Texas, LLC	Perrin II	Perrin II	Perrin II	1340	Lisa Horst	Solar	48171
Constellation Solar Texas, LLC	Constellation Solar Texas, LLC	Perrin III	Perrin III	Perrin III	1341	Lisa Horst	Solar	48172
Constellation Solar Texas, LLC	Constellation Solar Texas, LLC	Perrin IV	Perrin IV	Perrin IV	1342	Lisa Horst	Solar	48173

Table 8-1: ERCOT REC Generator List up to 2017 (cont.)

Company Name	Power Generating Company Name	Power Generating Company Code	Generator Site Name	Generator Site Code	Facility Identification Number	Unit Contact Information	Technology Type	Facility Noncompetitive Certification Data
Constellation Solar Texas, LLC	Constellation Solar Texas, LLC	Stout Drake I	Stout Drake I	Stout Drake I	1343	Lisa Horst	Solar	48166
Constellation Solar Texas, LLC	Constellation Solar Texas, LLC	Stout Drake II	Stout Drake II	Stout Drake II	1344	Lisa Horst	Solar	48167
Constellation Solar Texas, LLC	Constellation Solar Texas, LLC	Stout Drake III	Stout Drake III	Stout Drake III	1345	Lisa Horst	Solar	48168
Constellation Solar Texas, LLC	Constellation Solar Texas, LLC	Stout Drake IV	Stout Drake IV	Stout Drake IV	1346	Lisa Horst	Solar	48169
Constellation Solar Texas, LLC	Constellation Solar Texas, LLC	Fritz I	Fritz I	Fritz I	1347	Lisa Horst	Solar	48138
East Pecos Solar LLC	East Pecos Solar LLC	20385	East Pecos Solar	BOOTLEG	1258	Erik Olsen	Solar	45767
El Paso Electric Company	El Paso Electric Company	EPE	Newman	Newman Solar PV #1	172	Brad Green	Solar	39175
El Paso Electric Company	El Paso Electric Company	EPE	Wrangler	Wrangler Solar Facility	179	Roberto Favela	Solar	40387
El Paso Electric Company	El Paso Electric Company	EPE	Stanton	Stanton Solar Installation	180	Roberto Favela	Solar	40386
El Paso Electric Company	El Paso Electric Company	EPE	EPCC Solar Installation	EPCC Solar Installation	181	Roberto Favela	Solar	40385
El Paso Electric Company	El Paso Electric Company	EPE	Van Horn Solar Power Facility	Van Horn Solar Power Facility	206	Roberto Favela	Solar	42283
El Paso Electric Company	El Paso Electric Company	EPE	MPS Texas Community Solar	Texas Community Solar 1	1281	Brad Green	Solar	47018
El Paso Electric Company	El Paso Electric Company	EPE	Microgenerator Aggregator	Microgenerator Aggregator	1295	Brad Green	Solar	47660
El Paso Electric Company	El Paso Electric Company	EPE	Microgenerator Aggregator 2	Microgenerator Aggregator 2	1320	Brad Green	Solar	47780
Farmers Electric Cooperative	Farmers Electric Co-op	Farmers EC	01_Greenville 58.3	Farmers EC	1297	Ryan Landis	Solar	47488
FRV AE Solar, LLC	FRV AE Solar,	FRV AE	FRV AE	FRV AE	163	Scott Pryor	Solar	39808
Harvest Moon Renewable Energy Company LLC	Harvest Moon Renewable Energy Company LLC	471	HM SEALY	SEALY	1247	Joey Romano	Solar	45519
Highway 56 Solar, LLC	Highway 56, LLC	Highway 56, LLC	Highway 56, LLC	Highway 56, LLC	1332	Rebecca Goold	Solar	47119
Leon Solar, LLC	Leon Solar LLC	Leon Solar LLC	Leon Solar LLC	Leon Solar LLC	1336	Rebecca Goold	Solar	47345
Mark Duane Butler	Mark Duane Butler	N/A	N/A	N/A	231	Mark Butler	Solar	44631

Table 8-1: ERCOT REC Generator List up to 2017 (cont.)

Company Name	Power Generating Company Name	Power Generating Company Code	Generator Site Name	Generator Site Code	Facility Identification Number	Unit Contact Information	Technology Type	Facility Noncompetitive Certification Data
Marlin Solar, LLC	Marlin Solar, LLC	Marlin Solar, LLC	Marlin Solar, LLC	Marlin Solar, LLC	1330	Rebecca Goold	Solar	47082
Michael Laurie Blank	Michael Laurie Blank	Solar	Michael Laurie Blank	Texas	148	Michael Laurie Blank	Solar	37542
Newman Solar, LLC	Newman Solar	Newman Solar	Newman Solar	Newman Solar	224	Bill Diffley	Solar	43861
North Gainesville Solar, LLC	North Gainesville Solar, LLC	North Gainesville Solar, LLC	North Gainesville Solar, LLC	North Gainesville Solar, LLC	1333	Rebecca Goold	Solar	47083
NRG Residential Solar Solutions LLC	NRG Residential Solar Solutions, LLC.	NRG RSS LLC	SolarSPARC	NRG RSS LLC	217	Jennifer Rodriguez	Solar	42517
NRG Solar SC Stadium LLC	NRG Solar SC Stadium LLC	NRG Solar	NRG Stadium	NRG Solar	1241	Thomas Neri	Solar	45102
OCI Alamo 1 LLC	OCI ALAMO 1 LLC	OCI ALAMO 1	OCI ALAMO 1	OCL_ALM1	201	Guy B. Pickrel	Solar	41465
OCI Alamo 2, LLC	OCI ALAMO 2 LLC	OCI ALAMO 2	ST HEDWIG SOLAR	DG_STHWG	205	Guy B Pickrel	Solar	41777
OCI Alamo 4 LLC	OCI Alamo 4 LLC	OCI Alamo 4	BRACKETTVILLE SOLAR	ECLIPSE	207	F. Lee Samaie	Solar	42208
OCI Solar TRE LLC	OCI Solar TRE LLC	OCI Solar TRE	Pearl Solar	SIRIUS	1256	Jaro Nummikoski	Solar	45643
PowerFin ASL 1 LLC	PowerFin ASL 1, LLC	20450	POWERFIN KINGSBERY	PFK	1300	PowerFin Partners	Solar	47787
RE Roserock LLC	RE Roserock LLC	45217	RE Roserock Solar Plant	REROCK	1261	Erik Olsen	Solar	45217
Renewable Ventures	Nuon Renewable Ventures	NRV	Green Mountain Solar at Upper Kirby	USAPV003	19	Nuon Renewable Ventures	Solar	26410
Renewable Ventures	Nuon Renewable Ventures	NRV	Green Mountain Solar at The Winston School	USAPV002	20	Nuon Renewable Ventures	Solar	26411
SoCore Operations Management LLC	Bandera Electric Cooperative	BEC	Bandera Electric Coop Leakey TX	Bandera Electric Coop Leakey TX	1286	Bandera Leakey Texas	Solar	46859
SoCore Operations Management LLC	Bandera Electric Cooperative	BEC	Bandera Electric Coop Leakey TX North	Bandera Electric Coop Leakey TX	1287	Bandera Leakey Texas	Solar	46860
SolaireHolman 1 LLC	SolaireHolman 1 LLC	LASSO	LASSO	LASSO	1282	Cesar Seymour	Solar	46832
SunE CPS1LLC	SunE CPS1, LLC	n/a	n/a	n/a	173	Elyssa Jaffe	Solar	40012
SunE CPS2, LLC	SunE CPS2, LLC	n/a	n/a	n/a	174	Elyssa Jaffe	Solar	40014
SunE CPS3, LLC	SunE CPS3, LLC	n/a	n/a	n/a	191	Elyssa Jaffe	Solar	40013



Table 8-1: ERCOT REC Generator List up to 2017 (cont.)

Company Name	Power Generating Company Name	Power Generating Company Code	Generator Site Name	Generator Site Code	Facility Identification Number	Unit Contact Information	Technology Type	Facility Noncompetitive Certification Data
The Tangent Group, LLC.	The Tangent Group, LLC.	42473	Hanger Solar 1	N/A	210	The Tangent Group, LLC.	Solar	42473
The University of Texas - Houston	University of Texas - Houston	UTHSC	University Center Tower	University Center Tower	42	Rahsaan Arscott	Solar	No. 77027
TX Solar I LLC	TX Solar I LLC	TX Solar I	TX Solar I	DG BROOK	153	Dreama Brower	Solar	38359
TX Solar I LLC	TX Solar I LLC	TX Solar I	TX Solar I	DG ELMEN	154	Dreama Brower	Solar	38359
Walnut Springs Solar, LLC	Walnut Springs Solar, LLC	Walnut Springs Solar, LLC	Walnut Springs Solar, LLC	Walnut Springs Solar, LLC	1264	Chris Frantz	Solar	46158
Whitesboro II Solar, LLC	Whitesboro Solar II LLC	Whitesboro Solar II LLC	Whitesboro Solar II LLC	Whitesboro Solar II LLC	1335	Rebecca Goold	Solar	47447
Whitesboro Solar, LLC	Whitesboro Solar LLC	Whitesboro Solar LLC	Whitesboro Solar LLC	Whitesboro Solar LLC	1334	Rebecca Goold	Solar	47446
Whitewright Solar, LLC	Whitewright Solar, LLC	Whitewright Solar, LLC	Whitewright Solar, LLC	Whitewright Solar, LLC	1331	Rebecca Goold	Solar	47084
Aeolus Wind LLC	Aeolus Wind, LLC	Aeolus Wind, LLC	North Texas	NA	51	Dan McAllister	Wind	29341
American Wind Power Center	American Wind Power Center	Lubbock	AWPC	AWPC#1	60	Coy F. Harris	Wind	32470
Anacacho Wind Farm, LLC	Anacacho Wind Farm, LLC	Anacacho	Anacacho Wind Farm, LLC	ANACACHO	196	George Nelson	Wind	40732
Astra Wind LLC	ASTRA WIND LLC	ASTRA	ASTRA	ASTRA	1285	Leandro Alves	Wind	46742
Avangrid Renewables, LLC	Barton Chapel Wind LLC	Barton Chapel	Barton Chapel	Barton Chapel	138	Bobby Clark	Wind	36825
Avangrid Renewables, LLC	Penascal Wind Power LLC	Penascal	Penascal	Penascal	139	Dan Pitts	Wind	36829
Avangrid Renewables, LLC	Penascal Wind Power LLC	Penascal/STEC	Penascal/STEC	Penascal/STEC	142	Dan Pitts	Wind	36829
Avangrid Renewables, LLC	Penascal II Wind Project, LLC	Penascal II	Penascal II	Penascal II	171	Dan Piits	Wind	38237
Avangrid Renewables, LLC	Baffin Wind LLC	Baffin	Baffin	Baffin	229	Adam Cherry	Wind	44483
Bearkat Wind Energy I, LLC	Bearkat Wind Energy I, LLC	20477	NIELS BOHR	NBOHR	1325	Chris Glimco	Wind	47849
Bethel Wind Farm LLC	Bethel Wind Farm LLC	BETH	Bethel Wind Farm	BETH	1266	Patrick York	Wind	46153
Blue Summit Wind, LLC	Blue Summit Wind LLC	BLSUMMIT	BLUE SUMMIT	BLSUMMIT	188	Daniel Gerard	Wind	40710

Table 8-1: ERCOT REC Generator List up to 2017 (cont.)

Company Name	Power Generating Company Name	Power Generating Company Code	Generator Site Name	Generator Site Code	Facility Identification Number	Unit Contact Information	Technology Type	Facility Noncompetitive Certification Data
Bobcat Bluff Wind Project, LLC	Bobcat Bluff Wind Project, LLC	BCATWIND	Bobcat Bluff Wind Project	BCATWIND	190	Jay Temple	Wind	20295
Brazos Wind, LP	Brazos Wind LP	Brazos Wind	Green Mountain Energy Wind Farm at Brazos	BRAZ_WND1	44	Scott McBride	Wind	29025
Brazos Wind, LP	Brazos Wind LP	Brazos Wind	Green Mountain Energy Wind Farm at Brazos	BRAZ_WND2	45	Scott McBride	Wind	29025
Briscoe Wind Farm, LLC	BRISCOE WIND FARM LLC	7.96189E+11	BRISCOE WIND FARM	BRISCOE	1239	Jon Faltis	Wind	43892
Bruennings Breeze Wind Farm, LLC	Bruennings Breeze Wind Farm, LLC	20432	Bruennings Breeze	BBREEZE	1324	Travis Carmen	Wind	47779
Buckthorn Wind Project, LLC	Buckthorn Wind Project, LLC	Buckthorn Wind Project, LLC	BUCKTHORN WIND	BUCKTHRN	1319	Jamie Shahan	Wind	47193
Buffalo Gap Wind Farm 2, LLC	Buffalo Gap Wind Farm 2, LLC	603768792	Buffalo Gap Wind Farm	BUFF_GAP	81	William Barnes	Wind	33477
Buffalo Gap Wind Farm 3, LLC	Buffalo Gap Wind Farm 3, LLC	Buffalo Gap Wind Farm 3, LLC	Buffalo Gap Wind Farm	BUFF_GAP	110	Fang Qing	Wind	35247
Buffalo Gap Wind Farm LLC	Buffalo Gap Wind Farm, LLC	Buffalo Gap	Buffalo Gap Wind Farm	Buffalo Gap	56	Gabe Vaca	Wind	31412
Bull Creek Wind LLC	Bull Creek Wind LLC	Bull Creek Wind LLC	Bull Creek Wind LLC	Bull Creek Wind LLC	131	Seiichi Seo	Wind	36239
Cameron Wind I, LLC	Cameron Wind I, LLC	Cameron Wind	Cameron Wind	Cameron Wind	1245	John Kaminski	Wind	45042
Cap Ridge Wind II LLC	CAP RIDGE WIND II LLC	CAP RIDGE WIND II LLC	CAPRIDGE	CAPRIDGE_CR2	1327	Kevin Kelly	Wind	47560
Cap Ridge Wind III LLC	CAP Ridge Wind 3 LLC	CAP Ridge Wind 3 LLC	CAPRIDGE	CAPRIDGE_CR3	1321	Kevin Kelly	Wind	47561
Capricorn Ridge Wind IV, LLC	Capricorn Ridge Wind II, LLC	CR4	CR4	CR4	114	Daniel Sexton	Wind	35488
Capricorn Ridge Wind, LLC	Capricorn Ridge Wind, LLC	Capricorn Ridge Wind	Capricorn Ridge	CAPRIDGE	93	Brian Harris	Wind	34549
Capricorn Ridge Wind, LLC	Capricorn Ridge Wind, LLC	Capricorn Ridge Wind	Capricorn Ridge	CAPRIDGE	146	Brian Harris	Wind	34549
Capricorn Ridge Wind, LLC	Capricorn Ridge Wind, LLC	Capricorn Ridge Wind	Capricorn Ridge	CAPRIDGE	147	Brian Harris	Wind	34549
Cedro Hill Wind, LLC	Cedro Hill Wind, LLC	CEDROHIL	Cedro Hill Wind Farm	CEDROHIL	158	Joe LoCoco	Wind	38336
Champion Wind Farm, LLC	Airtricity Champion Wind Farm, LLC	242	Champion Wind Farm	TKWSW	99	Audrey Fogarty	Wind	35177
Chapman Ranch Wind I, LLC	Chapman Ranch Wind I LLC	20381	Santa Cruz	SANTACRU	1291	Tim Gibson	Wind	Docket No. 47339

Table 8-1: ERCOT REC Generator List up to 2017 (cont.)

Company Name	Power Generating Company Name	Power Generating Company Code	Generator Site Name	Generator Site Code	Facility Identification Number	Unit Contact Information	Technology Type	Facility Noncompetitive Certification Data
Cirrus Wind 1, LLC	Cirrus Wind 1, LLC	Cirrus	Cirrus	Cirrus	197	Jason Yang	Wind	41071
Colbecks Corner, LLC	Colbecks Corner Wind Farm	Colbecks Corner	GRANDVIEW WIND FARM	GRANDVW1_2	1250	Travis Carmen	Wind	45598
Cotton Plains Wind I, LLC	Cotton Plains Wind I, LLC	COTPLNS_COTTO NPL	COTPLNS	COTPLNS	1283	Elise Hertzberg	Wind	46737
Delaware Mountain Wind Farm LLC	DELAWARE MOUNTAIN WIND FARM LP	16	DELAWARE MOUNTAIN	DELAWARE	9	Linda Brandi	Wind	23705
Dermott Wind, LLC	Dermott Wind, LLC	DERMOTT	DERMOTT WIND	DERMOTT	1288	Rob Keiser	Wind	47126
Desert Sky Wind Farm 1 LP	Indian Mesa Power Partners I, L.P.	999	Indian Mesa I Wind Power	INDNENR	16	Richard Walker	Wind	24921
Desert Sky Wind Farm 2 LP	Indian Mesa Power Partners II, L.P.	999	Indian Mesa II Wind Power	INDNENR	17	Richard Walker	Wind	24922
Desert Sky Wind Farm LP	AEP Desert Sky Wind Farm LP	999	Desert Sky Wind Farm LP	INDNENR	215	Jay Oliver	Wind	24922
DeWind Frisco LLC	DeWind Frisco, LLC	DeWind Frisco	DeWind Frisco	DeWind Frisco	170	John Kim	Wind	39974
Diamond Shamrock Refining Company LP	Sunray Wind, LLC	20234	Sunray Wind, LLC Wind Farm	Sunray Wind, LLC	132	William Root	Wind	36672
ECR Panther Creek Wind Farm I and II, LLC	ECR Panther Creek Wind Farm I, LLC.	259	PANTHER CREEK	PC_NORTH	113	George Nelson	Wind	35779
ECR Panther Creek Wind Farm I and II, LLC	EC and R Panther Creek Wind Farm II, LLC	259	PANTHER CREEK	PC_SOUTH	126	George Nelson	Wind	35779
ECR Panther Creek Wind Farm III, LLC	ECR Panther Creek Creek Wind Farm III, LLC	ECR Panther Creek Creek Wind Farm III,	PANTHER3	PANTHER3	141	Dean Tuel	Wind	37092
El Paso Electric Company	El Paso Electric	EPE	Hueco Mountain Wind Ranch	EPE1	1	Monica Garcia	Wind	23631
Elbow Creek Wind Project, LLC	Elbow Creek Wind Project LLC	Elbow Creek	Elbow Creek	Elbow Creek	127	Scott McBride	Wind	36188
Electra Wind, LLC	Electra Wind, LLC	20399	Electra Wind	DIGBY	1272	Rita Brady	Wind	46273
Exelon Wind 1 LLC	JD Wind 1	20137	JD Wind 1	JD Wind 1	65	Steve Maller	Wind	32802
Exelon Wind 10 LLC	JD Wind 10	20195	JD Wind 10	JD Wind 10	106	Steven Maller	Wind	34992
Exelon Wind 11 LLC	JD Wind 11	20196	JD Wind 11	JD Wind 11	107	Steven Maller	Wind	34993
Exelon Wind 2 LLC	JD Wind 2	20138	JD Wind 2	JD Wind 2	66	Steve Maller	Wind	32803

Table 8-1: ERCOT REC Generator List up to 2017 (cont.)

Company Name	Power Generating Company Name	Power Generating Company Code	Generator Site Name	Generator Site Code	Facility Identification Number	Unit Contact Information	Technology Type	Facility Noncompetitive Certification Data
Exelon Wind 3 LLC	JD Wind 3	20139	JD Wind 3	JD Wind 3	67	Steve Maller	Wind	32804
Exelon Wind 4 LLC	JD Wind 4	20153	JD Wind 4	JD Wind 4	75	Steven Maller	Wind	33760
Exelon Wind 5 LLC	JD Wind 5	20154	JD Wind 5	JD Wind 5	71	Steven Maller	Wind	33299
Exelon Wind 6 LLC	JD Wind 6	20155	JD Wind 6	JD Wind 6	72	Steven Maller	Wind	33473
Exelon Wind 7 LLC	JD Wind 7	20193	JD Wind 7	JD Wind 7	108	Steven Maller	Wind	34990
Exelon Wind 8 LLC	JD Wind 8	20194	JD Wind 8	JD Wind 8	105	Steven Maller	Wind	34991
Exelon Wind 9 LLC	JD Wind 9	20189	JD Wind 9	JD Wind 9	104	Steve Maller	Wind	34924
Flat Top Wind I, LLC	Flat Top Wind I, LLC	15INR0082	Flat Top Wind Substation	FTWIND	1293	Matt Allsup	Wind	47311
Fluvanna Wind Energy LLC	Fluvanna Wind Energy, LLC	8.01994E+11	FLUVANNA WIND	FLUVANNA	1328	Chris Jones	Wind	47160
Fluvanna Wind Energy LLC	Fluvanna Wind Energy, LLC	8.01994E+11	FLUVANNA WIND	FLUVANNA	1329	Chris Jones	Wind	47160
Forest Creek Wind Farm, LLC	Airtricity Forest Creek Wind Farm, LLC	210	Forest Creek Wind Farm	MCDLD	74	John Franklin	Wind	33686
FPL Energy Callahan Wind LP (Callahan Divide)	FPL Energy Callahan Divide	30385	Callahan Wind Energy	30385	55	David Gonzalez	Wind	30385
FPL Energy Horse Hollow Wind II LLC	FPL Energy Horse Hollow II, LP	Horse Hollow II	Horse Hollow II	Horse Hollow II	69	John Mantyh	Wind	32524
FPL Energy Horse Hollow Wind LLC	FPL Energy Horse Hollow Wind	0	Horse Hollow Wind Energy	0	57	John Mantyh	Wind	31594
FPL Energy Upton Wind I LLC	FPL Energy Upton Wind I, LP	94	KING MOUNTAIN SW	KING_SW	6	Jesse Nevarez	Wind	24538
FPL Energy Upton Wind II, LLC	FPL Energy Upton Wind II, LP	96	KING MOUNTAIN NW	KING_NW	7	Jesse Nevarez	Wind	24539
FPL Energy Upton Wind III LLC	FPL Energy Upton Wind III, LP	96	KING MOUNTAIN NE	KING_NE	14	Jesse Nevarez	Wind	24540
FPL Energy Upton Wind IV, LLC	FPL Energy Upton Wind IV, LP	96	KING MOUNTAIN SE	KING_SE	15	Jesse Nevarez	Wind	24541
FPL Pecos Wind 1, LLC	FPL Pecos Wind I II, LP	93	WOODWARD1	WOODWRD1	2	Jesse Nevarez	Wind	24296
FPL Pecos Wind 2, LLC	FPL Energy Pecos Wind III, LP	93	WOODWARD 2	WOODWRD2	8	Jesse Nevarez	Wind	24296

Table 8-1: ERCOT REC Generator List up to 2017 (cont.)

Company Name	Power Generating Company Name	Power Generating Company Code	Generator Site Name	Generator Site Code	Facility Identification Number	Unit Contact Information	Technology Type	Facility Noncompetitive Certification Data
Goat Wind, LP	Goat Wind, LP	809226603	GOAT WIND LP	GOAT WIND	98	Johnny Johnson	Wind	35439
Golden Spread Panhandle Wind Ranch, LLC	Golden Spread Panhandle Wind Ranch, LLC	Golden Spread Panhandle Wind	Golden Spread Panhandle Wind Ranch, LLC	Golden Spread Panhandle Wind	161	Matt Moore	Wind	39641
GRANDVIEW WIND FARM, LLC	Grandview Wind Farm	Grandview	GRANDVW1	grandvw1_gv1a	221	Travis Carmen	Wind	42781
Green Pastures Wind I, LLC	GREEN PASTURES WIND I LLC	7.93386E+11	GREEN PASTURES WIND	GPASTURE	232	Jon Faltis	Wind	42762
Green Pastures Wind II, LLC	GREEN PASTURES WIND II LLC	7.94187E+11	GREEN PASTURES WIND	GPASTURE	235	Michele Doty	Wind	43885
Gunsight Mountain Wind Energy LLC	Gunsight Mountain Wind Energy LLC	GUNMTN	Gunsight Mountain	GUNMTN	1251	Patrick York	Wind	45628
Hackberry Wind, LLC	Hackberry Wind LLC	HWFLLC	Hackberry Wind Farm	HWF	124	Matthew Burt	Wind	34708
Harbor Wind LLC	Harbor Wind LLC	20289	HARBOR WIND	DG_NUECE	182	Tibor Hegedus	Wind	40407
Hidalgo Wind Farm LLC	Hidalgo Wind Farm LLC	484	Los Mirasoles Wind	Mirasole	1273	Daniel Saldanha	Wind	46344
Hidalgo Wind Farm LLC	Hidalgo Wind Farm LLC	484	Los Mirasoles Wind	Mirasole	1274	Daniel Saldanha	Wind	46344
Hidalgo Wind Farm LLC	Hidalgo Wind Farm LLC	484	Los Mirasoles Wind	Mirasole	1275	Daniel Saldanha	Wind	46344
High Majestic Wind II, LLC	High Majestic Wind II, LLC	Majestic II	Majestic II	Majestic II	177	William Mundt	Wind	40397
High Plains Wnd Power LLC	High Plains Wind Power LLC	20197	High Plains Wind Power	High Plains Wind Power	111	Steven Maller	Wind	34994
Horse Creek Wind, LLC	Horse Creek Wind, LLC	20398	Horse Creek Wind	HORSECRK	1271	Rita Brady	Wind	46272
Horse Hollow Wind III LLC	Horse Hollow Wind 3 LLC	Horse Hollow Wind 3 LLC	HHOLLOW3	HHOLLOW3_WND_1	1322	Kevin Kelly	Wind	47243
Horse Hollow Wind IV LLC	HORSE HOLLOW WIND 4 LLC	HORSE HOLLOW WIND 4 LLC	HHOLLOW4	HHOLLOW4_WND1	1323	Kevin Kelly	Wind	47400
Inadale Wind Farm, LLC	Inadale Wind Farm, LLC	Inadale Wind Farm, LLC	Inadale Wind Farm, LLC	INDL_INADALE1	134	Dean Tuel	Wind	36500
Indian Mesa Wind Farm LLC	NWP INDIAN MESA WIND FARM LP	17	INDIAN MESA NWP	INDNNWP	10	Linda Brandi	Wind	23745
Invenergy	Goldthwaite Wind Energy LLC	Goldthwaite Wind	Goldthwaite Wind Energy Center	GWEC	202	Patrick York	Wind	41670
Javelina Wind Energy II, LLC	Javelina Wind Energy II, LLC	JAVEL2_A	JAVEL2_A	BORDAS2_JAVEL2_A	1277	Ingrid Chapman	Wind	46386

Table 8-1: ERCOT REC Generator List up to 2017 (cont.)

Company Name	Power Generating Company Name	Power Generating Company Code	Generator Site Name	Generator Site Code	Facility Identification Number	Unit Contact Information	Technology Type	Facility Noncompetitive Certification Data
Javelina Wind Energy II, LLC	Javelina Wind Energy II LLC B	JAVEL2_B	JAVEL2_B	BORDAS2_JAVEL2_B	1278	Ingrid Chapman	Wind	46386
Javelina Wind Energy II, LLC	Javelina Wind Energy II C LLC	JAVEL2_C	JAVEL2_C	BORDAS	1279	Ingrid Chapman	Wind	46386
Javelina Wind Energy LLC	Javelina Wind Energy, LLC	20377	Javelina Wind	20377	1242	Business Management, attn:	Wind	45416
Keechi Wind, LLC	Keechi Wind, LLC	20330	Keechi_U1	Keechi Wind	218	Mitchell Kerley	Wind	42632
KODE Novus I	KODE Novus I	KODE Novus I	KODE Novus I	KODE Novus I	186	seongman Lim	Wind	40421
KODE Novus II	KODE Novus II	KODE Novus II	KODE Novus II	KODE Novus II	184	seongman Lim	Wind	40502
Langford Wind Power, LLC	Langford Wind Power, LLC	Langford Wind Power, LLC	Langford	Langford	145	Scott McBride	Wind	37206
Little Pringle 1 LLC	LittlePringle1, LLC	Little Pringle 1	Little Pringle 1	Little Pringle 1	164	John Kim	Wind	39653
Little Pringle 2 LLC	LittlePringle2, LLC	Little Pringle 2	Little Pringle 2	Little Pringle 2	165	John Kim	Wind	39701
Llano Estacado	Llano Estacado Wind Ranch at White Deer	Shell	White Deer	White Deer Wind	18	George Griese	Wind	23633
Logans Gap Wind LLC	Logans Gap Wind LLC	7.9253E+11	Logans Gap Wind LLC	LGW	227	Sergio Gonsales	Wind	44235
Longhorn Wind Project, LLC	Longhorn Wind Project, LLC	Longhorn Wind Project, LLC	Longhorn Wind	LHORN_N	1237	Dan Summa	Wind	44408
Lorraine Windpark Project, LLC	LORAIN WINDPARK PROJECT LLC	LORAIN WINDPARK	LORAIN WINDPARK PROJECT LLC	LONEWOLF	150	Jim Kutey	Wind	37533
Los Vientos Windpower IA, LLC	Los Vientos Windpower IA, LLC	LV1A	Los Vientos Windpower IA, LLC	LV1A	193	Robert C. Jones Jr.	Wind	40781
Los Vientos Windpower IB, LLC	Los Vientos Windpower IB, LLC	LV1B	Los Vientos Windpower IB, LLC	LV1B	194	Robert C. Jones Jr.	Wind	40782
Los Vientos Windpower III, LLC	Los Vientos Windpower III, LLC	20356	Los Vientos III	LV3	236	Tim Umberg	Wind	44638
Los Vientos Windpower IV, LLC	Los Vientos Windpower IV, LLC	1017583M80355DEL SOL	Los Vientos Windpower IV	LV4_Unit_1	1255	Cynthia Peterson	Wind	45668
Los Vientos Windpower V, LLC	Los Vientos Windpower V, LLC	20374	Los Vientos V	LV5	1244	Tim Umberg	Wind	45258
Lubbock Wind, LLC	Lubbock Wind, LLC	Lubbock Wind	Lubbock Wind Ranch	Lubbock Wind	204	Karen Burks	Wind	41833
Magic Valley Wind Farm I, LLC	Magic Valley Wind Farm I, LLC	MVI	MAGIC VALLEY I	REDFISH	178	George Nelson	Wind	40353

Table 8-1: ERCOT REC Generator List up to 2017 (cont.)

Company Name	Power Generating Company Name	Power Generating Company Code	Generator Site Name	Generator Site Code	Facility Identification Number	Unit Contact Information	Technology Type	Facility Noncompetitive Certification Data
Majestic Wind Power LLC	Majestic Wind Power LLC	Majestic Wind Power LLC	Majestic Wind Power LLC	Majestic Wind Power LLC	117	Kim Takayesu	Wind	35871
Mariah Del Norte	Mariah del Norte	20401	Mariah del Norte	Mariah del Norte	1269	Mariah del Norte, c/o CAMS	Wind	46186
McAdoo Wind Energy LLC	McAdoo Wind Energy LLC	McAdoo Wind	McAdoo Wind Energy Center	MWEC	119	Patrick York	Wind	35935
Mesquite Creek Wind LLC	Mesquite Creek Wind LLC	Mesquite Creek Wind	Mesquite Creek Wind	Mesquite Creek Wind	225	Casey Keller	Wind	42905
Mesquite Wind, LLC	Mesquite Wind LLC	Horizon Wind	Horizon Wind	Horizon Wind	68	Daniel Saldanha	Wind	32936
Miami Wind I, LLC	Miami Wind I, LLC	Miami Wind	Miami Wind Energy Center	MIAMI	209	Patrick York	Wind	42350
Mission Wind LLC	Wildorado Wind, LLC	Mission Wind	Mission Wind	Mission Wind	94	Maria Litos	Wind	32900
Mozart Wind, LLC	BayWa r.e. Wind, LLC	20303	Mozart_Wind_1	09INR0061	199	Joerg Beland	Wind	41303
Noble Great Plains Windpark, LLC	Noble Great Plains Windpark, LLC	Noble Great Plains Windpark, LLC	Noble Great Plains Windpark, LLC	Noble Great Plains Windpark, LLC	120	Harry Silton	Wind	36122
Notrees Windpower, LP	Notrees Windpower LP	Notrees	Notrees Windfarm	NWF	137	Jason Allen	Wind	36350
Ocotillo Windpower, LP	Ocotillo Windpower LP	Ocotillo Windpower	Ocotillo Windfarm	OWF	122	Jason Allen	Wind	35453
Old Settler Wind, LLC	Old Settler Wind LLC	COTPLNS_OLDSETLR	COTPLNS	COTPLNS	1284	Elise Hertzberg	Wind	46738
Palo Duro Wind Energy, LLC	Palo Duro Wind Energy, LLC	Palo Duro Wind Energy, LLC	Palo Duro Wind Energy, LLC	Palo Duro Wind Energy, LLC	226	Juan Hernandez	Wind	43618
Papalote Creek I LLC	ECR Papalote I, LLC	ECR Papalote I, LLC	ECR Papalote I, LLC	ECR Papalote I, LLC	144	John Franklin	Wind	37352
Papalote Creek II LLC	ECR Papalote Creek II, LLC	Papalote II	ECR Papalote Creek II, LLC	Papalote II	159	JohnFranklin	Wind	38252
Pattern Gulf Wind LLC	Pattern Gulf Wind LLC	Pattern Gulf Wind LLC	Texas Gulf Wind	TGW	151	Anh Le	Wind	37781
Pattern Panhandle Wind 2 LLC	PATTERN PANHANDLE WIND 2 LLC	7.92237E+11	PATTERN PANHANDLE WIND 2	PH2	212	SERGIO GONSALES	Wind	42293
Pattern Panhandle Wind LLC	PATTERN PANHANDLE WIND LLC	7.92237E+11	PATTERN PAHANDLE WIND	PH1	213	SERGIO GONSALES	Wind	42246
Pleasant Hill Wind Energy, LLC	Pleasant Hill Wind Energy, LLC	20370	Pleasant Hill Wind Energy	none	1243	Pleasant Hill Wind Energy	Wind	45130
Post Oak Wind, LLC	Post Oak Wind	Post Oak Wind	Post Oak Wind	Post Oak Wind	78	Brian Hayes	Wind	33801

Table 8-1: ERCOT REC Generator List up to 2017 (cont.)

Company Name	Power Generating Company Name	Power Generating Company Code	Generator Site Name	Generator Site Code	Facility Identification Number	Unit Contact Information	Technology Type	Facility Noncompetitive Certification Data
Post Wind Farm LP	Post Wind Farm, LP	Post Wind	Post Wind	Post Wind	70	John Cote	Wind	32525
PYCO Industries, Inc.	PYCO Industries, Inc.	70047	PYCO Industries Plant #2	2	125	PYCO Industries, Inc. Wind Farm	Wind	36175
Pyron Wind Farm, LLC	Pyron Wind Farm, LLC	Pyron Wind Farm, LLC	Pyron Wind Farm, LLC	PYR_PYRON1	135	Dean Tuel	Wind	36501
Ralls Wind Farm LLC	Ralls Wind Farm LLC	Ralls	Ralls Wind Farm	Ralls	185	David Liu	Wind	40455
Rattlesnake Power, LLC	RATTLESNAKE POWER LLC	RTS WIND	RTS WIND POWER PROJECT	RTS	1348	Keith Kurtz	Wind	47952
Rattlesnake Wind I LLC	Rattlesnake Wind I LLC	RSNAKE	Rattlesnake Wind I Energy Center	RSNAKE	233	Seyi Adeyemi	Wind	44475
Rocksprings Val Verde Wind LLC	Rocksprings Val Verde Wind, LLC	Rocksprings Val Verde	FERMI	Rocksprings Val Verde	1298	Regina Sweet	Wind	47467
Roscoe Wind Farm, LLC	Airtricity Roscoe Wind Farm, LLC	243	Roscoe Wind Farm	TKWSW1	100	Audrey Fogarty	Wind	35176
Route 66 Wind Power, LLC	Route 66 Wind Power	ROUTE_66	ROUTE_66	ROUTE_66_WIND1	1238	Mike Collins	Wind	43912
Salt Fork Wind, LLC	Salt Fork Wind, LLC	Salt Fork Wind, LLC	SALT FORK WIND	SALTFORK	1265	Daniel Summa	Wind	46142
San Roman Wind 1, LLC	San Roman Wind I, LLC	45126	San Roman Wind I	SANROMAN	1267	Daniel Sadik	Wind	46021
Sand Bluff Wind Farm, LLC	Airtricity Sand Bluff Wind Farm, LLC	211	Sand Bluff Wind Farm	MCDLD	77	Phil Dutton	Wind	33845
Santa Rita Wind Energy LLC	Santa Rita Wind Energy LLC	20437	Santa Rita Wind Energy	HICKMAN	1292	Patrick York	Wind	47459
Scurry County Wind II LLC	Scurry County Wind II LLC	scurry county wind II	Camp Springs Energy Center	CSEC	101	Patrick York	Wind	35290
Scurry County Wind, L.P.	Scurry County Wind, L.P.	scurry county wind	Camp Springs Energy Center	CSEC	80	Patrick York	Wind	33902
Senate Wind, LLC	Senate Wind, LLC	Senate	Senate	Senate	189	Patrick Taylor	Wind	40734
Sendero Wind Energy, LLC	Sendero Wind Energy, LLC	45202	Sendero	Sendero	1252	Dan Heim	Wind	45202
Shannon Wind, LLC	Shannon Wind, LLC	11INR0079	Shannon Wind	SHANNONW	1246	Matt Allsup	Wind	44674
Sherbino I Wind Farm LLC	Sherbino I Wind Farm, LLC	20220	Sherbino I Wind Farm	KEO	121	Katharine Descamps	Wind	35887
Sherbino II Wind Farm LLC	Sherbino II Wind Farm LLC	20274	Sherbino II Wind Farm	KEO	166	James Holly	Wind	39664



Table 8-1: ERCOT REC Generator List up to 2017 (cont.)

Company Name	Power Generating Company Name	Power Generating Company Code	Generator Site Name	Generator Site Code	Facility Identification Number	Unit Contact Information	Technology Type	Facility Noncompetitive Certification Data
Silver Star I Power Partners, LLC	Silver Star I Power Partners LLC	20186	Silver Star Wind	FLTCK	123	James C Holly	Wind	35551
Snyder Wind Farm, LLC	Snyder Wind Farm, LLC	20187	Snyder Wind Farm	ENAS	96	Roberto Rosner	Wind	34754
SOUTH PLAINS WIND ENERGY	SOUTH PLAINS WIND ENERGY	SPLAIN1	SPLAIN1	SPLAIN1_WIND1	1240	Donald Theriault	Wind	45027
South Plains Wind Energy II, LLC	South Plains Wind Energy II, LLC	SPLAIN2	SPLAIN2	SPLAIN2_WIND21	1249	Mike Collins	Wind	45642
South Trent Wind LLC	South Trent Wind LLC	35778	South Trent Wind Farm	STWF	115	Kim Takayesu	Wind	35750
SP Cactus Flats Wind Energy LLC	SP Cactus Flats Wind Energy LLC	20445	CFLATS SUBSTATION	CFLATS	1296	Chase Smith	Wind	47732
Spinning Spur Wind Three, LLC	Spinning Spur Wind Three, LLC	7.96067E+11	Spinning Spur Wind Three	SSPUR TWO	1248	Alicia Ramsey	Wind	45101
Spinning Spur Wind Two LLC	Spinning Spur Wind Two LLC	7.84585E+11	SPINNING SPUR WIND TWO	SSPUR TWO	216	Dwynne Igau	Wind	42500
Spinning Spur Wind, LLC	Spinning Spur Wind	Spinning Spur Wind	Spinning Spur Wind	Spinning Spur Wind	192	Jeff Shultz	Wind	40821
Stanton Wind Energy LLC	Stanton Wind Energy LLC	stanton wind	Stanton Wind Energy LLC	SWEC	102	Patrick York	Wind	35206
Stephens Ranch Wind Energy II, LLC	Stephens Ranch Wind Energy II, LLC	7.94208E+11	Stephens Ranch Wind Energy Project Phase 2	SRWE1	230	Rita Brady	Wind	44634
Stephens Ranch Wind Energy, LLC	Stephens Ranch Wind Energy, LLC	7.92803E+11	Stephens Ranch Wind Energy Project Phase 1	SRWE1	222	Rita Brady	Wind	43485
Suzlon Project VIII, LLC	Suzlon Project VIII, LLC	Suzlon Project VIII, LLC	Suzlon Project VIII, LLC	Suzlon Project VIII, LLC	198	M. Hope Whitfield	Wind	40954
Sweetwater Wind Power LLC	Sweetwater Wind 1 LLC	137899477	Sweetwater Wind 1	SWEETWND	43	Rob Robertson	Wind	28924
Sweetwater Wind Power LLC	Sweetwater Wind 2 LLC	Sweet Wind 2	Sweetwater Wind 2	SWEETWND2	52	Rob Robertson	Wind	30462
Sweetwater Wind Power LLC	Sweetwater Wind Power	603943148	Sweetwater Wind 3 LLC_AE	SWEETWND3	58	Rob Robertson	Wind	31983
Sweetwater Wind Power LLC	Sweetwater Wind Power	603943148-3000	Sweetwater Wind 3 LLC_CPS	SWEETWND3	59	Rob Robertson	Wind	31983
Sweetwater Wind Power LLC	Sweetwater Wind 4 LLC	Sweetwater Wind 4 LLC	Sweetwater Wind 4 LLC	Sweetwater Wind 4 LLC	79	Rob Robertson	Wind	34058
Sweetwater Wind Power LLC	Sweetwater Wind 5 LLC	Sweetwater Wind 5 LLC	Sweetwater Wind 5 LLC	SWEETWN5	82	Rob Robertson	Wind	34709
Texas Gulf Wind LLC	Texas Gulf Wind LLC	Texas Gulf Wind LLC	Texas Gulf Wind LLC	TGW	112	Kim Takayesu	Wind	35810

Table 8-1: ERCOT REC Generator List up to 2017 (cont.)

Company Name	Power Generating Company Name	Power Generating Company Code	Generator Site Name	Generator Site Code	Facility Identification Number	Unit Contact Information	Technology Type	Facility Noncompetitive Certification Data
Texas State Technical College	Texas State Technical College West Texas	TSTC	TSTC West Texas	DG ROSC2	133	Ray Fried	Wind	36692
Trent Wind Farm, L.P.	Trent Wind Farm, L.P.	70	TRENT MESA WIND FARM	TRENT	5	Richard Walker	Wind	24322
Trinity Hills Wind Farm LLC	Trinity Hills Wind Farm LLC	20277	Trinity Hills Wind Farm LLC	TRINITY	168	James Holly	Wind	40082
Trinity Hills Wind Farm LLC	Trinity Hills Wind Farm LLC	20277	Trinity Hills Wind Farm LLC	TRINITY	169	James Holly	Wind	40082
Turkey Track Wind Energy LLC	Turkey Track Wind Energy LLC	Turkey Track Wind	Turkey Track Wind Energy Center	TTWEC	128	Patrick York	Wind	36369
TX Hereford Wind, LLC	TX Hereford Wind LLC	TX Hereford Wind LLC	Hereford Wind	HRFDWIND	228	Dwynne Igau	Wind	43785
TX Jumbo Road Wind, LLC	TX Jumbo Road Wind, LLC	TX Jumbo Road Wind, LLC	HRFDWIND	HRFDWIND_JRDWI ND1 and	234	Janet Peck	Wind	44202
Tyler Bluff Wind Project, LLC	Tyler Bluff Wind Project LLC	Tyler Bluff Wind Project LLC	Tyler Bluff Wind	TYLRWIND	1262	Dwynne Igau	Wind	46136
Wake Wind Energy LLC	Wake Wind Energy LLC	WAKEWE	Wake Wind Energy	WAKEWE	1254	Chase Smith	Wind	45852
Whirlwind Energy, LLC	Whirlwind Energy, LLC	WELLC	Whirlwind Energy Center	WEC	103	Matthew Burt	Wind	33835
Whitetail Wind Energy, LLC	Exelon Wind, LLC	20137	Whitetail Wind Energy, LLC	Whitetail Wind	195	Daniel Heim	Wind	41063
Willow Springs Windfarm, LLC	Willow Springs Windfarm, LLC	20429	WILLOW SPRINGS WINDFARM	SALVTION	1294	Rob Keiser	Wind	47506
Windthorst-2, LLC	Windthorst-2	WNDTHST2	Windthorst-2	WNDTHST2	214	Dwynne Igau	Wind	42391
Wolf Ridge Wind, LLC	Wolf Ridge Wind, LLC	C41483	WOLF RIDGE	WLFRIDGE	129	Rory Robinson	Wind	36015

Table 8-2: Quarterly Electricity Generation by Renewable Sources, in MWh, for 2001–2017

Technology Type	Year	Quarter1	Quarter2	Quarter3	Quarter4	Total MWh
Biomass	2001	0	0	0	0	0
Hydro	2001	0	0	11,293	19,346	30,639
Landfill gas	2001	0	0	0	0	0
Solar	2001	0	0	0	0	0
Wind	2001	0	0	201,118	364,479	565,597
Totals		0	0	212,411	383,825	596,236

Technology Type	Year	Quarter1	Quarter2	Quarter3	Quarter4	Total MWh
Biomass	2002	0	0	0	0	0
Hydro	2002	105,817	69,165	80,154	56,956	312,093
Landfill gas	2002	8,216	7,073	6,986	7,137	29,412
Solar	2002	0	29	37	21	87
Wind	2002	611,708	716,896	622,262	500,618	2,451,484
Totals		725,741	793,163	709,440	564,732	2,793,076

Technology Type	Year	Quarter1	Quarter2	Quarter3	Quarter4	Total MWh
Biomass	2003	8,876	11,253	10,999	8,368	39,496
Hydro	2003	92,680	52,592	71,699	22,713	239,684
Landfill gas	2003	29,995	44,629	39,920	39,662	154,206
Solar	2003	32	70	69	49	220
Wind	2003	561,994	670,248	617,794	665,446	2,515,482
Totals		693,577	778,792	740,481	736,238	2,949,087

Technology Type	Year	Quarter1	Quarter2	Quarter3	Quarter4	Total MWh
Biomass	2004	6,274	11,459	11,482	7,725	36,940
Hydro	2004	55,638	52,735	52,350	74,067	234,791
Landfill gas	2004	52,801	47,964	53,659	49,018	203,443
Solar	2004	31	67	70	44	211
Wind	2004	815,010	1,014,396	610,157	770,066	3,209,630
Totals		929,755	1,126,621	727,718	900,920	3,685,014

Technology Type	Year	Quarter1	Quarter2	Quarter3	Quarter4	Total MWh
Biomass	2005	13,921	15,069	14,764	14,883	58,637
Hydro	2005	108,974	106,893	61,189	33,246	310,302
Landfill gas	2005	52,118	51,193	56,166	54,301	213,777
Solar	2005	46	69	67	46	227
Wind	2005	801,232	1,246,182	869,508	1,304,646	4,221,568
Totals		976,291	1,419,406	1,001,693	1,407,122	4,804,512

Technology Type	Year	Quarter1	Quarter2	Quarter3	Quarter4	Total MWh
Biomass	2006	16,327	10,479	17,152	16,610	60,569
Hydro	2006	55,000	83,064	44,870	27,143	210,077
Landfill gas	2006	69,191	78,650	75,665	82,580	306,087
Solar	2006	26	43	41	360	470
Wind	2006	1,478,927	1,584,166	1,376,540	2,091,295	6,530,928
Totals		1,619,471	1,756,403	1,514,268	2,217,988	7,108,131

Table 8-2: Quarterly Electricity Generation by Renewable Sources, in MWh, for 2001–2017 (cont.)

Technology Type	Year	Quarter1	Quarter2	Quarter3	Quarter4	Total MWh
Biomass	2007	13,052	15,870	13,073	12,105	54,101
Hydro	2007	66,084	120,486	139,965	56,346	382,882
Landfill gas	2007	84,367	86,372	85,612	99,987	356,339
Solar	2007	339	503	541	461	1,844
Wind	2007	1,961,153	2,029,807	2,020,870	3,339,338	9,351,168
Totals		2,124,995	2,253,039	2,260,062	3,508,238	10,146,333

Technology Type	Year	Quarter1	Quarter2	Quarter3	Quarter4	Total MWh
Biomass	2008	21,154	14,019	12,564	23,095	70,833
Hydro	2008	98,510	177,051	78,751	91,116	445,428
Landfill gas	2008	105,217	97,361	88,470	96,062	387,110
Solar	2008	446	862	992	1,038	3,338
Wind	2008	4,030,973	4,737,188	2,639,509	4,878,770	16,286,440
Totals		4,256,300	5,026,481	2,820,287	5,090,081	17,193,150

Technology Type	Year	Quarter1	Quarter2	Quarter3	Quarter4	Total MWh
Biomass	2009	25,083	18,938	17,187	12,156	73,364
Hydro	2009	76,480	179,512	88,491	163,024	507,507
Landfill gas	2009	94,377	101,709	104,854	111,983	412,923
Solar	2009	101	1,409	1,761	1,222	4,492
Wind	2009	5,413,648	5,385,203	4,248,223	5,549,030	20,596,105
Totals		5,609,689	5,686,771	4,460,516	5,837,415	21,594,390

Technology Type	Year	Quarter1	Quarter2	Quarter3	Quarter4	Total MWh
Biomass	2010	20,974	27,769	17,407	31,385	97,535
Hydro	2010	196,238	133,408	192,252	87,358	609,257
Landfill gas	2010	110,511	114,893	116,789	122,711	464,904
Solar	2010	1,385	2,042	3,483	7,539	14,449
Wind	2010	6,459,442	7,806,011	5,307,840	7,255,367	26,828,660
Totals		6,788,550	8,084,123	5,637,771	7,504,361	28,014,805

Technology Type	Year	Quarter1	Quarter2	Quarter3	Quarter4	Total MWh
Biomass	2011	26,692	20,039	24,890	65,383	137,004
Hydro	2011	60,614	102,583	55,029	48,887	267,113
Landfill gas	2011	121,232	135,365	122,790	118,258	497,645
Solar	2011	7,390	10,160	11,202	7,827	36,580
Wind	2011	7,447,218	9,540,116	5,849,557	7,932,783	30,769,674
Totals		7,663,146	9,808,263	6,063,468	8,173,139	31,708,016

Technology Type	Year	Quarter1	Quarter2	Quarter3	Quarter4	Total MWh
Biomass	2012	41,567	95,834	100,633	50,954	288,988
Hydro	2012	122,942	125,992	68,908	71,355	389,197
Landfill gas	2012	129,505	132,653	144,644	142,235	549,037
Solar	2012	17,299	41,246	44,007	36,887	139,439
Wind	2012	8,938,807	8,399,672	6,376,312	9,031,743	32,746,534
Totals		9,250,120	8,795,396	6,734,504	9,333,174	34,113,195

Table 8-2: Quarterly Electricity Generation by Renewable Sources, in MWh, for 2001–2017 (cont.)

Technology Type	Year	Quarter1	Quarter2	Quarter3	Quarter4	Total MWh
Biomass	2013	36,648	36,622	78,316	48,976	200,564
Hydro	2013	118,008	58,910	37,467	79,853	294,238
Landfill gas	2013	132,757	138,876	136,378	142,834	550,845
Solar	2013	36,112	44,268	57,165	40,781	178,326
Wind	2013	9,702,680	11,386,839	6,708,823	9,111,043	36,909,385
Totals		10,026,205	11,665,516	7,018,149	9,423,488	38,133,358

Technology Type	Year	Quarter1	Quarter2	Quarter3	Quarter4	Total MWh
Biomass	2014	67,700	88,454	111,573	75,743	343,469
Hydro	2014	39,915	106,890	47,850	46,138	240,792
Landfill gas	2014	130,630	130,738	126,337	130,876	518,580
Solar	2014	54,330	80,675	100,351	77,402	312,757
Wind	2014	10,474,109	11,930,083	7,735,157	10,505,013	40,644,362
Totals		10,766,684	12,336,839	8,121,267	10,835,171	42,059,961

Technology Type	Year	Quarter1	Quarter2	Quarter3	Quarter4	Total MWh
Biomass	2015	101,209	60,737	111,231	76,422	349,600
Hydro	2015	88,592	153,061	76,269	96,366	414,289
Landfill gas	2015	136,295	132,252	145,414	147,953	561,915
Solar	2015	79,124	109,563	137,757	83,875	410,318
Wind	2015	8,957,407	11,909,543	10,763,871	13,534,520	45,165,341
Totals		9,362,627	12,365,157	11,234,542	13,939,137	46,901,462

Technology Type	Year	Quarter1	Quarter2	Quarter3	Quarter4	Total MWh
Biomass	2016	57,139	50,673	87,606	52,224	247,643
Hydro	2016	117,562	137,075	86,712	52,392	393,740
Landfill gas	2016	145,658	132,271	121,302	119,174	518,403
Solar	2016	142,149	181,690	291,644	232,927	848,410
Wind	2016	15,226,603	13,799,634	13,335,532	15,434,392	57,796,161
Totals		15,689,111	14,301,343	13,922,795	15,891,109	59,804,357

Technology Type	Year	Quarter1	Quarter2	Quarter3	Quarter4	Total MWh
Biomass	2017	69,465	54,806	37,671	54,489	216,431
Hydro	2017	117,264	150,743	129,146	47,300	444,453
Landfill gas	2017	116,195	116,211	109,684	104,029	446,119
Solar	2017	388,388	640,167	713,644	547,195	2,289,394
Wind	2017	18,415,248	18,112,145	12,646,820	16,902,529	66,076,742
Totals		19,106,560	19,074,073	13,636,965	17,655,541	69,473,139

Table 8-3: Annual Electricity Generation by Renewable Sources (MWh, ERCOT: 2001–2017)

Year	Biomass (MWh)	Hydro (MWh)	Landfill gas (MWh)	Solar (MWh)	Wind (MWh)	Total (MWh)
2001	0	30,639	0	0	565,597	596,236
2002	0	312,093	29,412	87	2,451,484	2,793,076
2003	39,496	239,684	154,206	220	2,515,482	2,949,087
2004	36,940	234,791	203,443	211	3,209,630	3,685,014
2005	58,637	310,302	213,777	227	4,221,568	4,804,512
2006	60,569	210,077	306,087	470	6,530,928	7,108,131
2007	54,101	382,882	356,339	1,844	9,351,168	10,146,333
2008	70,833	445,428	387,110	3,338	16,286,440	17,193,150
2009	73,364	507,507	412,923	4,492	20,596,105	21,594,390
2010	97,535	609,257	464,904	14,449	26,828,660	28,014,805
2011	137,004	267,113	497,645	36,580	30,769,674	31,708,016
2012	288,988	389,197	549,037	139,439	32,746,534	34,113,195
2013	200,564	294,238	550,845	178,326	36,909,385	38,133,358
2014	343,469	240,792	518,580	312,757	40,644,362	42,059,961
2015	349,600	414,289	561,915	410,318	45,165,341	46,901,462
2017	247,643	393,740	518,403	848,410	57,796,161	59,804,357
2018	216,431	444,453	446,119	2,289,394	66,076,742	69,473,139

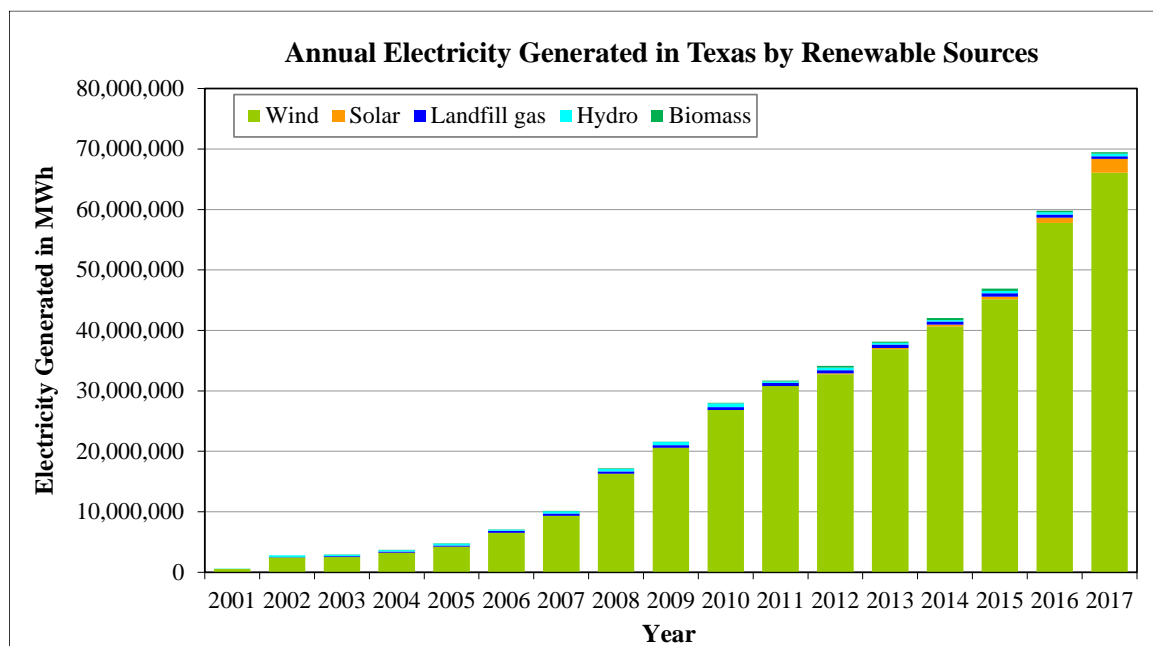


Figure 8-1: Electricity Generation by Renewable Sources (ERCOT: 2001–2017 Annually)

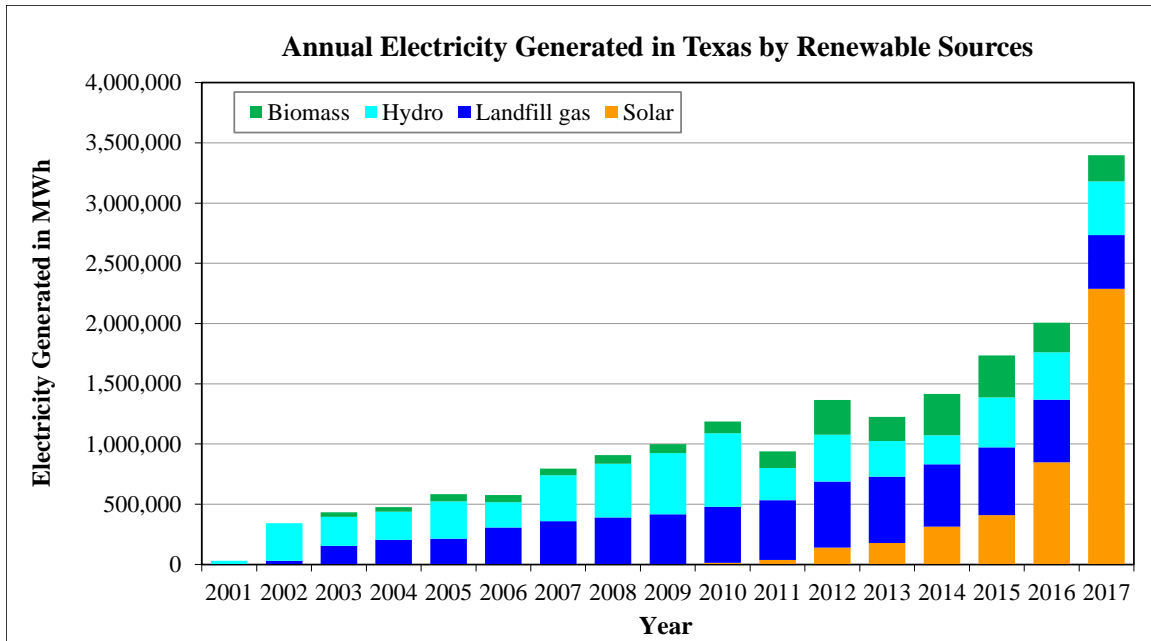


Figure 8-2: Electricity Generation by Renewable Sources Other Than Wind (ERCOT: 2001–2017 Annually)

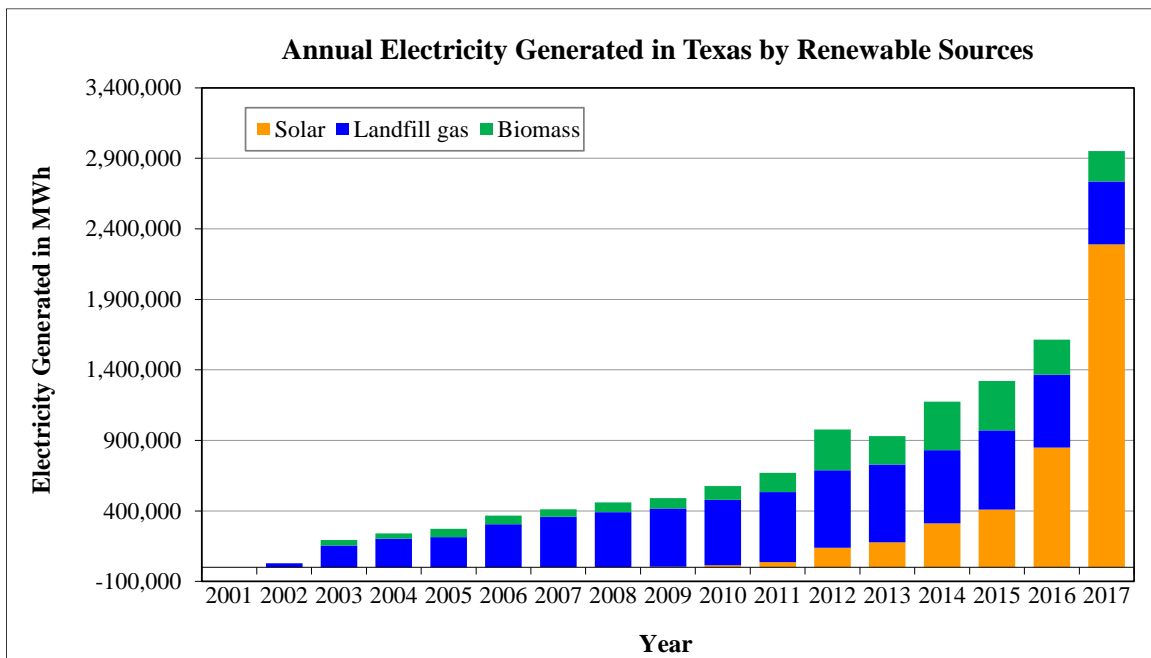


Figure 8-3: Electricity Generation by Renewable Sources from Solar, Landfill Gas, and Biomass (ERCOT: 2001–2017 Annually)

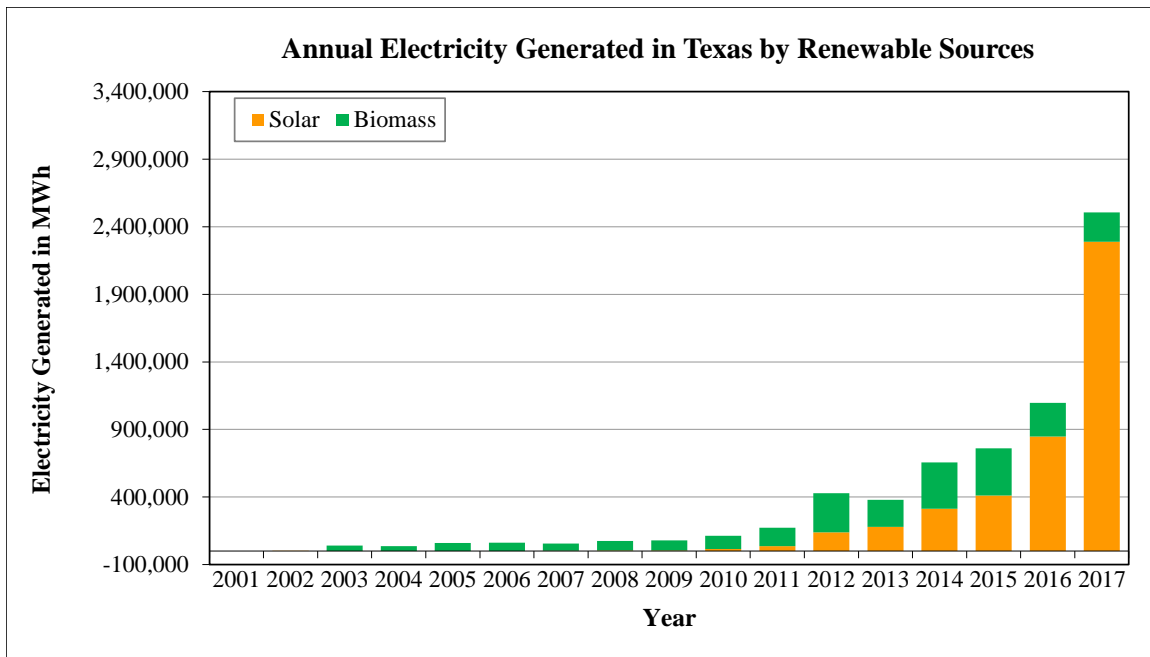


Figure 8-4: Electricity Generation by Renewable Sources from Solar and Biomass (ERCOT: 2001–2017 Annually)







TEES ENERGY SYSTEMS LABORATORY TEXAS ENERGY SUMMIT

IC3 **Current 2017 Version**

IC3 State Energy Rating System

Project Details

Print Certificate

Certificate

TEES ENERGY SYSTEMS LABORATORY TEXAS ENERGY SUMMIT

IC3 **Current 2017 Version**

Standard Energy Efficiency Certificate

- IC3 Prints Certificate for Posting on Electrical Panel
- Records Certificate in IC3 Registry

Certificate for Electrical Panel

TEES ENERGY SYSTEMS LABORATORY TEXAS ENERGY SUMMIT

2017 IC3 Includes New Energy Rating Index (ERI)

**RESNET**  
Setting the Standards for Quality

WHAT IS THE ENERGY RATING INDEX (ERI)?

The Energy Rating Index (ERI) is a new energy efficiency rating system that will be used to rate residential buildings. It is based on the International Energy Conservation Code (IECC) and is designed to provide a clear, consistent, and easy-to-understand way to rate buildings.

- Texas one of only 15 states to Adopt ERI Rating for 2015 IECC
- Recognized by RESNET

WRITING THE LIST

TEES ENERGY SYSTEMS LABORATORY TEXAS ENERGY SUMMIT

**STATEWIDE SAVINGS FROM CODE COMPLIANCE (2000 – 2016)**

How much electricity has been saved from residential code compliance for all single-family housing 2000-2016?

Number of Projects by Month and Type for 2016

IC3 Projects/Certificates

TEES ENERGY SYSTEMS LABORATORY TEXAS ENERGY SUMMIT

**STATEWIDE SAVINGS FROM CODE COMPLIANCE 2000 – 2016 (ESTIMATED)**

Savings (2002 to 2016)	Increased Costs (2002 to 2016)
Electricity (Envelope): \$1,945 million	Costs: \$ 1,588 million
Electricity (HVAC Systems): \$1,553 million	NOx Emissions Reduction: 44.71 tons NOx / year
Demand: \$2,377 million	Emissions Reduction in 2016 (Equivalent to about 34,000 cars)
<b>Total: \$5,885 million</b>	

Millions \$

Total: \$5,885 million

Demand: \$2,377 million

Electricity (HVAC Systems): \$1,553 million

Electricity (Envelope): \$1,945 million

TEES ENERGY SYSTEMS LABORATORY TEXAS ENERGY SUMMIT

**STATEWIDE WATER SAVINGS AT POWER PLANTS 2002-2016**

Electricity/Water Savings from SF (Code Compliance)

Annual Electric Savings

Annual Water Savings

2016 Total	2016 Total
Electricity Savings: 1,587,736 kWh	Water Savings: 730,026,469 gallons

Converted Factors: 3.67 gallons per kWh



**TEES ENERGY SYSTEMS LABORATORY** TEXAS ENERGY SUMMIT

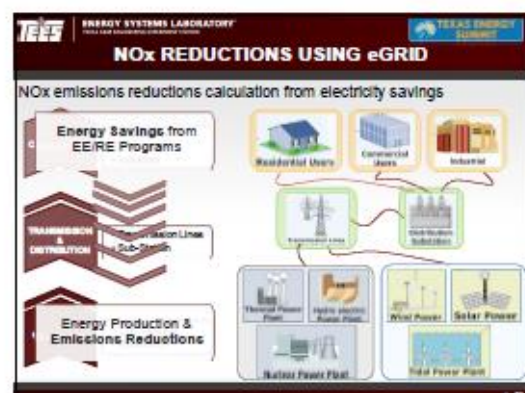
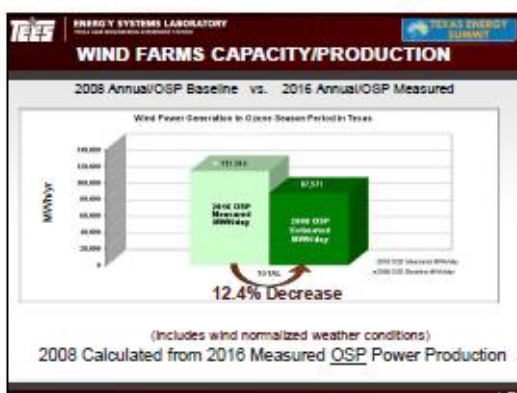
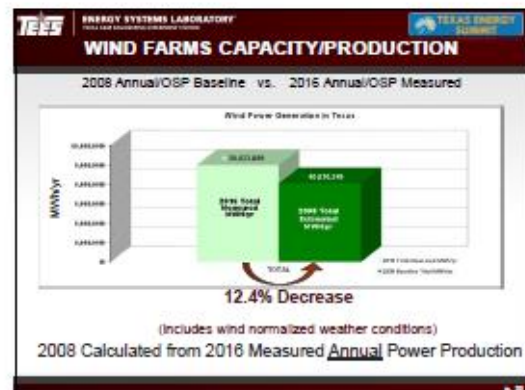
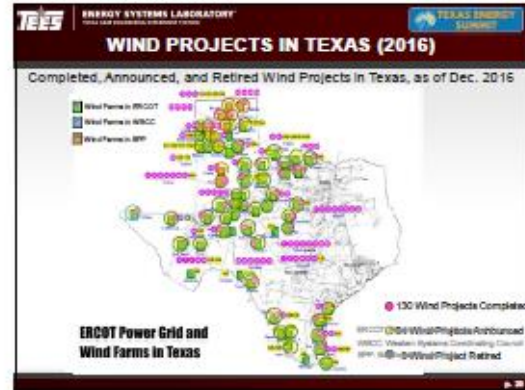
### SAVINGS FROM RENEWABLES

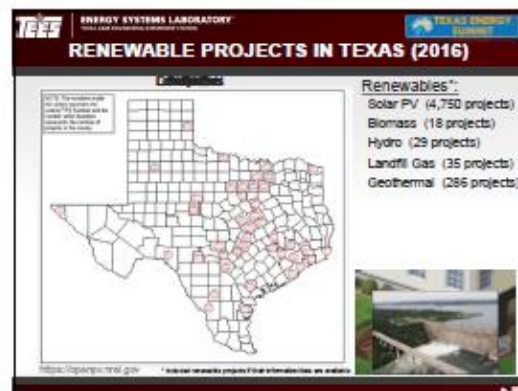
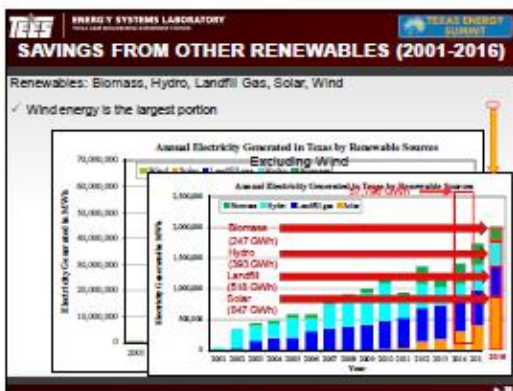
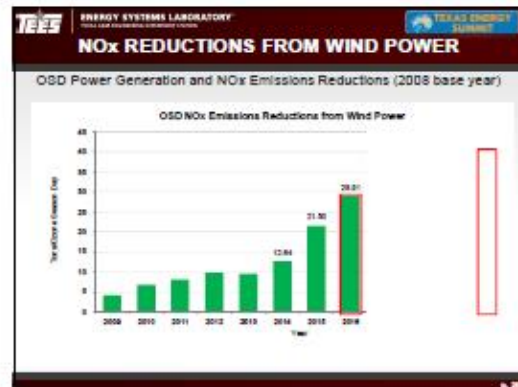
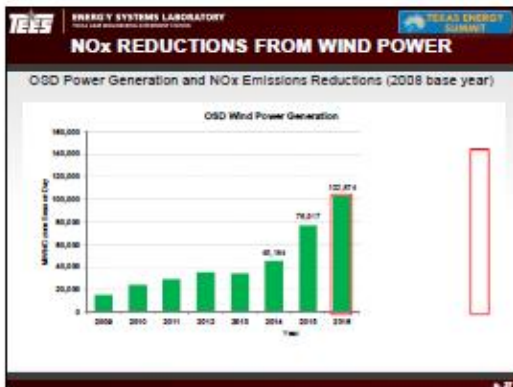
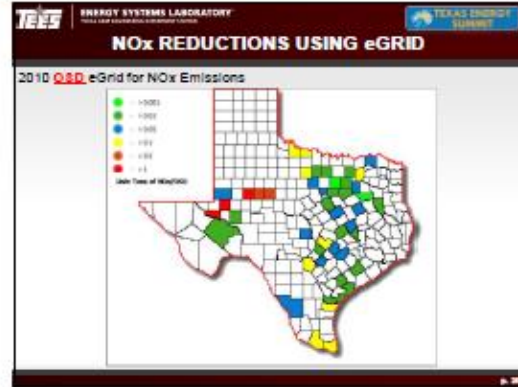
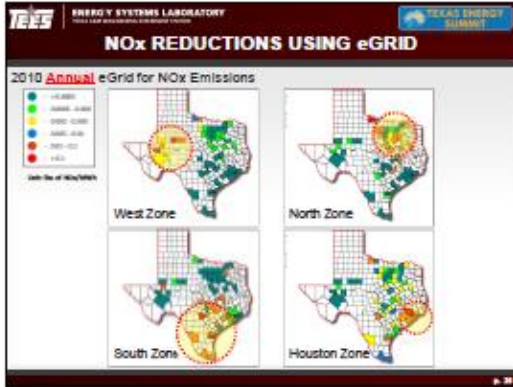
Blue Wing (Blue PT Army, San Antonio)    Biomass (Blue Thermal, Fort Hood, TX)    Cain at Highland Mills (H. Pate, TX)

**Wind**  
New WindFarm, TX

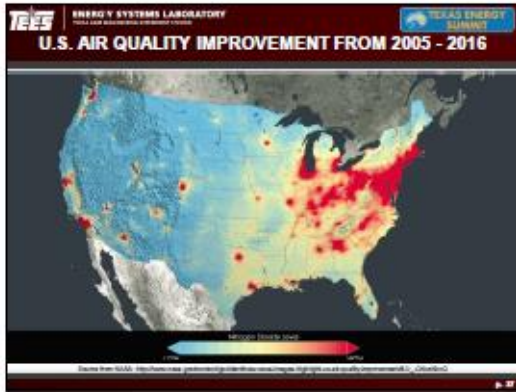
2.5 Miles Pathways

Biomass    Landfill Gas    Geothermal









**ESL Contact Information**

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<http://esl.tamu.edu/terp>

Figure 9-1: Presentation to the Texas Energy Summit Conference

## 10 APPENDIX B

In this section, the linear regression models developed based on the 2017 wind power generation data are presented for each wind farm. The estimated 2008 annual and OSP power productions using the 2017 daily models and the resulting emissions reduction are also shown in details for each wind farm. A list of the wind farms analyzed in this year's report is illustrated in Table 10-1.

Table 10-1: Listing of Wind Farms Analyzed for Base-year Calculations

No.	Wind Farms
1	Anacacho Wind Farm
2	Baffin Wind Farm (Penascal 3)
3	Barton Chapel Wind 1
4	Big Spring Wind Power
5	Blue Summit Wind Energy Center
6	Bobcat Bluff Wind Project
7	Brazos Wind Ranch
8	Briscoe Wind
9	Buffalo Gap 1
10	Buffalo Gap 2 (Cirello 1)
11	Buffalo Gap 3
12	Bull Creek Wind Plant
13	Callahan Divide Wind Energy Center
14	Cameron County Wind
15	Camp Springs Wind Energy Center
16	Camp Springs Wind Energy Expansion
17	Capricorn Ridge Wind
18	Capricorn Ridge Wind expansion
19	Cedro Hill Wind
20	Champion Wind Farm
21	Colbeck's Corner
22	Cotton Plains Wind
23	Dermott Wind 1
24	Desert Sky (Indian Mesa II)
25	Elbow Creek Wind
26	Electra Wind
27	Falvez Astra Wind
28	Forest Creek Wind Farm
29	Goat Wind
30	Goldthwaite Wind Energy
31	Grandview Phase 1 (Conway Windfarm)
32	Green Pastures W
33	Gulf Wind
34	Gunsight Mountain
35	Hackberry Wind Farm
36	Harbor Wind Project
37	Hereford Wind Project (Hereford 1)
38	Hidalgo & Starr Wind
39	Horse Creek Wind
40	Horse Hollow Phase 1
41	Horse Hollow Phase 2
42	Horse Hollow Phase 3



Table 10-1: Listing of Wind Farms Analyzed for Base-year Calculations (Cont.)

No.	Wind Farms
43	Inadale Wind
44	Indian Mesa I
45	Javelina 2 Wind
46	Javelina Wind
47	Jumbo Road Wind (Hereford 2)
48	Keechi Wind
49	King Mountain Wind Ranch
50	Langford Wind Power
51	Logan's Gap Wind I
52	Lone Star - Mesquite Wind
53	Lone Star - Post Oak Wind
54	Longhorn Energy Center North
55	Lorraine Windpark
56	Los Vientos I
57	Los Vientos II
58	Los Vientos III
59	Los Vientos IV
60	Los Vientos V
61	Magic Valley Wind Farm
62	Mariah Del Notre
63	McAdoo Wind Energy
64	Mesquite Creek W
65	Miami Wind 1 Project
66	Mozart Wind Farm
67	Notrees Windpower
68	Ocotillo Windpower 1
69	Old Settler Wind
70	Panhandle Wind 1
71	Panhandle Wind 2
72	Panther Creek 1
73	Panther Creek 2
74	Panther Creek 3
75	Papalote Creek Phase II
76	Papalote Creek Wind Farm
77	Penascal Wind Farm
78	Penascal Wind Farm 2
79	Pyron Wind Farm
80	RattleSnake Wind Ph 1
81	Red Canyon
82	Roscoe Wind Farm
83	Route66 Wind
84	Salt Fork Wind
85	San Roman Wind 1
86	Sand Bluff Wind Farm
87	Senate Wind Farm
88	Sendero Wind Energy Project
89	Shannon Wind
90	Sherbino 1 Wind Farm
91	Sherbino 2 Wind Farm

Table 10-1: Listing of Wind Farms Analyzed for Base-year Calculations (Cont.)

<b>No.</b>	<b>Wind Farms</b>
92	Silver Star Phase I
93	Snyder Wind Project
94	South Plains Wind I
95	South Plains Wind II Phase a
96	South Plains Wind II Phase b
97	South Trent Wind Farm
98	Southwest Mesa Wind Project
99	Spinning Spur Wind II
100	Spinning Spur Wind III
101	Stanton Wind Energy
102	Stephens Ranch Wind Phase 1
103	Stephens Ranch Wind Phase b
104	Sweetwater Wind 1
105	Sweetwater Wind 2
106	Sweetwater Wind 3
107	Sweetwater Wind 4
108	Sweetwater Wind 5
109	Trent Mesa
110	Trinity Hills Wind Farm
111	Turkey Track Energy Center
112	Tyler Bluff Wind (Muenster Wind)
113	Val Verde Wind
114	Wake Wind
115	Whirlwind Energy
116	Whitetail Wind Project
117	Windthorst 2
118	Wolf Ridge Windfarm
119	Woodward Mountain Ranch

## 10.1 Anacacho Wind Farm

## 10.1.1 Anacacho Wind Farm - ANACACHO\_ANA

## SITE INFORMATION

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
ANACACHO_ANA	Wind	-	KINNEY	E.On Climate & Renewables	Anacacho Windfarm

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
-	ERCOT	S	Dec-12	South	CRP	100

## HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED

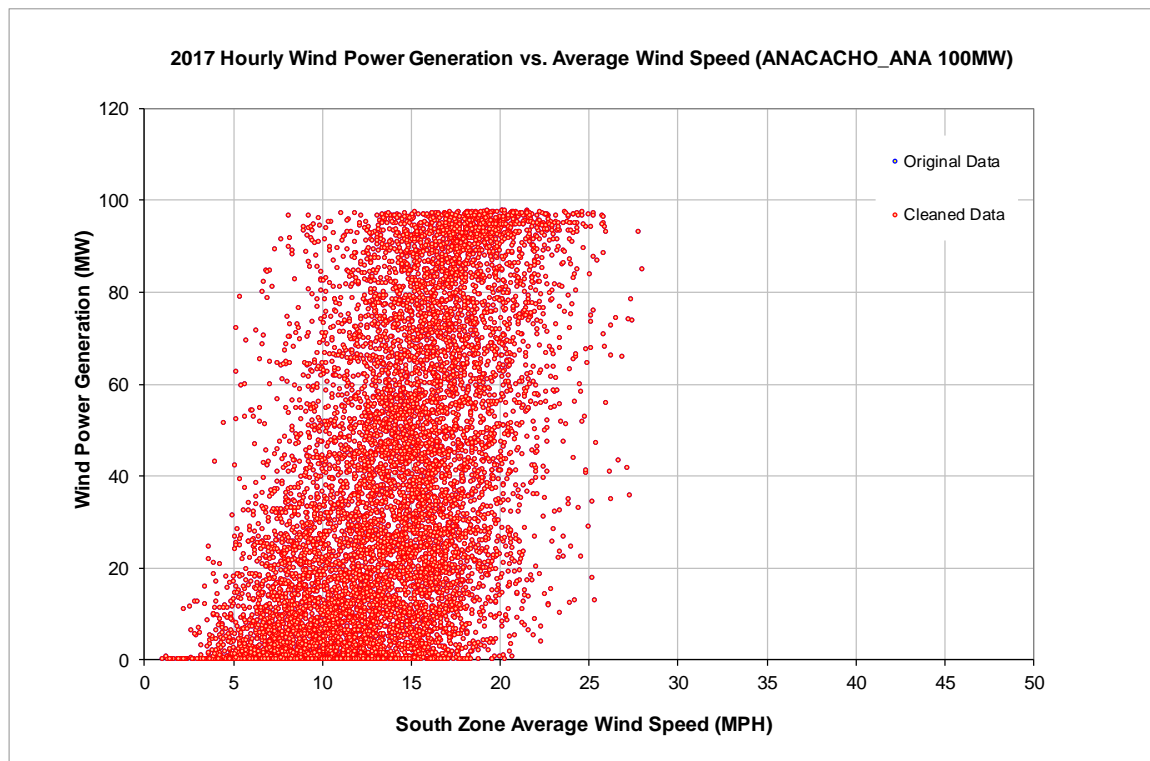


Figure 10-1: ANACACHO\_ANA - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

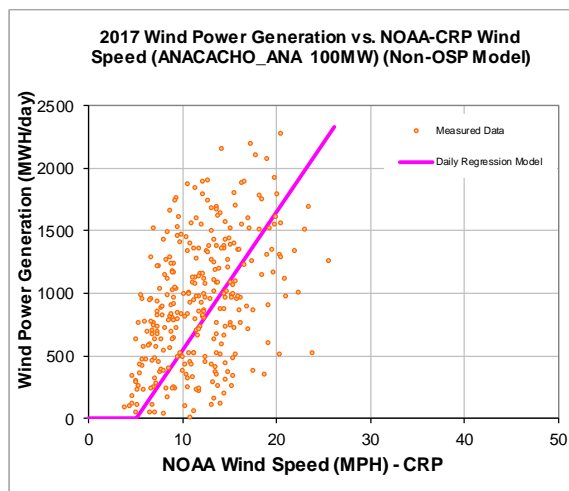
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	315.90
Left Slope (MWh/mph-day)	50.73
RMSE (MWh/day)	451.23
R2	0.19
CV-RMSE	49.2%
Daily Maximum (MWh/day)	2400

**OSP Model:**

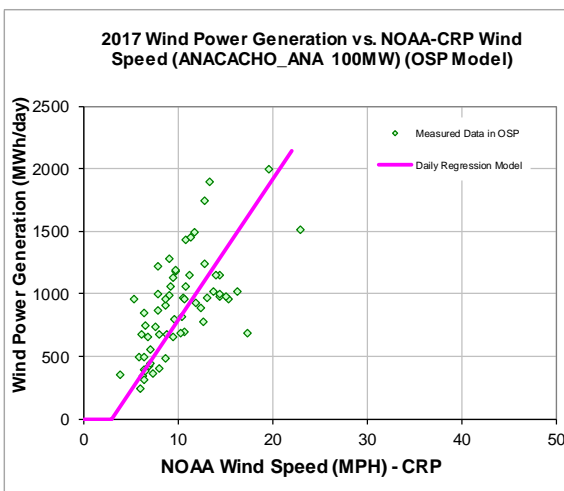
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	207.03
Left Slope (MWh/mph-day)	67.33
RMSE (MWh/day)	295.71
R2	0.41
CV-RMSE	33.1%
Daily Maximum (MWh/day)	2400

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
329,194	333,310

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
815	900

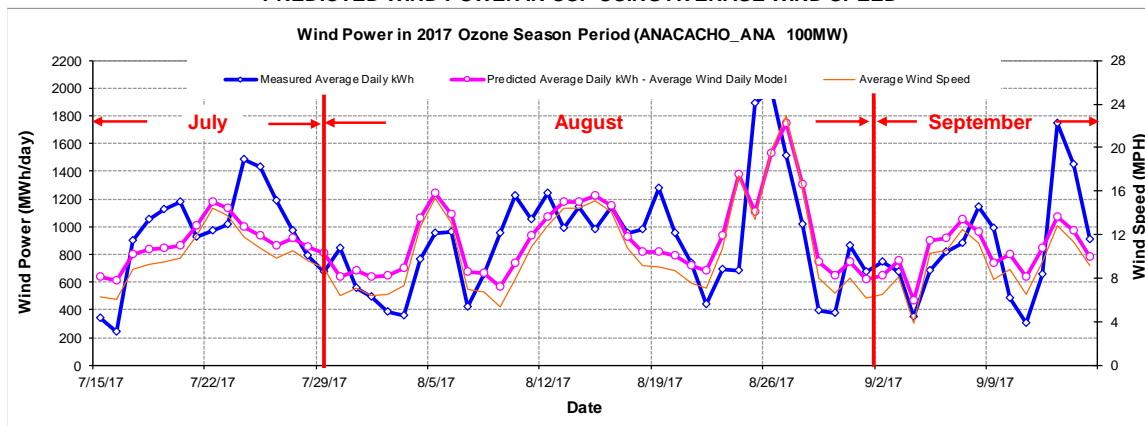
Figure 10-2: ANACACHO\_ANA - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	32,621	30,582	6.25%	44%	41%
Feb-17	28	13.29	24,740	27,719	-12.04%	37%	41%
Mar-17	31	14.29	32,428	32,271	0.49%	44%	43%
Apr-17	30	14.70	35,954	31,847	11.42%	50%	44%
May-17	31	12.81	36,783	29,935	18.62%	49%	40%
Jun-17	30	9.21	29,737	23,487	21.02%	41%	33%
Jul-17	31	9.39	32,233	25,430	21.10%	43%	34%
Aug-17	31	11.11	28,181	29,605	-5.05%	38%	40%
Sep-17	30	10.25	25,628	25,662	-0.13%	36%	36%
Oct-17	31	9.56	22,030	24,824	-12.68%	30%	33%
Nov-17	30	10.64	16,258	25,671	-57.90%	23%	36%
Dec-17	31	10.48	16,716	26,278	-57.20%	22%	35%
<b>Total</b>	<b>365</b>	<b>11.57</b>	<b>333,310</b>	<b>333,310</b>	<b>0.00%</b>	<b>38%</b>	<b>38%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>56,264</b>	<b>56,264</b>	<b>0.00%</b>	<b>37%</b>	<b>37%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

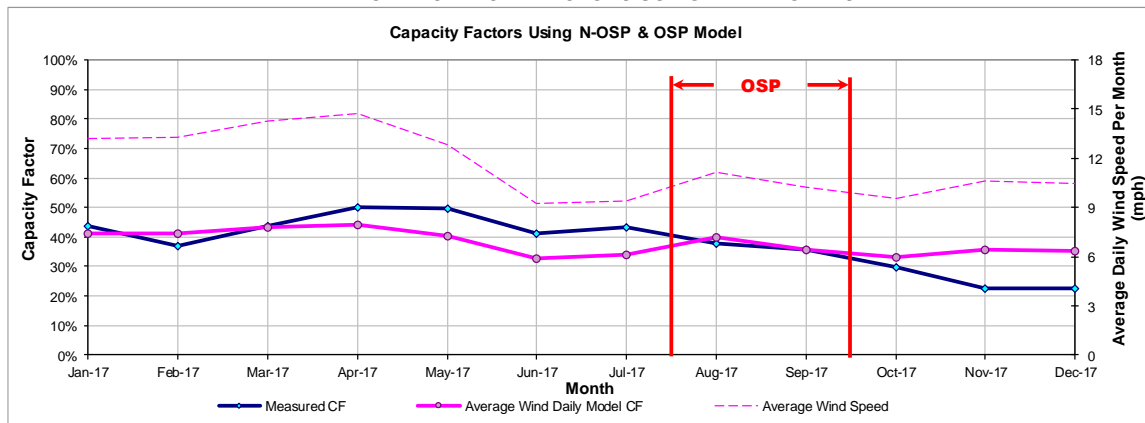


Figure 10-3: ANACACHO\_ANA - Predicted Wind Power and Capacity Factor Using Daily Models

10.2 Baffin Wind Farm (Penascal 3)

10.2.1 Baffin Wind Farm (Penascal 3) - BAFFIN\_UNIT1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
BAFFIN_UNIT1	Wind	Sarita	KENEDY	Iberdrola Renewables	Baffin Wind Farm (Penascal 3)

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
50 Gamesa 2 MW	ERCOT	S	Jun-16	Coastal	CRP	100

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

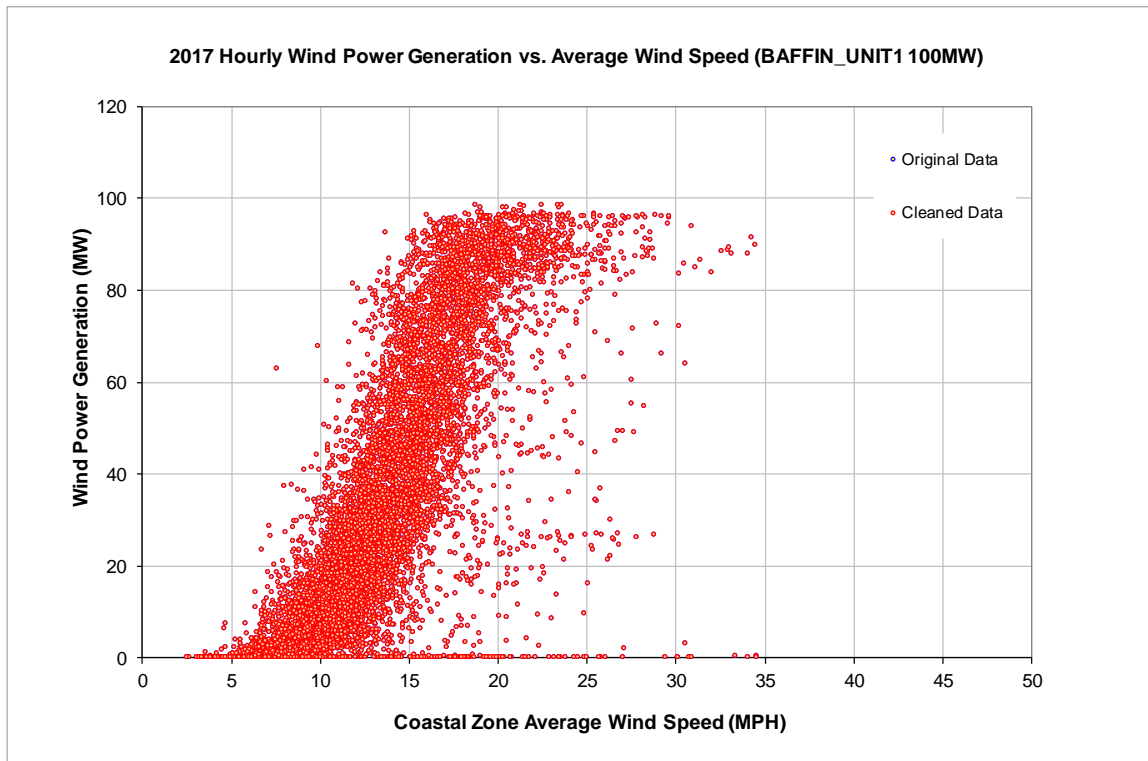


Figure 10-4: BAFFIN\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

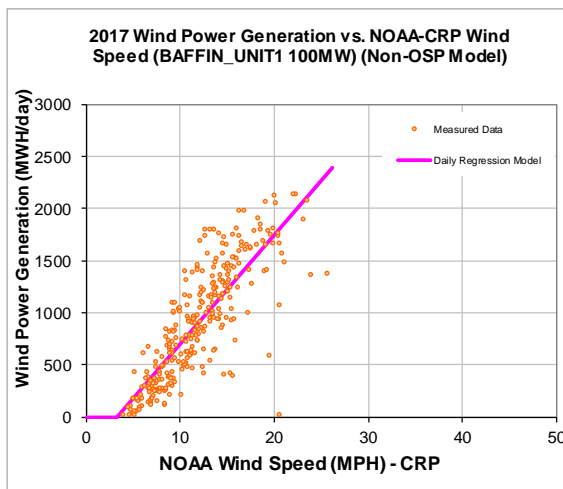
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-337.81
Left Slope (MWh/mph-day)	104.51
RMSE (MWh/day)	307.47
R2	0.68
CV-RMSE	34.0%
Daily Maximum (MWh/day)	2400

**OSP Model:**

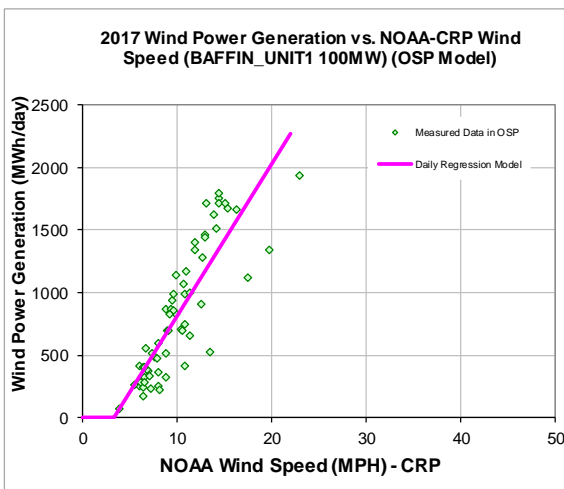
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-393.29
Left Slope (MWh/mph-day)	121.09
RMSE (MWh/day)	269.29
R2	0.73
CV-RMSE	32.0%
Daily Maximum (MWh/day)	2400

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
316,963	324,779

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
701	846

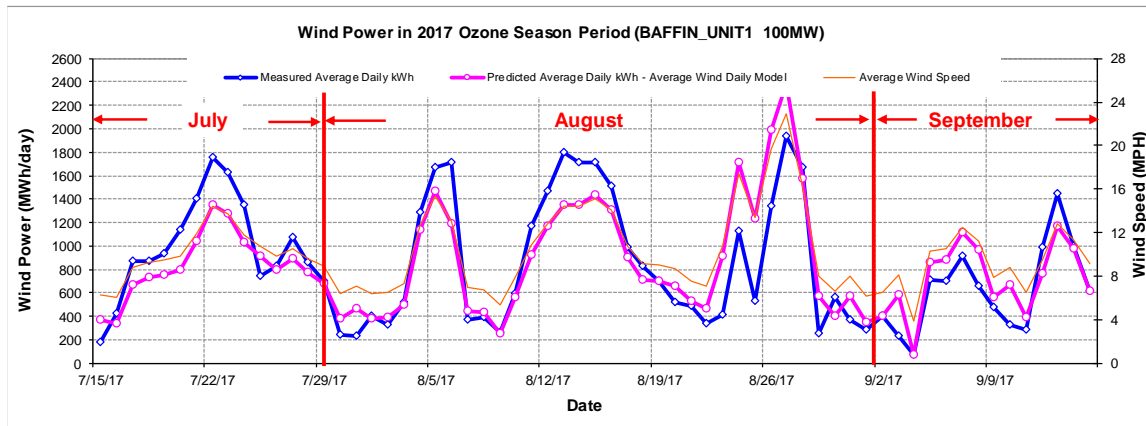
Figure 10-5: BAFFIN\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	32,400	32,357	0.13%	44%	43%
Feb-17	28	13.53	25,624	29,053	-13.38%	38%	43%
Mar-17	31	14.29	30,301	35,836	-18.27%	41%	48%
Apr-17	30	14.70	34,261	35,952	-4.93%	48%	50%
May-17	31	12.81	35,782	31,024	13.30%	48%	42%
Jun-17	30	9.21	23,839	18,729	21.44%	33%	26%
Jul-17	31	9.39	27,711	21,730	21.58%	37%	29%
Aug-17	31	11.11	28,848	29,507	-2.28%	39%	40%
Sep-17	30	10.25	22,325	23,379	-4.72%	31%	32%
Oct-17	31	9.56	18,948	20,494	-8.16%	25%	28%
Nov-17	30	10.64	24,022	23,227	3.31%	33%	32%
Dec-17	31	10.48	20,717	23,491	-13.39%	28%	32%
<b>Total</b>	<b>365</b>	<b>11.58</b>	<b>324,779</b>	<b>324,779</b>	<b>0.00%</b>	<b>37%</b>	<b>37%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>52,949</b>	<b>52,949</b>	<b>0.00%</b>	<b>35%</b>	<b>35%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

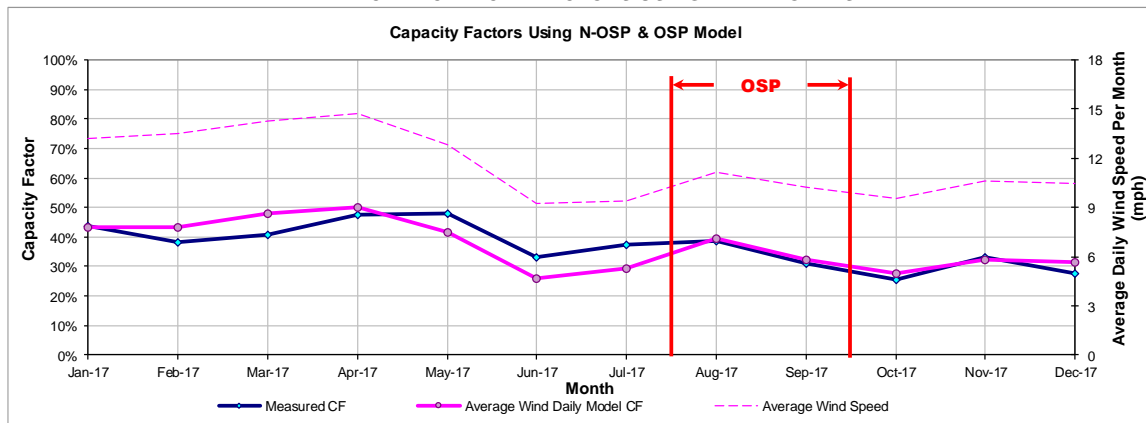


Figure 10-6: BAFFIN\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models



10.2.2 Baffin Wind Farm (Penascal 3) - BAFFIN\_UNIT2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
BAFFIN_UNIT2	Wind	Sarita	KENEDY	Iberdrola Renewables	Baffin Wind Farm (Penascal 3)

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
51 Gamesa 2 MW	ERCOT	S	Jun-16	Coastal	CRP	102

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

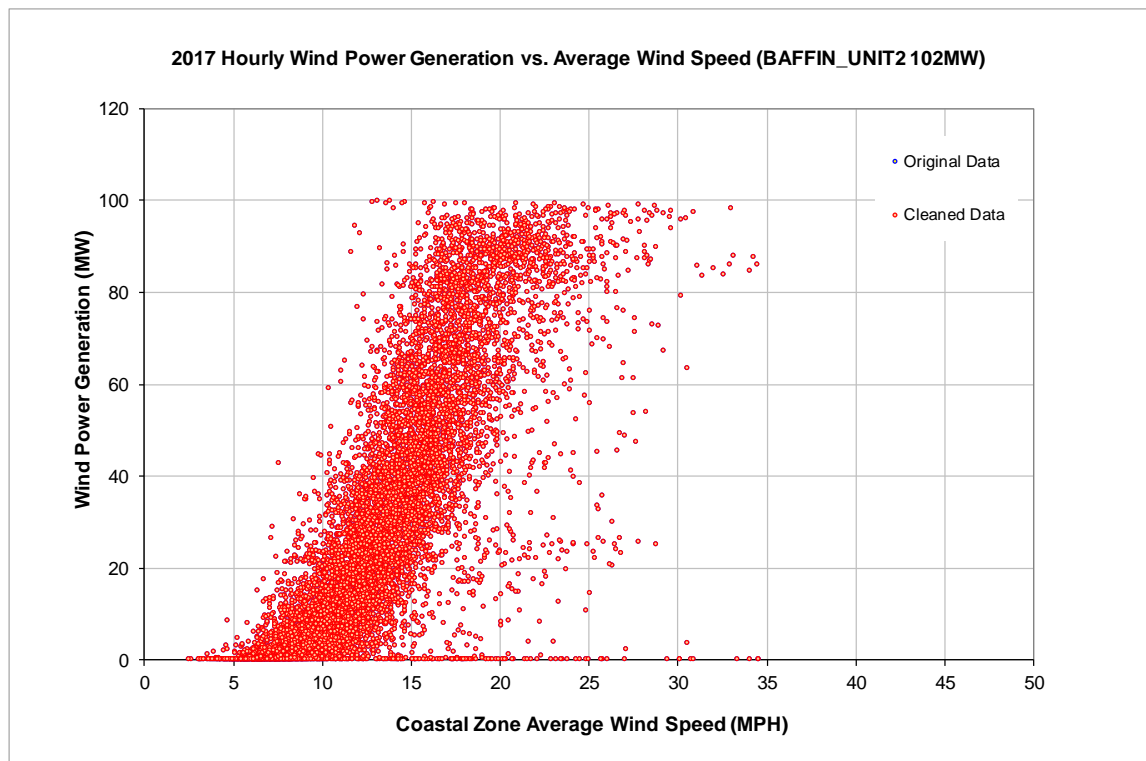


Figure 10-7: ANACACHO\_ANA - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

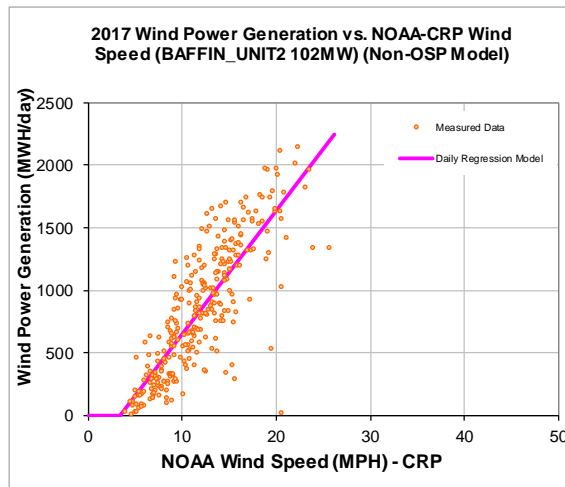
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-337.07
Left Slope (MWh/mph-day)	99.04
RMSE (MWh/day)	289.95
R2	0.68
CV-RMSE	34.6%
Daily Maximum (MWh/day)	2448

**OSP Model:**

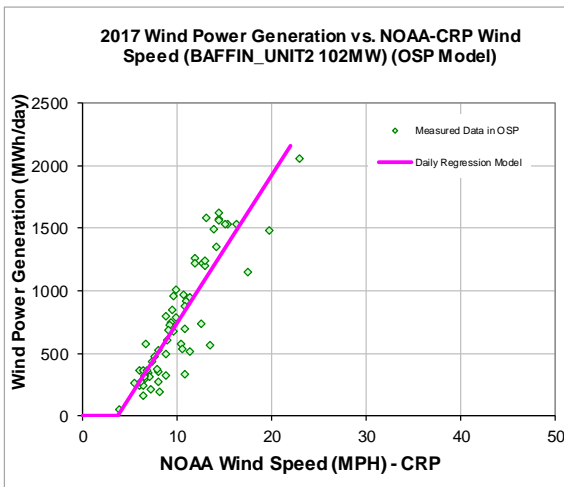
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-429.58
Left Slope (MWh/mph-day)	117.53
RMSE (MWh/day)	223.44
R2	0.79
CV-RMSE	29.1%
Daily Maximum (MWh/day)	2448

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
293,231	300,874	632	773

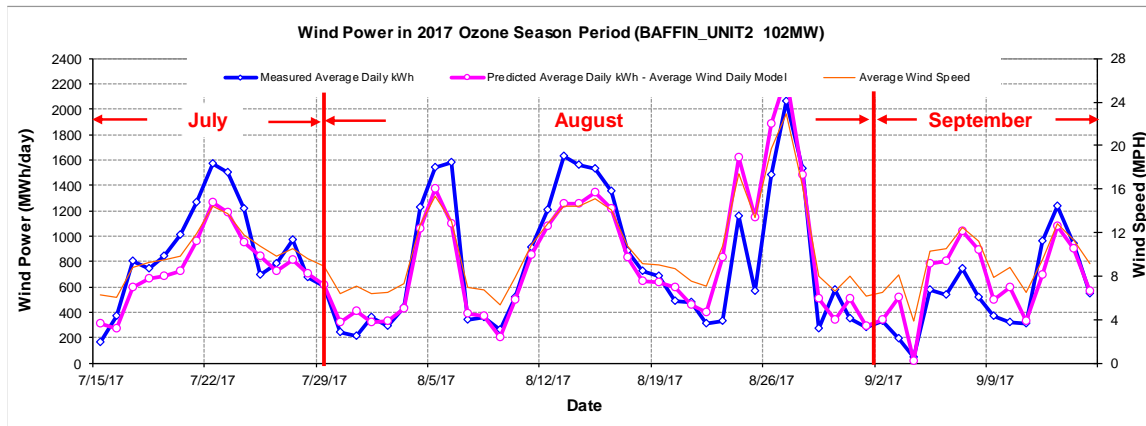
Figure 10-8: BAFFIN\_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data)

COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	30,127	30,137	-0.03%	40%	40%
Feb-17	28	13.53	23,488	27,074	-15.27%	34%	39%
Mar-17	31	14.29	27,464	33,434	-21.74%	36%	44%
Apr-17	30	14.70	31,477	33,561	-6.62%	43%	46%
May-17	31	12.81	32,254	28,874	10.48%	43%	38%
Jun-17	30	9.21	21,643	17,240	20.34%	29%	23%
Jul-17	31	9.39	25,206	19,843	21.28%	33%	26%
Aug-17	31	11.11	26,920	27,156	-0.88%	35%	36%
Sep-17	30	10.25	19,143	21,420	-11.90%	26%	29%
Oct-17	31	9.56	17,784	18,896	-6.26%	23%	25%
Nov-17	30	10.64	22,248	21,503	3.35%	30%	29%
Dec-17	31	10.48	23,120	21,735	5.99%	30%	29%
<b>Total</b>	<b>365</b>	<b>11.58</b>	<b>300,874</b>	<b>300,874</b>	<b>0.00%</b>	<b>34%</b>	<b>34%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>48,378</b>	<b>48,378</b>	<b>0.00%</b>	<b>31%</b>	<b>31%</b>

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

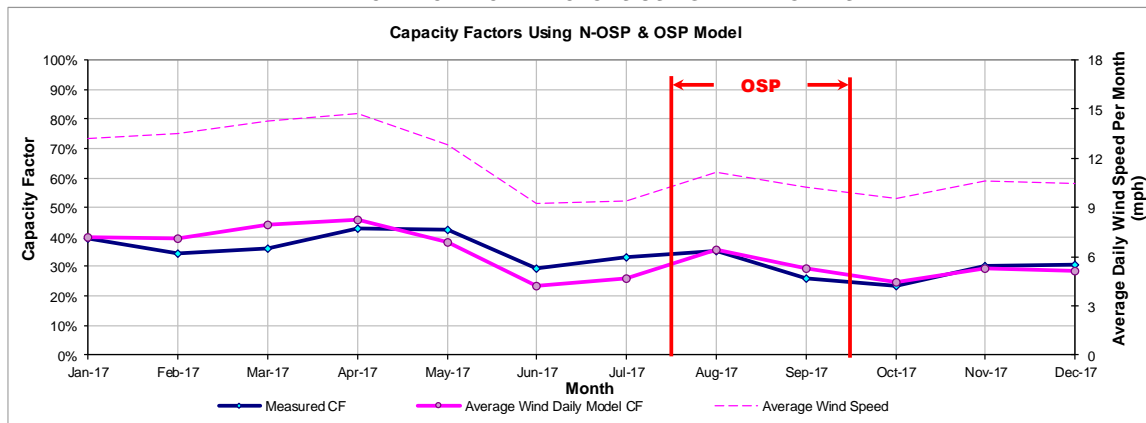


Figure 10-9: BAFFIN\_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.3 Barton Chapel Wind 1

10.3.1 Barton Chapel Wind 1 - BRTSW\_BCW1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
BRTSW_BCW1	Wind	Jacksboro	JACK	Iberdrola Renewables	Barton Chapel Wind 1

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
60 Gamesa G87 2 MW	ERCOT	N	Dec-07	North	ABI	120

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

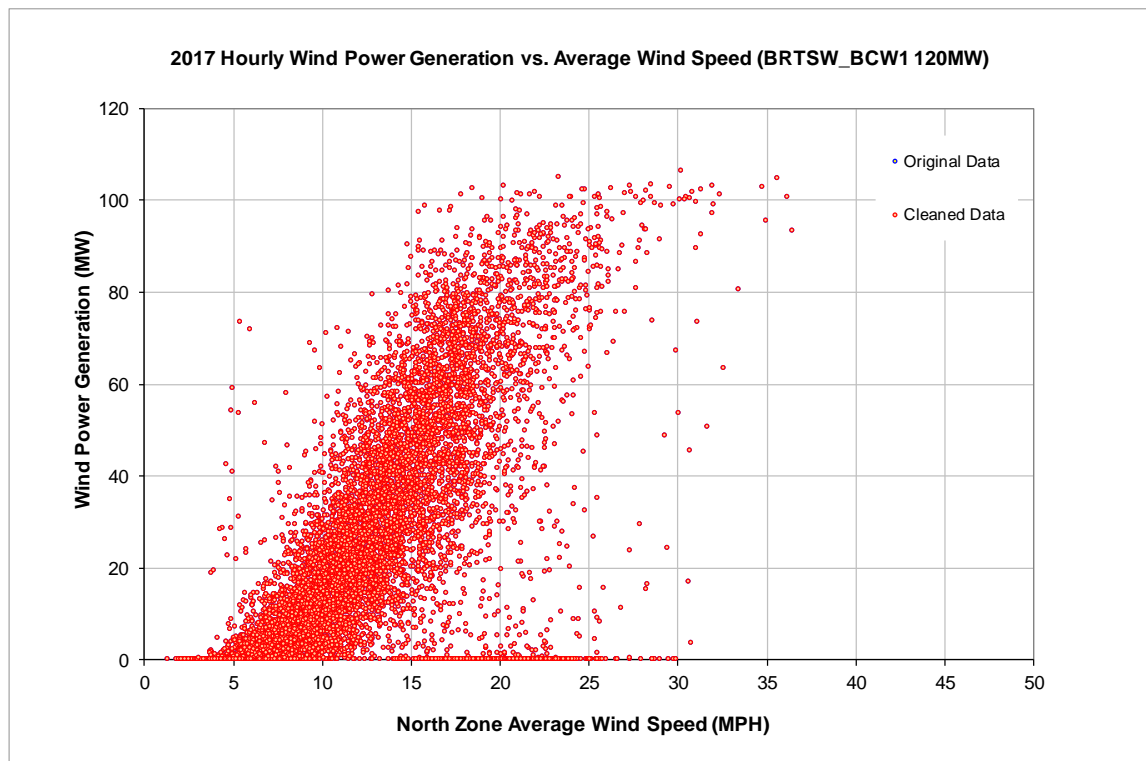


Figure 10-10: BRTSW\_BCW1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

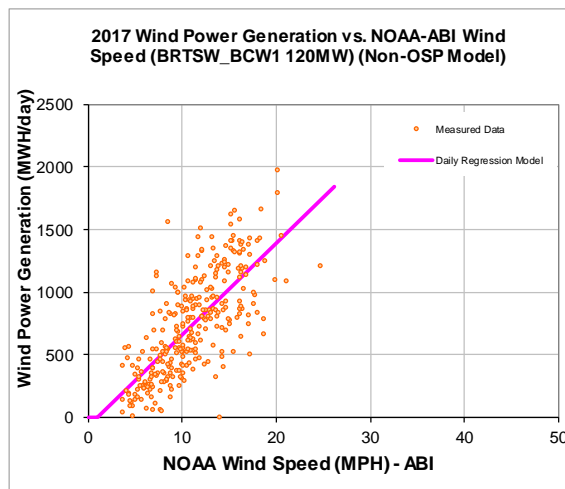
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-69.31
Left Slope (MWh/mph-day)	73.15
RMSE (MWh/day)	278.94
R2	0.52
CV-RMSE	37.6%
Daily Maximum (MWh/day)	2880

**OSP Model:**

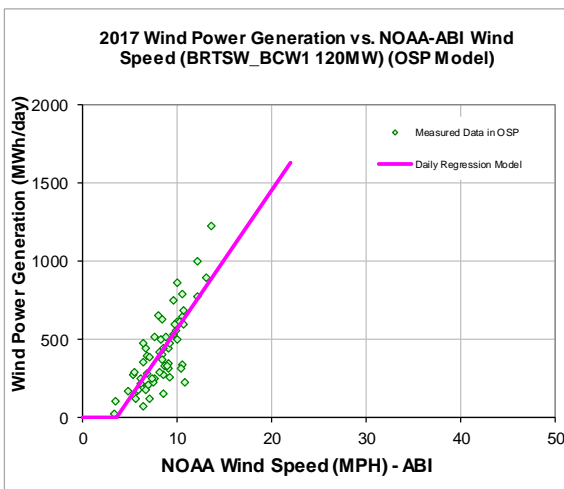
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-314.03
Left Slope (MWh/mph-day)	88.46
RMSE (MWh/day)	150.30
R2	0.62
CV-RMSE	35.7%
Daily Maximum (MWh/day)	2880

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
273,523	250,387

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
460	431

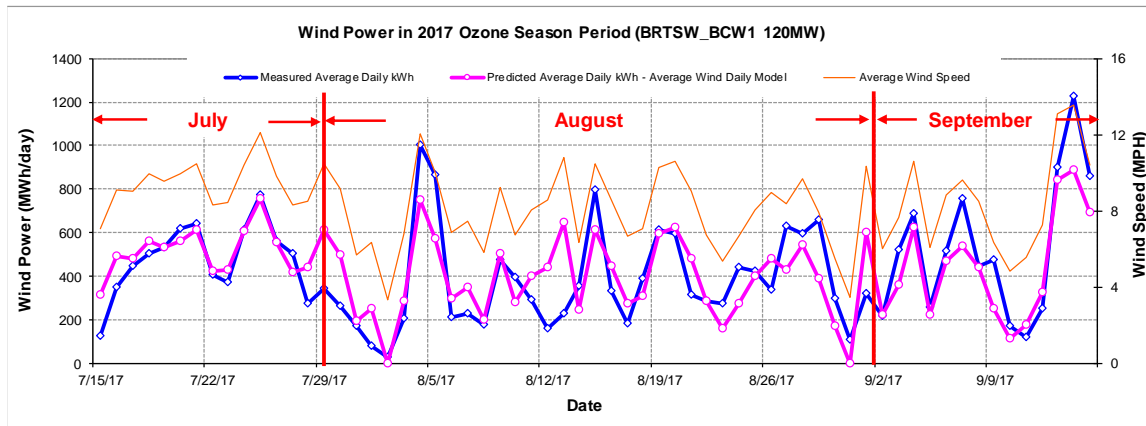
Figure 10-11: BRTSW\_BCW1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	25,063	21,512	14.17%	28%	24%
Feb-17	28	11.23	18,813	21,052	-11.90%	23%	26%
Mar-17	31	12.96	26,673	27,236	-2.11%	30%	31%
Apr-17	30	13.49	28,388	27,518	3.06%	33%	32%
May-17	31	11.55	23,863	24,048	-0.78%	27%	27%
Jun-17	30	10.72	19,356	21,444	-10.79%	22%	25%
Jul-17	31	9.17	14,587	16,911	-15.93%	16%	19%
Aug-17	31	7.87	12,016	11,856	1.33%	13%	13%
Sep-17	30	9.51	16,404	16,982	-3.52%	19%	20%
Oct-17	31	11.07	27,402	22,950	16.25%	31%	26%
Nov-17	30	10.21	18,864	20,329	-7.76%	22%	24%
Dec-17	31	9.14	18,959	18,577	2.01%	21%	21%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>250,387</b>	<b>250,415</b>	<b>-0.01%</b>	<b>24%</b>	<b>24%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>26,552</b>	<b>26,579</b>	<b>-0.10%</b>	<b>15%</b>	<b>15%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

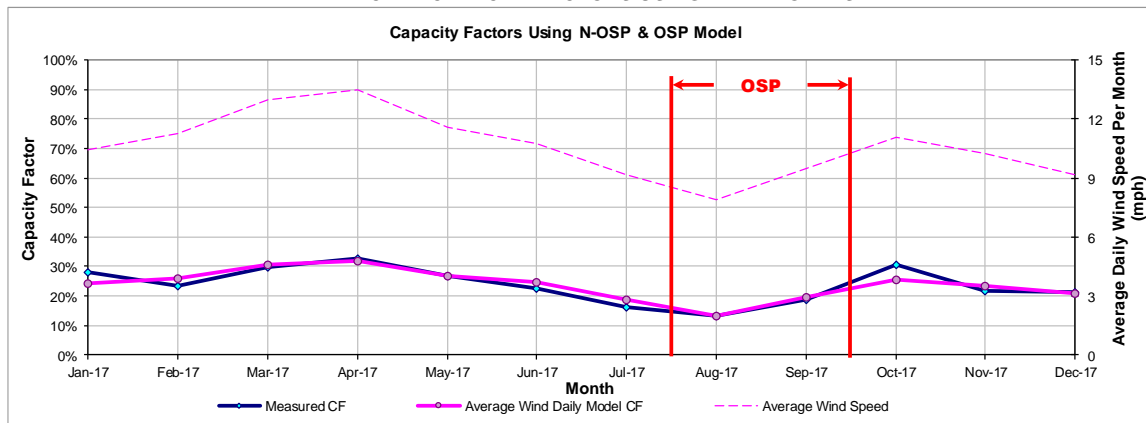


Figure 10-12: BRTSW\_BCW1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.4 Big Spring Wind Power

10.4.1 Big Spring Wind Power - SGMTN\_SIGNALMT

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SGMTN_SIGNALMT	Wind	Big Spring	HOWARD	York Research	Big Spring Wind Power

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
42 Vestas 0.66 MW	ERCOT	W	Feb-99	West	ABI	41

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

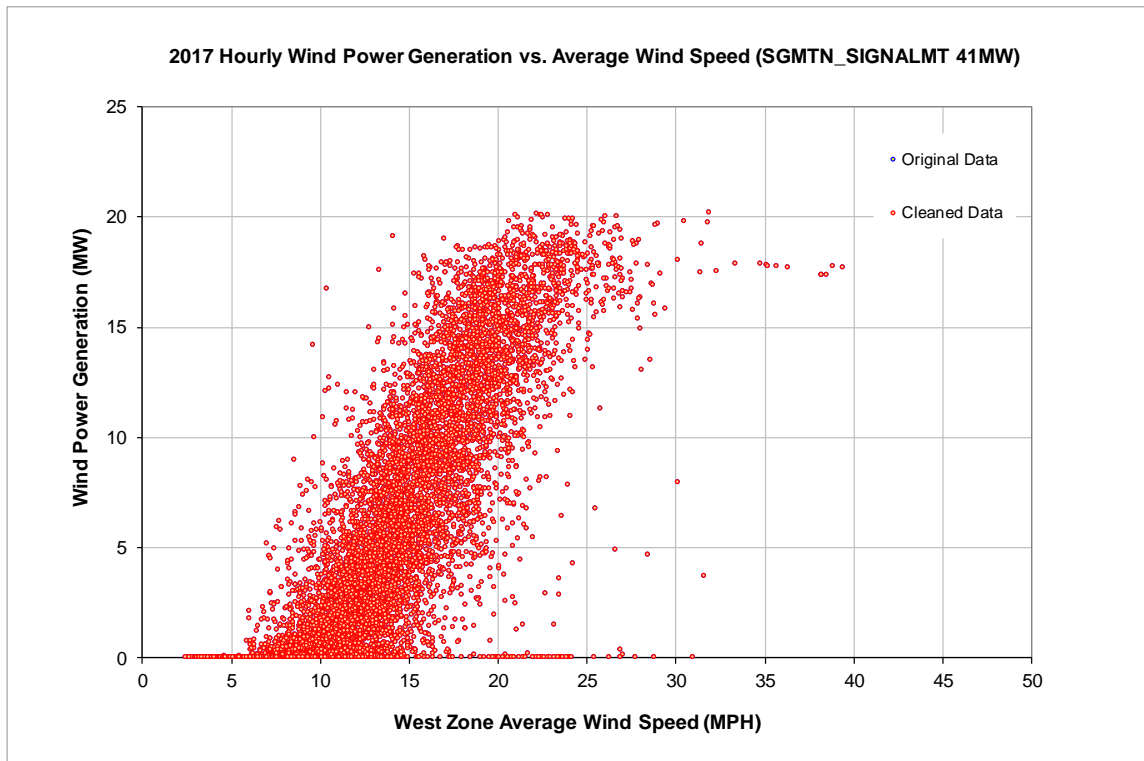


Figure 10-13: SGMTN\_SIGNALMT - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

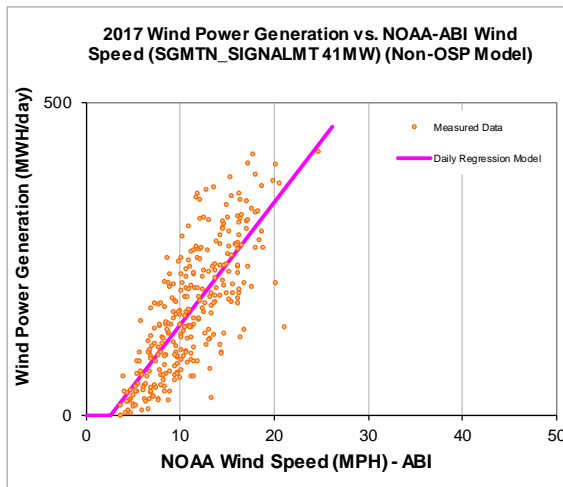
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-51.17
Left Slope (MWh/mph-day)	19.66
RMSE (MWh/day)	63.23
R2	0.60
CV-RMSE	38.0%
Daily Maximum (MWh/day)	984

**OSP Model:**

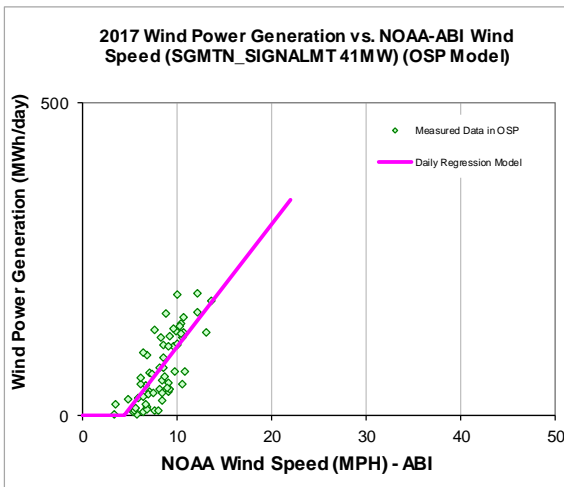
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-84.61
Left Slope (MWh/mph-day)	19.52
RMSE (MWh/day)	36.28
R2	0.57
CV-RMSE	46.7%
Daily Maximum (MWh/day)	984

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
61,306	54,852

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
86	80

Figure 10-14: SGMTN\_SIGNALMT - Model Coefficients (Using Non-OSP and OSP Data)

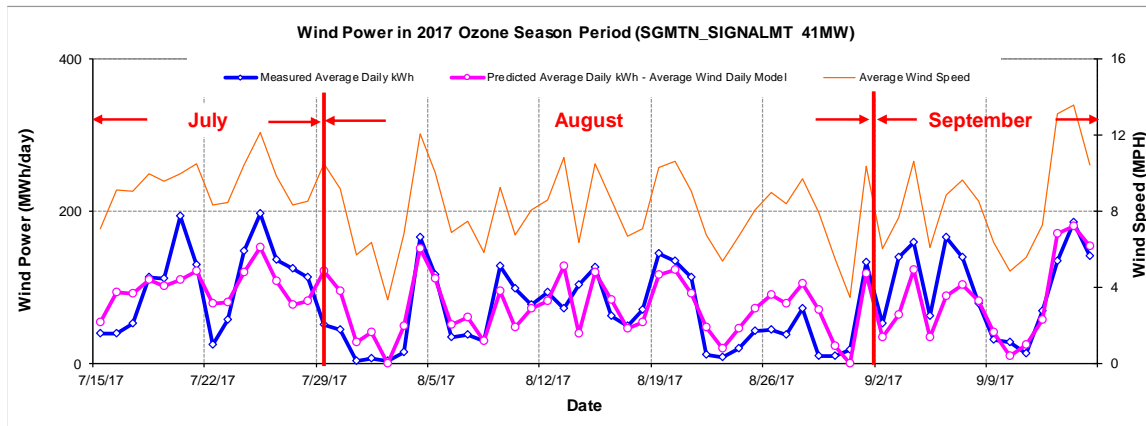


**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	5,470	4,772	12.75%	18%	16%
Feb-17	28	11.23	5,549	4,746	14.47%	20%	17%
Mar-17	31	12.96	6,613	6,310	4.57%	22%	21%
Apr-17	30	13.49	6,530	6,419	1.71%	22%	22%
May-17	31	11.55	5,159	5,454	-5.72%	17%	18%
Jun-17	30	10.72	3,631	4,786	-31.81%	12%	16%
Jul-17	31	9.17	3,327	3,413	-2.61%	11%	11%
Aug-17	31	7.87	1,921	2,158	-12.33%	6%	7%
Sep-17	30	9.51	3,553	3,570	-0.47%	12%	12%
Oct-17	31	11.07	4,904	5,159	-5.19%	16%	17%
Nov-17	30	10.21	4,530	4,487	0.95%	15%	15%
Dec-17	31	8.94	3,665	3,614	1.40%	12%	12%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>54,852</b>	<b>54,888</b>	<b>-0.07%</b>	<b>15%</b>	<b>15%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>4,897</b>	<b>4,933</b>	<b>-0.75%</b>	<b>8%</b>	<b>8%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

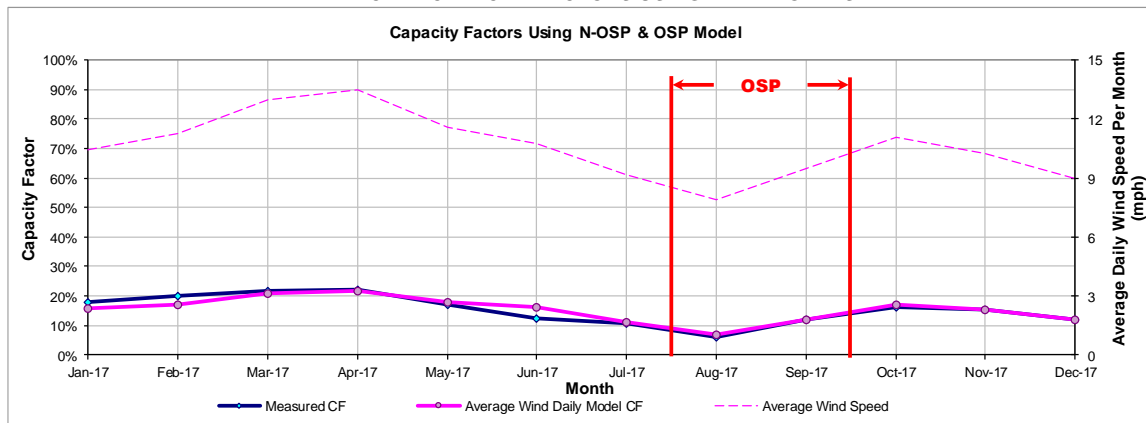


Figure 10-15: SGMTN\_SIGNALMT - Predicted Wind Power and Capacity Factor Using Daily Models

10.5 Blue Summit Wind Energy Center

10.5.1 Blue Summit Wind Energy Center - BLSUMMIT\_BLSMT1\_5

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
BLSUMMIT_BLSMT1_5	Wind	Vernon	WILBARGER	NextEra	Blue Summit Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
85 GE 1.5 MW	ERCOT	W	Dec-12	West	ABI	135.4

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

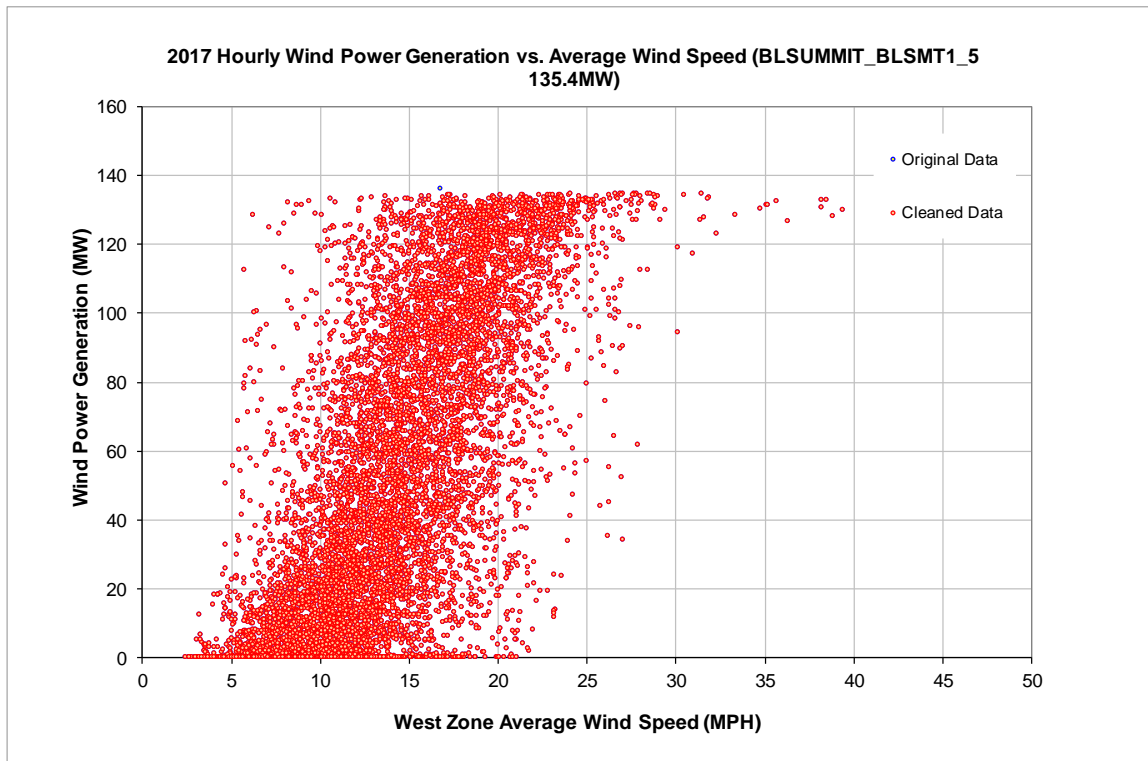


Figure 10-16: BLSUMMIT\_BLSMT1\_5 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

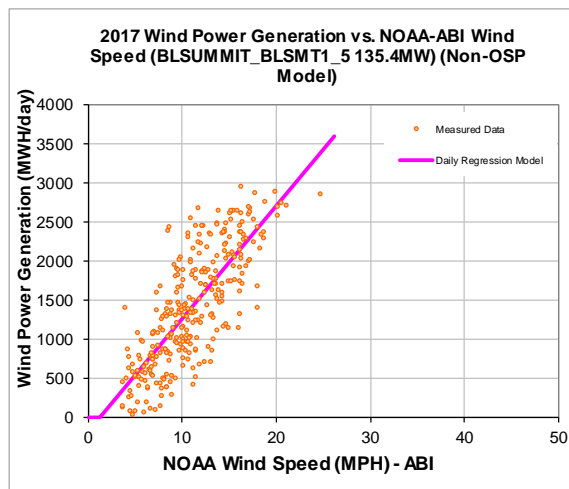
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-180.11
Left Slope (MWh/mph-day)	144.55
RMSE (MWh/day)	459.06
R2	0.61
CV-RMSE	32.3%
Daily Maximum (MWh/day)	3250

**OSP Model:**

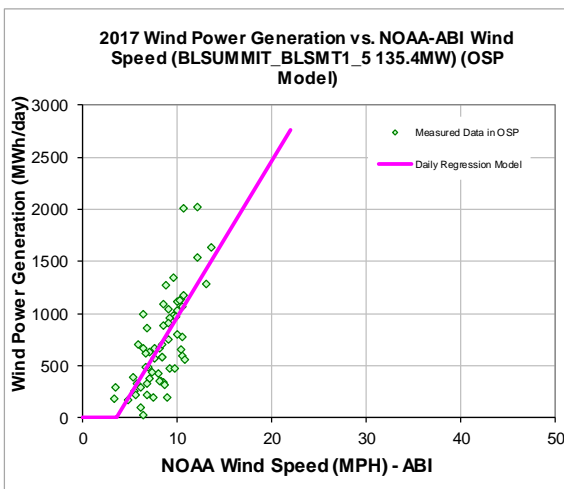
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-533.00
Left Slope (MWh/mph-day)	149.51
RMSE (MWh/day)	308.63
R2	0.52
CV-RMSE	43.5%
Daily Maximum (MWh/day)	3250

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
519,010	474,020	775	720

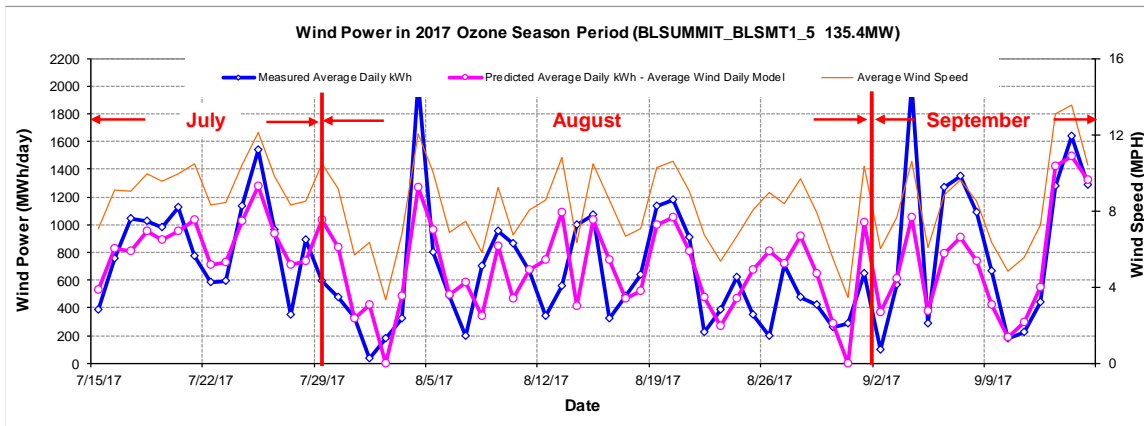
Figure 10-17: BLSUMMIT\_BLSMT1\_5 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	45,984	41,171	10.47%	46%	41%
Feb-17	28	11.23	43,908	40,392	8.01%	48%	44%
Mar-17	31	12.96	52,556	52,340	0.41%	52%	52%
Apr-17	30	13.49	50,030	53,084	-6.10%	51%	54%
May-17	31	11.55	42,271	46,182	-9.25%	42%	46%
Jun-17	30	10.72	37,042	41,080	-10.90%	38%	42%
Jul-17	31	9.17	24,984	30,302	-21.28%	25%	30%
Aug-17	31	7.87	18,817	19,973	-6.15%	19%	20%
Sep-17	30	9.51	30,192	31,143	-3.15%	31%	32%
Oct-17	31	11.07	49,835	44,014	11.68%	49%	44%
Nov-17	30	10.21	40,852	38,876	4.84%	42%	40%
Dec-17	31	9.14	37,547	35,371	5.80%	37%	35%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>474,020</b>	<b>473,929</b>	<b>0.02%</b>	<b>40%</b>	<b>40%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>44,739</b>	<b>44,790</b>	<b>-0.11%</b>	<b>22%</b>	<b>22%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

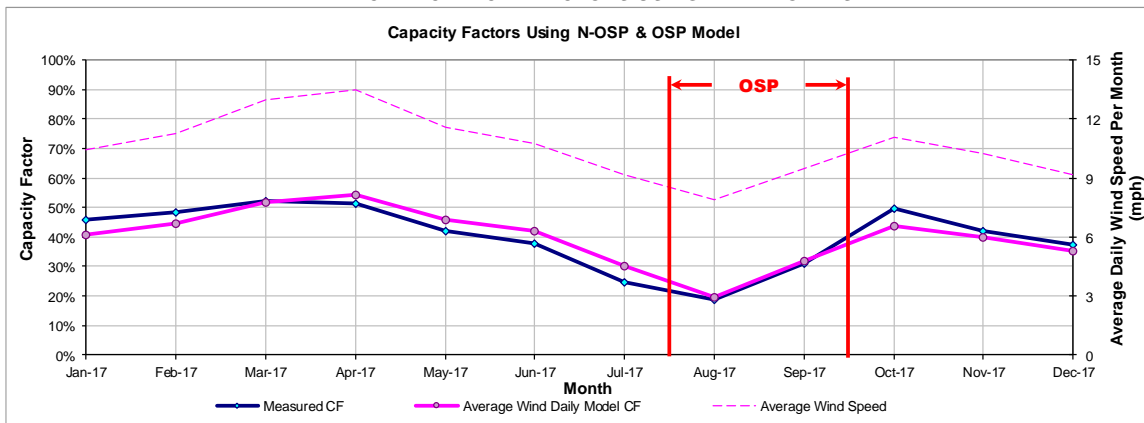


Figure 10-18: BLSUMMIT\_BLSMT1\_5 - Predicted Wind Power and Capacity Factor Using Daily Models

10.6 Bobcat Bluff Wind Project

10.6.1 Bobcat Bluff Wind Project - BCATWIND\_WIND\_1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
BCATWIND_WIND_1	Wind	-	CLAY	EDF Renewable	Bobcat Bluff

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
100 GE 1.5 MW	ERCOT	W	Mar-13	West	ABI	150

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

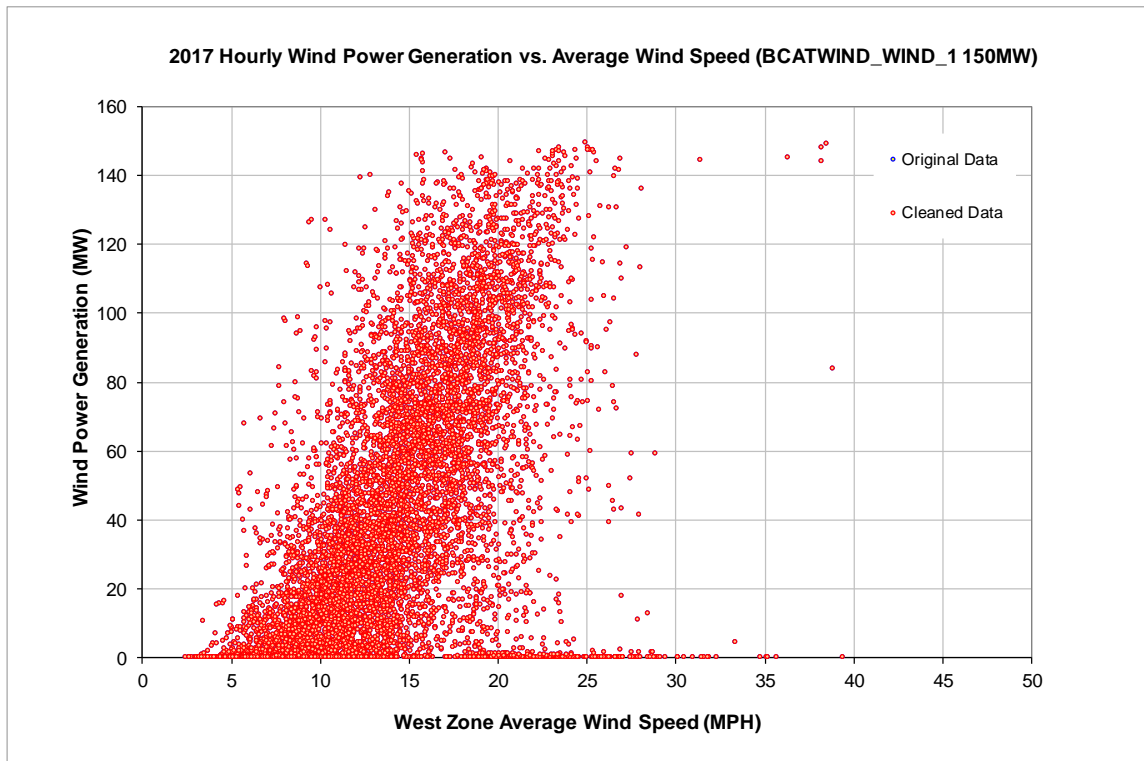


Figure 10-19: BCATWIND\_WIND\_1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

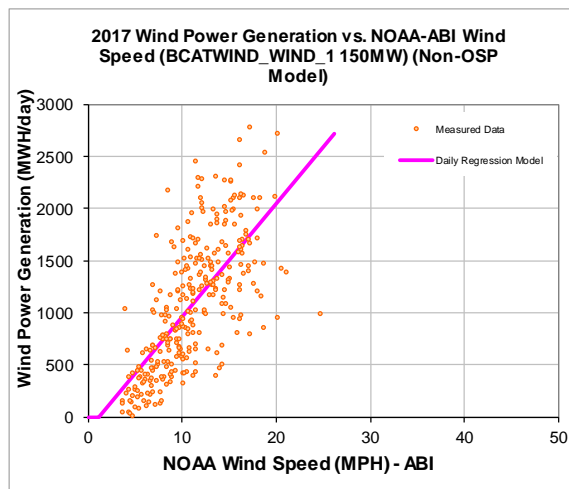
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-119.17
Left Slope (MWh/mph-day)	108.71
RMSE (MWh/day)	450.74
R2	0.48
CV-RMSE	41.5%
Daily Maximum (MWh/day)	3600

**OSP Model:**

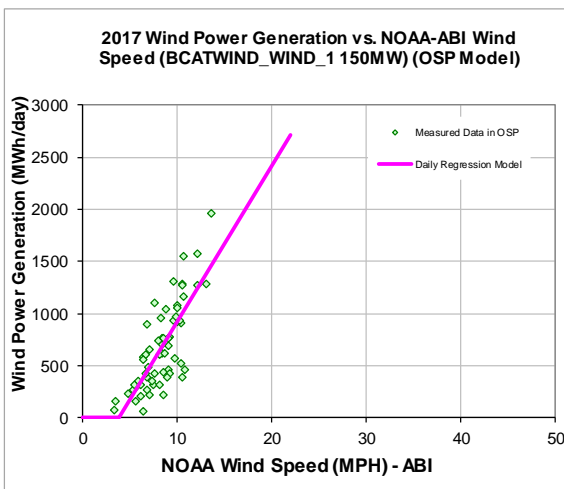
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-562.23
Left Slope (MWh/mph-day)	148.71
RMSE (MWh/day)	262.10
R2	0.60
CV-RMSE	38.9%
Daily Maximum (MWh/day)	3600

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
405,133	370,263

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
739	691

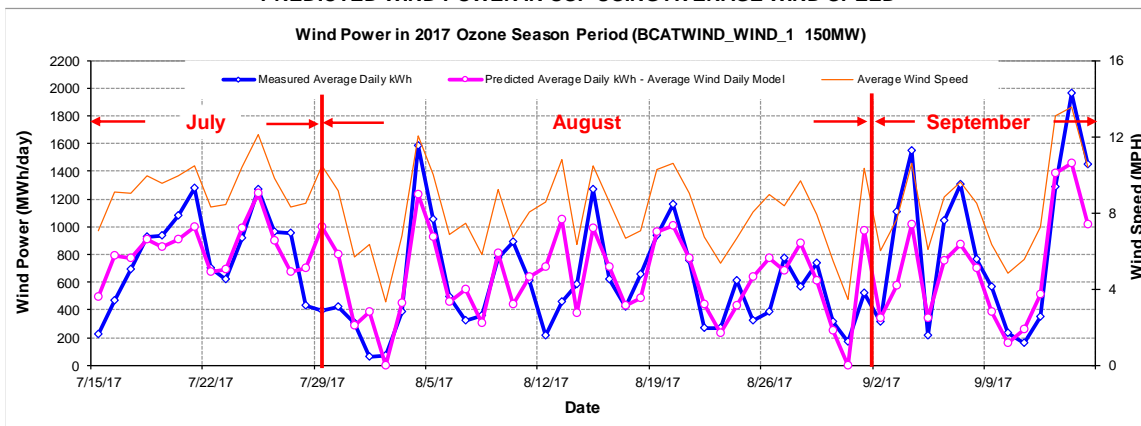
Figure 10-20: BCATWIND\_WIND\_1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	31,959	31,470	1.53%	29%	28%
Feb-17	28	11.23	27,414	30,836	-12.48%	27%	31%
Mar-17	31	12.96	38,241	39,977	-4.54%	34%	36%
Apr-17	30	13.49	37,430	40,413	-7.97%	35%	37%
May-17	31	11.55	32,327	35,239	-9.01%	29%	32%
Jun-17	30	10.72	30,594	31,386	-2.59%	28%	29%
Jul-17	31	9.17	23,253	26,010	-11.86%	21%	23%
Aug-17	31	7.87	18,233	18,903	-3.67%	16%	17%
Sep-17	30	9.51	27,842	25,699	7.70%	26%	24%
Oct-17	31	11.07	42,600	33,608	21.11%	38%	30%
Nov-17	30	10.21	32,325	29,728	8.03%	30%	28%
Dec-17	31	9.14	28,045	27,108	3.34%	25%	24%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>370,263</b>	<b>370,378</b>	<b>-0.03%</b>	<b>28%</b>	<b>28%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>42,476</b>	<b>42,591</b>	<b>-0.27%</b>	<b>19%</b>	<b>19%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

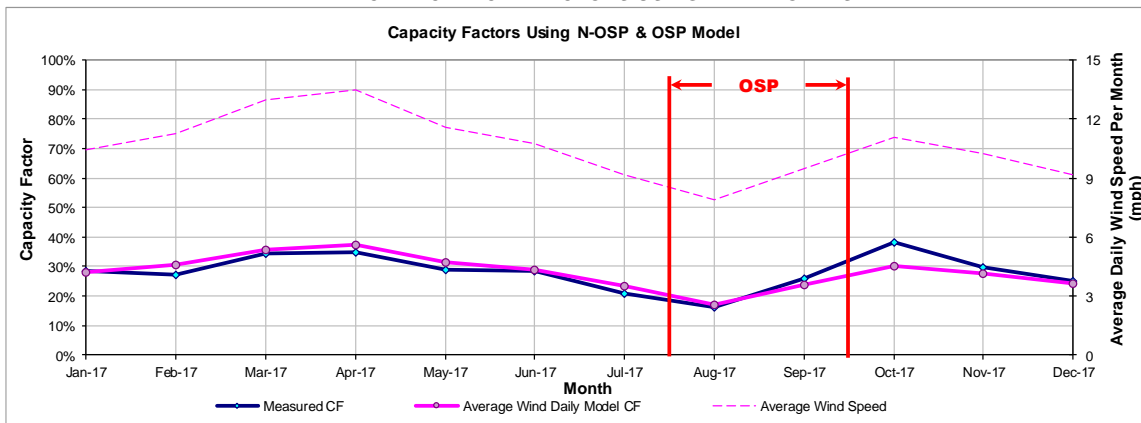


Figure 10-21: BCATWIND\_WIND\_1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.7 Brazos Wind Ranch

10.7.1 Brazos Wind Ranch - BRAZ\_WND\_WND1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
BRAZ_WND_WND1	Wind	Fluvanna	SCURRY	Cielo/Orion/Green Mountain	Brazos Wind Ranch

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
99 Mitsubishi 1 MW	ERCOT	W	Dec-03	West	LBB	99

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

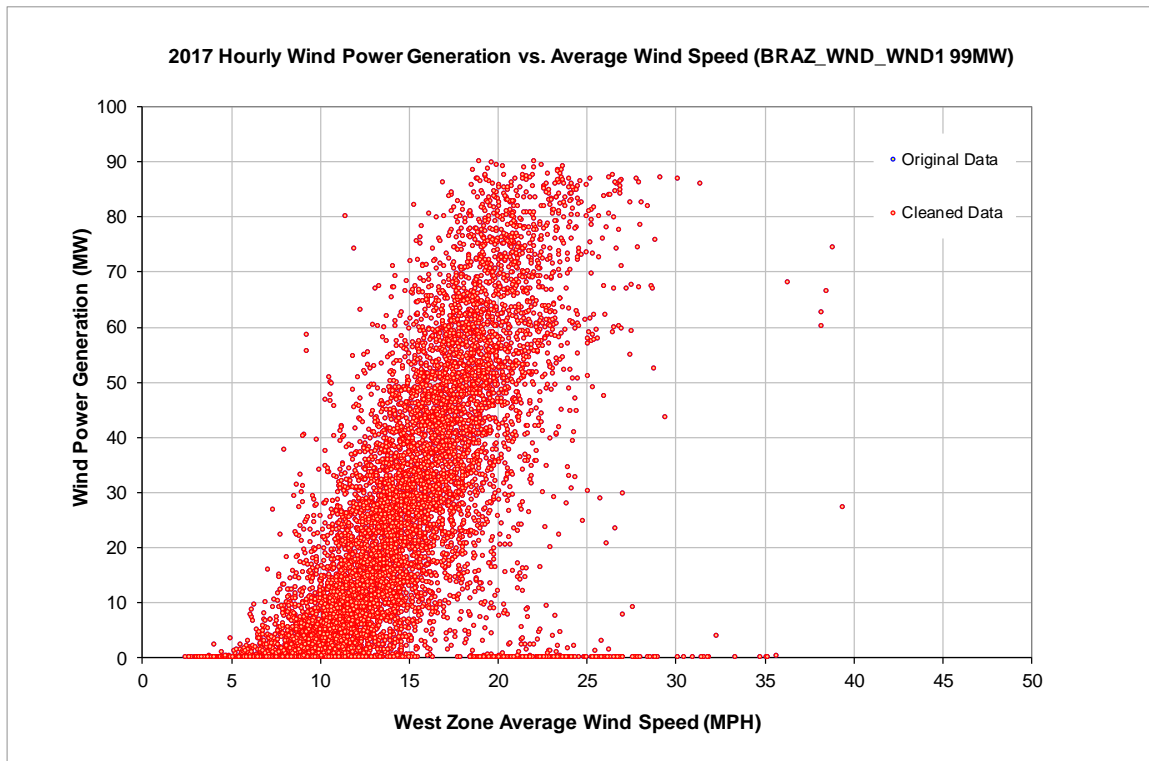


Figure 10-22: BRAZ\_WND\_WND1 - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

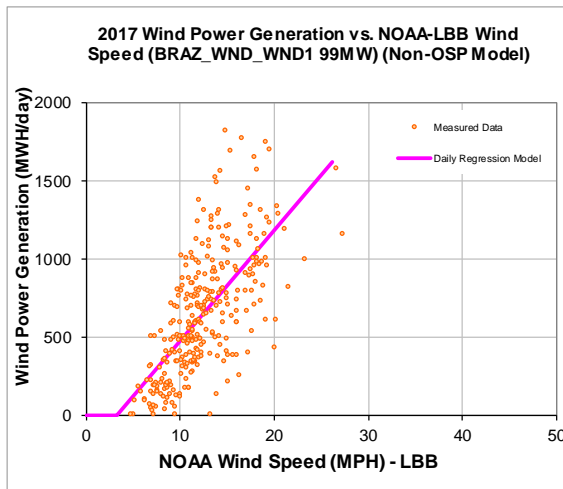
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-225.98
Left Slope (MWh/mph-day)	70.59
RMSE (MWh/day)	292.74
R2	0.45
CV-RMSE	44.8%
Daily Maximum (MWh/day)	2376

**OSP Model:**

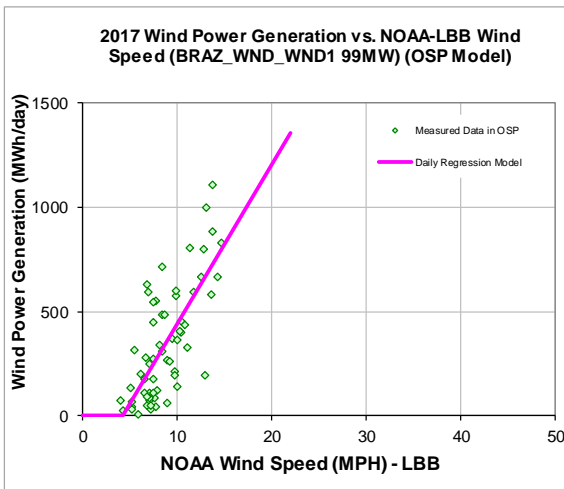
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-319.99
Left Slope (MWh/mph-day)	76.35
RMSE (MWh/day)	188.45
R2	0.53
CV-RMSE	55.4%
Daily Maximum (MWh/day)	2376

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
221,406	217,979

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
370	354

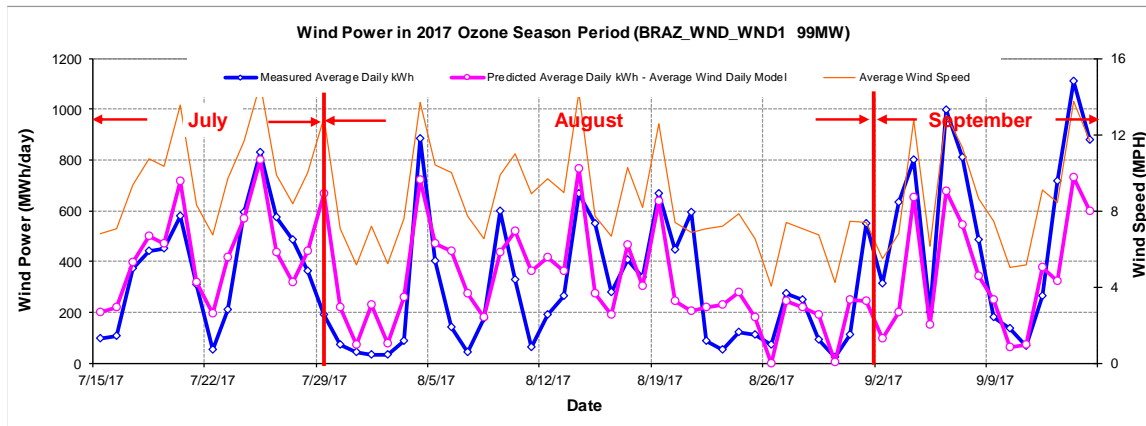
Figure 10-23: BRAZ\_WND\_WND1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	20,489	19,213	6.23%	28%	26%
Feb-17	28	12.91	21,151	19,191	9.27%	32%	29%
Mar-17	31	13.57	28,516	22,684	20.45%	39%	31%
Apr-17	30	14.59	24,611	24,124	1.98%	35%	34%
May-17	31	13.77	17,647	23,122	-31.02%	24%	31%
Jun-17	30	12.33	14,212	19,324	-35.97%	20%	27%
Jul-17	31	10.03	11,223	14,282	-27.26%	15%	19%
Aug-17	31	8.19	8,330	9,480	-13.81%	11%	13%
Sep-17	30	10.41	17,247	14,592	15.40%	24%	20%
Oct-17	31	11.80	20,068	18,819	6.23%	27%	26%
Nov-17	30	11.45	18,443	17,471	5.27%	26%	25%
Dec-17	31	10.61	16,041	15,689	2.19%	22%	21%
<b>Total</b>	<b>365</b>	<b>11.79</b>	<b>217,979</b>	<b>217,991</b>	<b>-0.01%</b>	<b>25%</b>	<b>25%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>21,446</b>	<b>21,457</b>	<b>-0.05%</b>	<b>14%</b>	<b>14%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

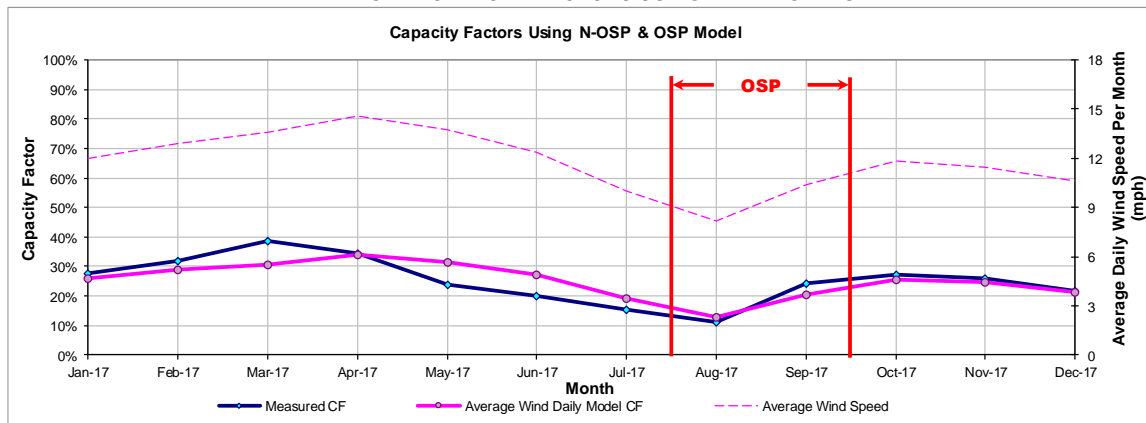


Figure 10-24: BRAZ\_WND\_WND1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.7.2 Brazos Wind Ranch - BRAZ\_WND\_WND2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
BRAZ_WND_WND2	Wind	Fluvanna	SCURRY	Cielo/Orion/Green Mountain	Brazos Wind Ranch

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
61 Mitsubishi 1 MW	ERCOT	W	Dec-03	West	LBB	61

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

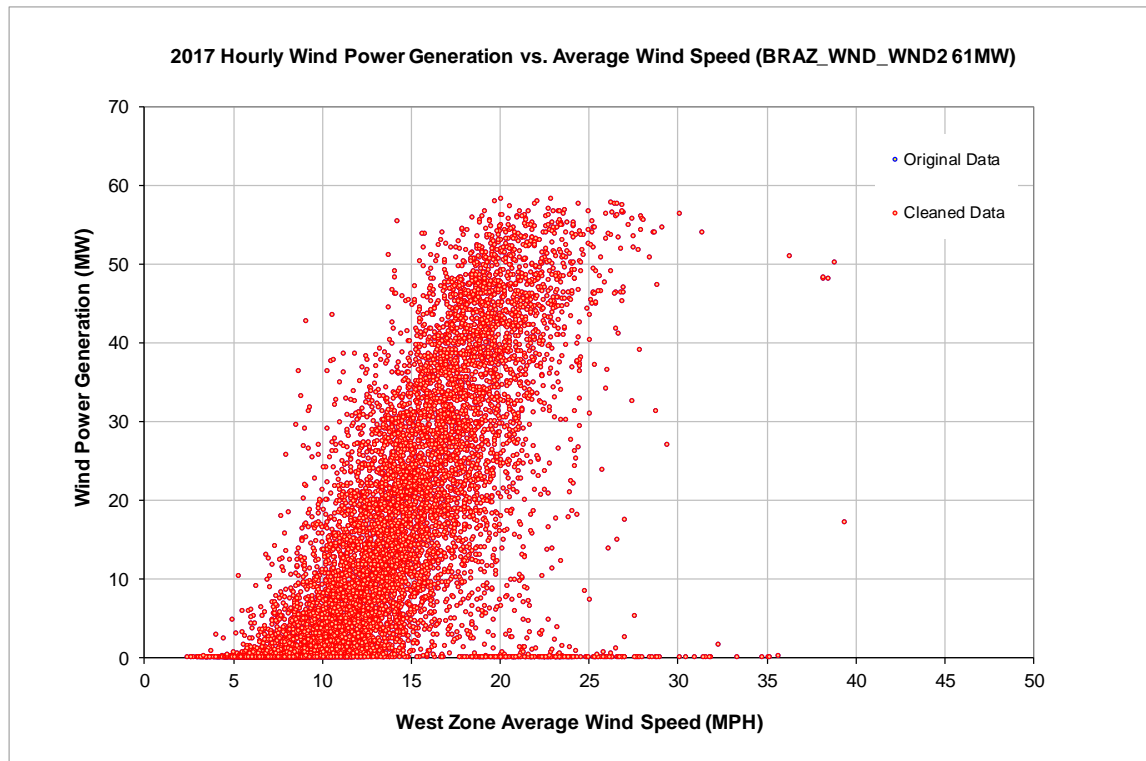


Figure 10-25: BRAZ\_WND\_WND2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

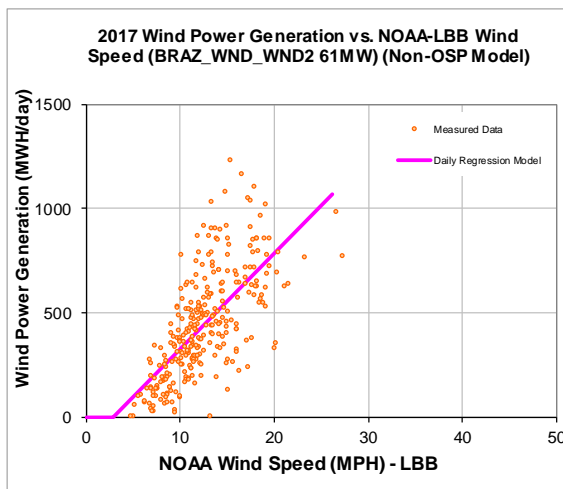
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-131.35
Left Slope (MWh/mph-day)	46.11
RMSE (MWh/day)	184.28
R2	0.47
CV-RMSE	41.6%
Daily Maximum (MWh/day)	1464

**OSP Model:**

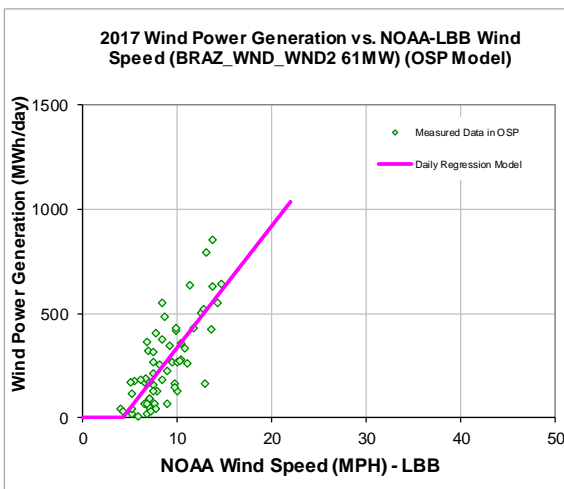
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-246.55
Left Slope (MWh/mph-day)	58.37
RMSE (MWh/day)	132.21
R2	0.58
CV-RMSE	51.2%
Daily Maximum (MWh/day)	1464

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
152,019	149,558

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
281	269

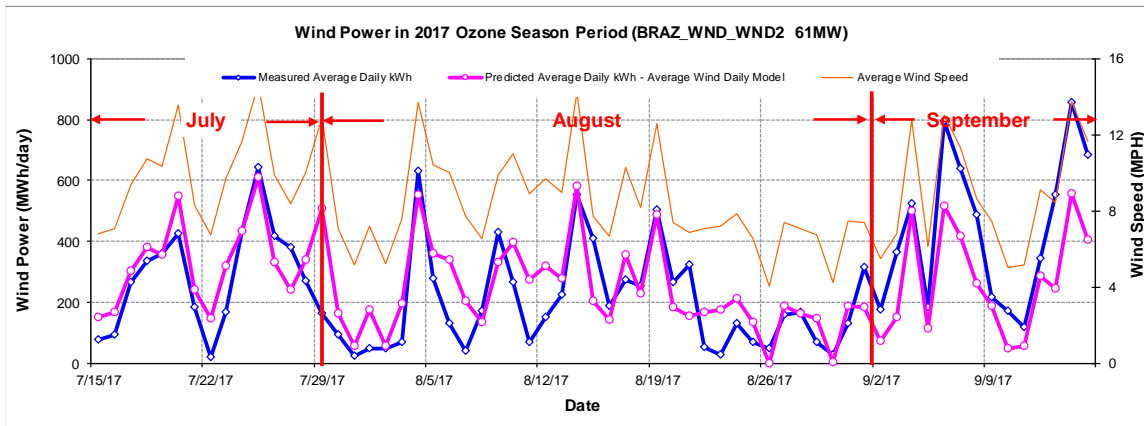
Figure 10-26: BRAZ\_WND\_WND2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	12,084	13,055	-8.04%	27%	29%
Feb-17	28	12.91	11,898	12,992	-9.19%	29%	32%
Mar-17	31	13.57	17,157	15,322	10.69%	38%	34%
Apr-17	30	14.59	16,929	16,247	4.03%	39%	37%
May-17	31	13.77	11,939	15,609	-30.74%	26%	34%
Jun-17	30	12.33	10,975	13,112	-19.47%	25%	30%
Jul-17	31	10.03	8,323	10,305	-23.81%	18%	23%
Aug-17	31	8.19	6,082	7,191	-18.23%	13%	16%
Sep-17	30	10.41	13,329	10,301	22.72%	30%	23%
Oct-17	31	11.80	15,306	12,798	16.39%	34%	28%
Nov-17	30	11.45	13,970	11,901	14.81%	32%	27%
Dec-17	31	10.61	11,568	10,737	7.18%	25%	24%
<b>Total</b>	<b>365</b>	<b>11.79</b>	<b>149,558</b>	<b>149,568</b>	<b>-0.01%</b>	<b>28%</b>	<b>28%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>16,275</b>	<b>16,286</b>	<b>-0.07%</b>	<b>18%</b>	<b>18%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

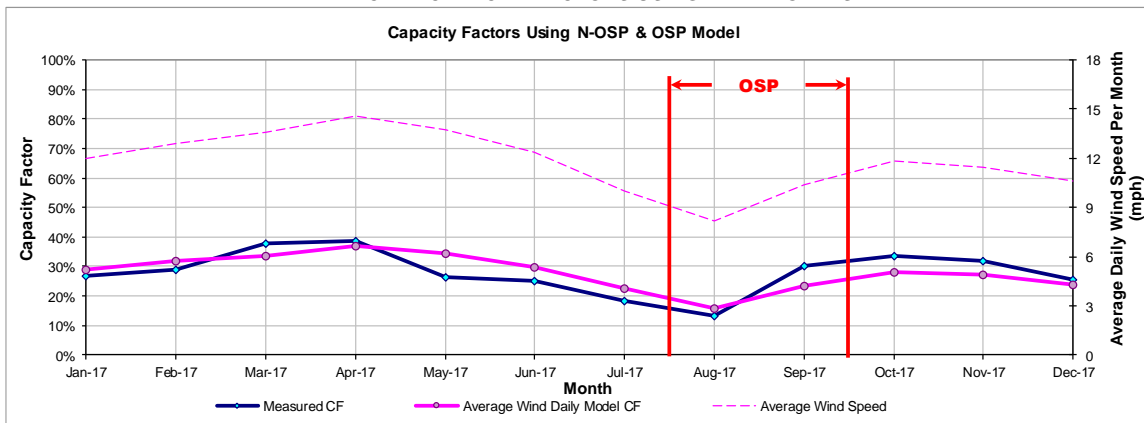


Figure 10-27: BRAZ\_WND\_WND2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.8 Briscoe Wind

10.8.1 Briscoe Wind - BRISCOE\_WIND

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
BRISCOE_WIND	Wind	Silverton	BRISCOE	juwi Wind	Briscoe Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
81 GE 1.85 MW	ERCOT	W	Nov-15	Panhandle	LBB	149.8

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

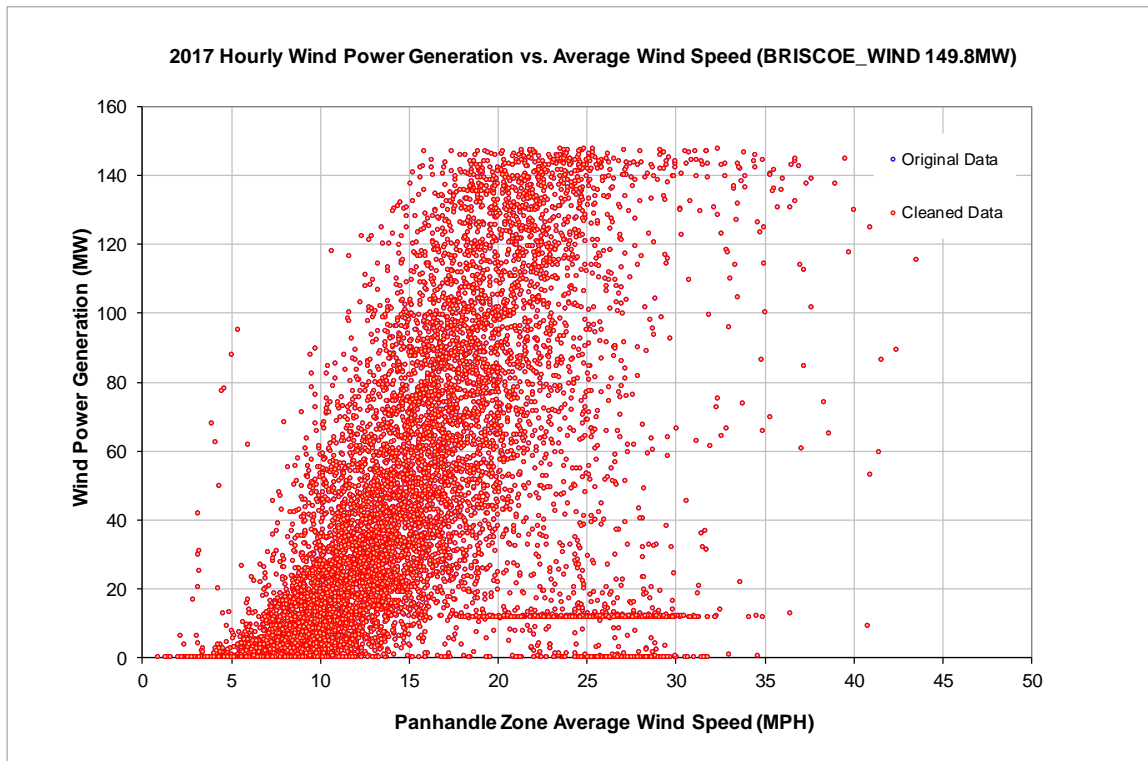


Figure 10-28: BRISCOE\_WIND - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

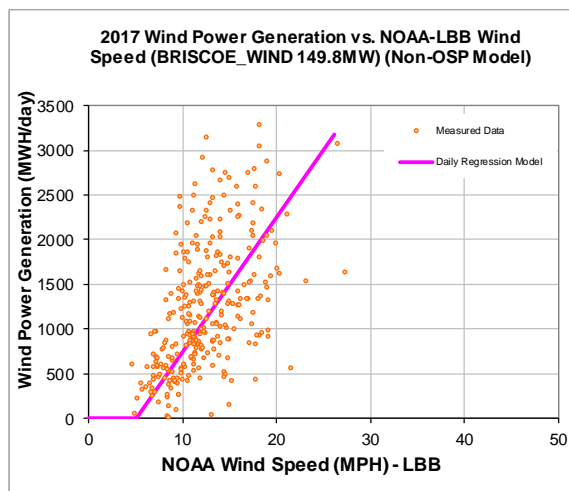
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	44.85
Left Slope (MWh/mph-day)	94.84
RMSE (MWh/day)	595.71
R2	0.26
CV-RMSE	48.6%
Daily Maximum (MWh/day)	3595

**OSP Model:**

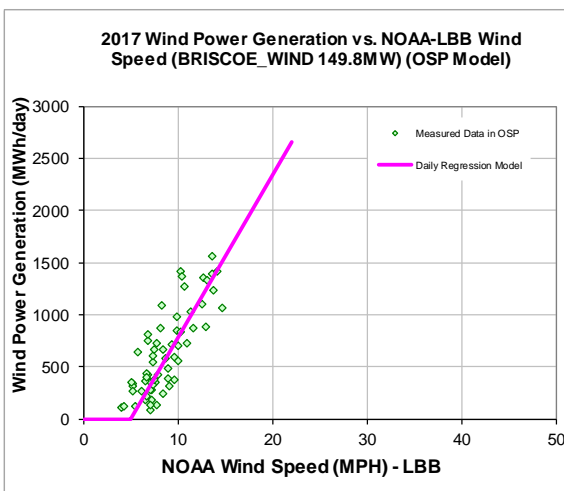
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-462.04
Left Slope (MWh/mph-day)	126.02
RMSE (MWh/day)	236.78
R2	0.66
CV-RMSE	37.7%
Daily Maximum (MWh/day)	3595

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
414,461	409,363

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
676	641

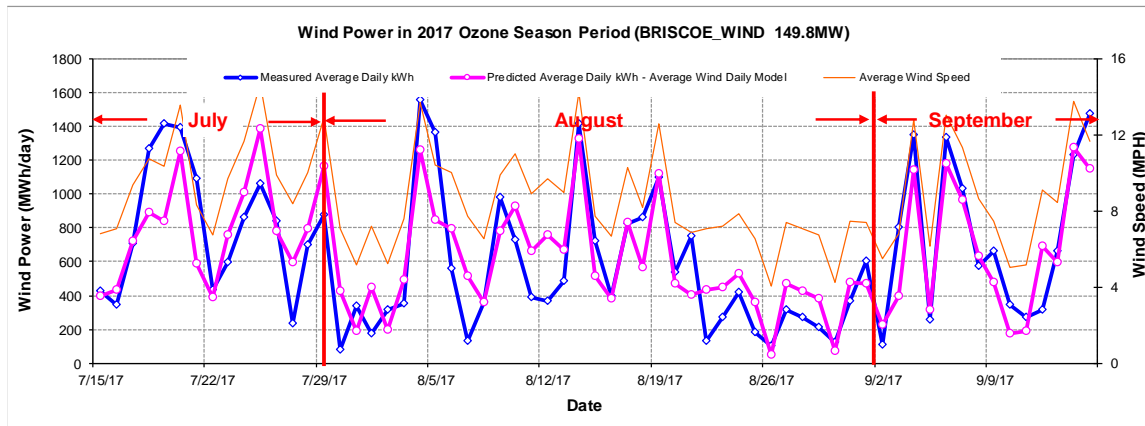
Figure 10-29: BRISCOE\_WIND - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	39,002	36,616	6.12%	35%	33%
Feb-17	28	12.91	42,492	35,541	16.36%	42%	35%
Mar-17	31	13.57	42,099	41,279	1.95%	38%	37%
Apr-17	30	14.59	32,700	42,866	-31.09%	30%	40%
May-17	31	13.77	33,462	41,868	-25.12%	30%	38%
Jun-17	30	12.33	24,824	36,417	-46.70%	23%	34%
Jul-17	31	10.03	24,088	27,343	-13.51%	22%	25%
Aug-17	31	8.19	16,718	17,680	-5.76%	15%	16%
Sep-17	30	10.41	23,046	27,351	-18.68%	21%	25%
Oct-17	31	11.80	51,310	36,087	29.67%	46%	32%
Nov-17	30	11.45	48,637	33,927	30.24%	45%	31%
Dec-17	31	10.54	30,986	32,388	-4.52%	28%	29%
<b>Total</b>	<b>365</b>	<b>11.78</b>	<b>409,363</b>	<b>409,363</b>	<b>0.00%</b>	<b>31%</b>	<b>31%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>39,566</b>	<b>39,566</b>	<b>0.00%</b>	<b>17%</b>	<b>17%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

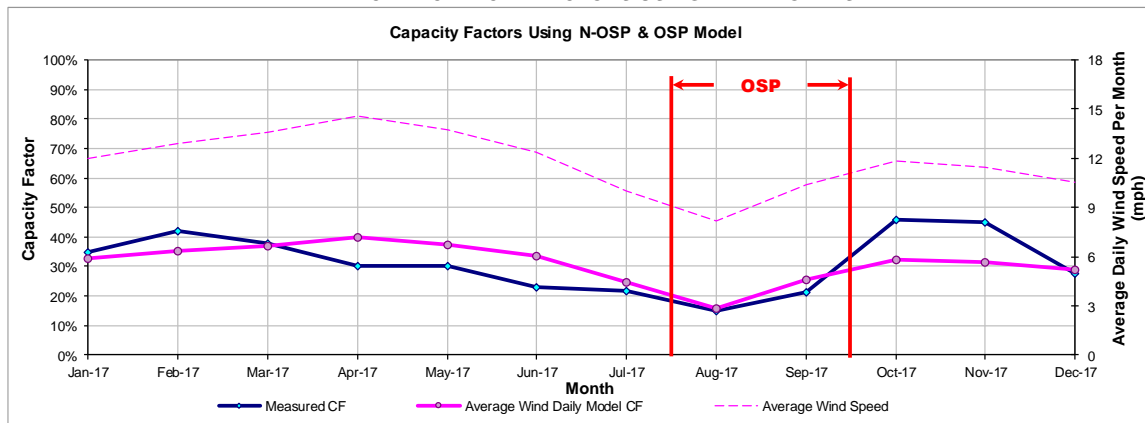


Figure 10-30: BRISCOE\_WIND - Predicted Wind Power and Capacity Factor Using Daily Models



10.9 Buffalo Gap 1

10.9.1 Buffalo Gap 1 - BUFF\_GAP\_UNIT1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
BUFF_GAP_UNIT1	Wind	Abilene	TAYLOR	AES	Buffalo Gap 1

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
67 Vestas 1.8 MW	ERCOT	W	Sep-05	West	ABI	120

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

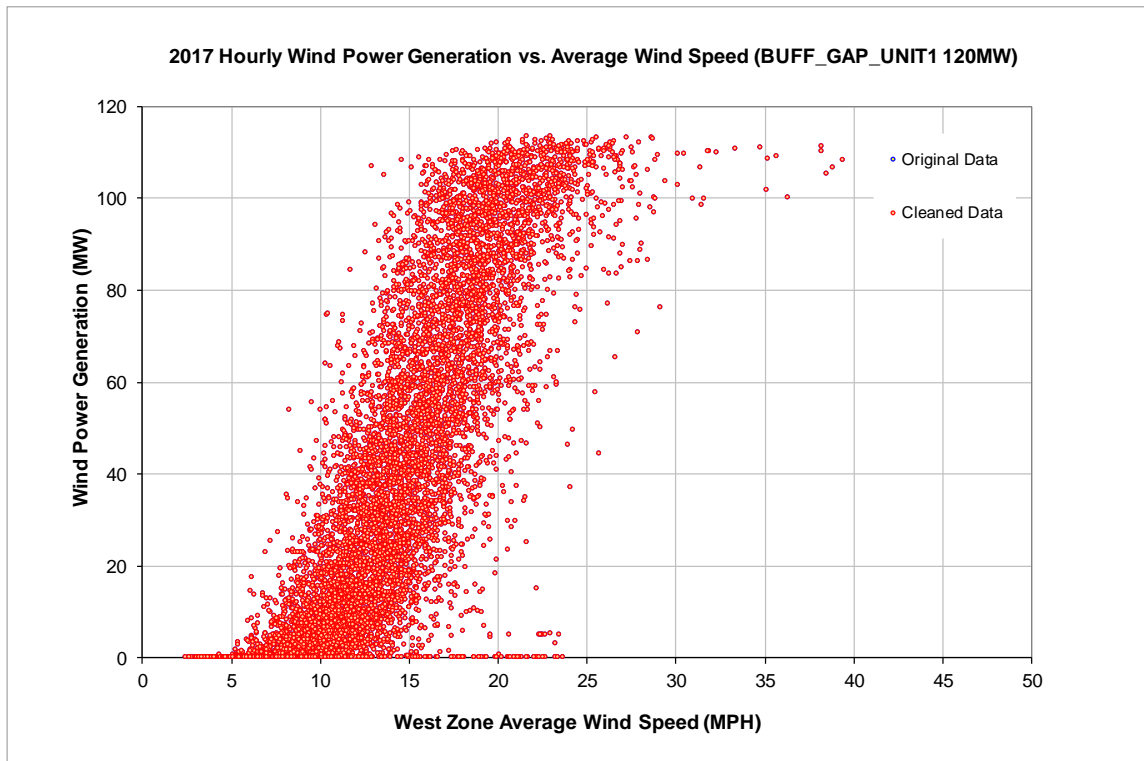


Figure 10-31: BUFF\_GAP\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

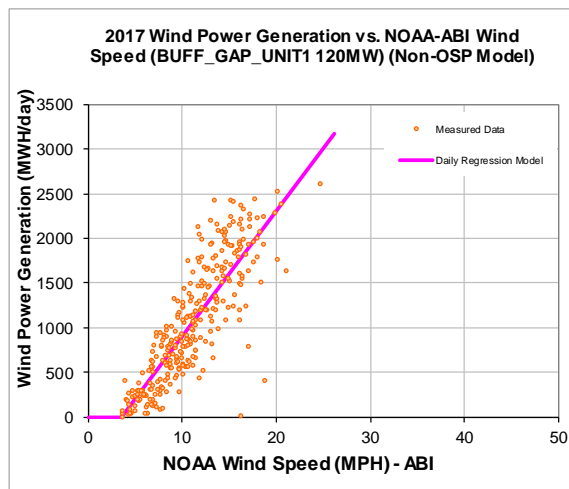
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-497.97
Left Slope (MWh/mph-day)	140.82
RMSE (MWh/day)	361.43
R2	0.71
CV-RMSE	34.0%
Daily Maximum (MWh/day)	2880

**OSP Model:**

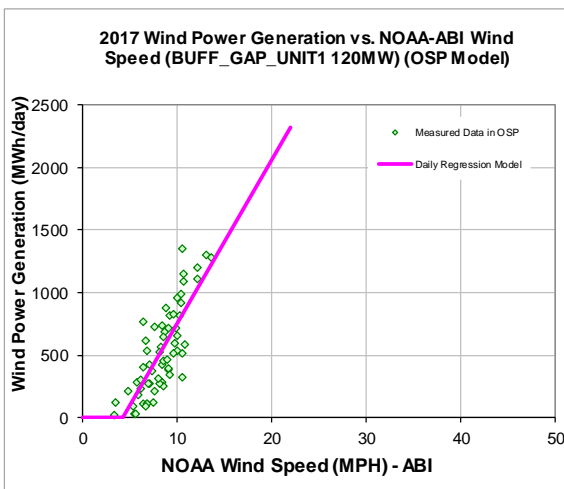
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-560.80
Left Slope (MWh/mph-day)	131.14
RMSE (MWh/day)	212.26
R2	0.64
CV-RMSE	40.1%
Daily Maximum (MWh/day)	2880

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
397,434	351,644

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
588	541

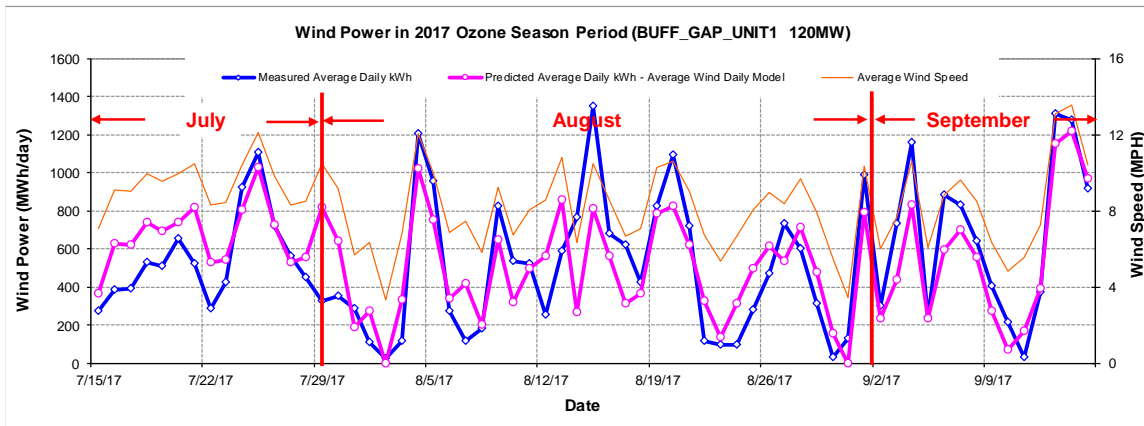
Figure 10-32: BUFF\_GAP\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	30,893	30,113	2.52%	35%	34%
Feb-17	28	11.23	30,930	30,322	1.97%	38%	38%
Mar-17	31	12.96	43,072	41,031	4.74%	48%	46%
Apr-17	30	13.49	40,974	42,041	-2.60%	47%	49%
May-17	31	11.55	33,136	34,995	-5.61%	37%	39%
Jun-17	30	10.72	21,726	30,347	-39.68%	25%	35%
Jul-17	31	9.17	18,011	22,004	-22.17%	20%	25%
Aug-17	31	7.87	15,212	14,721	3.23%	17%	16%
Sep-17	30	9.51	23,923	23,204	3.00%	28%	27%
Oct-17	31	11.07	36,492	32,882	9.89%	41%	37%
Nov-17	30	10.21	31,636	28,199	10.86%	37%	33%
Dec-17	31	9.09	25,639	21,914	14.53%	29%	25%
<b>Total</b>	<b>365</b>	<b>10.61</b>	<b>351,644</b>	<b>351,773</b>	<b>-0.04%</b>	<b>33%</b>	<b>33%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>33,366</b>	<b>33,597</b>	<b>-0.69%</b>	<b>18%</b>	<b>19%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

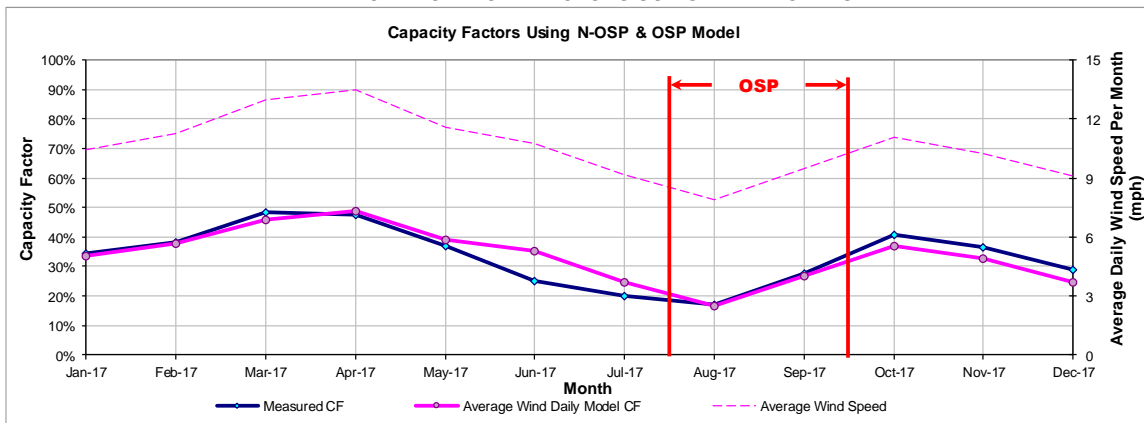


Figure 10-33: BUFF\_GAP\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.10 Buffalo Gap 2 (Cirello 1)

10.10.1 Buffalo Gap 2 (Cirello 1) - BUFF\_GAP\_UNIT2\_1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
BUFF_GAP_UNIT2_1	Wind	Abilene	TAYLOR	AES	Buffalo Gap 2 (Cirello 1)

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
155 GE 1.5 MW	ERCOT	W	Aug-07	West	ABI	232.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

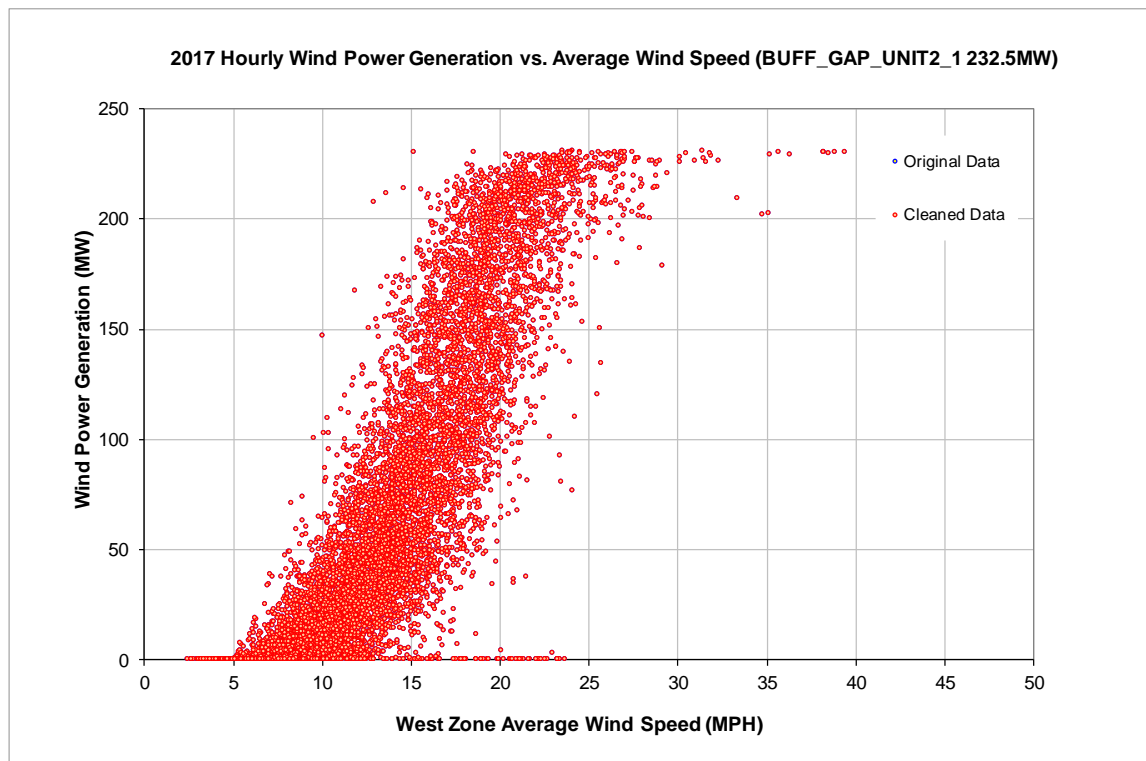


Figure 10-34: BUFF\_GAP\_UNIT2\_1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

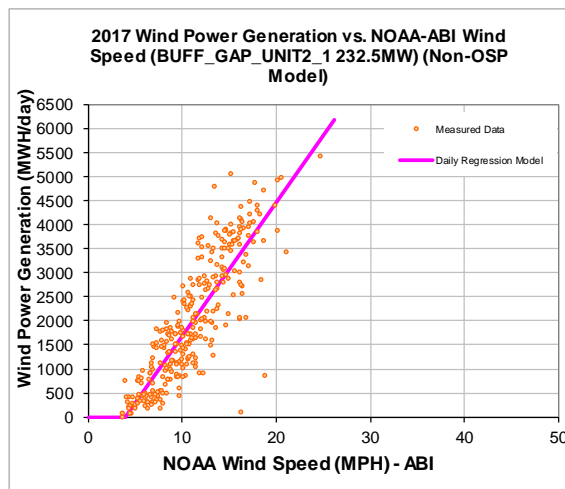
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-1081.97
Left Slope (MWh/mph-day)	278.45
RMSE (MWh/day)	669.87
R2	0.73
CV-RMSE	33.4%
Daily Maximum (MWh/day)	5580

**OSP Model:**

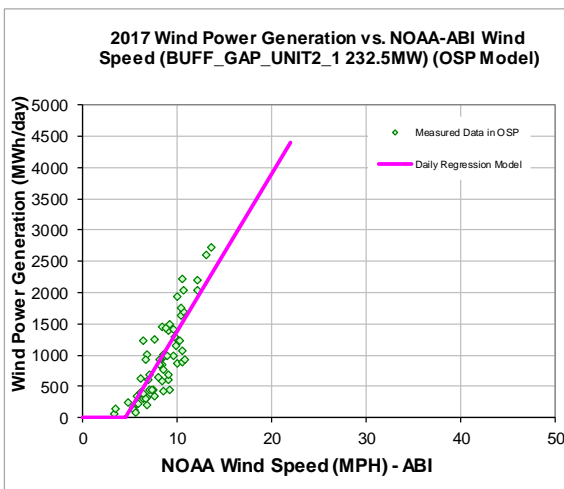
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-1144.89
Left Slope (MWh/mph-day)	252.10
RMSE (MWh/day)	351.57
R2	0.70
CV-RMSE	37.0%
Daily Maximum (MWh/day)	5580

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
750,316	660,165	1,064	970

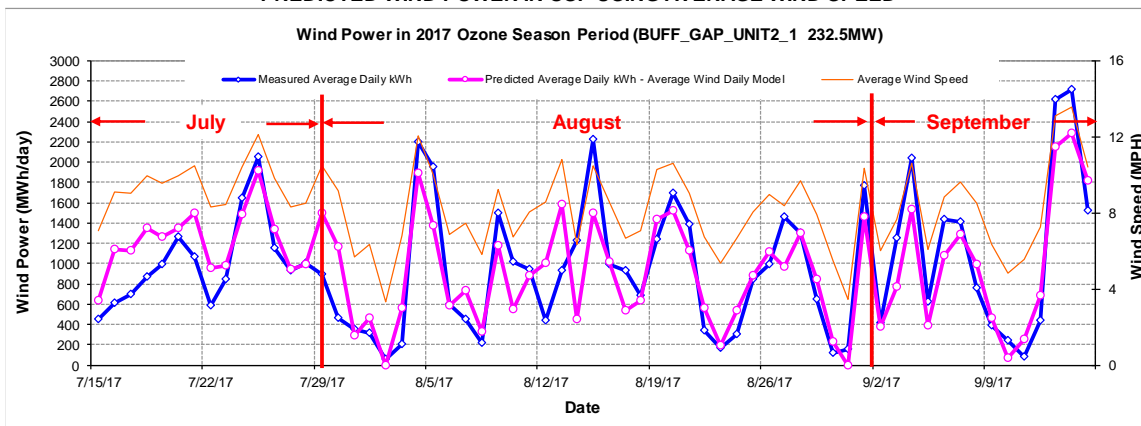
Figure 10-35: BUFF\_GAP\_UNIT2\_1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	61,978	56,526	8.80%	36%	33%
Feb-17	28	11.23	59,152	57,231	3.25%	38%	37%
Mar-17	31	12.96	80,125	78,096	2.53%	46%	45%
Apr-17	30	13.49	76,517	80,209	-4.82%	46%	48%
May-17	31	11.55	63,155	66,179	-4.79%	37%	38%
Jun-17	30	10.72	46,527	57,086	-22.69%	28%	34%
Jul-17	31	9.17	32,629	40,394	-23.80%	19%	23%
Aug-17	31	7.87	27,721	26,293	5.15%	16%	15%
Sep-17	30	9.51	43,203	43,065	0.32%	26%	26%
Oct-17	31	11.07	65,554	62,086	5.29%	38%	36%
Nov-17	30	10.21	57,233	52,912	7.55%	34%	32%
Dec-17	31	9.09	46,371	40,678	12.28%	27%	24%
<b>Total</b>	<b>365</b>	<b>10.61</b>	<b>660,165</b>	<b>660,754</b>	<b>-0.09%</b>	<b>32%</b>	<b>32%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>59,929</b>	<b>60,506</b>	<b>-0.96%</b>	<b>17%</b>	<b>17%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

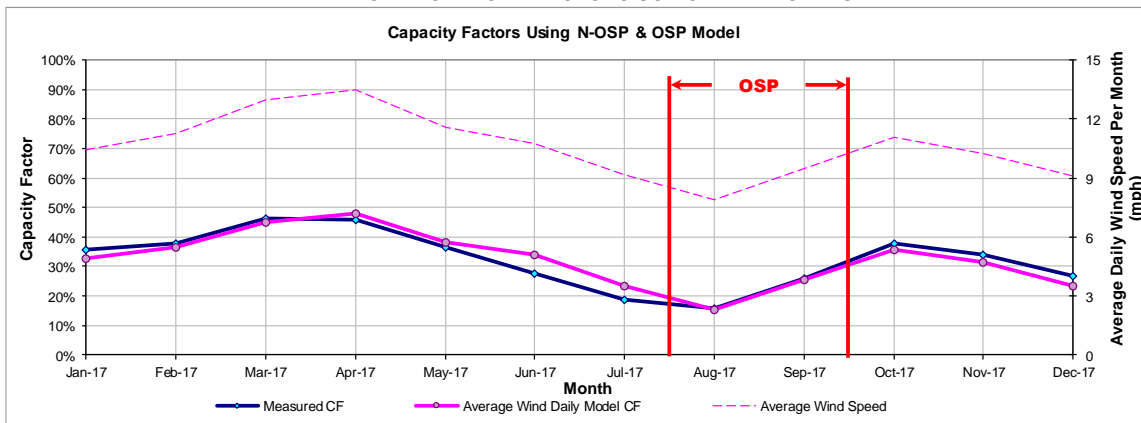


Figure 10-36: BUFF\_GAP\_UNIT2\_1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.11 Buffalo Gap 3

10.11.1 Buffalo Gap 3 - BUFF\_GAP\_UNIT3

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
BUFF_GAP_UNIT3	Wind	Abilene	TAYLOR	AES	Buffalo Gap 3

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
74 Siemens SWT 2.3 MW	ERCOT	W	Apr-08	West	ABI	170

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

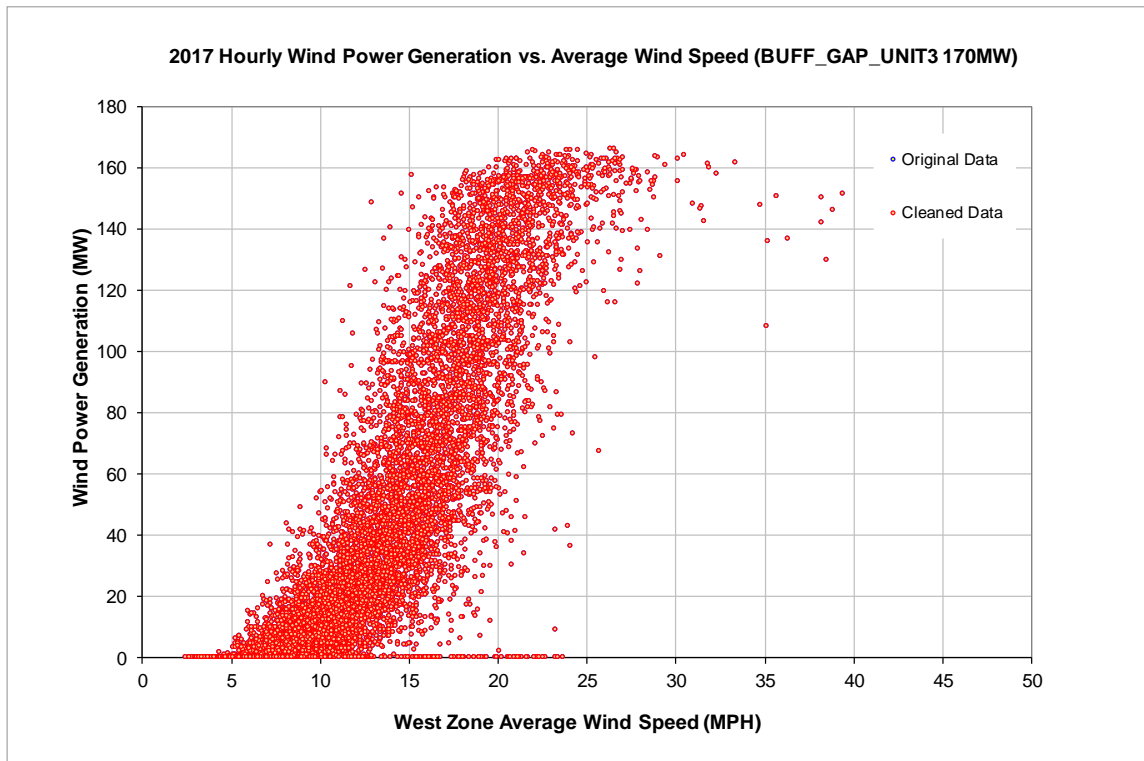


Figure 10-37: BUFF\_GAP\_UNIT3 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

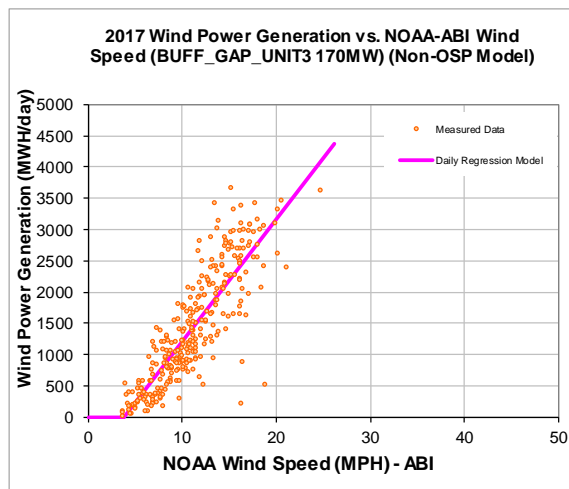
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-749.76
Left Slope (MWh/mph-day)	196.23
RMSE (MWh/day)	481.20
R2	0.72
CV-RMSE	33.7%
Daily Maximum (MWh/day)	4080

**OSP Model:**

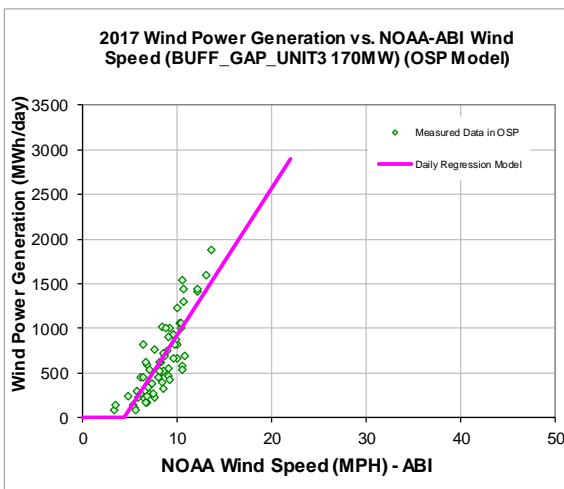
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-708.34
Left Slope (MWh/mph-day)	164.14
RMSE (MWh/day)	231.17
R2	0.70
CV-RMSE	35.2%
Daily Maximum (MWh/day)	4080

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
531,286	468,159

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
729	670

Figure 10-38: BUFF\_GAP\_UNIT3 - Model Coefficients (Using Non-OSP and OSP Data)

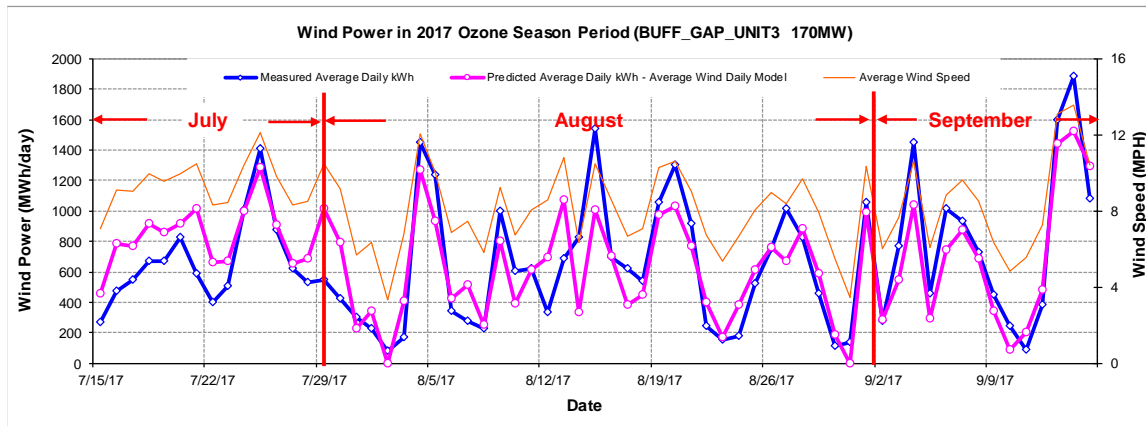


**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	42,894	40,229	6.21%	34%	32%
Feb-17	28	11.23	40,403	40,688	-0.71%	35%	36%
Mar-17	31	12.96	57,802	55,565	3.87%	46%	44%
Apr-17	30	13.49	56,308	56,906	-1.06%	46%	46%
May-17	31	11.55	46,072	47,032	-2.08%	36%	37%
Jun-17	30	10.72	32,841	40,611	-23.66%	27%	33%
Jul-17	31	9.17	22,498	28,180	-25.26%	18%	22%
Aug-17	31	7.87	19,312	18,232	5.59%	15%	14%
Sep-17	30	9.51	31,739	30,319	4.48%	26%	25%
Oct-17	31	11.07	46,447	44,135	4.98%	37%	35%
Nov-17	30	10.21	39,671	37,657	5.08%	32%	31%
Dec-17	31	9.09	32,171	29,010	9.83%	25%	23%
<b>Total</b>	<b>365</b>	<b>10.61</b>	<b>468,159</b>	<b>468,565</b>	<b>-0.09%</b>	<b>31%</b>	<b>31%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>41,356</b>	<b>41,658</b>	<b>-0.73%</b>	<b>16%</b>	<b>16%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

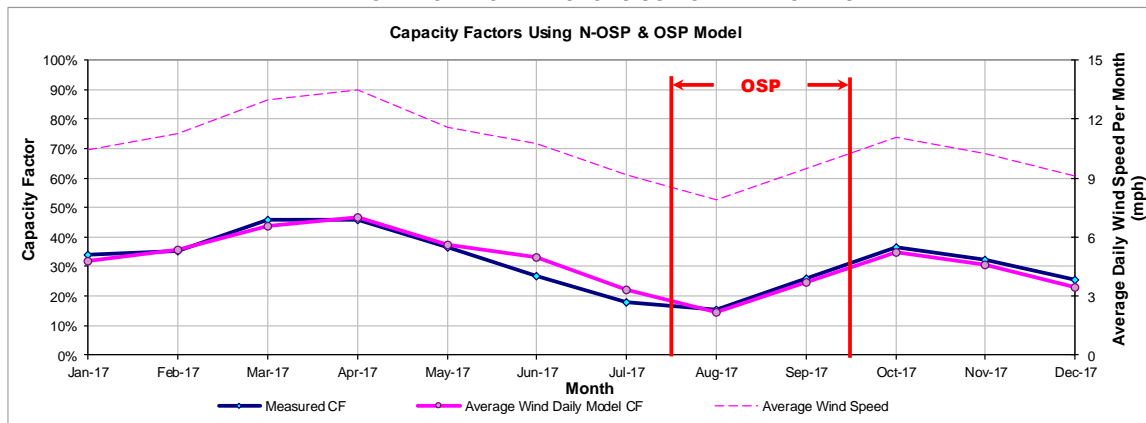


Figure 10-39: BUFF\_GAP\_UNIT3 - Predicted Wind Power and Capacity Factor Using Daily Models

10.12 Bull Creek Wind Plant

10.12.1 Bull Creek Wind Plant - BULLCRK\_WND1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
BULLCRK_WND1	Wind	-	BORDEN	Eurus Energy Holdings	Bull Creek Wind Plant

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
89 Mitsubishi 1 MW	ERCOT	W	Nov-08	West	LBB	89

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

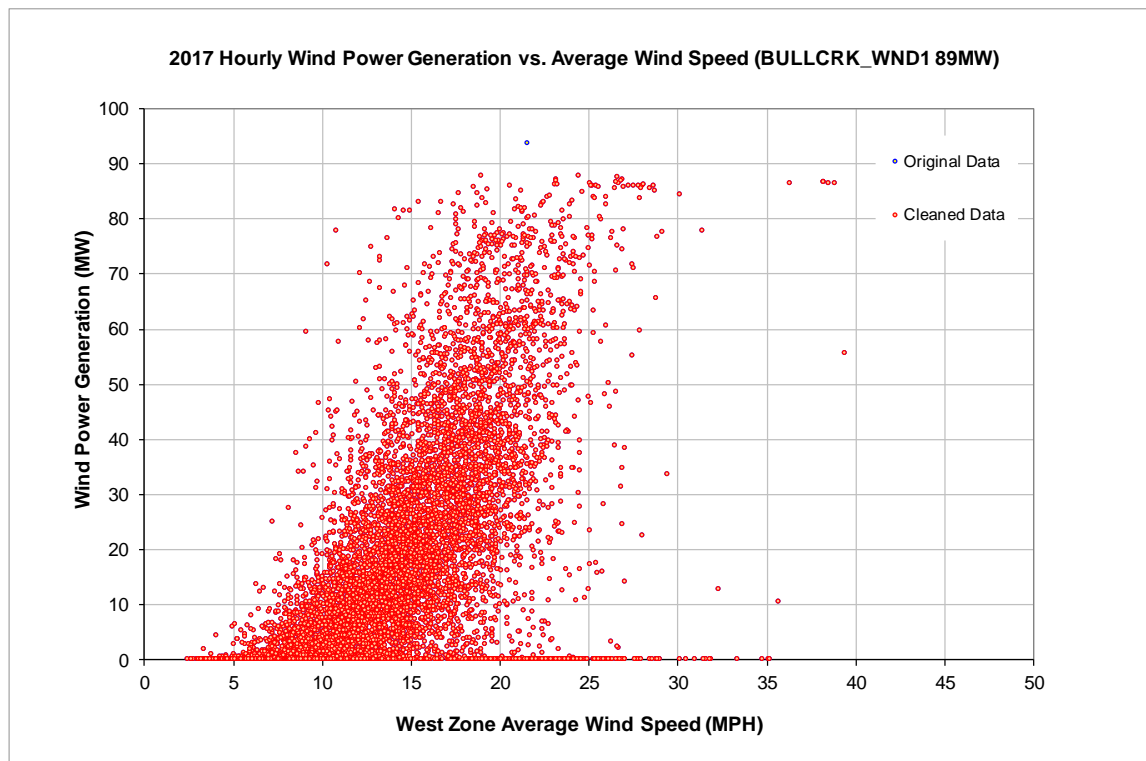


Figure 10-40: BULLCRK\_WND1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

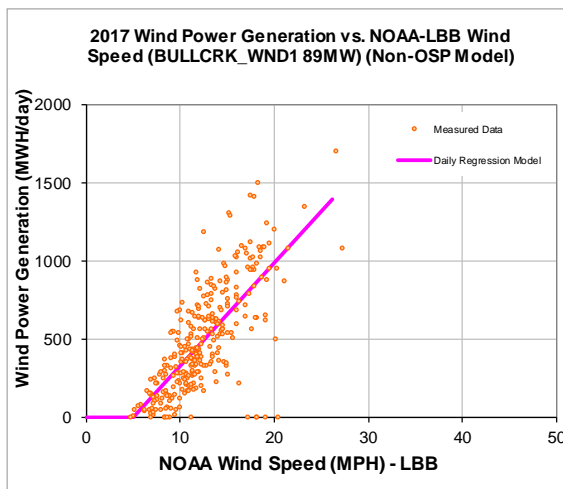
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-329.95
Left Slope (MWh/mph-day)	66.13
RMSE (MWh/day)	229.58
R2	0.54
CV-RMSE	46.5%
Daily Maximum (MWh/day)	2136

**OSP Model:**

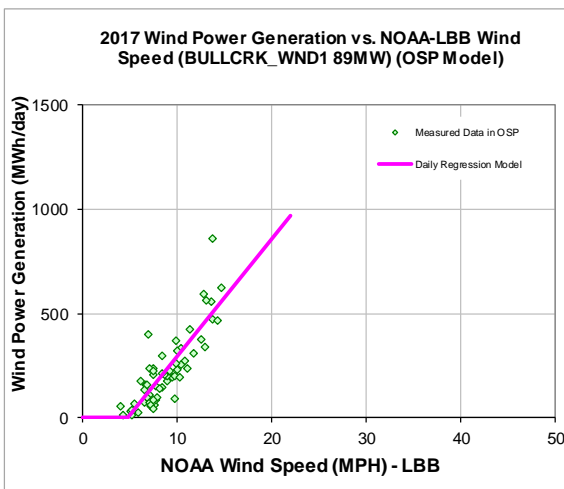
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-271.03
Left Slope (MWh/mph-day)	56.46
RMSE (MWh/day)	91.06
R2	0.73
CV-RMSE	41.9%
Daily Maximum (MWh/day)	2136

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
165,005	161,690

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
240	223

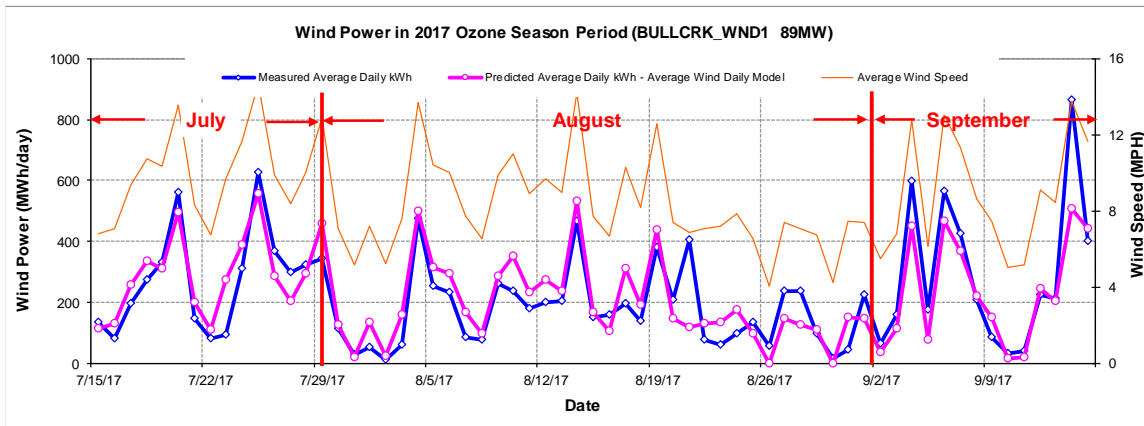
Figure 10-41: BULLCRK\_WND1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	7,974	14,335	-79.77%	12%	22%
Feb-17	28	12.91	15,282	14,669	4.01%	26%	25%
Mar-17	31	13.57	18,016	17,586	2.39%	27%	27%
Apr-17	30	14.59	19,390	19,054	1.73%	30%	30%
May-17	31	13.77	17,353	17,997	-3.71%	26%	27%
Jun-17	30	12.33	11,847	14,562	-22.91%	18%	23%
Jul-17	31	10.03	9,535	9,759	-2.34%	14%	15%
Aug-17	31	8.19	5,469	6,011	-9.91%	8%	9%
Sep-17	30	10.41	10,711	10,400	2.91%	17%	16%
Oct-17	31	11.80	16,889	13,965	17.31%	26%	21%
Nov-17	30	11.45	16,426	12,821	21.95%	26%	20%
Dec-17	31	10.52	12,798	10,632	16.92%	19%	16%
<b>Total</b>	<b>365</b>	<b>11.79</b>	<b>161,690</b>	<b>161,790</b>	<b>-0.06%</b>	<b>21%</b>	<b>21%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>13,694</b>	<b>13,768</b>	<b>-0.54%</b>	<b>10%</b>	<b>10%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

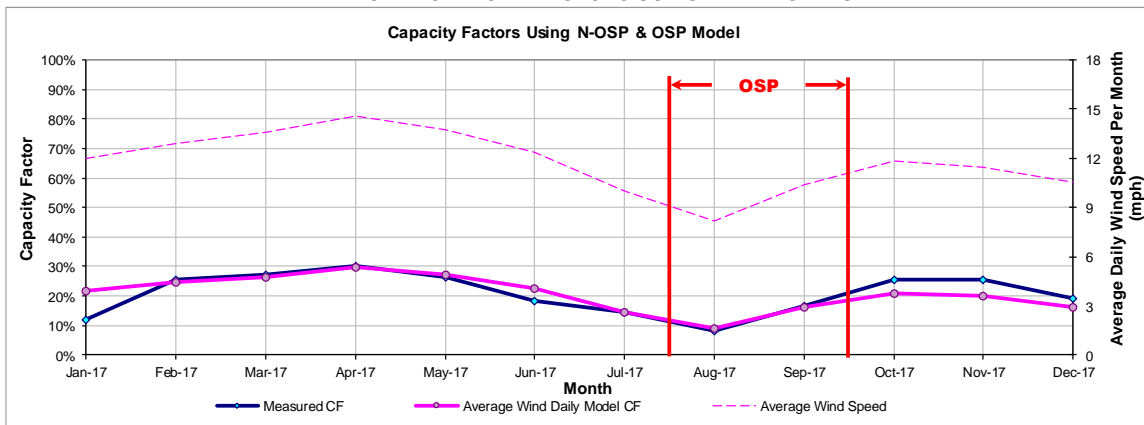


Figure 10-42: BULLCRK\_WND1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.12.2 Bull Creek Wind Plant - BULLCRK\_WND2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
BULLCRK_WND2	Wind	-	BORDEN	Eurus Energy Holdings	Bull Creek Wind Plant

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
91 Mitsubishi 1 MW	ERCOT	W	Nov-08	West	LBB	91

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

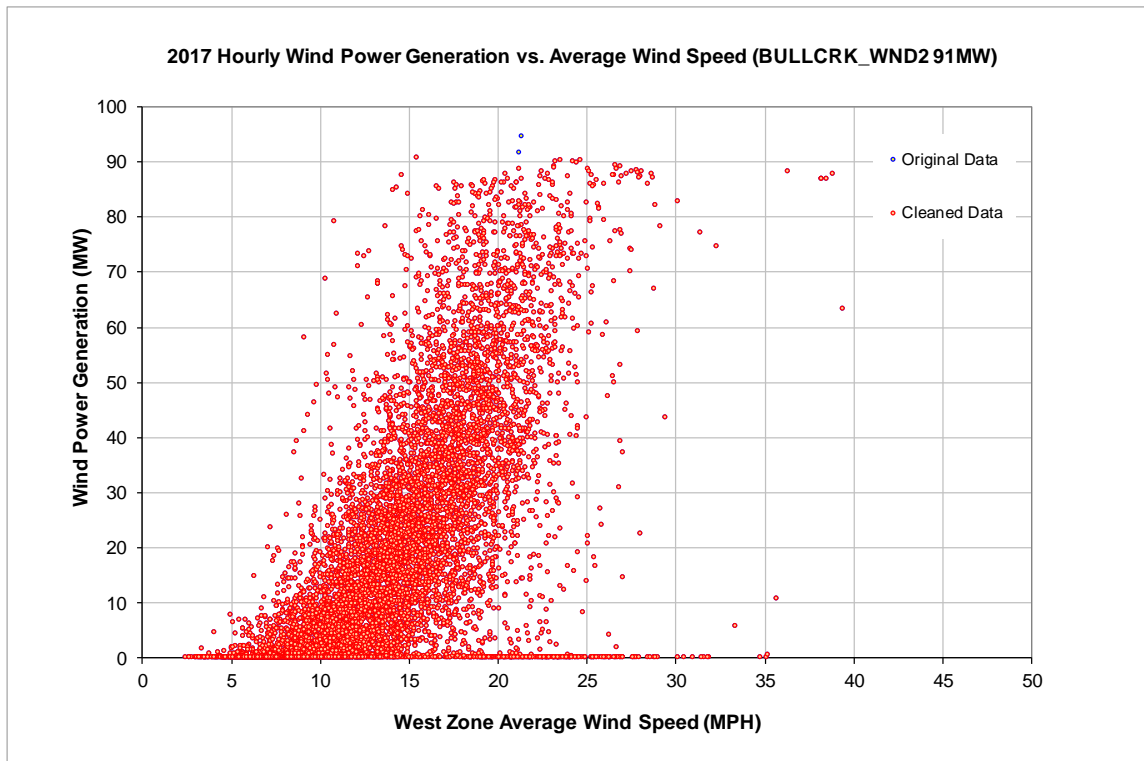


Figure 10-43: BULLCRK\_WND2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

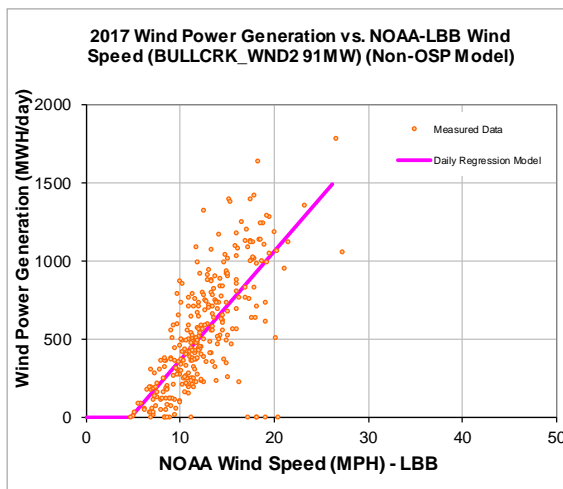
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-330.14
Left Slope (MWh/mph-day)	69.71
RMSE (MWh/day)	251.93
R2	0.52
CV-RMSE	46.9%
Daily Maximum (MWh/day)	2184

**OSP Model:**

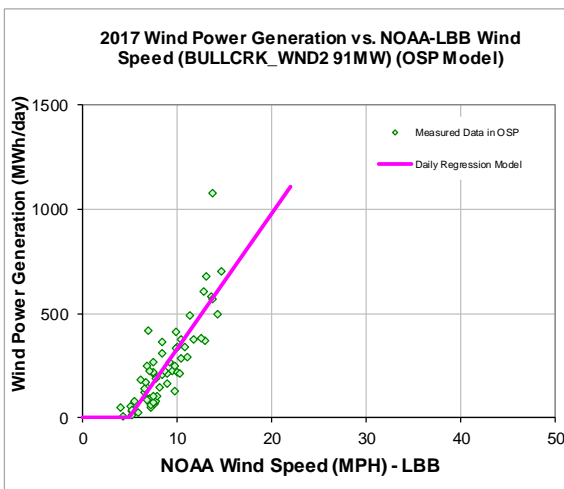
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-313.54
Left Slope (MWh/mph-day)	64.61
RMSE (MWh/day)	108.42
R2	0.71
CV-RMSE	44.2%
Daily Maximum (MWh/day)	2184

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
180,397	176,772

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
271	253

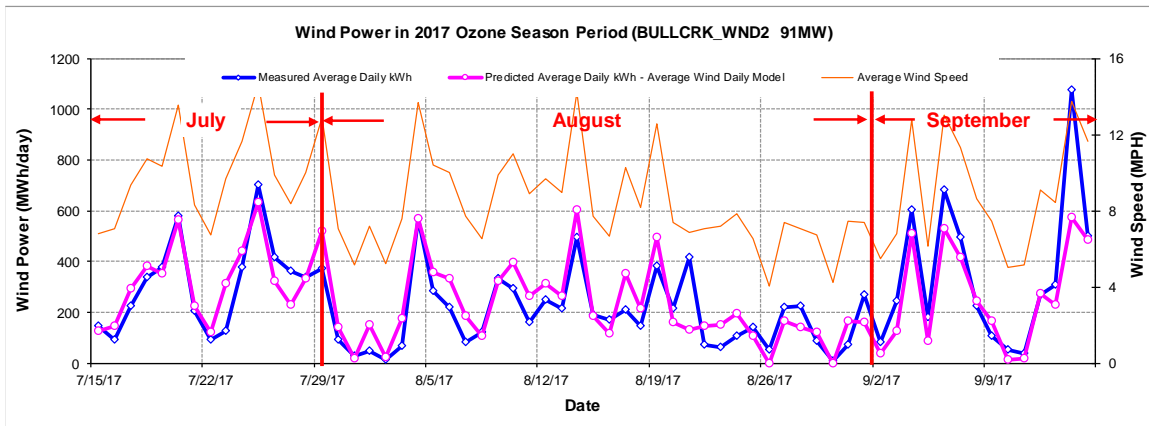
Figure 10-44: BULLCRK\_WND2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	8,529	15,659	-83.59%	13%	23%
Feb-17	28	12.91	16,314	15,958	2.18%	27%	26%
Mar-17	31	13.57	19,682	19,087	3.02%	29%	28%
Apr-17	30	14.59	20,868	20,616	1.21%	32%	31%
May-17	31	13.77	18,678	19,519	-4.50%	28%	29%
Jun-17	30	12.33	13,381	15,876	-18.65%	20%	24%
Jul-17	31	10.03	10,573	10,892	-3.02%	16%	16%
Aug-17	31	8.19	5,891	6,781	-15.10%	9%	10%
Sep-17	30	10.41	12,399	11,463	7.55%	19%	17%
Oct-17	31	11.80	18,660	15,270	18.17%	28%	23%
Nov-17	30	11.45	18,088	14,046	22.35%	28%	21%
Dec-17	31	10.52	13,709	11,702	14.64%	20%	17%
<b>Total</b>	<b>365</b>	<b>11.79</b>	<b>176,772</b>	<b>176,868</b>	<b>-0.05%</b>	<b>22%</b>	<b>22%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>15,459</b>	<b>15,550</b>	<b>-0.59%</b>	<b>11%</b>	<b>11%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

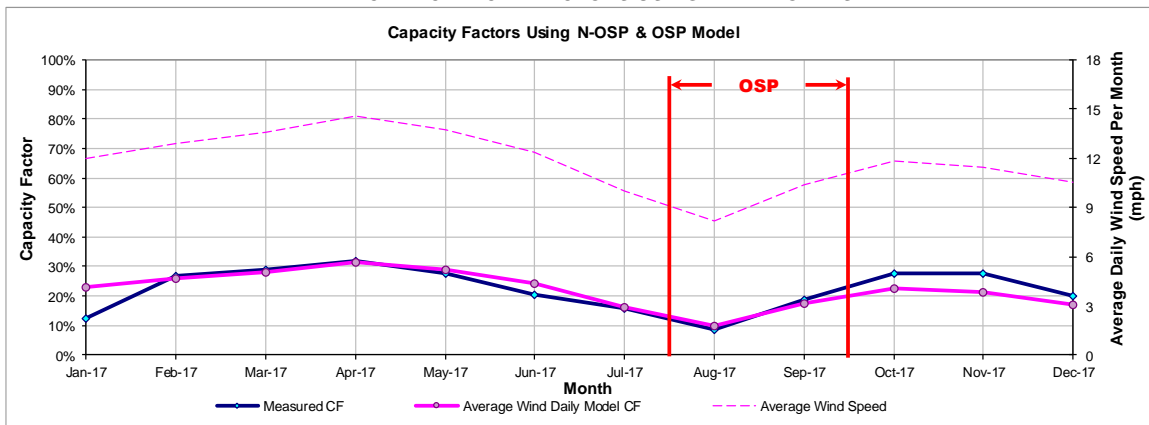


Figure 10-45: BULLCRK\_WND2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.13 Callahan Divide Wind Energy Center

10.13.1 Callahan Divide Wind Energy Center - CALLAHAN\_WND1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
CALLAHAN_WND1	Wind	Abilene	TAYLOR	FPL Energy	Callahan Divide Wind Energy Center

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
76 GE 1.5 MW	ERCOT	W	Feb-05	West	ABI	114

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

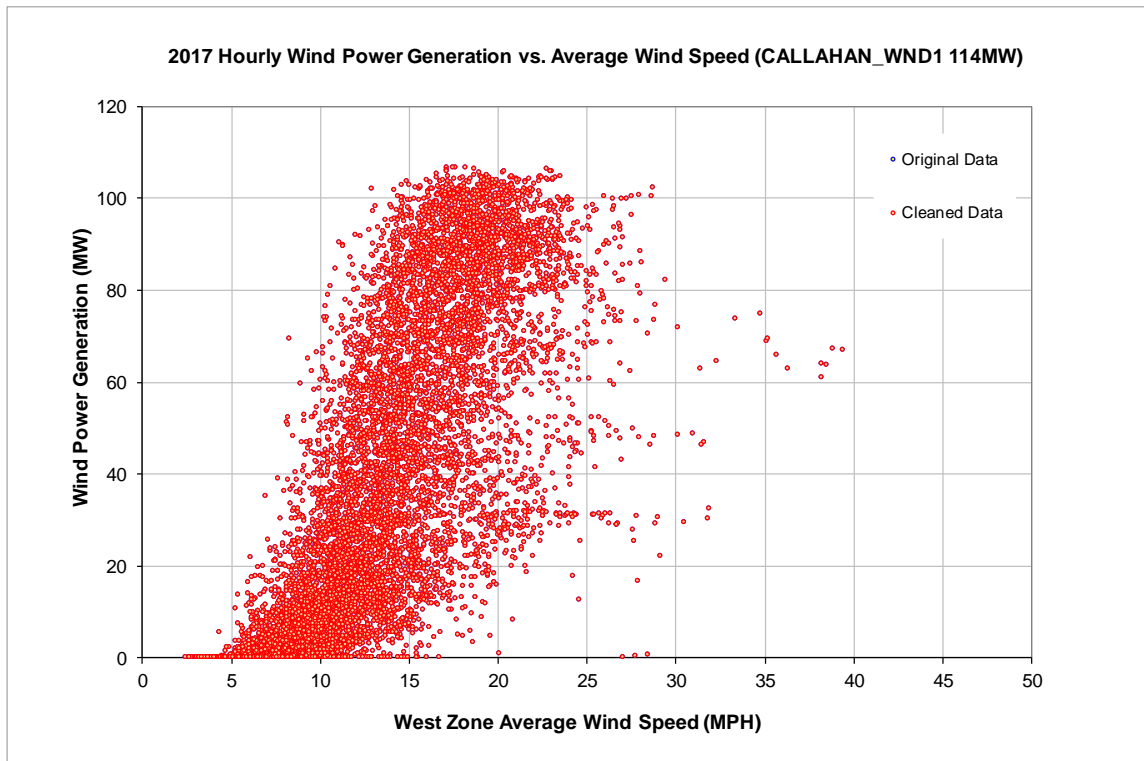


Figure 10-46: CALLAHAN\_WND1 - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

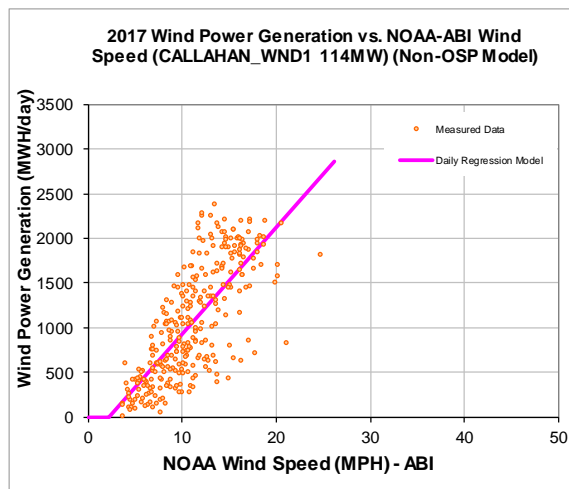
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-261.32
Left Slope (MWh/mph-day)	119.74
RMSE (MWh/day)	421.16
R2	0.56
CV-RMSE	39.5%
Daily Maximum (MWh/day)	2736

**OSP Model:**

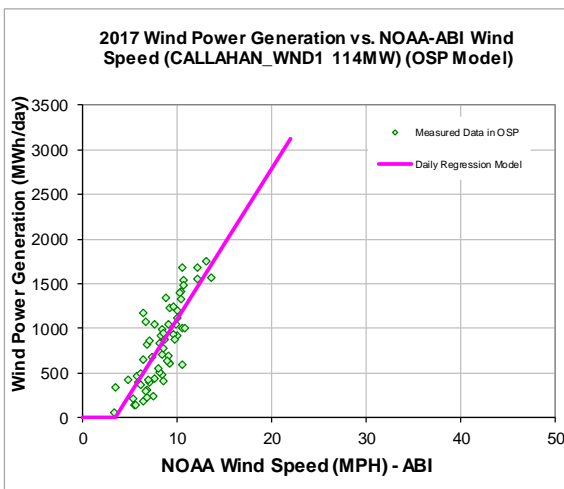
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-582.20
Left Slope (MWh/mph-day)	168.35
RMSE (MWh/day)	266.75
R2	0.65
CV-RMSE	32.6%
Daily Maximum (MWh/day)	2736

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
411,610	370,610

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
890	831

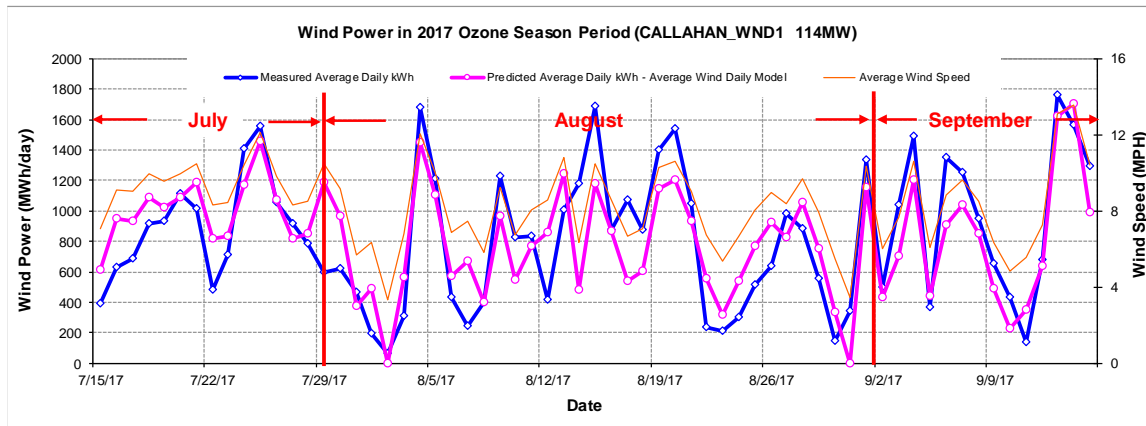
Figure 10-47: CALLAHAN\_WND1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	19,380	30,630	-58.05%	23%	36%
Feb-17	28	11.23	12,757	30,322	-137.69%	17%	40%
Mar-17	31	12.96	36,335	40,000	-10.09%	43%	47%
Apr-17	30	13.49	42,134	40,611	3.62%	51%	49%
May-17	31	11.55	36,599	34,781	4.97%	43%	41%
Jun-17	30	10.72	30,883	30,667	0.70%	38%	37%
Jul-17	31	9.17	27,679	28,179	-1.81%	33%	33%
Aug-17	31	7.87	23,407	23,029	1.61%	28%	27%
Sep-17	30	9.51	31,327	27,414	12.49%	38%	33%
Oct-17	31	11.07	43,436	32,985	24.06%	51%	39%
Nov-17	30	10.21	36,276	28,841	20.50%	44%	35%
Dec-17	31	9.09	30,398	23,172	23.77%	36%	27%
<b>Total</b>	<b>365</b>	<b>10.61</b>	<b>370,610</b>	<b>370,631</b>	<b>-0.01%</b>	<b>37%</b>	<b>37%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>51,509</b>	<b>51,530</b>	<b>-0.04%</b>	<b>30%</b>	<b>30%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

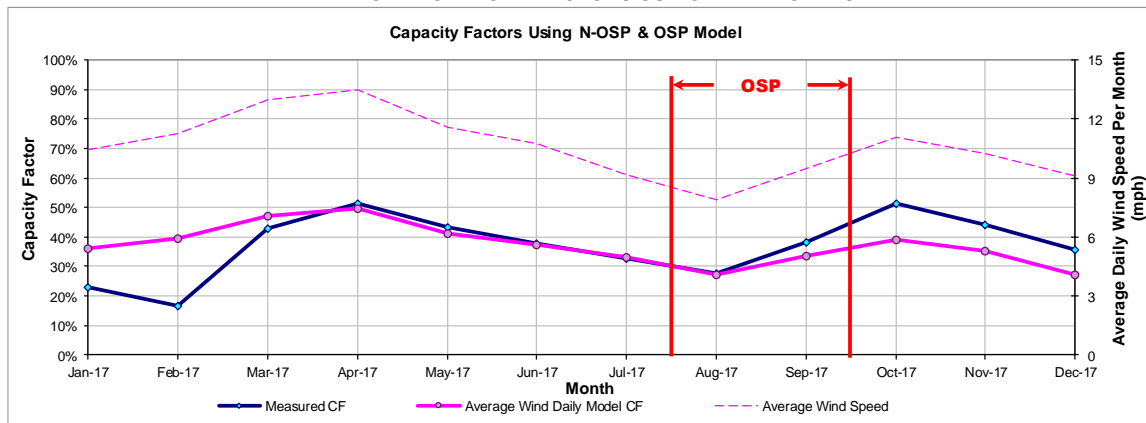


Figure 10-48: CALLAHAN\_WND1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.14 Cameron County Wind

10.14.1 Cameron County Wind - CAMWIND\_UNIT1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
CAMWIND_UNIT1	Wind	Brownsville	CAMERON	Apex Clean Energy	Cameron County Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
55 Acciona 3 MW	ERCOT	S	Jan-16	Coastal	CRP	165

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

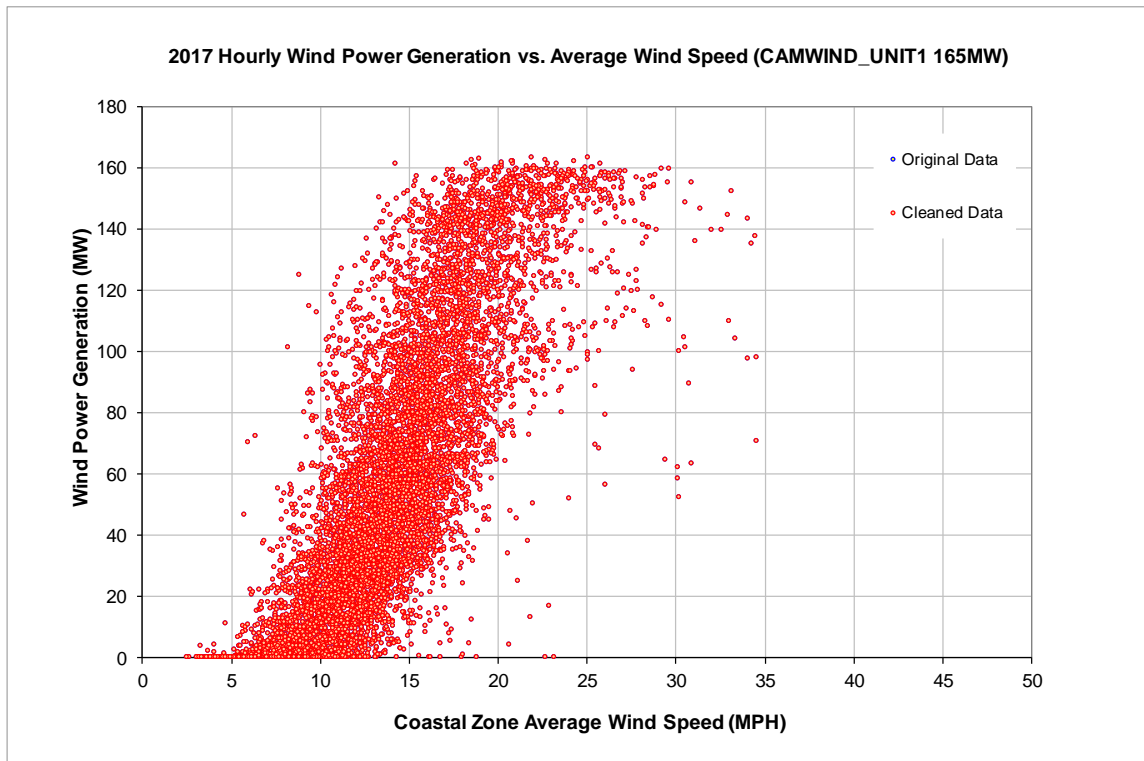


Figure 10-49: CAMWIND\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

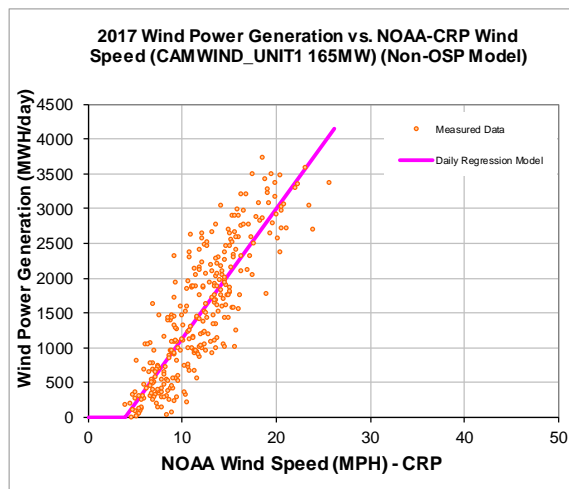
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-724.43
Left Slope (MWh/mph-day)	186.90
RMSE (MWh/day)	484.88
R2	0.73
CV-RMSE	32.5%
Daily Maximum (MWh/day)	3960

**OSP Model:**

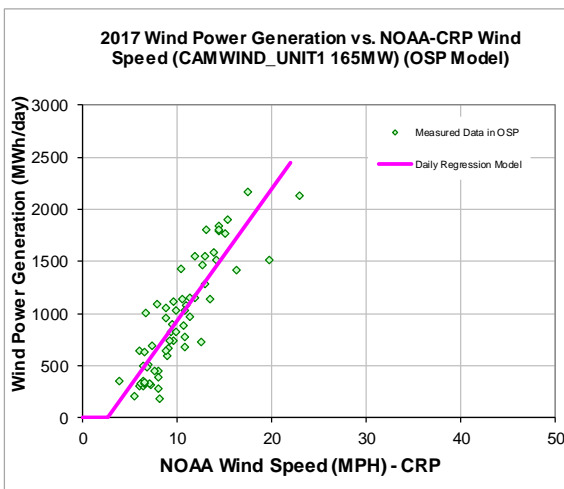
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-341.92
Left Slope (MWh/mph-day)	126.88
RMSE (MWh/day)	263.32
R2	0.76
CV-RMSE	27.7%
Daily Maximum (MWh/day)	3960

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
502,075	510,328

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
805	961

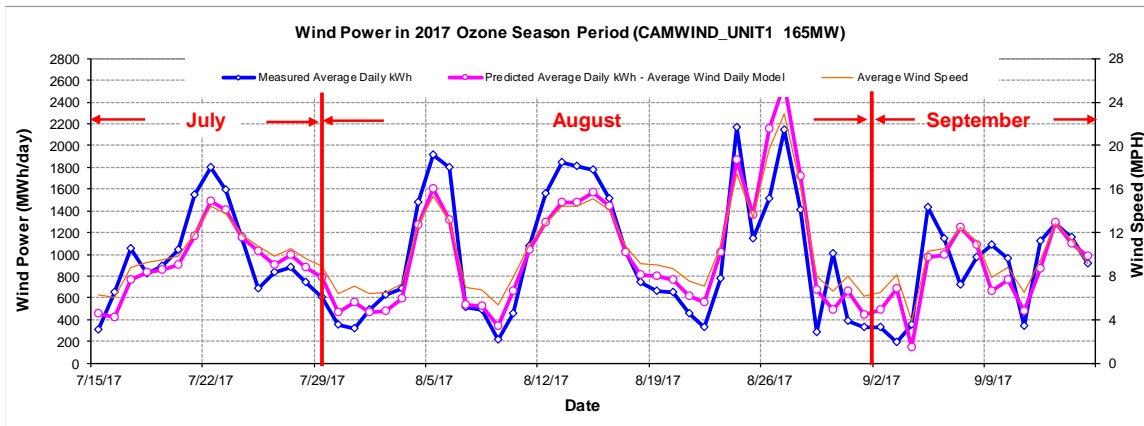
Figure 10-50: CAMWIND\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	57,424	54,132	5.73%	47%	44%
Feb-17	28	13.29	54,795	49,250	10.12%	49%	44%
Mar-17	31	14.29	59,994	60,354	-0.60%	49%	49%
Apr-17	30	14.70	55,155	60,584	-9.84%	46%	51%
May-17	31	12.81	55,099	51,749	6.08%	45%	42%
Jun-17	30	9.21	37,268	29,882	19.82%	31%	25%
Jul-17	31	9.39	30,210	28,655	5.15%	25%	23%
Aug-17	31	11.11	32,846	33,093	-0.75%	27%	27%
Sep-17	30	10.25	26,965	33,410	-23.90%	23%	28%
Oct-17	31	9.56	24,933	32,919	-32.03%	20%	27%
Nov-17	30	10.64	33,127	37,926	-14.49%	28%	32%
Dec-17	31	10.48	42,512	38,277	9.96%	35%	31%
<b>Total</b>	<b>365</b>	<b>11.57</b>	<b>510,328</b>	<b>510,231</b>	<b>0.02%</b>	<b>35%</b>	<b>35%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>59,903</b>	<b>59,903</b>	<b>0.00%</b>	<b>24%</b>	<b>24%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

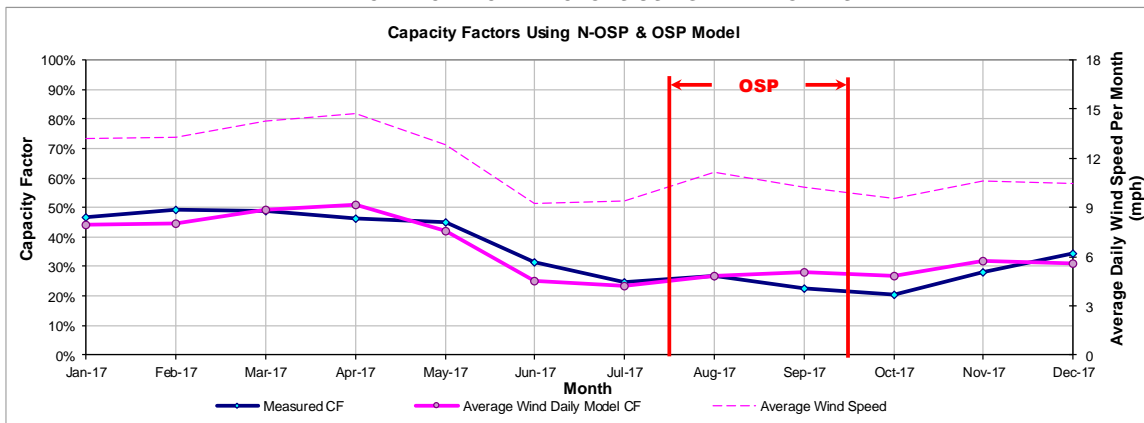


Figure 10-51: CAMWIND\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.15 Camp Springs Wind Energy Center

10.15.1 Camp Springs Wind Energy Center - CSEC\_CSECG1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
CSEC_CSECG1	Wind	Lubbock	SCURRY	Invenergy	Camp Springs I

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
87 GE 1.5 MW	ERCOT	W	Jul-07	West	ABI	130

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

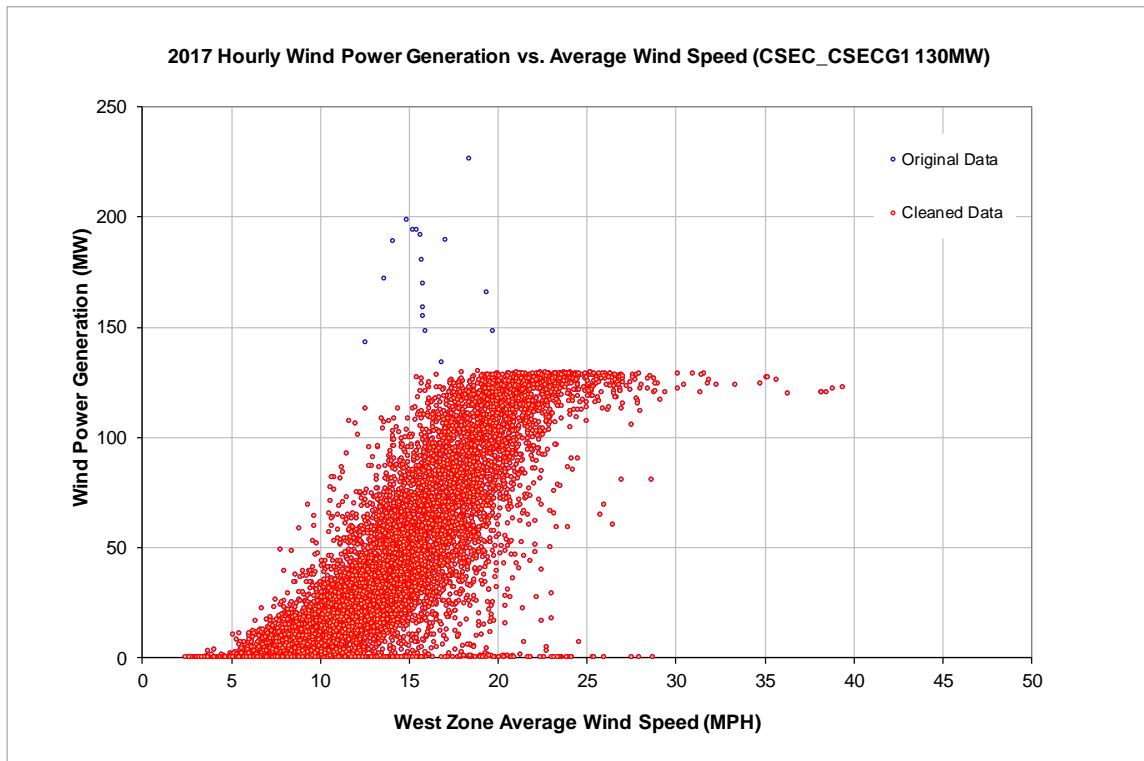


Figure 10-52: CSEC\_CSECG1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

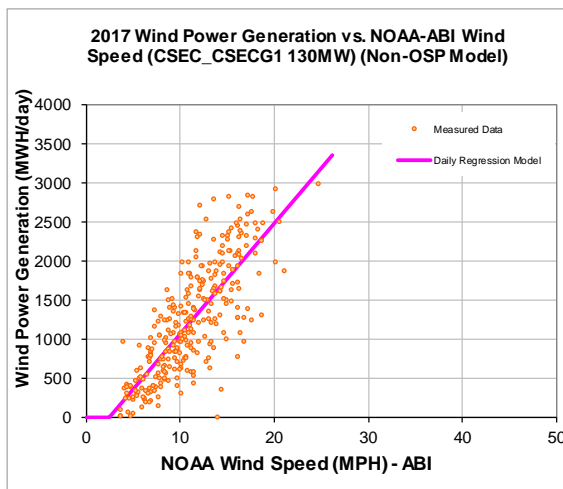
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-334.10
Left Slope (MWh/mph-day)	141.07
RMSE (MWh/day)	437.78
R2	0.62
CV-RMSE	35.6%
Daily Maximum (MWh/day)	3120

**OSP Model:**

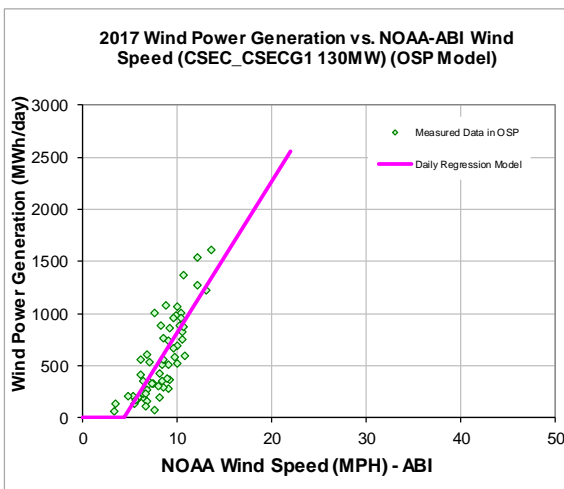
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-629.02
Left Slope (MWh/mph-day)	144.96
RMSE (MWh/day)	223.39
R2	0.66
CV-RMSE	39.1%
Daily Maximum (MWh/day)	3120

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
451,293	403,860

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
641	591

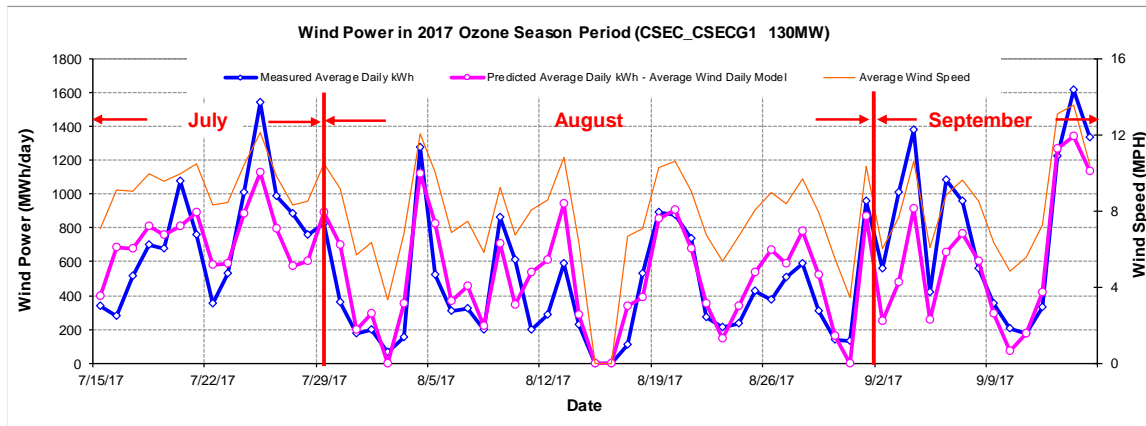
Figure 10-53: CSEC\_CSECG1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	41,390	35,273	14.78%	43%	36%
Feb-17	28	11.23	39,813	34,988	12.12%	46%	40%
Mar-17	31	12.96	47,111	46,281	1.76%	49%	48%
Apr-17	30	13.49	45,545	47,058	-3.32%	49%	50%
May-17	31	11.55	36,995	40,164	-8.56%	38%	42%
Jun-17	30	10.72	32,058	35,343	-10.25%	34%	38%
Jul-17	31	9.17	23,531	25,356	-7.75%	24%	26%
Aug-17	31	7.75	12,217	14,497	-18.66%	13%	15%
Sep-17	30	9.51	27,330	26,384	3.46%	29%	28%
Oct-17	31	11.12	37,080	37,036	0.12%	38%	38%
Nov-17	30	10.21	33,148	33,192	-0.13%	35%	35%
Dec-17	31	9.11	27,643	28,530	-3.21%	29%	29%
<b>Total</b>	<b>365</b>	<b>10.61</b>	<b>403,860</b>	<b>404,102</b>	<b>-0.06%</b>	<b>35%</b>	<b>35%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>61</b>	<b>8.28</b>	<b>34,806</b>	<b>35,079</b>	<b>-0.79%</b>	<b>18%</b>	<b>18%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

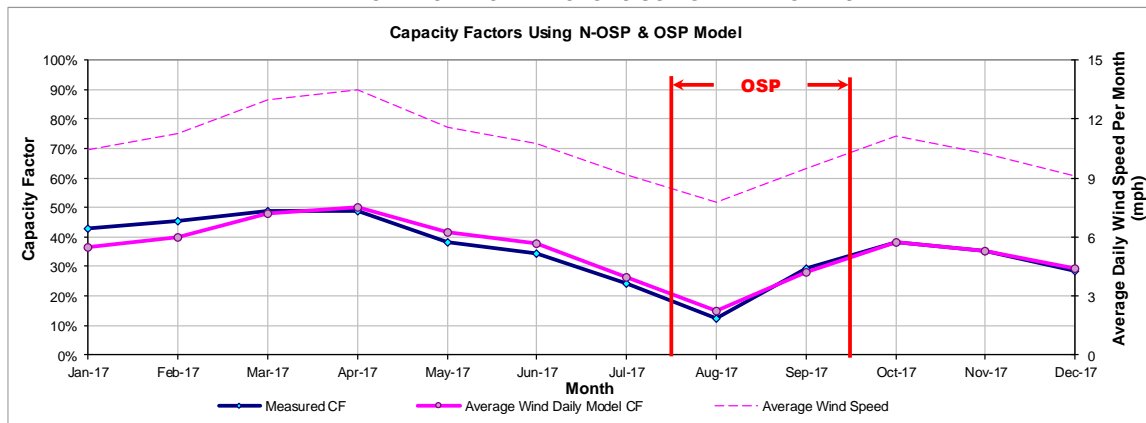


Figure 10-54: CSEC\_CSECG1 - Predicted Wind Power and Capacity Factor Using Daily Models



10.16 Camp Springs Wind Energy Expansion

10.16.1 Camp Springs Wind Energy Expansion - CSEC\_CSECG2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
CSEC_CSECG2	Wind	Lubbock	SCURRY	Invenergy	Camp Springs II

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
80 GE 1.5 MW	ERCOT	W	Jun-08	West	ABI	120

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

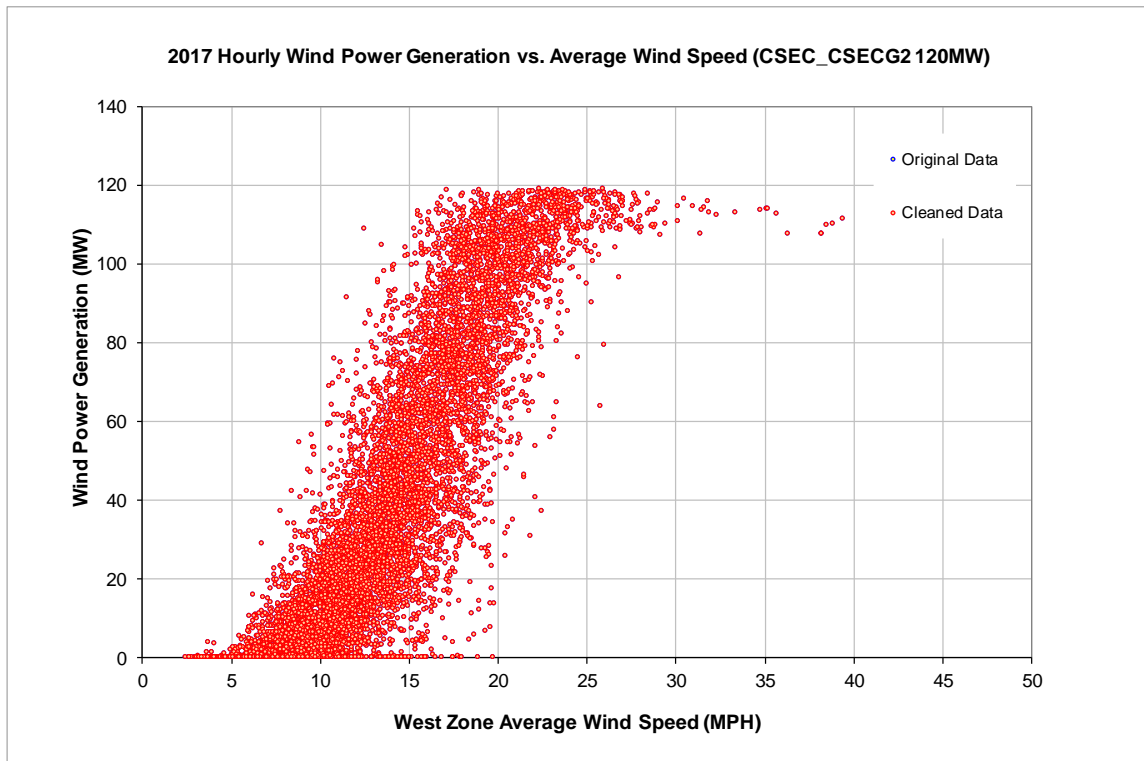


Figure 10-55: CSEC\_CSECG2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

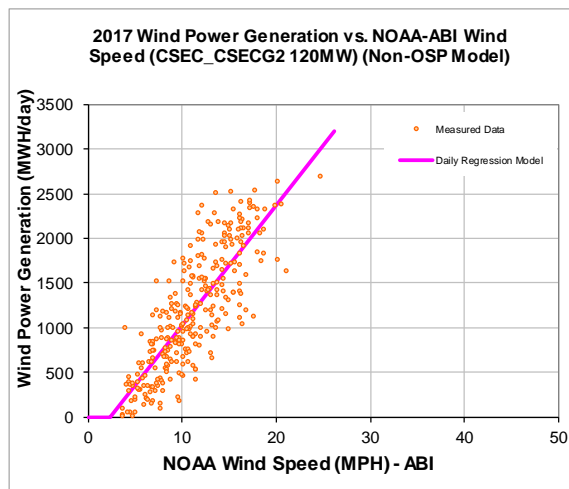
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-314.01
Left Slope (MWh/mph-day)	134.72
RMSE (MWh/day)	379.72
R2	0.67
CV-RMSE	32.2%
Daily Maximum (MWh/day)	2880

**OSP Model:**

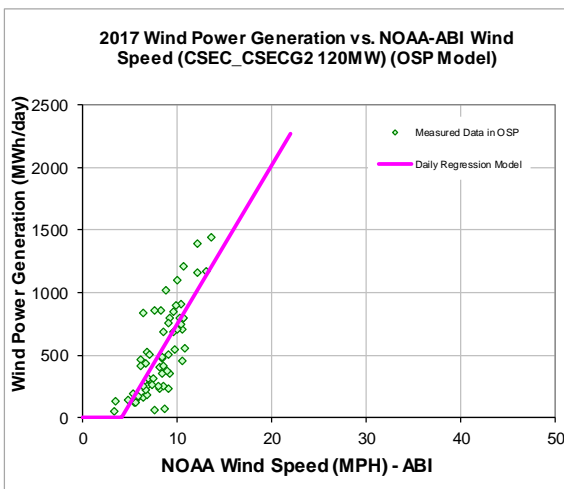
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-522.75
Left Slope (MWh/mph-day)	127.11
RMSE (MWh/day)	219.27
R2	0.61
CV-RMSE	41.1%
Daily Maximum (MWh/day)	2880

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
431,126	386,999

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
590	552

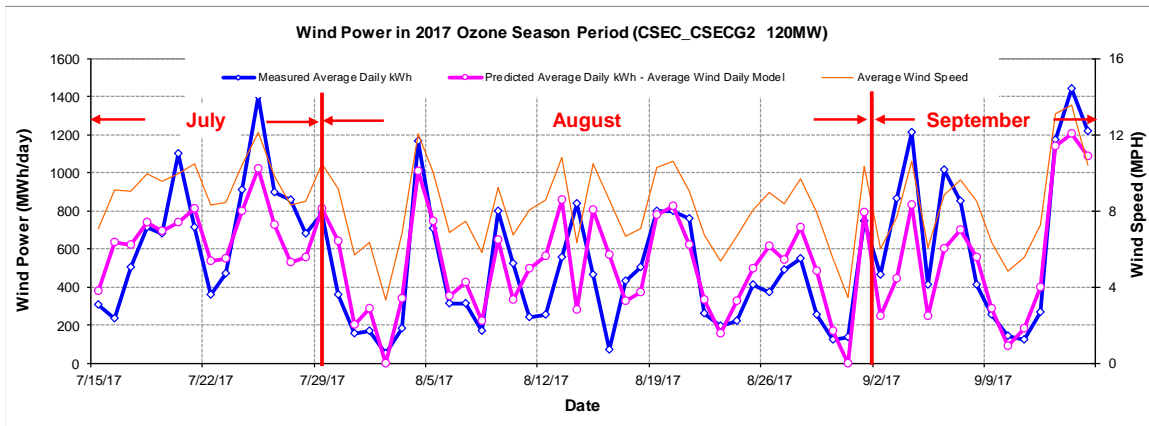
Figure 10-56: CSEC\_CSECG2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	37,316	33,841	9.31%	42%	38%
Feb-17	28	11.23	36,424	33,554	7.88%	45%	42%
Mar-17	31	12.96	43,032	44,248	-2.83%	48%	50%
Apr-17	30	13.49	42,069	45,089	-7.18%	49%	52%
May-17	31	11.55	36,152	38,511	-6.53%	40%	43%
Jun-17	30	10.72	29,814	33,902	-13.71%	35%	39%
Jul-17	31	9.17	22,184	23,818	-7.37%	25%	27%
Aug-17	31	7.87	13,127	14,892	-13.45%	15%	17%
Sep-17	30	9.51	24,631	25,022	-1.59%	29%	29%
Oct-17	31	11.07	37,375	36,490	2.37%	42%	41%
Nov-17	30	10.21	35,404	31,848	10.05%	41%	37%
Dec-17	31	8.94	29,471	25,830	12.35%	33%	29%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>386,999</b>	<b>387,047</b>	<b>-0.01%</b>	<b>37%</b>	<b>37%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>33,651</b>	<b>33,833</b>	<b>-0.54%</b>	<b>19%</b>	<b>19%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

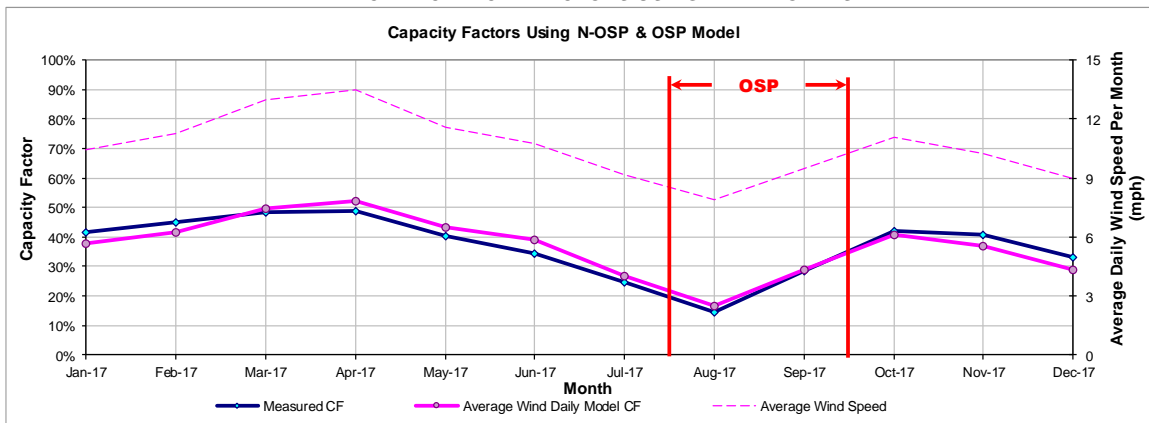


Figure 10-57: CSEC\_CSECG2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.17 Capricorn Ridge Wind

10.17.1 Capricorn Ridge Wind - CAPRIDGE\_CR1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
CAPRIDGE_CR1	Wind	Sterling	STERLING	NextEra	Capricorn Ridge Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
143 GE 1.5 MW	ERCOT	W	Sep-07	West	ABI	214.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

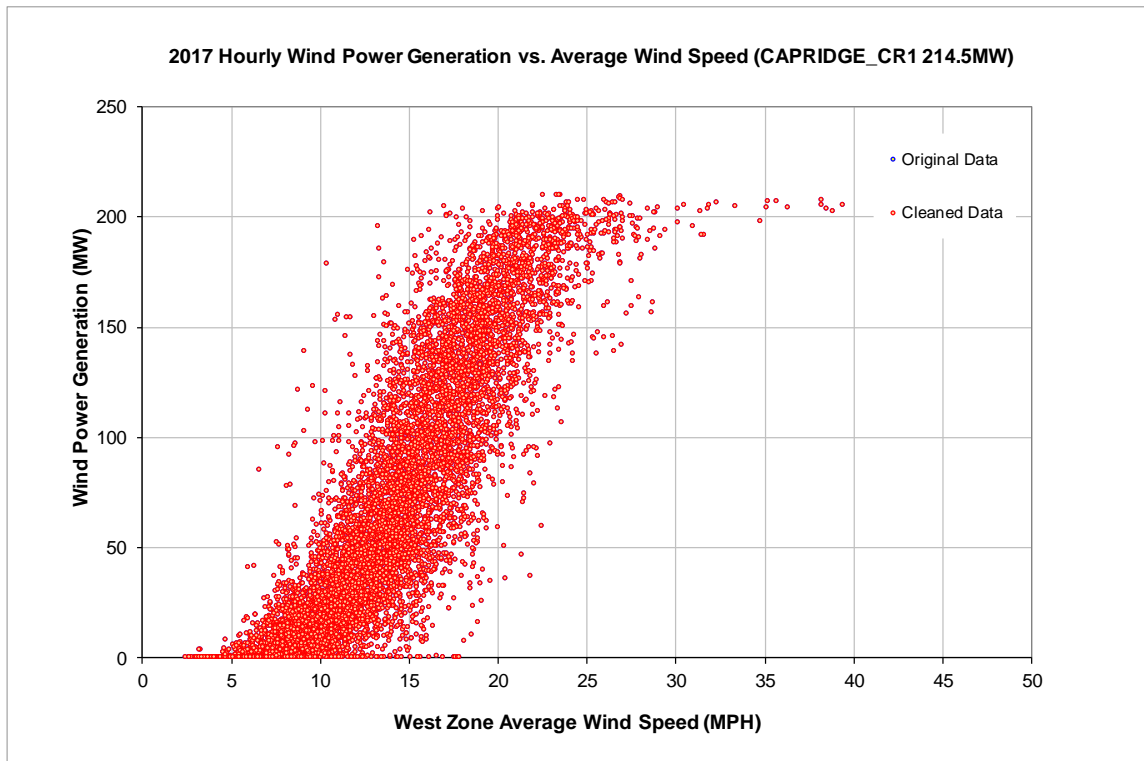


Figure 10-58: CAPRIDGE\_CR1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

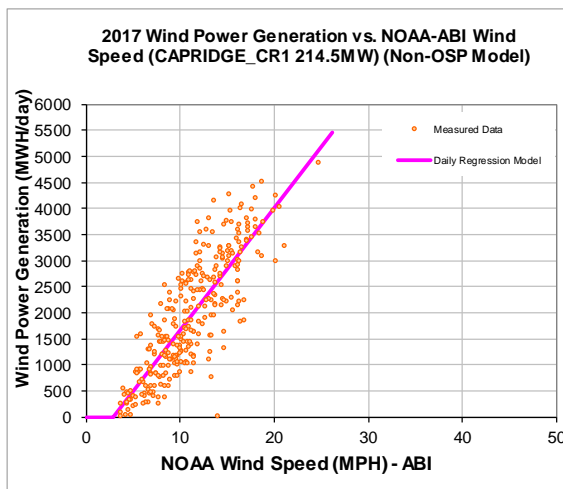
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-649.37
Left Slope (MWh/mph-day)	233.93
RMSE (MWh/day)	612.36
R2	0.70
CV-RMSE	31.5%
Daily Maximum (MWh/day)	5148

**OSP Model:**

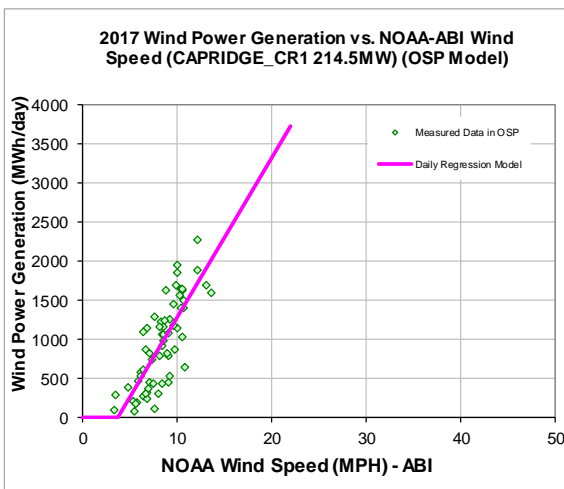
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-758.34
Left Slope (MWh/mph-day)	204.39
RMSE (MWh/day)	345.82
R2	0.62
CV-RMSE	36.7%
Daily Maximum (MWh/day)	5148

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
717,412	644,249

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
1,030	956

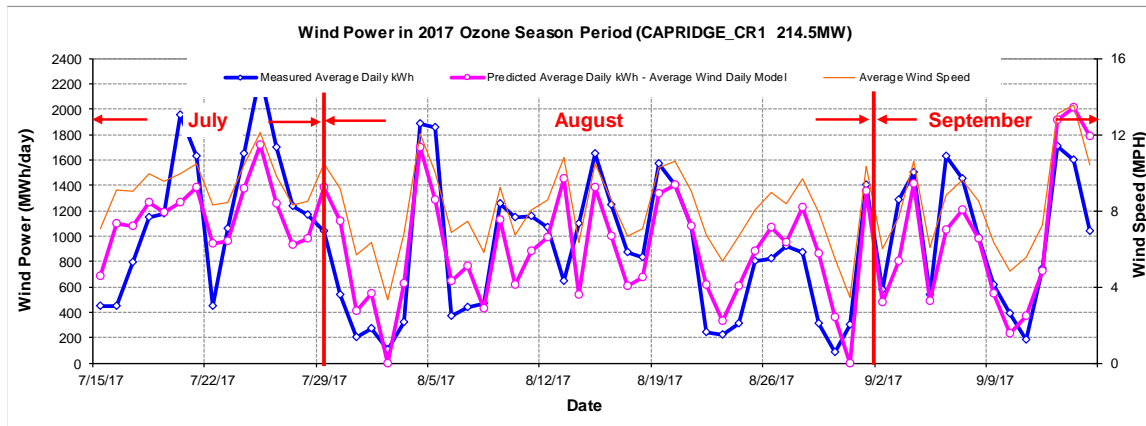
Figure 10-59: CAPRIDGE\_CR1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	61,338	55,536	9.46%	38%	35%
Feb-17	28	11.23	59,528	55,349	7.02%	41%	38%
Mar-17	31	12.96	79,384	73,841	6.98%	50%	46%
Apr-17	30	13.49	74,855	75,172	-0.42%	48%	49%
May-17	31	11.55	62,378	63,645	-2.03%	39%	40%
Jun-17	30	10.72	50,627	55,747	-10.11%	33%	36%
Jul-17	31	9.17	39,870	39,859	0.03%	25%	25%
Aug-17	31	7.87	25,557	26,415	-3.36%	16%	17%
Sep-17	30	9.51	34,988	42,048	-20.18%	23%	27%
Oct-17	31	11.07	55,718	60,136	-7.93%	35%	38%
Nov-17	30	10.21	54,168	52,179	3.67%	35%	34%
Dec-17	31	9.11	45,838	44,450	3.03%	29%	28%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>644,249</b>	<b>644,378</b>	<b>-0.02%</b>	<b>34%</b>	<b>34%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>59,293</b>	<b>59,422</b>	<b>-0.22%</b>	<b>18%</b>	<b>18%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

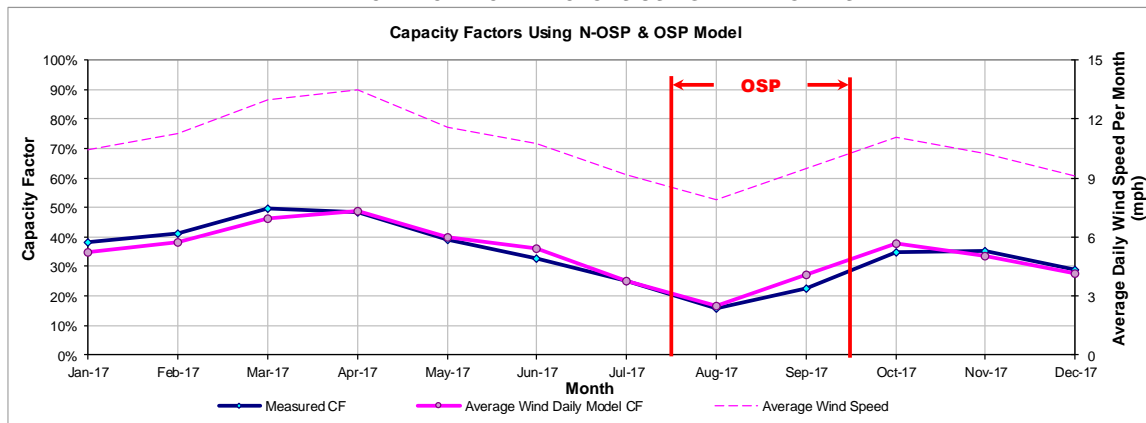


Figure 10-60: CAPRIDGE\_CR1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.17.2 Capricorn Ridge Wind - CAPRIDGE\_CR2

**SITE INFORMATION**

GENSITECODE_EERCOT	Renewable Energy	City	County	Company	Facility
CAPRIDGE_CR1	Wind	Sterling	STERLING	NextEra	Capricorn Ridge Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
143 GE 1.5 MW	ERCOT	W	Sep-07	West	ABI	214.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

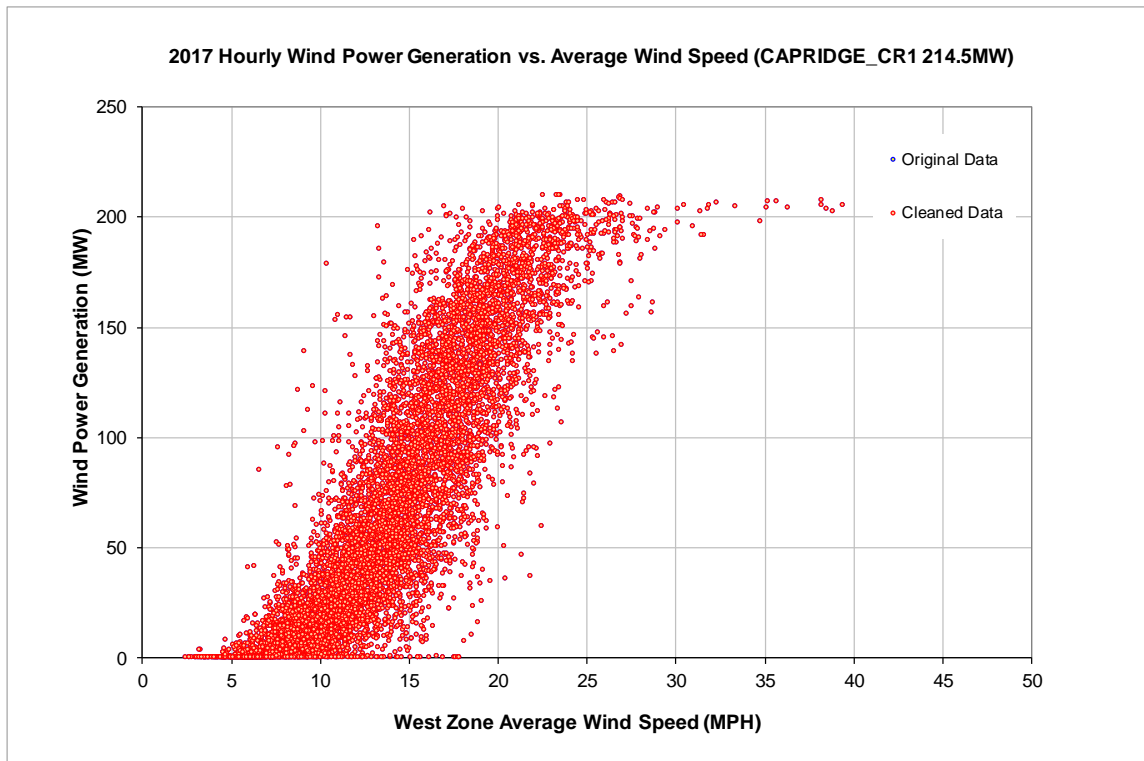


Figure 10-61: CAPRIDGE\_CR2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

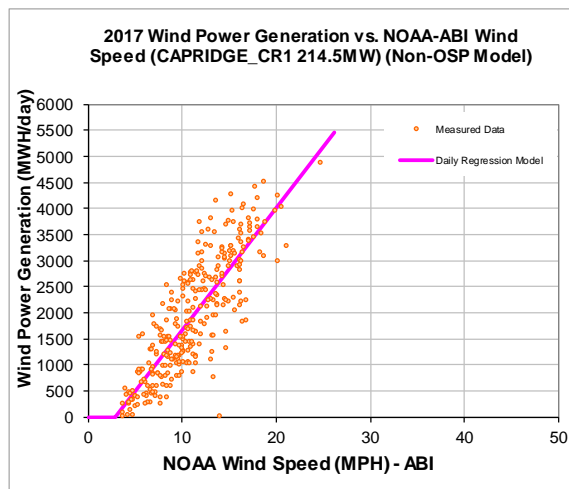
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-649.37
Left Slope (MWh/mph-day)	233.93
RMSE (MWh/day)	612.36
R2	0.70
CV-RMSE	31.5%
Daily Maximum (MWh/day)	5148

**OSP Model:**

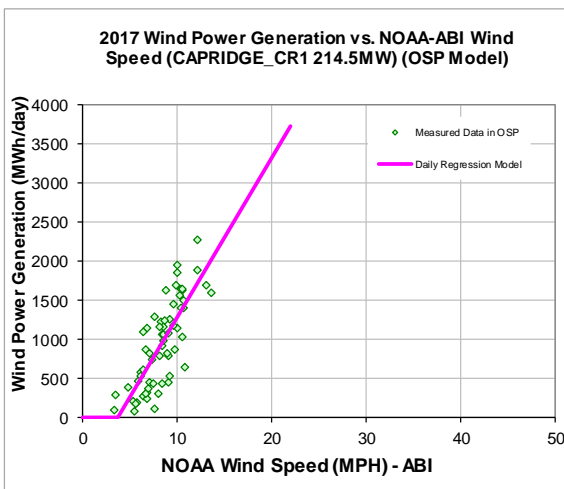
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-758.34
Left Slope (MWh/mph-day)	204.39
RMSE (MWh/day)	345.82
R2	0.62
CV-RMSE	36.7%
Daily Maximum (MWh/day)	5148

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
717,412	644,249

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
1,030	956

Figure 10-62: CAPRIDGE\_CR2 - Model Coefficients (Using Non-OSP and OSP Data)

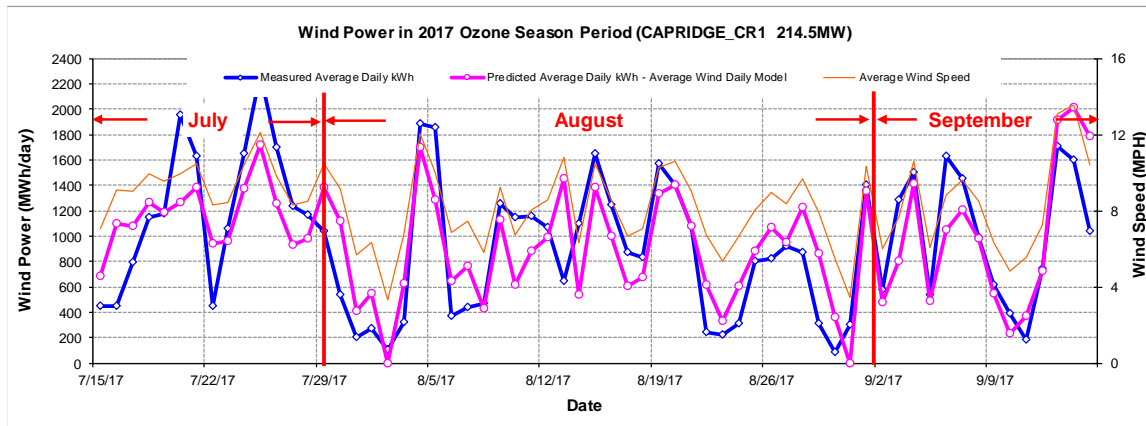


COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	61,338	55,536	9.46%	38%	35%
Feb-17	28	11.23	59,528	55,349	7.02%	41%	38%
Mar-17	31	12.96	79,384	73,841	6.98%	50%	46%
Apr-17	30	13.49	74,855	75,172	-0.42%	48%	49%
May-17	31	11.55	62,378	63,645	-2.03%	39%	40%
Jun-17	30	10.72	50,627	55,747	-10.11%	33%	36%
Jul-17	31	9.17	39,870	39,859	0.03%	25%	25%
Aug-17	31	7.87	25,557	26,415	-3.36%	16%	17%
Sep-17	30	9.51	34,988	42,048	-20.18%	23%	27%
Oct-17	31	11.07	55,718	60,136	-7.93%	35%	38%
Nov-17	30	10.21	54,168	52,179	3.67%	35%	34%
Dec-17	31	9.11	45,838	44,450	3.03%	29%	28%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>644,249</b>	<b>644,378</b>	<b>-0.02%</b>	<b>34%</b>	<b>34%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>59,293</b>	<b>59,422</b>	<b>-0.22%</b>	<b>18%</b>	<b>18%</b>

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

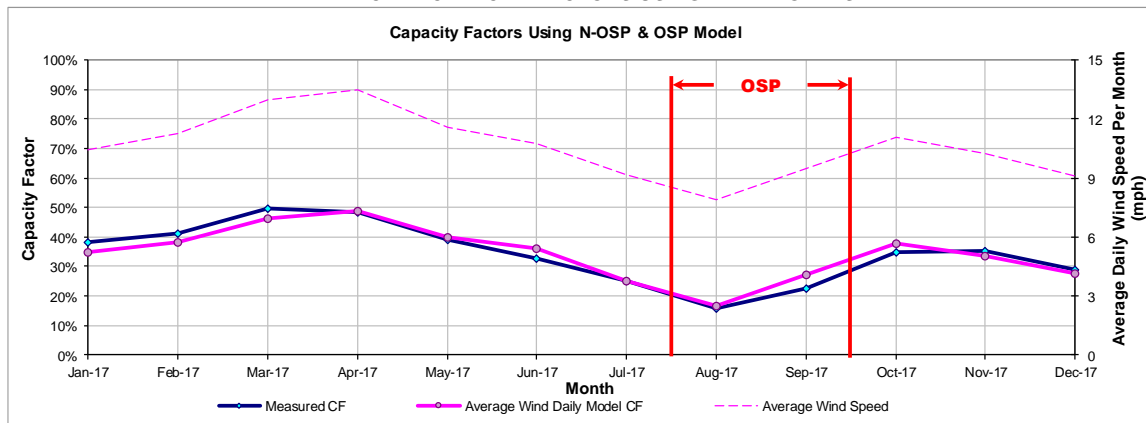


Figure 10-63: CAPRIDGE\_CR2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.18 Capricorn Ridge Wind expansion

10.18.1 Capricorn Ridge Wind expansion - CAPRIDG4\_CR4

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
CAPRIDG4_CR4	Wind	Sterling	STERLING	NextEra	Capricorn Ridge Wind (exp)

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
75 GE 1.5 MW	ERCOT	W	May-08	West	ABI	112.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

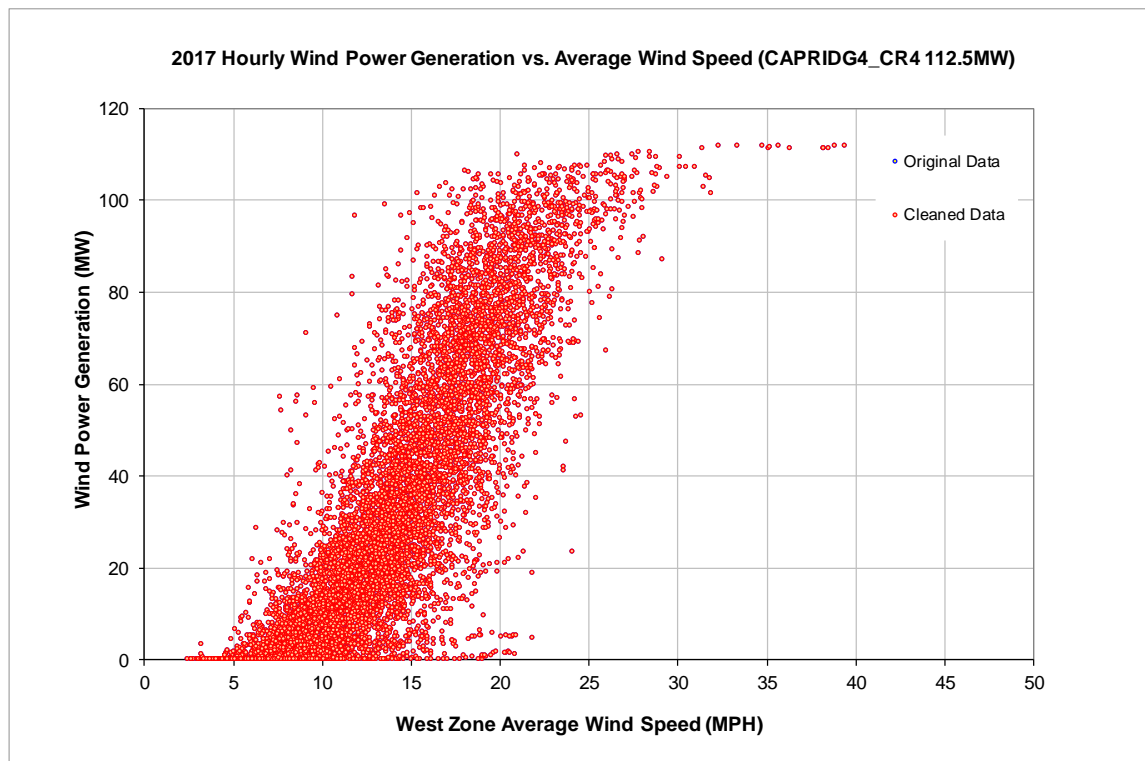


Figure 10-64: CAPRIDG4\_CR4 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

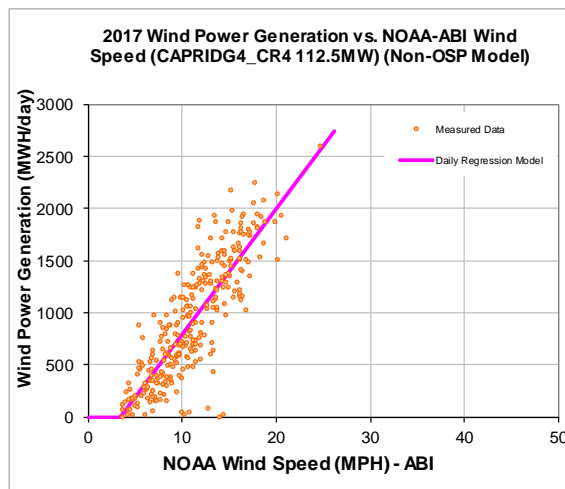
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-414.63
Left Slope (MWh/mph-day)	121.05
RMSE (MWh/day)	308.05
R2	0.71
CV-RMSE	33.2%
Daily Maximum (MWh/day)	2700

**OSP Model:**

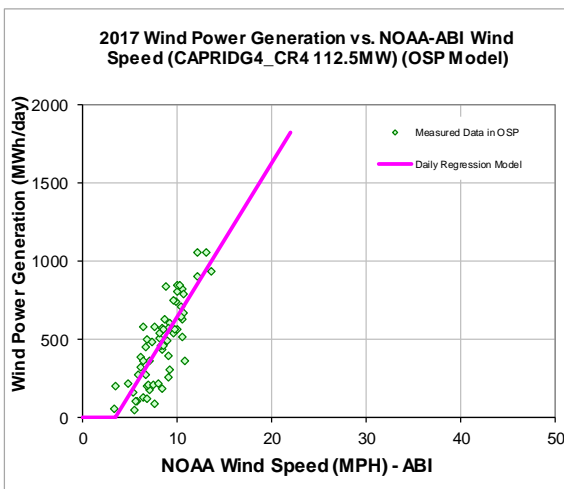
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-342.84
Left Slope (MWh/mph-day)	98.48
RMSE (MWh/day)	152.84
R2	0.66
CV-RMSE	32.1%
Daily Maximum (MWh/day)	2700

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
346,503	309,008

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
518	484

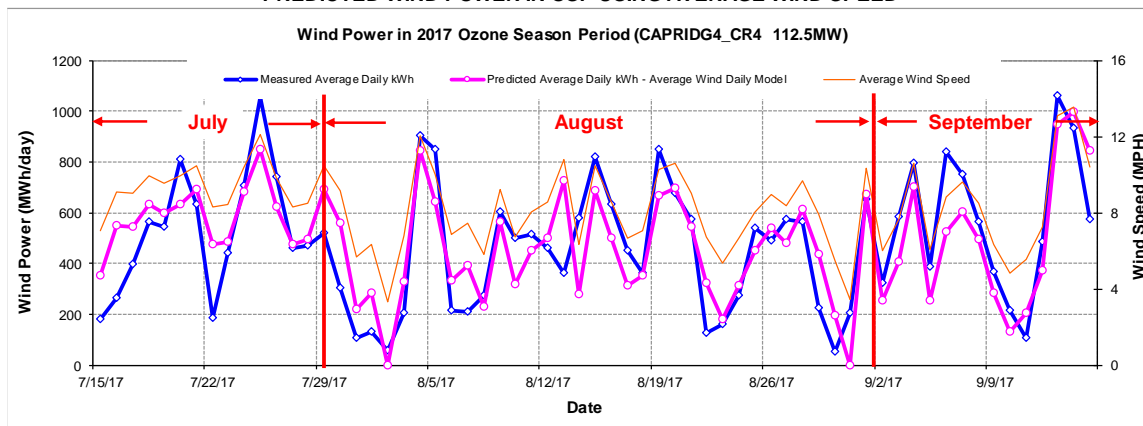
Figure 10-65: CAPRIDG4\_CR4 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	29,722	26,300	11.51%	36%	31%
Feb-17	28	11.23	27,941	26,439	5.37%	37%	35%
Mar-17	31	12.96	39,578	35,772	9.62%	47%	43%
Apr-17	30	13.49	37,257	36,539	1.93%	46%	45%
May-17	31	11.55	30,054	30,496	-1.47%	36%	36%
Jun-17	30	10.72	24,400	26,487	-8.55%	30%	33%
Jul-17	31	9.17	18,323	19,215	-4.87%	22%	23%
Aug-17	31	7.87	13,341	13,403	-0.47%	16%	16%
Sep-17	30	9.51	19,741	20,410	-3.39%	24%	25%
Oct-17	31	11.07	30,537	28,680	6.08%	36%	34%
Nov-17	30	10.21	25,351	24,641	2.80%	31%	30%
Dec-17	31	9.11	12,763	20,642	-61.73%	15%	25%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>309,008</b>	<b>309,025</b>	<b>-0.01%</b>	<b>31%</b>	<b>31%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>29,988</b>	<b>30,005</b>	<b>-0.06%</b>	<b>18%</b>	<b>18%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

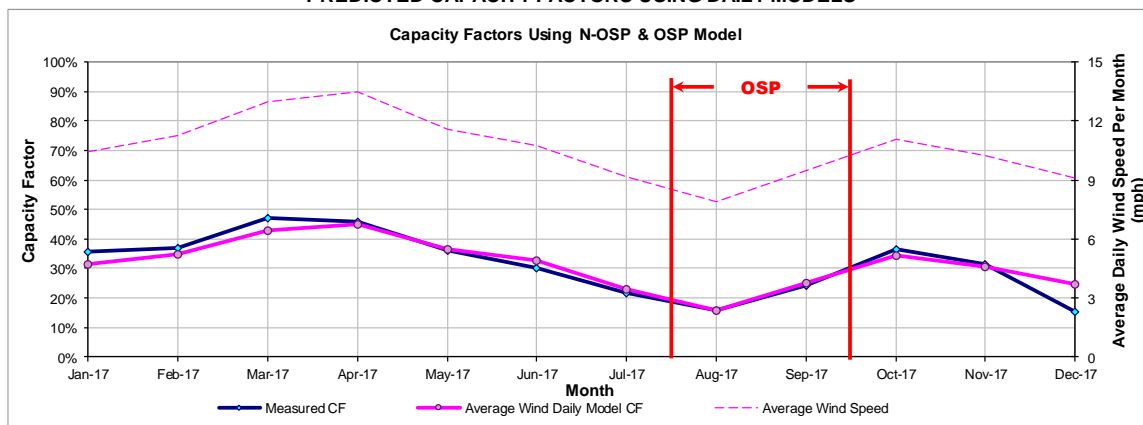


Figure 10-66: CAPRIDG4\_CR4 - Predicted Wind Power and Capacity Factor Using Daily Models

10.18.2 Capricorn Ridge Wind expansion - CAPRIDGE\_CR3

**SITE INFORMATION**

GENSITECODE_EERCOT	Renewable Energy	City	County	Company	Facility
CAPRIDGE_CR3	Wind	Sterling	STERLING	NextEra	Capricorn Ridge Wind (exp)

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
124 GE 1.5 MW	ERCOT	W	May-08	West	ABI	186

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

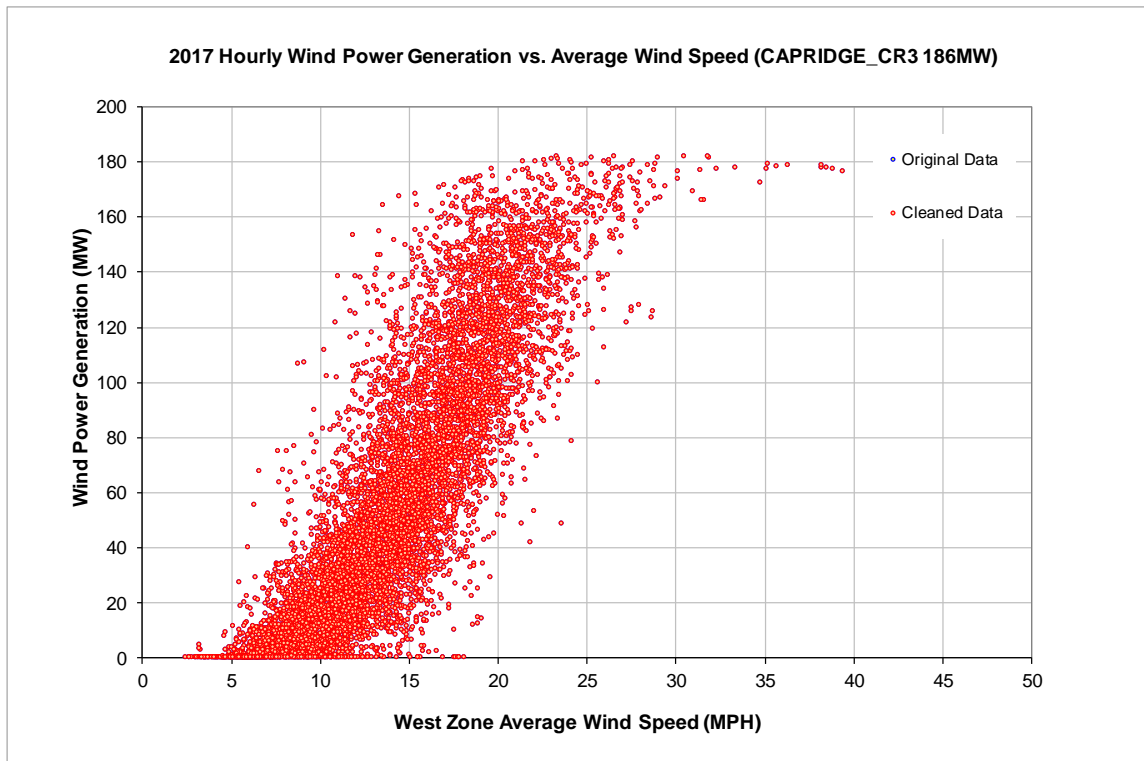


Figure 10-67: CAPRIDGE\_CR3 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

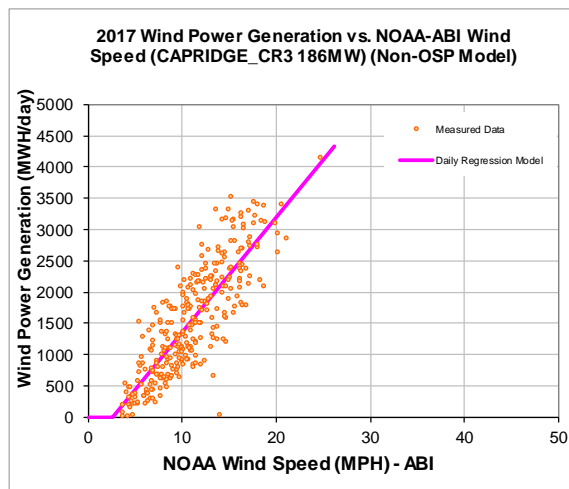
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-466.88
Left Slope (MWh/mph-day)	183.83
RMSE (MWh/day)	482.50
R2	0.70
CV-RMSE	30.7%
Daily Maximum (MWh/day)	4464

**OSP Model:**

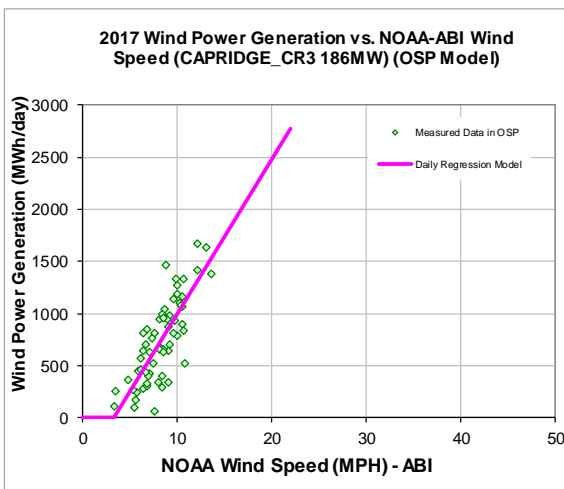
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-481.87
Left Slope (MWh/mph-day)	148.03
RMSE (MWh/day)	244.05
R2	0.63
CV-RMSE	32.6%
Daily Maximum (MWh/day)	4464

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
577,093	519,924

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
812	763

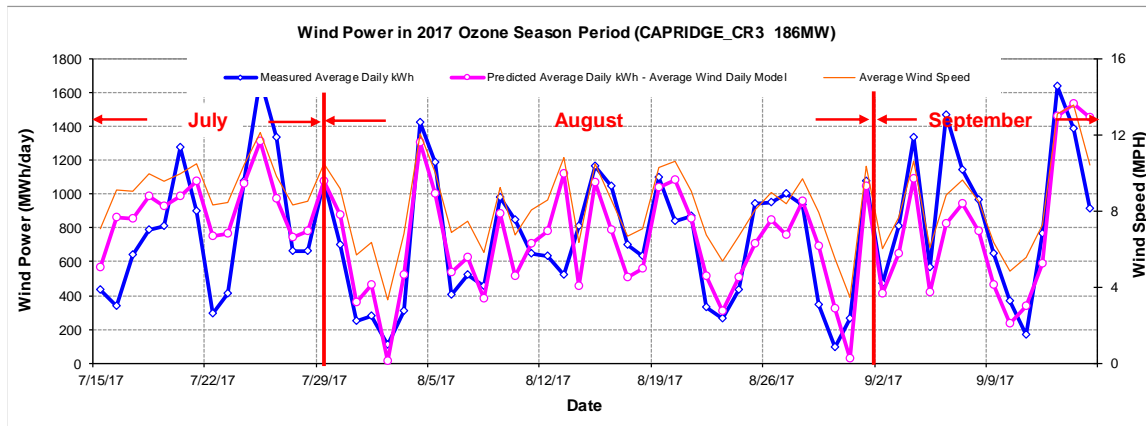
Figure 10-68: CAPRIDGE\_CR3 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	50,119	44,987	10.24%	36%	33%
Feb-17	28	11.23	45,545	44,710	1.83%	36%	36%
Mar-17	31	12.96	63,646	59,371	6.72%	46%	43%
Apr-17	30	13.49	63,182	60,374	4.44%	47%	45%
May-17	31	11.55	53,580	51,360	4.14%	39%	37%
Jun-17	30	10.72	41,960	45,109	-7.50%	31%	34%
Jul-17	31	9.17	29,909	31,879	-6.59%	22%	23%
Aug-17	31	7.87	21,004	21,164	-0.76%	15%	15%
Sep-17	30	9.51	32,009	33,831	-5.69%	24%	25%
Oct-17	31	11.07	46,511	48,602	-4.50%	34%	35%
Nov-17	30	10.21	35,546	42,306	-19.02%	27%	32%
Dec-17	31	9.11	36,913	36,232	1.85%	27%	26%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>519,924</b>	<b>519,924</b>	<b>0.00%</b>	<b>32%</b>	<b>32%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>47,187</b>	<b>47,187</b>	<b>0.00%</b>	<b>17%</b>	<b>17%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

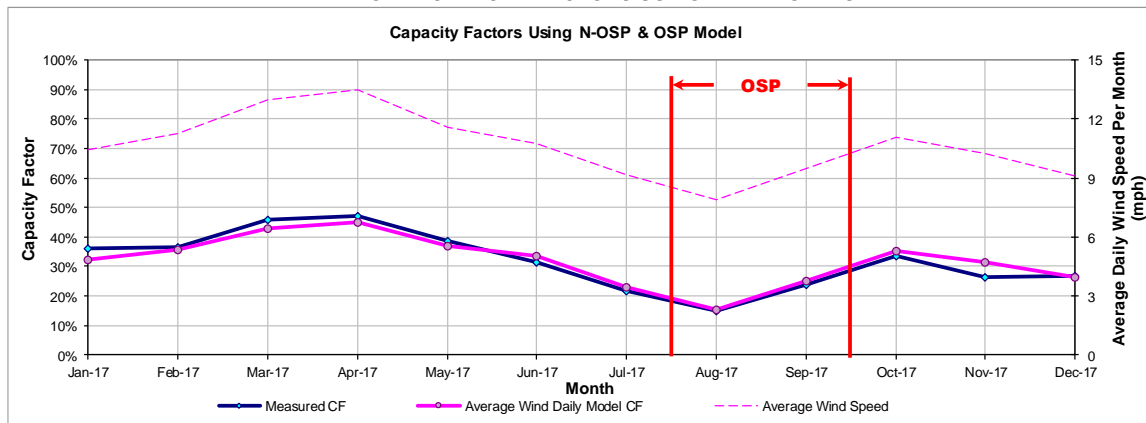


Figure 10-69: CAPRIDGE\_CR3 - Predicted Wind Power and Capacity Factor Using Daily Models

10.19 Cedro Hill Wind

10.19.1 Cedro Hill Wind - CEDROHIL\_CHW1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
CEDROHIL_CHW1	Wind	Bruni	WEBB	Edison Mission group	Cedro Hill Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
100 GE 1.5 MW	ERCOT	S	Oct-10	South	CRP	150

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

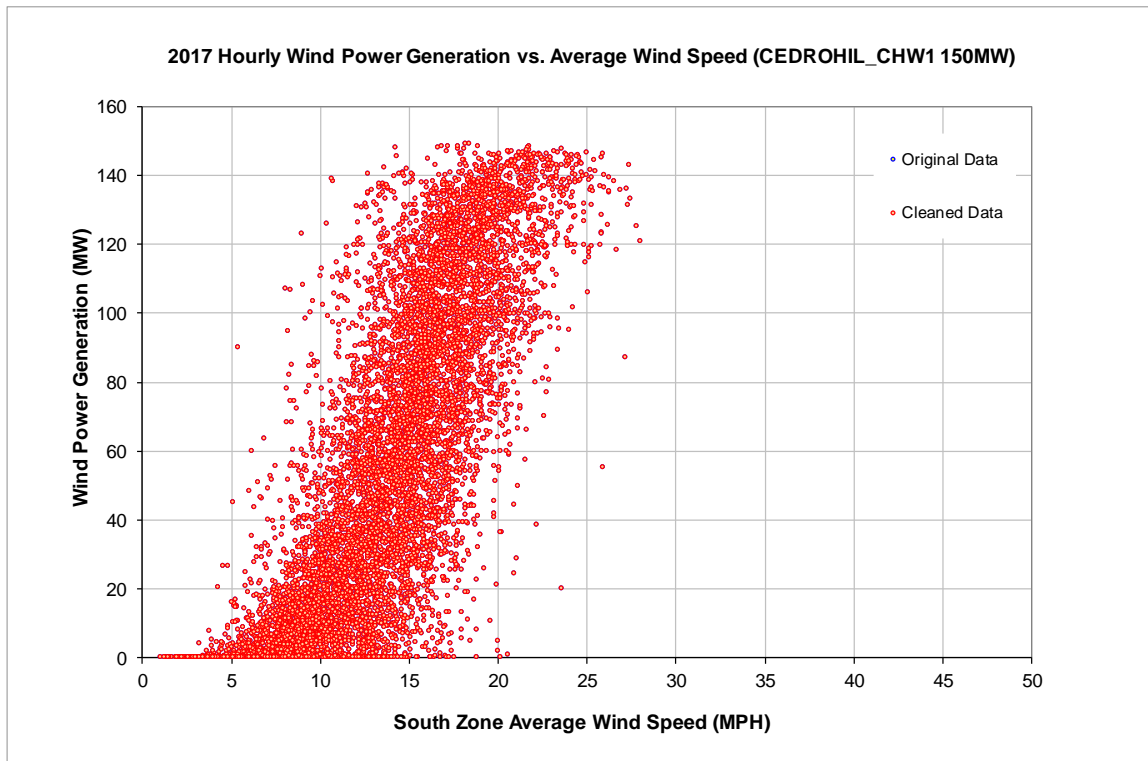


Figure 10-70: CEDROHIL\_CHW1 - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

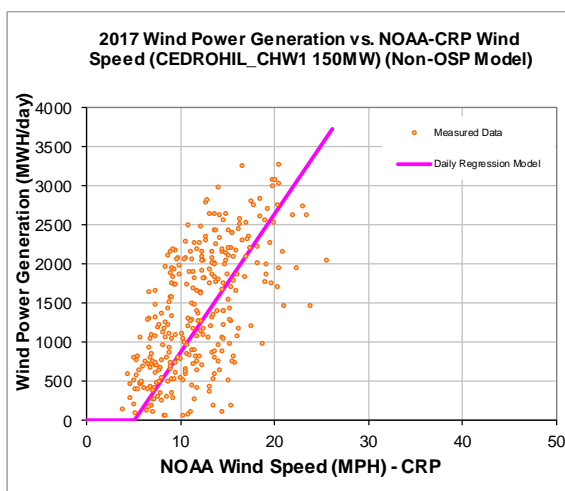
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	9.12
Left Slope (MWh/mph-day)	115.41
RMSE (MWh/day)	616.03
R2	0.39
CV-RMSE	44.6%
Daily Maximum (MWh/day)	3600

**OSP Model:**

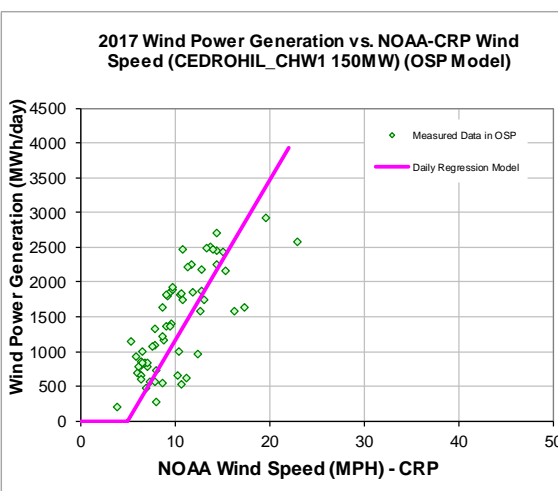
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-109.20
Left Slope (MWh/mph-day)	148.85
RMSE (MWh/day)	463.84
R2	0.58
CV-RMSE	33.0%
Daily Maximum (MWh/day)	3600

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
494,883	503,504

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
1,236	1,418

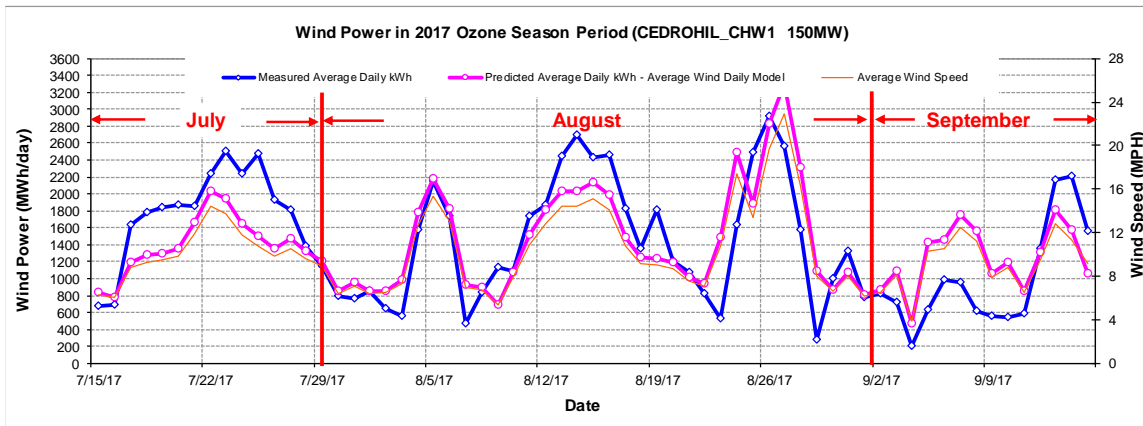
Figure 10-71: CEDROHIL\_CHW1 - Model Coefficients (Using Non-OSP and OSP Data)

COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	46,644	47,575	-2.00%	42%	43%
Feb-17	28	13.29	40,832	43,191	-5.78%	41%	43%
Mar-17	31	14.29	51,858	51,417	0.85%	46%	46%
Apr-17	30	14.70	52,255	51,163	2.09%	48%	47%
May-17	31	12.81	50,386	46,104	8.50%	45%	41%
Jun-17	30	9.21	40,879	32,145	21.37%	38%	30%
Jul-17	31	9.39	53,069	37,348	29.62%	48%	33%
Aug-17	31	11.11	46,479	47,874	-3.00%	42%	43%
Sep-17	30	10.25	35,204	38,453	-9.23%	33%	36%
Oct-17	31	9.56	30,440	34,476	-13.26%	27%	31%
Nov-17	30	10.64	30,207	37,112	-22.86%	28%	34%
Dec-17	31	10.87	25,249	36,646	-45.14%	23%	33%
<b>Total</b>	<b>365</b>	<b>11.61</b>	<b>503,504</b>	<b>503,504</b>	<b>0.00%</b>	<b>38%</b>	<b>38%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>88,669</b>	<b>88,669</b>	<b>0.00%</b>	<b>39%</b>	<b>39%</b>

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

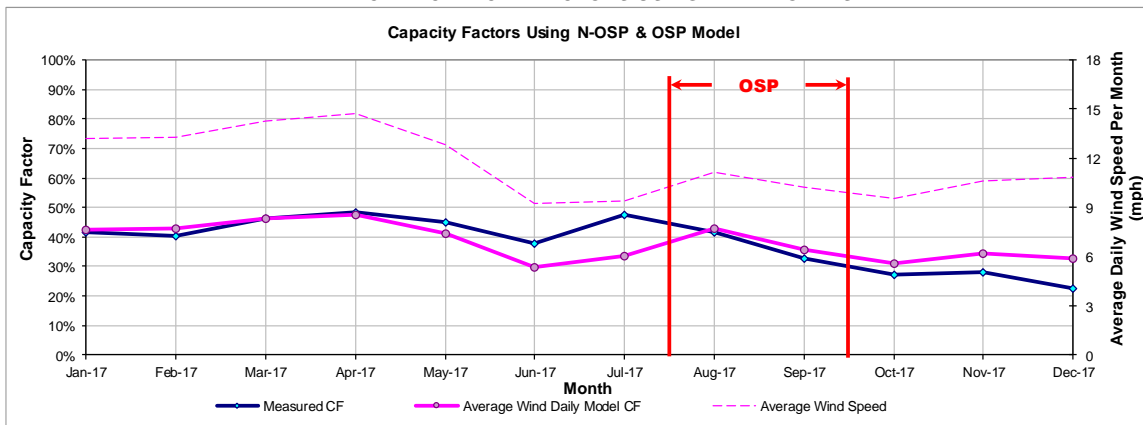


Figure 10-72: CEDROHIL\_CHW1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.20 Champion Wind Farm

10.20.1 Champion Wind Farm - CHAMPION\_UNIT1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
CHAMPION_UNIT1	Wind	-	SCURRY	E.On Climate & Renewables	Champion Wind Farm

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
55 Siemens 2.3 MW	ERCOT	W	Jan-08	West	ABI	126.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

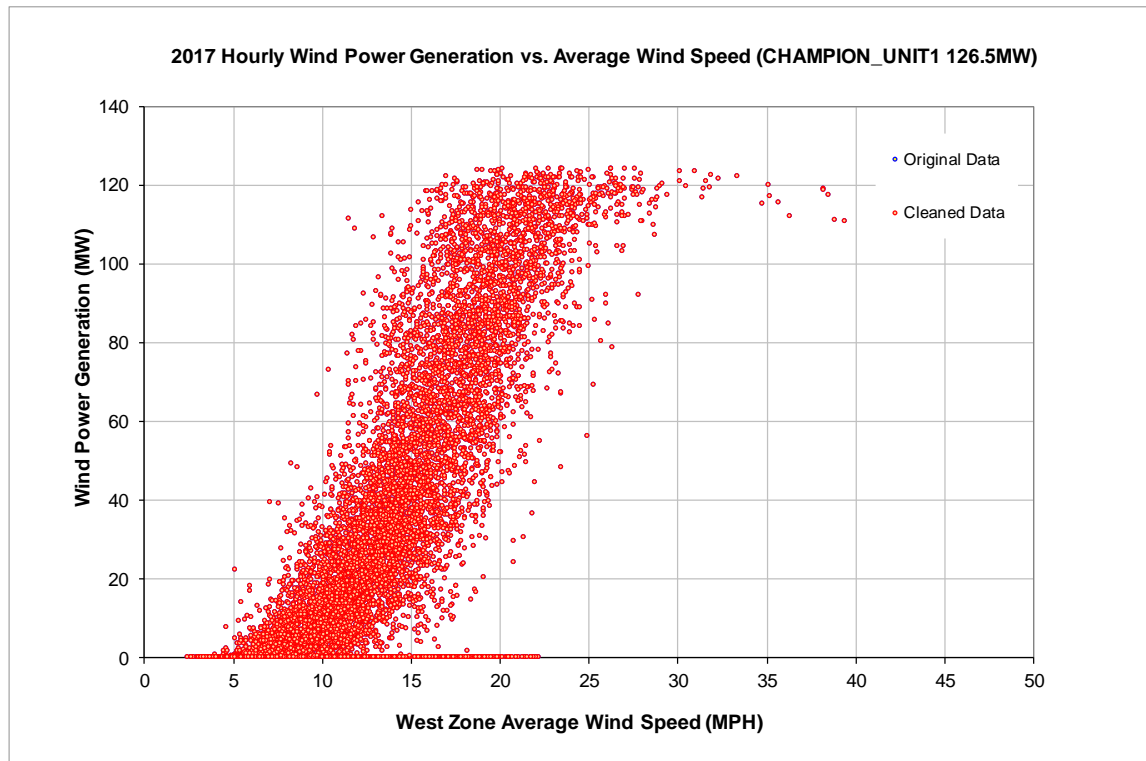


Figure 10-73: CHAMPION\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

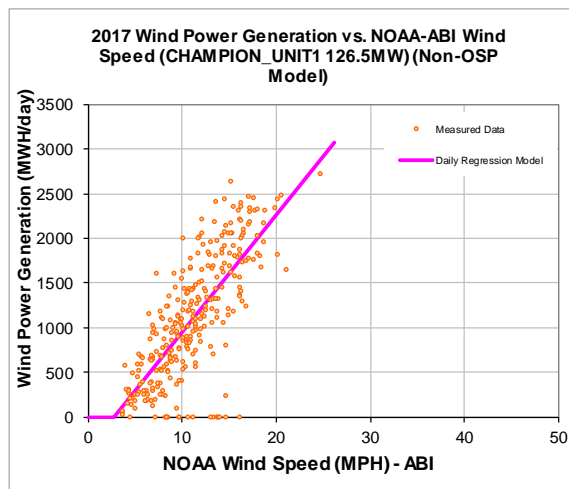
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-351.89
Left Slope (MWh/mph-day)	131.31
RMSE (MWh/day)	453.94
R2	0.57
CV-RMSE	41.1%
Daily Maximum (MWh/day)	3036

**OSP Model:**

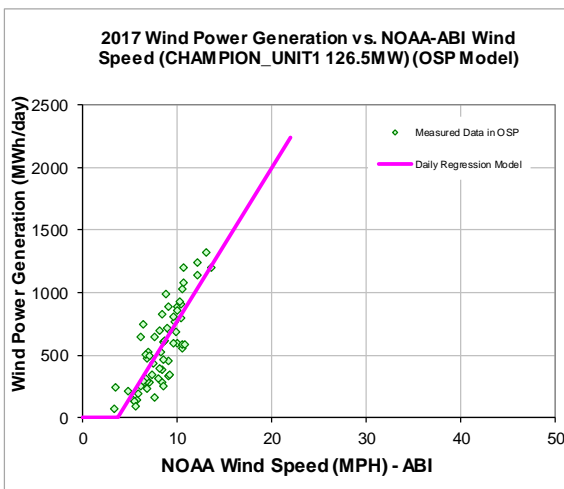
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-444.49
Left Slope (MWh/mph-day)	121.85
RMSE (MWh/day)	188.43
R2	0.66
CV-RMSE	33.1%
Daily Maximum (MWh/day)	3036

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
409,270	366,422

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
621	579

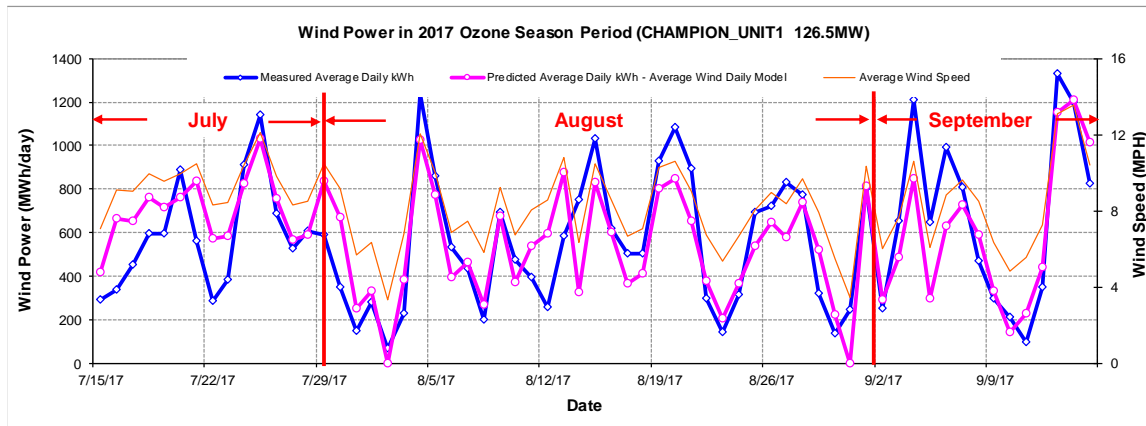
Figure 10-74: CHAMPION\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	37,742	31,566	16.36%	40%	34%
Feb-17	28	11.23	33,925	31,424	7.37%	40%	37%
Mar-17	31	12.96	43,254	41,842	3.27%	46%	44%
Apr-17	30	13.49	42,747	42,576	0.40%	47%	47%
May-17	31	11.55	37,427	36,118	3.50%	40%	38%
Jun-17	30	10.72	30,827	31,672	-2.74%	34%	35%
Jul-17	31	9.17	20,149	23,357	-15.92%	21%	25%
Aug-17	31	7.87	16,916	15,975	5.56%	18%	17%
Sep-17	30	9.51	12,621	24,371	-93.11%	14%	27%
Oct-17	31	11.02	31,143	32,848	-5.47%	33%	35%
Nov-17	30	10.21	33,301	29,669	10.91%	37%	33%
Dec-17	31	9.26	26,371	25,064	4.96%	28%	27%
<b>Total</b>	<b>365</b>	<b>10.62</b>	<b>366,422</b>	<b>366,483</b>	<b>-0.02%</b>	<b>33%</b>	<b>33%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>35,827</b>	<b>35,888</b>	<b>-0.17%</b>	<b>19%</b>	<b>19%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

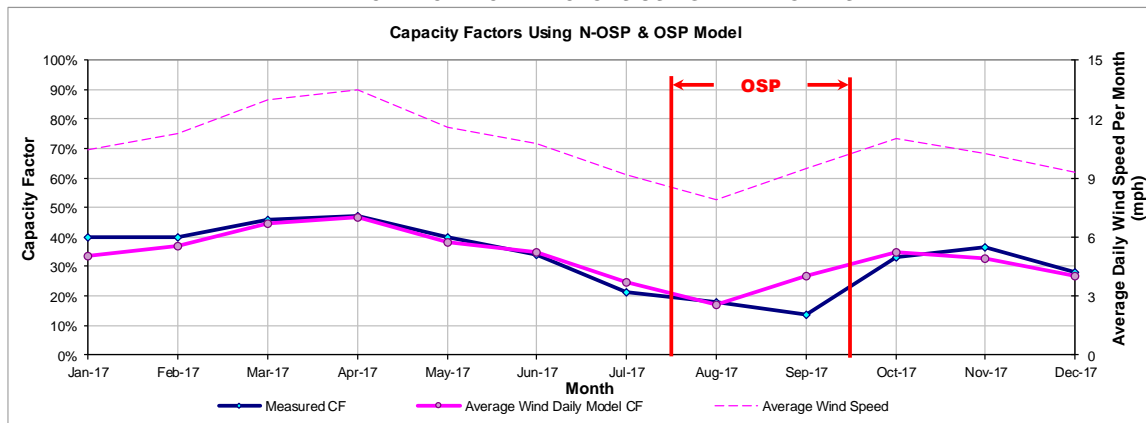


Figure 10-75: CHAMPION\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.21 Colbeck's Corner

10.21.1 Colbeck's Corner - GRANDVW1\_COLA

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
GRANDVW1_COLA	Wind	Amarillo	CARSON	E.ON Climate & Renewables	Colbeck's Corner

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
56 GE 1.7 MW	ERCOT	W	May-16	Panhandle	AMA	100.2

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

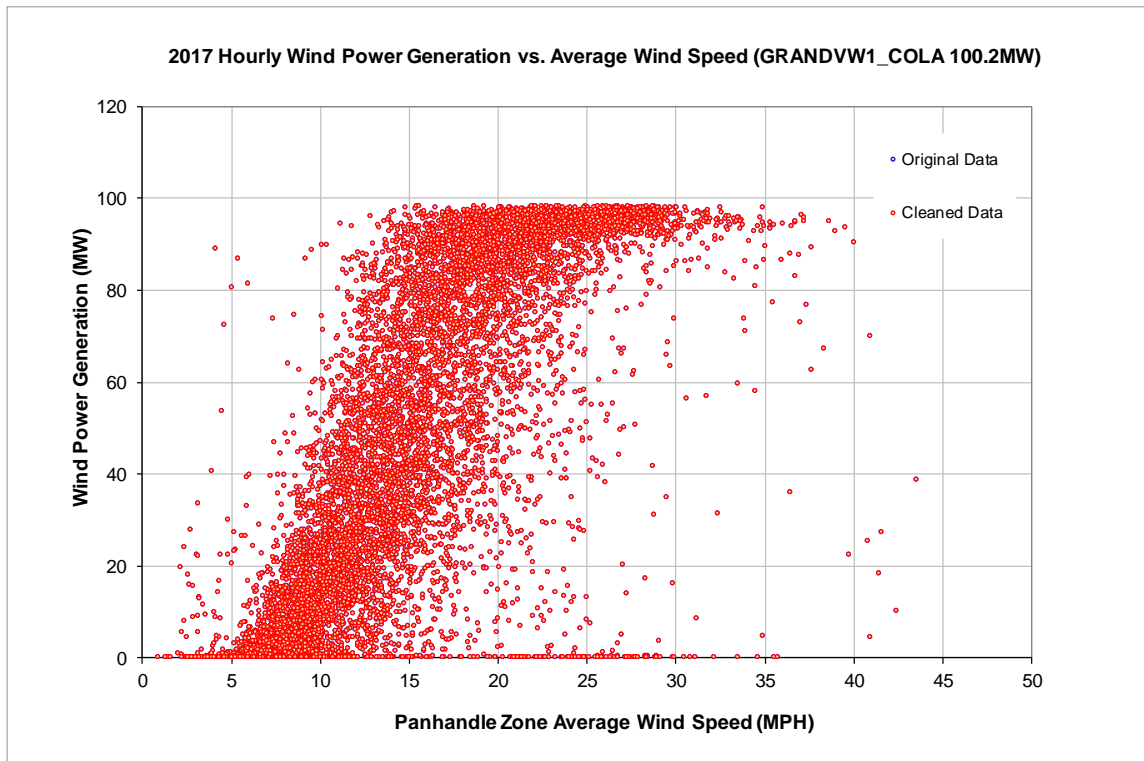


Figure 10-76: GRANDVW1\_COLA - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

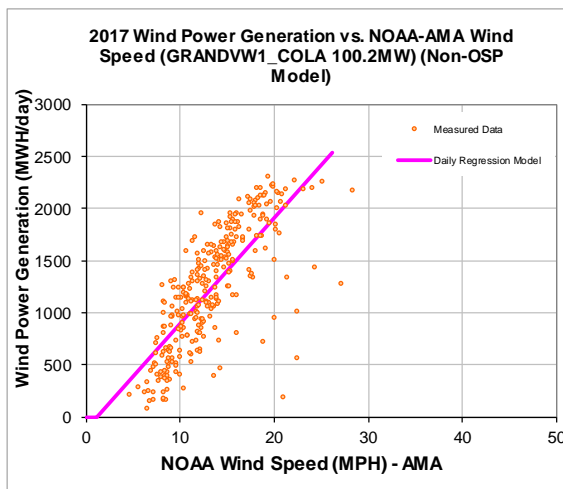
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-106.03
Left Slope (MWh/mph-day)	101.44
RMSE (MWh/day)	365.09
R2	0.58
CV-RMSE	29.3%
Daily Maximum (MWh/day)	2405

**OSP Model:**

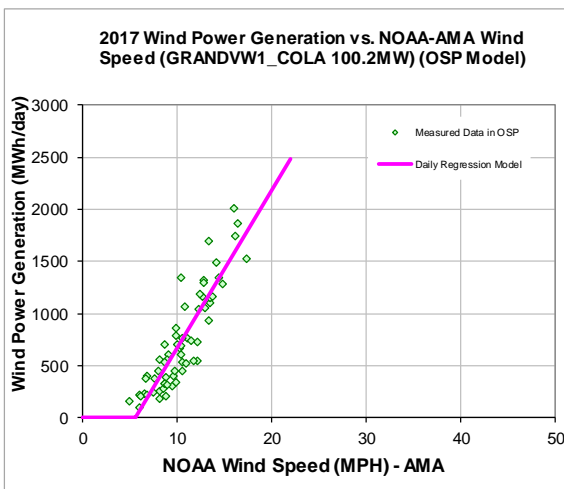
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-833.71
Left Slope (MWh/mph-day)	150.66
RMSE (MWh/day)	216.02
R2	0.80
CV-RMSE	29.3%
Daily Maximum (MWh/day)	2405

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
457,478	420,025

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
845	747

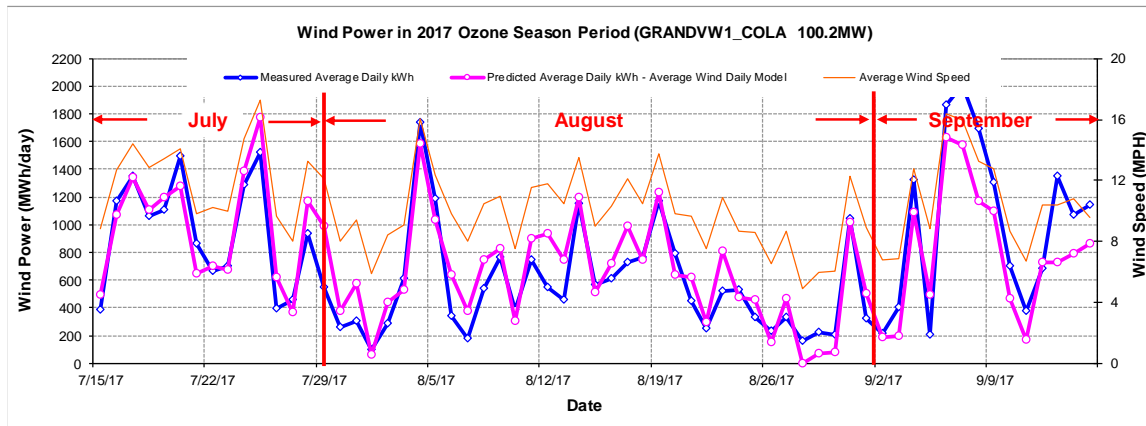
Figure 10-77: GRANDVW1\_COLA - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.28	36,393	35,333	2.91%	49%	47%
Feb-17	28	13.17	38,373	34,430	10.27%	57%	51%
Mar-17	31	14.31	46,150	41,323	10.46%	62%	55%
Apr-17	30	15.90	45,694	44,962	1.60%	63%	62%
May-17	31	13.42	40,334	38,909	3.53%	54%	52%
Jun-17	30	13.20	32,270	36,986	-14.62%	45%	51%
Jul-17	31	11.35	26,046	29,764	-14.28%	35%	40%
Aug-17	31	9.62	17,177	19,157	-11.52%	23%	26%
Sep-17	30	11.96	32,151	30,247	5.92%	45%	42%
Oct-17	31	14.26	32,302	38,889	-20.39%	43%	52%
Nov-17	30	12.81	36,089	35,803	0.79%	50%	50%
Dec-17	31	11.76	37,046	33,681	9.08%	50%	45%
<b>Total</b>	<b>365</b>	<b>12.82</b>	<b>420,025</b>	<b>419,484</b>	<b>0.13%</b>	<b>48%</b>	<b>48%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>46,484</b>	<b>46,577</b>	<b>-0.20%</b>	<b>31%</b>	<b>31%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

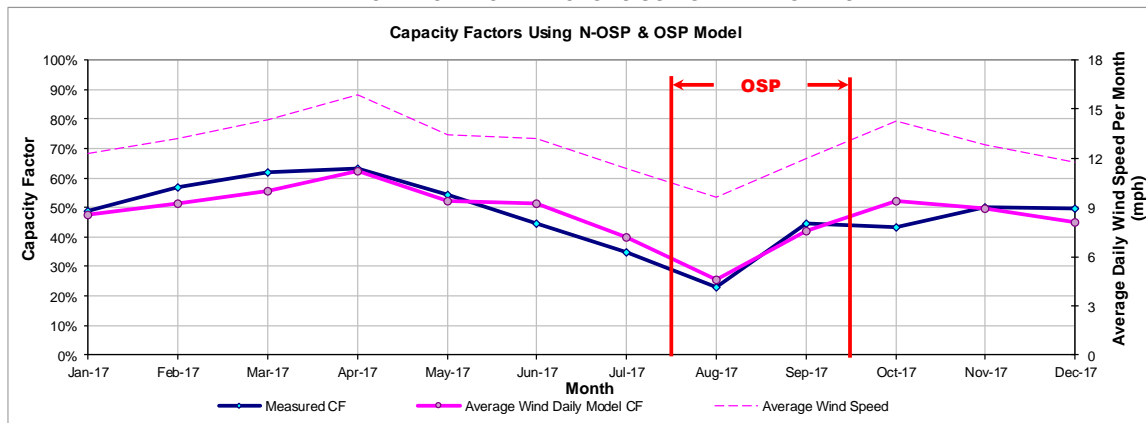


Figure 10-78: GRANDVW1\_COLA - Predicted Wind Power and Capacity Factor Using Daily Models



10.21.2 Colbeck's Corner - GRANDVW1\_COLB

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
GRANDVW1_COLB	Wind	Amarillo	CARSON	E.ON Climate & Renewables	Colbeck's Corner

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
56 GE 1.7 MW	ERCOT	W	May-16	Panhandle	AMA	100.2

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

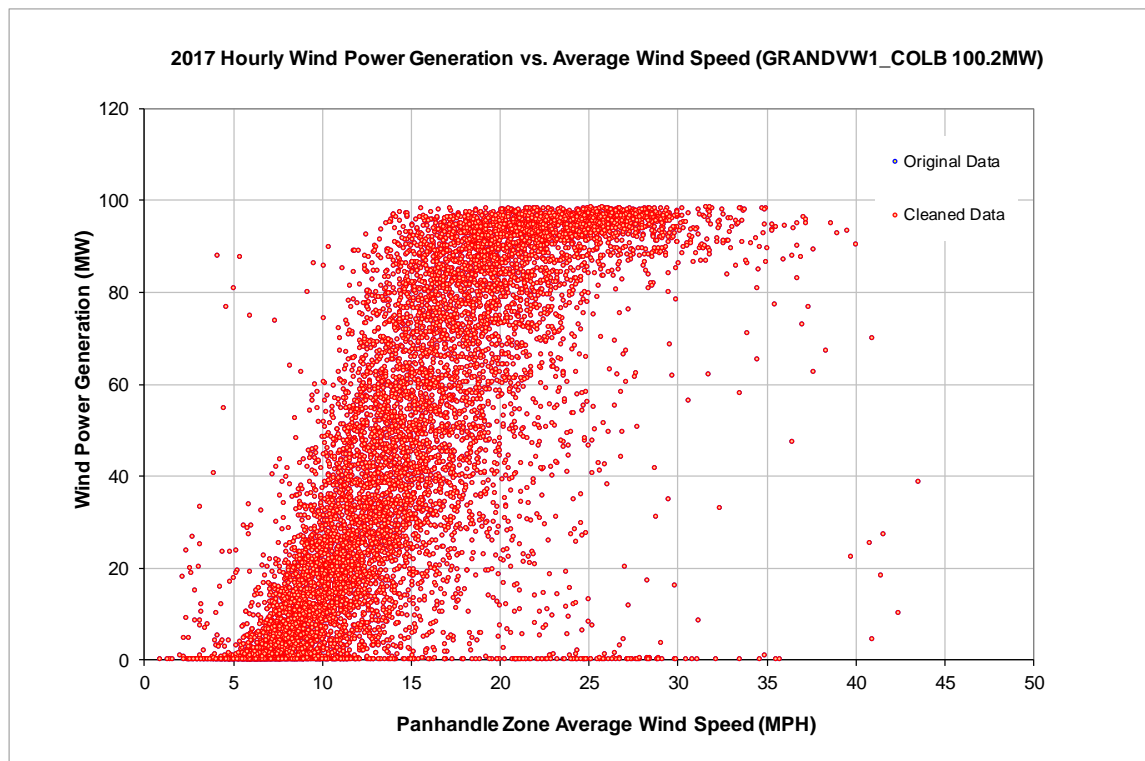


Figure 10-79: GRANDVW1\_COLB - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

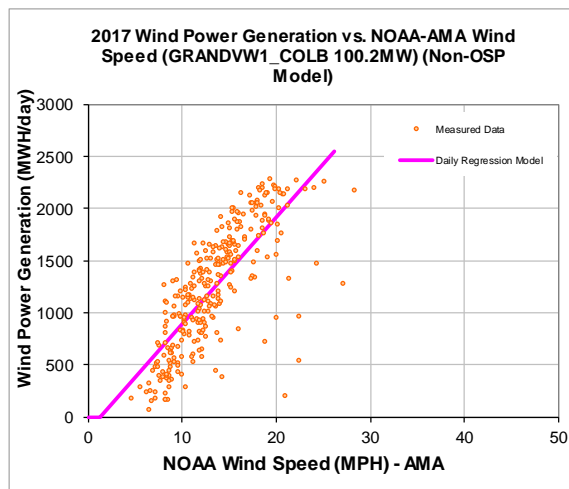
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-125.12
Left Slope (MWh/mph-day)	102.42
RMSE (MWh/day)	361.30
R2	0.59
CV-RMSE	29.2%
Daily Maximum (MWh/day)	2405

**OSP Model:**

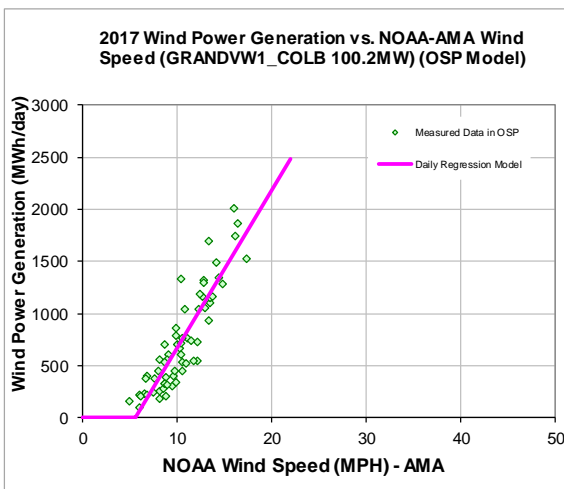
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-834.51
Left Slope (MWh/mph-day)	150.70
RMSE (MWh/day)	214.44
R2	0.80
CV-RMSE	29.1%
Daily Maximum (MWh/day)	2405

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
455,860	418,163

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
844	747

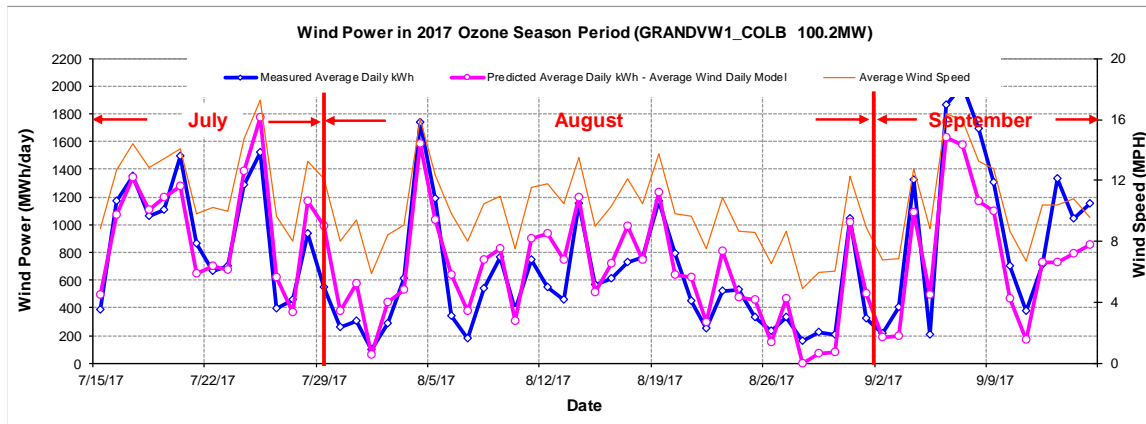
Figure 10-80: GRANDVW1\_COLB - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.28	34,502	35,112	-1.77%	46%	47%
Feb-17	28	13.17	38,334	34,254	10.64%	57%	51%
Mar-17	31	14.31	46,151	41,149	10.84%	62%	55%
Apr-17	30	15.90	45,694	44,847	1.85%	63%	62%
May-17	31	13.42	40,334	38,722	3.99%	54%	52%
Jun-17	30	13.20	32,270	36,799	-14.04%	45%	51%
Jul-17	31	11.35	26,046	29,641	-13.80%	35%	40%
Aug-17	31	9.62	17,177	19,144	-11.45%	23%	26%
Sep-17	30	11.96	32,405	30,147	6.97%	45%	42%
Oct-17	31	14.26	32,340	38,738	-19.78%	43%	52%
Nov-17	30	12.81	36,638	35,604	2.82%	51%	49%
Dec-17	31	11.76	36,272	33,444	7.80%	49%	45%
<b>Total</b>	<b>365</b>	<b>12.82</b>	<b>418,163</b>	<b>417,602</b>	<b>0.13%</b>	<b>48%</b>	<b>48%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>46,458</b>	<b>46,552</b>	<b>-0.20%</b>	<b>31%</b>	<b>31%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

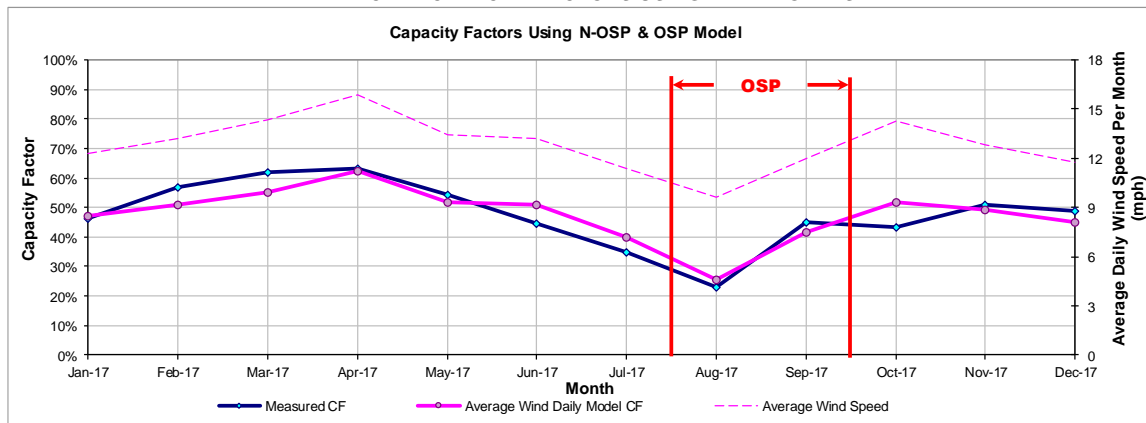


Figure 10-81: GRANDVW1\_COLB - Predicted Wind Power and Capacity Factor Using Daily Models

10.22 Cotton Plains Wind

10.22.1 Cotton Plains Wind - COTPLNS\_COTTONPL

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
COTPLNS_COTTONPL	Wind	Floydada	FLOYD	Apex Clean Energy	Cotton Plains Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
21 GE 2.4 MW	ERCOT	W	Mar-17	Panhandle	LBB	50.4

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

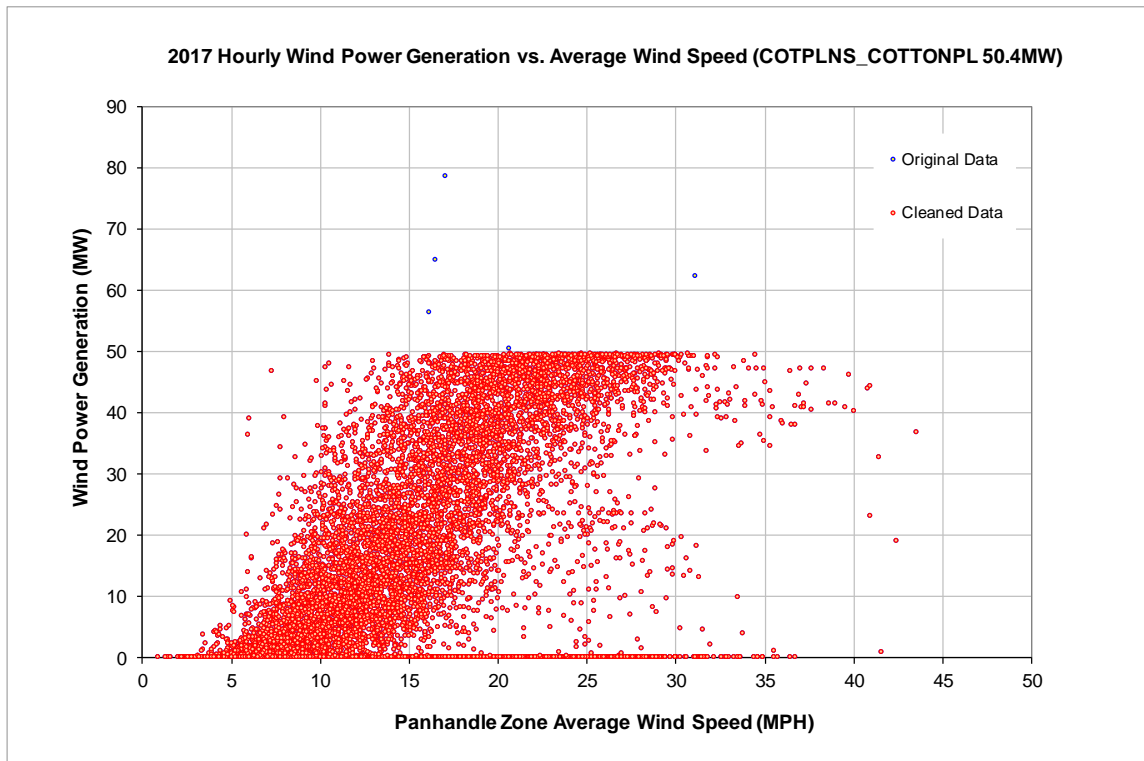


Figure 10-82: COTPLNS\_COTTONPL - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

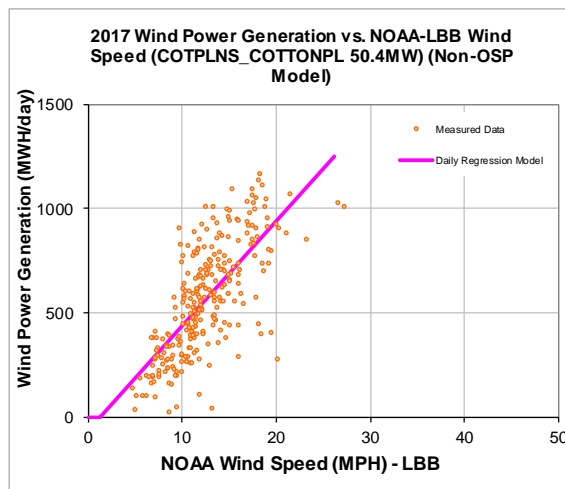
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-65.01
Left Slope (MWh/mph-day)	50.34
RMSE (MWh/day)	184.35
R2	0.51
CV-RMSE	32.7%
Daily Maximum (MWh/day)	1210

**OSP Model:**

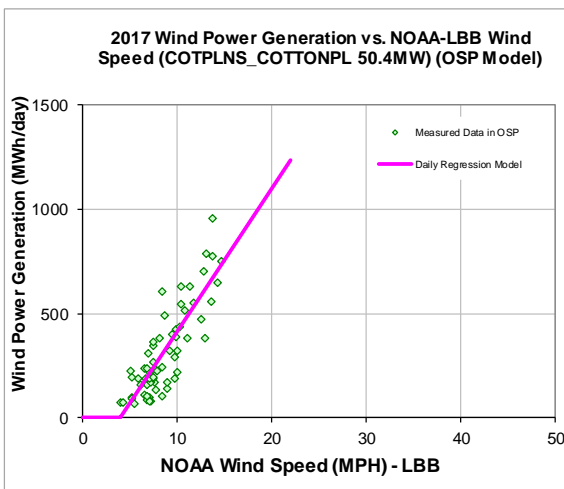
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-278.16
Left Slope (MWh/mph-day)	68.86
RMSE (MWh/day)	116.79
R2	0.71
CV-RMSE	36.8%
Daily Maximum (MWh/day)	1210

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
192,100	172,791

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
344	324

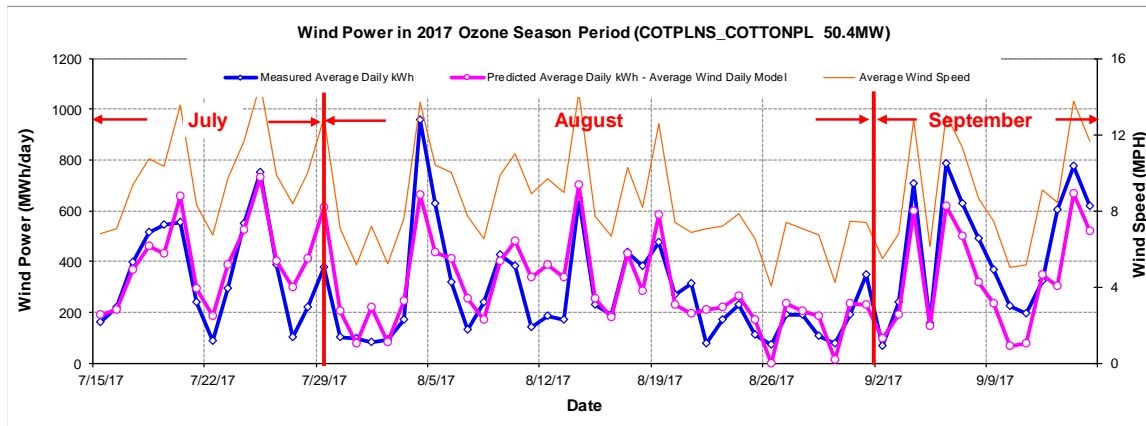
Figure 10-83: COTPLNS\_COTTONPL - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	#DIV/0!	0	0	#DIV/0!	0%	0%
Feb-17	28	12.91	12,472	16,379	-31.33%	37%	48%
Mar-17	31	13.57	19,728	18,999	3.69%	53%	51%
Apr-17	30	14.59	18,197	20,090	-10.40%	50%	55%
May-17	31	13.77	18,423	19,471	-5.69%	49%	52%
Jun-17	30	12.33	15,271	16,666	-9.14%	42%	46%
Jul-17	31	10.03	11,166	13,032	-16.71%	30%	35%
Aug-17	31	8.19	8,197	8,865	-8.14%	22%	24%
Sep-17	30	10.41	14,597	12,945	11.32%	40%	36%
Oct-17	31	11.80	20,883	16,402	21.46%	56%	44%
Nov-17	30	11.45	19,412	15,345	20.95%	53%	42%
Dec-17	31	10.54	14,444	14,439	0.04%	39%	39%
<b>Total</b>	<b>365</b>	<b>11.77</b>	<b>172,791</b>	<b>172,632</b>	<b>0.09%</b>	<b>39%</b>	<b>39%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>20,003</b>	<b>20,003</b>	<b>0.00%</b>	<b>26%</b>	<b>26%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

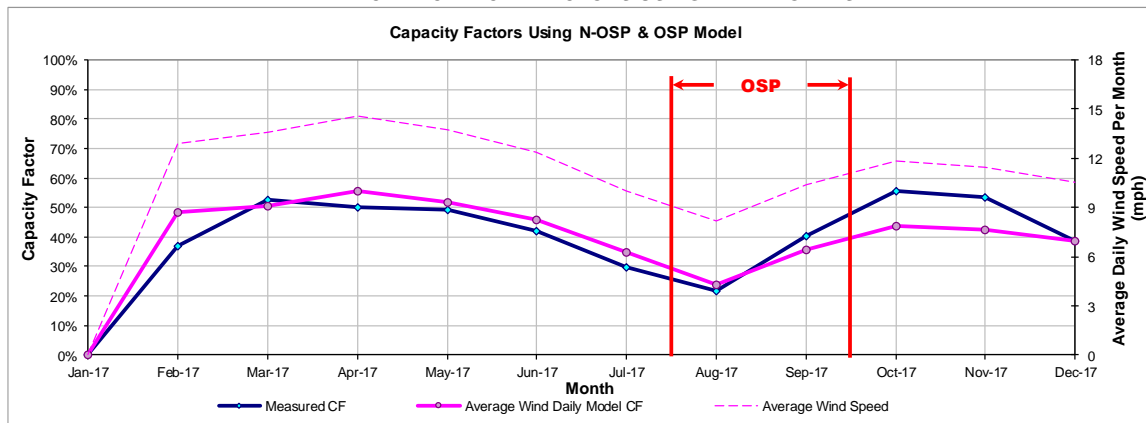


Figure 10-84: COTPLNS\_COTTONPL - Predicted Wind Power and Capacity Factor Using Daily Models

10.23 Dermott Wind 1

10.23.1 Dermott Wind 1 - DERMOTT\_UNIT1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
DERMOTT_UNIT1	Wind	-	SCURRY	Lincoln Clean Energy	Dermott Wind 1

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
-	ERCOT	W	Aug-17	West	LBB	126.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

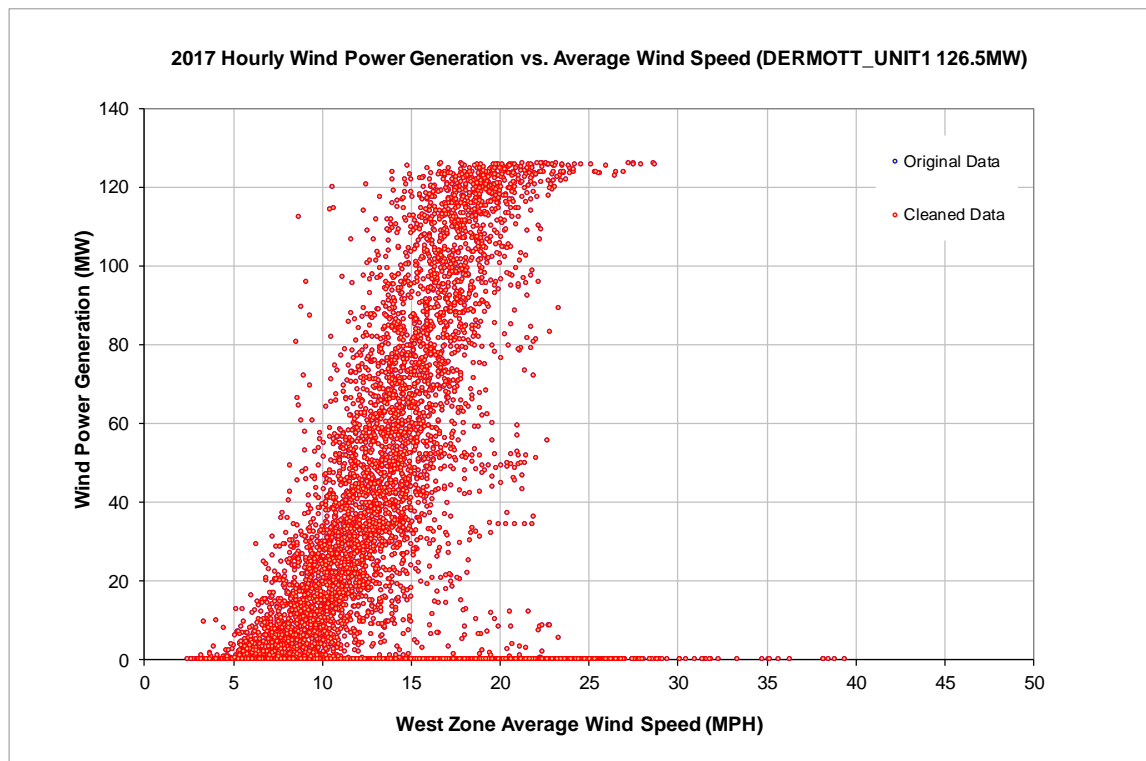


Figure 10-85: DERMOTT\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

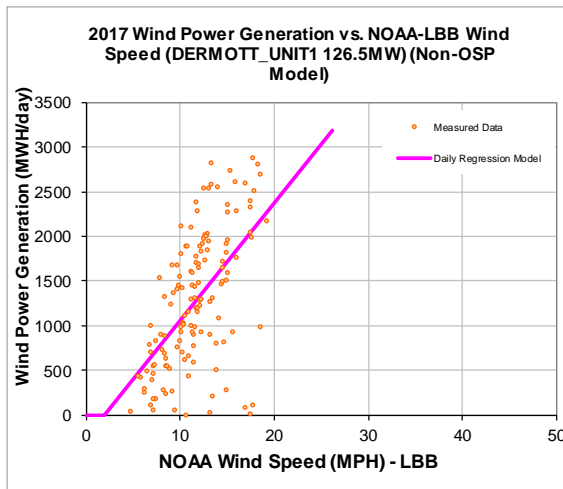
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-253.94
Left Slope (MWh/mph-day)	131.73
RMSE (MWh/day)	628.08
R2	0.32
CV-RMSE	48.9%
Daily Maximum (MWh/day)	3036

**OSP Model:**

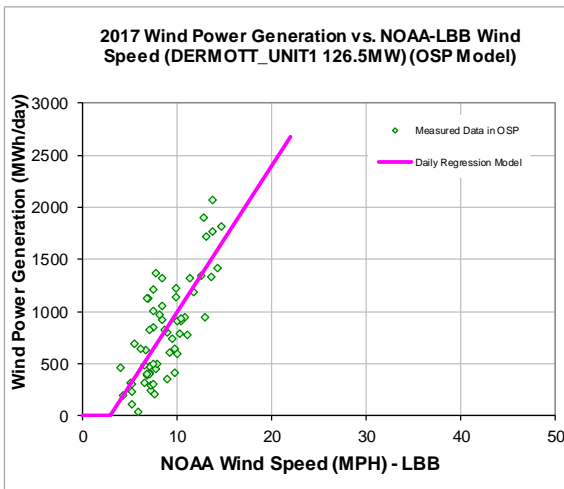
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-408.61
Left Slope (MWh/mph-day)	140.22
RMSE (MWh/day)	305.97
R2	0.59
CV-RMSE	38.0%
Daily Maximum (MWh/day)	3036

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
474,528	230,458

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
858	831

Figure 10-86: DERMOTT\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

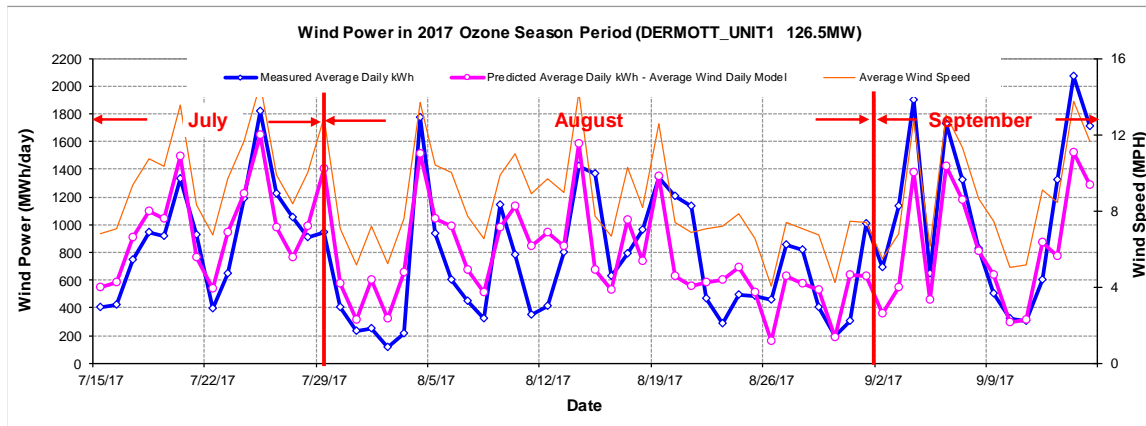


COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	#DIV/0!	0	0	#DIV/0!	0%	0%
Feb-17	28	#DIV/0!	0	0	#DIV/0!	0%	0%
Mar-17	31	#DIV/0!	0	0	#DIV/0!	0%	0%
Apr-17	30	#DIV/0!	0	0	#DIV/0!	0%	0%
May-17	31	#DIV/0!	0	0	#DIV/0!	0%	0%
Jun-17	30	13.74	13,359	31,125	-132.99%	15%	34%
Jul-17	31	10.03	27,888	31,839	-14.17%	30%	34%
Aug-17	31	8.19	21,695	22,943	-5.75%	23%	24%
Sep-17	30	10.41	35,600	32,286	9.31%	39%	35%
Oct-17	31	11.80	49,428	40,319	18.43%	53%	43%
Nov-17	30	11.45	44,942	37,636	16.26%	49%	41%
Dec-17	31	10.61	37,547	34,310	8.62%	40%	36%
Total	365	10.74	230,458	230,458	0.00%	21%	21%
Total in OSP (07/15-09/15)	63	8.65	50,671	50,671	0.00%	26%	26%

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

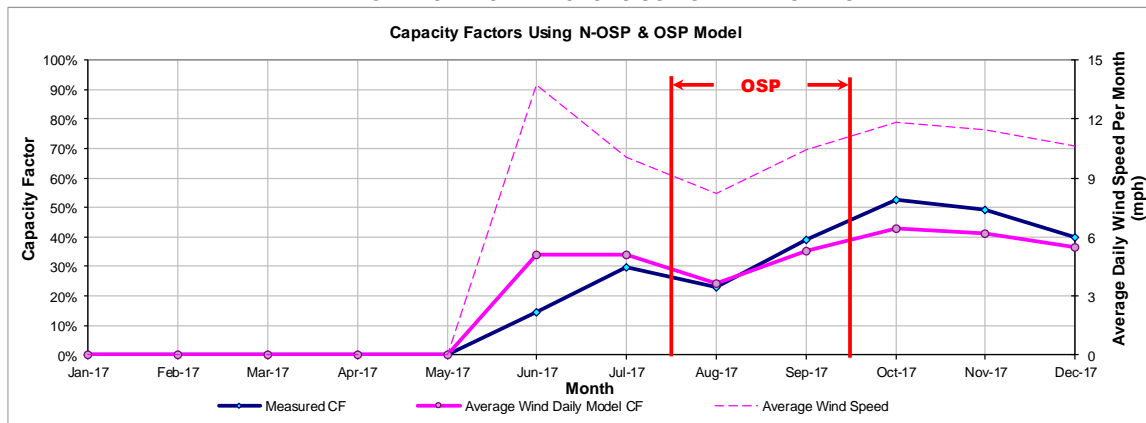


Figure 10-87: DERMOTT\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.23.2 Dermott Wind 1 - DERMOTT\_UNIT2

**SITE INFORMATION**

GENSITECODE_EERCOT	Renewable Energy	City	County	Company	Facility
DERMOTT_UNIT2	Wind	-	SCURRY	Lincoln Clean Energy	Dermott Wind 1

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
-	ERCOT	W	Aug-17	West	LBB	126.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

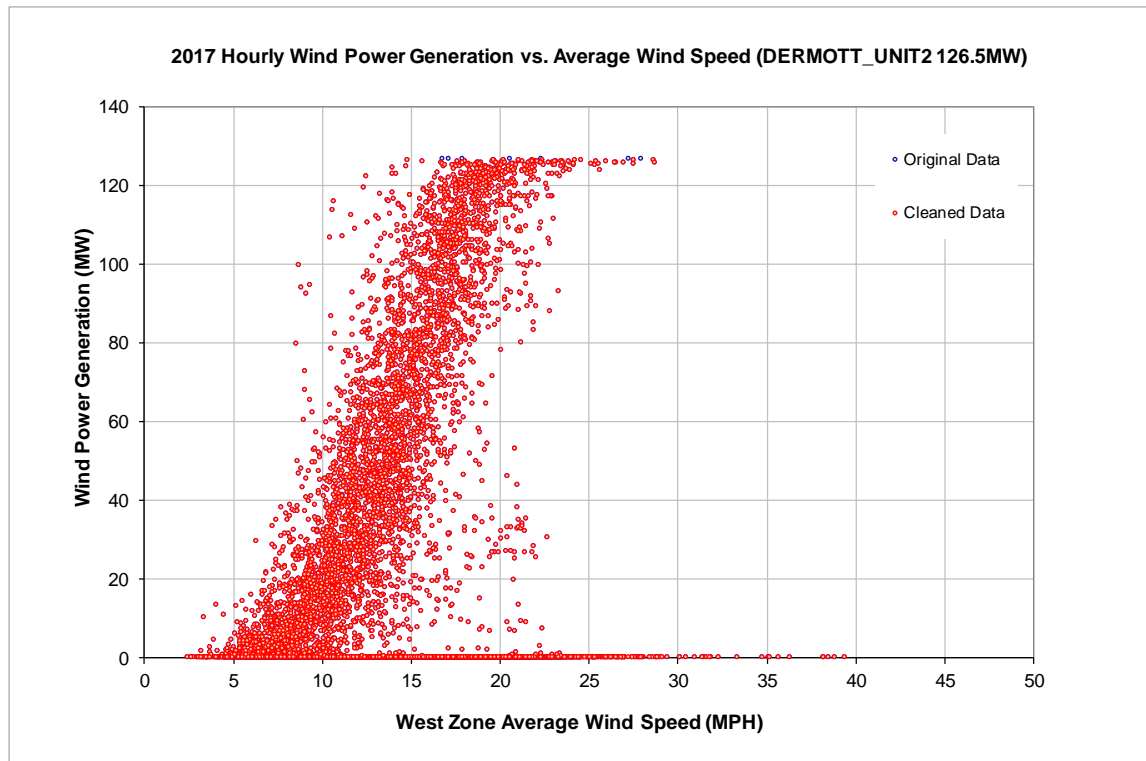


Figure 10-88: DERMOTT\_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

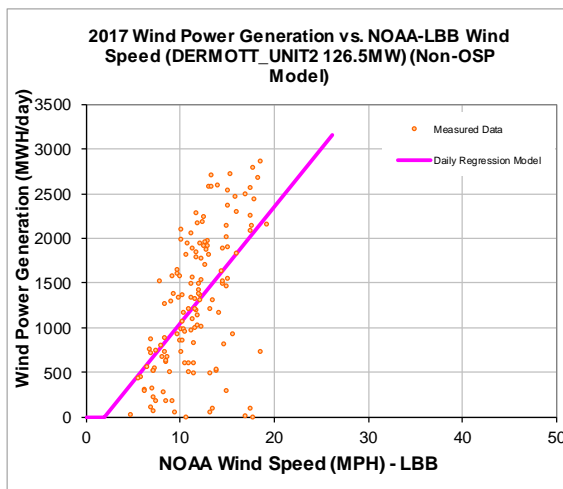
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-249.82
Left Slope (MWh/mph-day)	130.79
RMSE (MWh/day)	639.33
R2	0.31
CV-RMSE	50.1%
Daily Maximum (MWh/day)	3036

**OSP Model:**

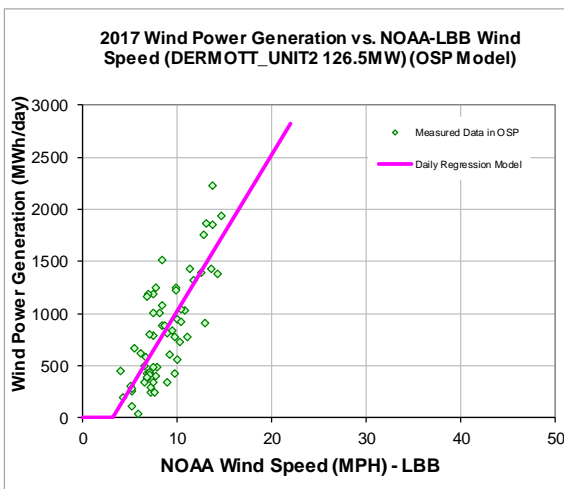
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-470.22
Left Slope (MWh/mph-day)	149.58
RMSE (MWh/day)	316.38
R2	0.61
CV-RMSE	38.4%
Daily Maximum (MWh/day)	3036

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
473,651	230,719

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
881	852

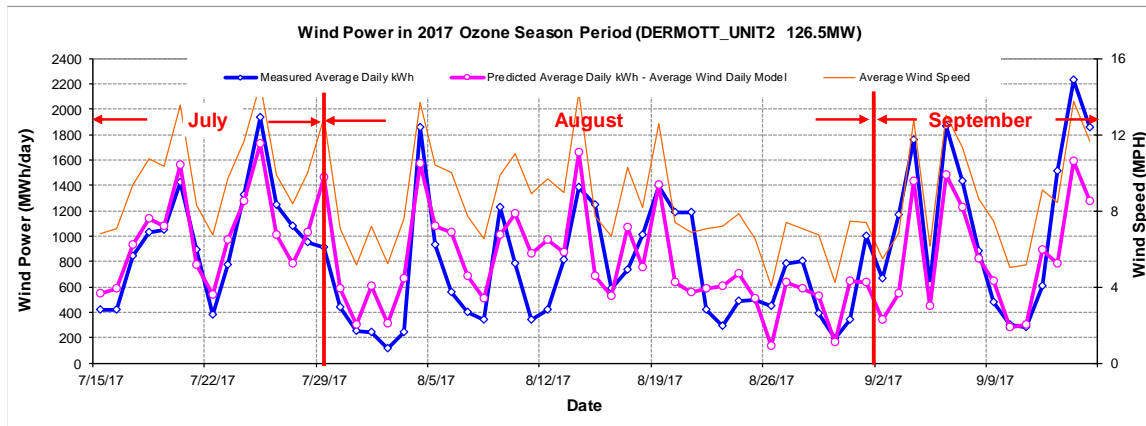
Figure 10-89: DERMOTT\_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data)

COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	#DIV/0!	0	0	#DIV/0!	0%	0%
Feb-17	28	#DIV/0!	0	0	#DIV/0!	0%	0%
Mar-17	31	#DIV/0!	0	0	#DIV/0!	0%	0%
Apr-17	30	#DIV/0!	0	0	#DIV/0!	0%	0%
May-17	31	#DIV/0!	0	0	#DIV/0!	0%	0%
Jun-17	30	13.74	11,969	30,949	-158.58%	13%	34%
Jul-17	31	10.03	29,308	32,236	-9.99%	31%	34%
Aug-17	31	8.19	21,569	23,410	-8.54%	23%	25%
Sep-17	30	10.41	37,203	32,449	12.78%	41%	36%
Oct-17	31	11.80	50,703	40,103	20.91%	54%	43%
Nov-17	30	11.45	43,781	37,437	14.49%	48%	41%
Dec-17	31	10.61	36,187	34,135	5.67%	38%	36%
Total	365	10.74	230,719	230,719	0.00%	21%	21%
Total in OSP (07/15-09/15)	63	8.65	51,891	51,891	0.00%	27%	27%

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

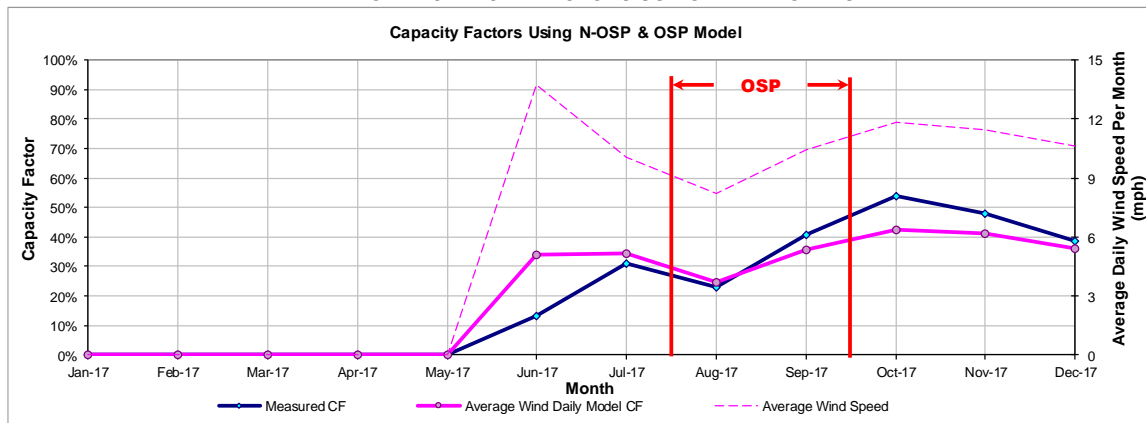


Figure 10-90: DERMOTT\_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.24 Desert Sky (Indian Mesa II)

10.24.1 Desert Sky (Indian Mesa II) - INDNENR\_INDNENR

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
INDNENR_INDNENR	Wind	Iraan	PECOS	AEP	Desert Sky (Indian Mesa II)

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
56 Enron 1.5 MW	ERCOT	W	Dec-01	West	FST	84

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

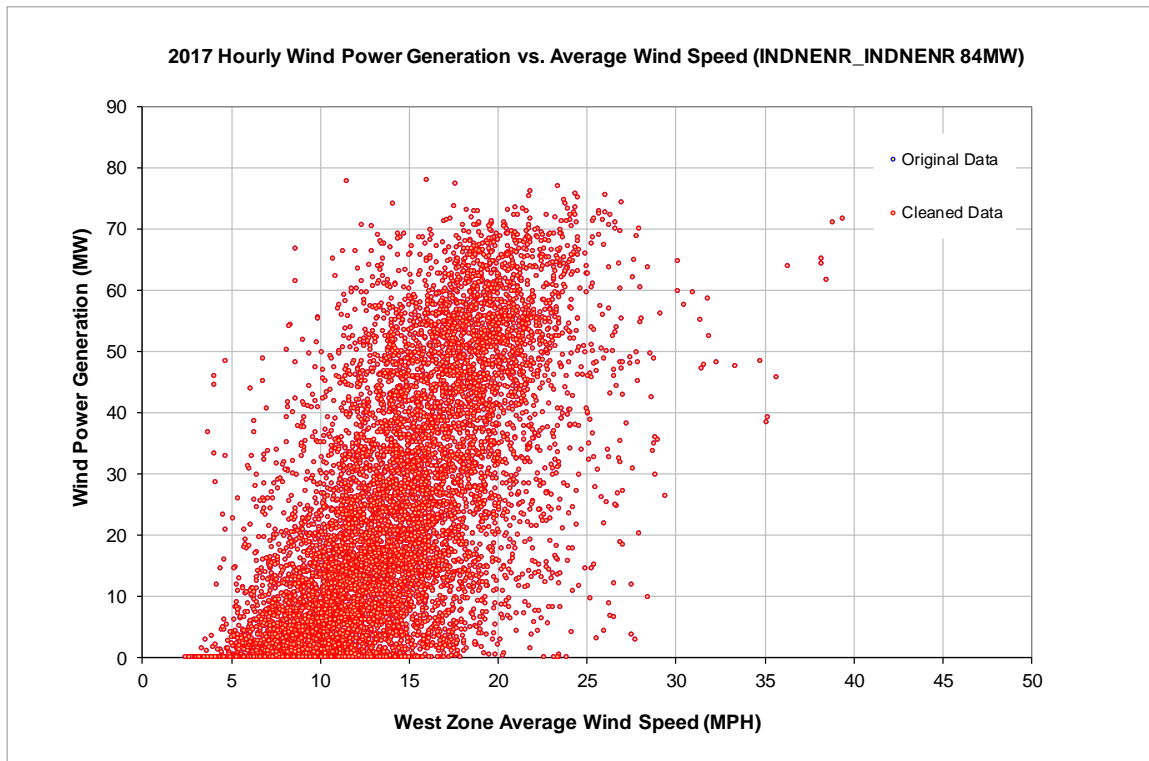


Figure 10-91: INDNENR\_INDNENR - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

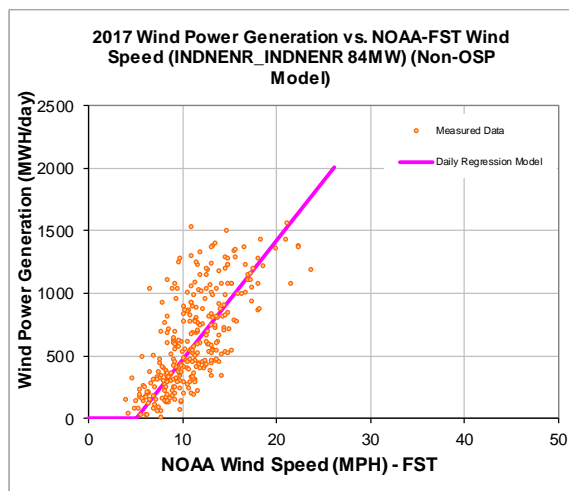
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-242.10
Left Slope (MWh/mph-day)	77.21
RMSE (MWh/day)	269.04
R2	0.50
CV-RMSE	43.4%
Daily Maximum (MWh/day)	2016

**OSP Model:**

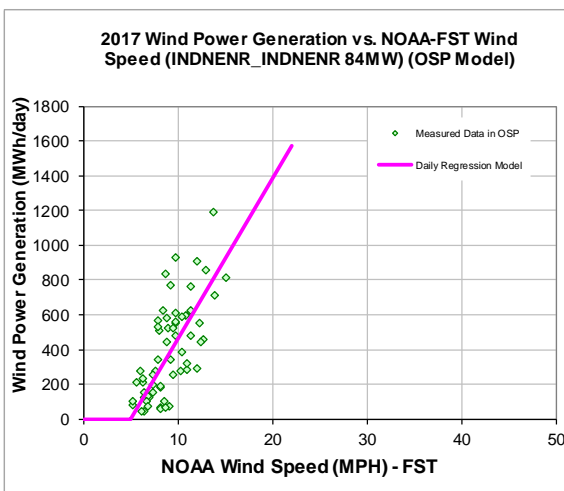
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-350.48
Left Slope (MWh/mph-day)	81.76
RMSE (MWh/day)	193.66
R2	0.49
CV-RMSE	49.3%
Daily Maximum (MWh/day)	2016

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
213,000	212,078

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
374	396

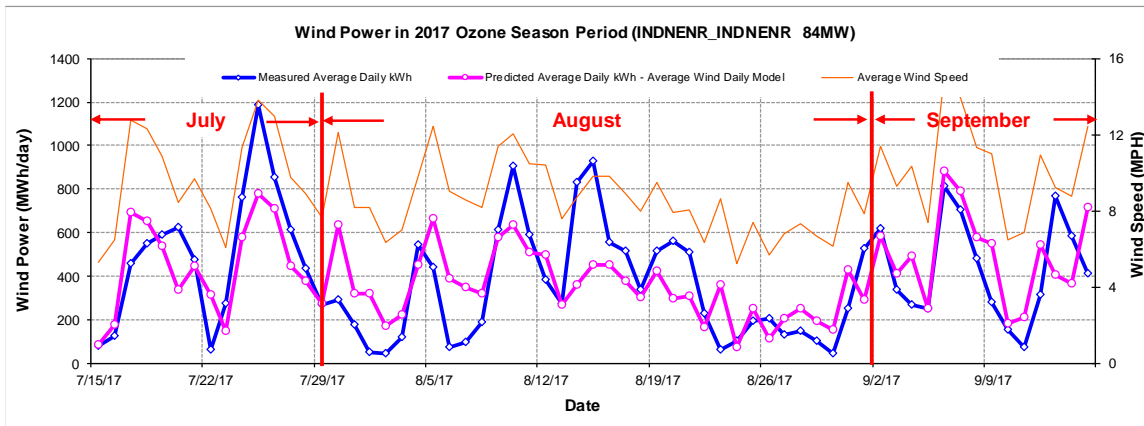
Figure 10-92: INDNENR\_INDNENR - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (FST) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.60	16,358	17,856	-9.16%	26%	29%
Feb-17	28	11.24	17,404	17,524	-0.69%	31%	31%
Mar-17	31	11.81	27,383	20,774	24.14%	44%	33%
Apr-17	30	13.08	24,950	23,033	7.68%	41%	38%
May-17	31	12.22	20,837	21,755	-4.41%	33%	35%
Jun-17	30	11.10	17,644	18,445	-4.54%	29%	30%
Jul-17	31	11.01	17,899	17,741	0.88%	29%	28%
Aug-17	31	8.40	10,473	10,430	0.41%	17%	17%
Sep-17	30	11.19	16,295	17,708	-8.67%	27%	29%
Oct-17	31	10.75	18,479	18,229	1.35%	30%	29%
Nov-17	30	9.40	12,613	14,501	-14.97%	21%	24%
Dec-17	31	9.02	11,743	14,082	-19.92%	19%	23%
<b>Total</b>	<b>365</b>	<b>10.81</b>	<b>212,078</b>	<b>212,078</b>	<b>0.00%</b>	<b>29%</b>	<b>29%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>9.09</b>	<b>24,736</b>	<b>24,736</b>	<b>0.00%</b>	<b>19%</b>	<b>19%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

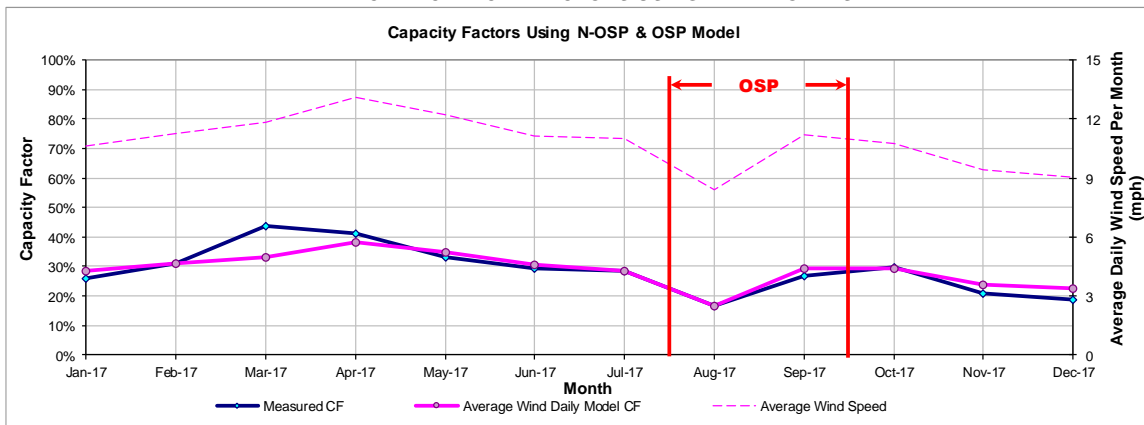


Figure 10-93: INDNENR\_INDNENR - Predicted Wind Power and Capacity Factor Using Daily Models

10.24.2 Desert Sky (Indian Mesa II) - INDNENR\_INDNENR\_2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
INDNENR_INDNENR_2	Wind	Iraan	PECOS	AEP	Desert Sky (Indian Mesa II)

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
51 Enron 1.5 MW	ERCOT	W	Dec-01	West	FST	76.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

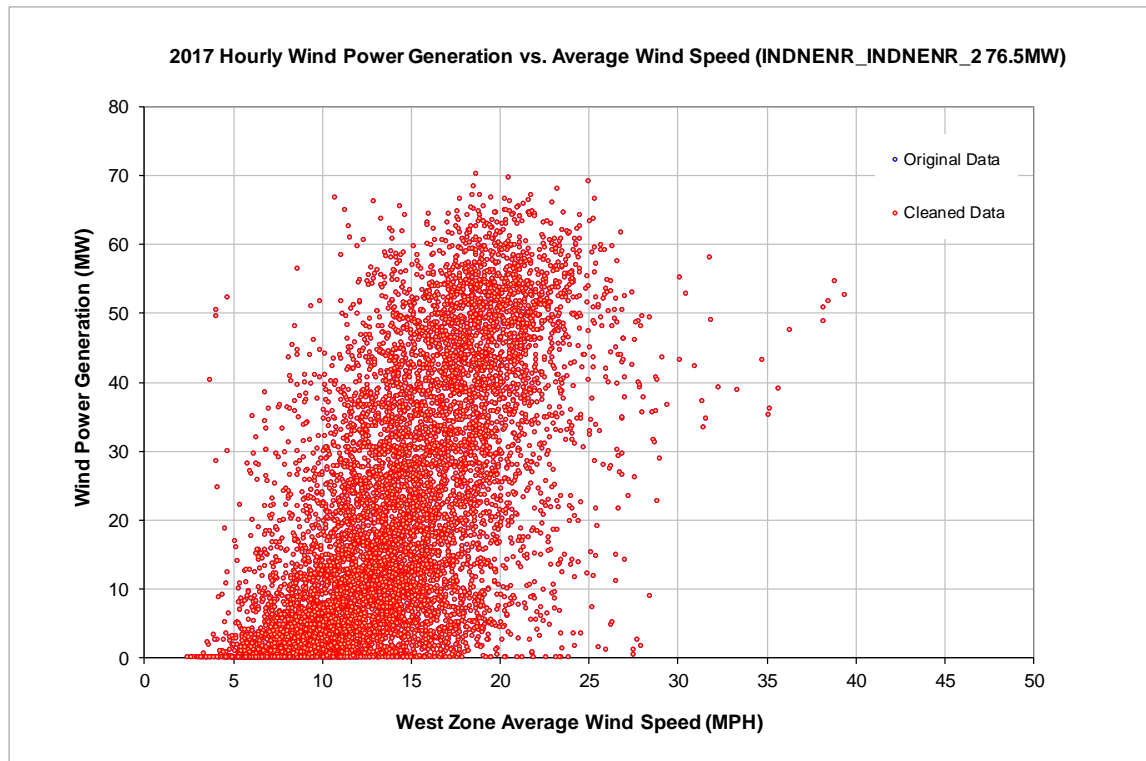


Figure 10-94: INDNENR\_INDNENR\_2 - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

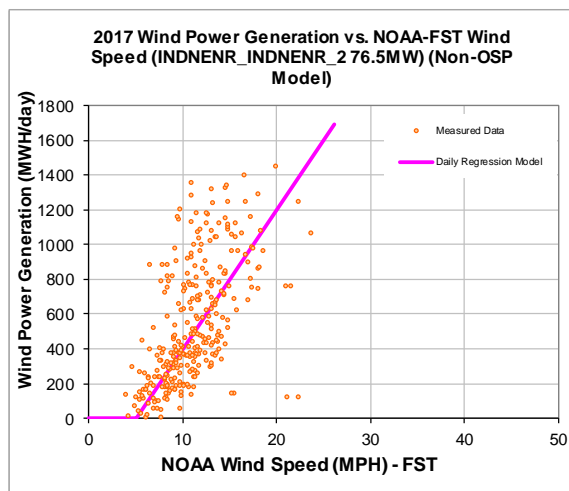
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-117.91
Left Slope (MWh/mph-day)	58.59
RMSE (MWh/day)	282.43
R2	0.34
CV-RMSE	52.6%
Daily Maximum (MWh/day)	1836

**OSP Model:**

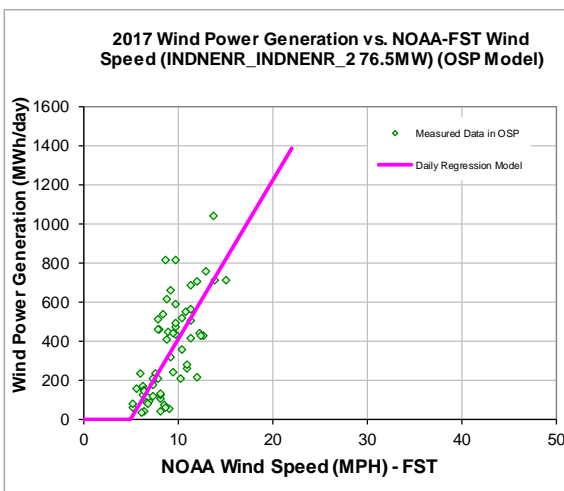
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-329.86
Left Slope (MWh/mph-day)	73.92
RMSE (MWh/day)	176.10
R2	0.49
CV-RMSE	51.5%
Daily Maximum (MWh/day)	1836

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
184,197	183,588

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
325	347

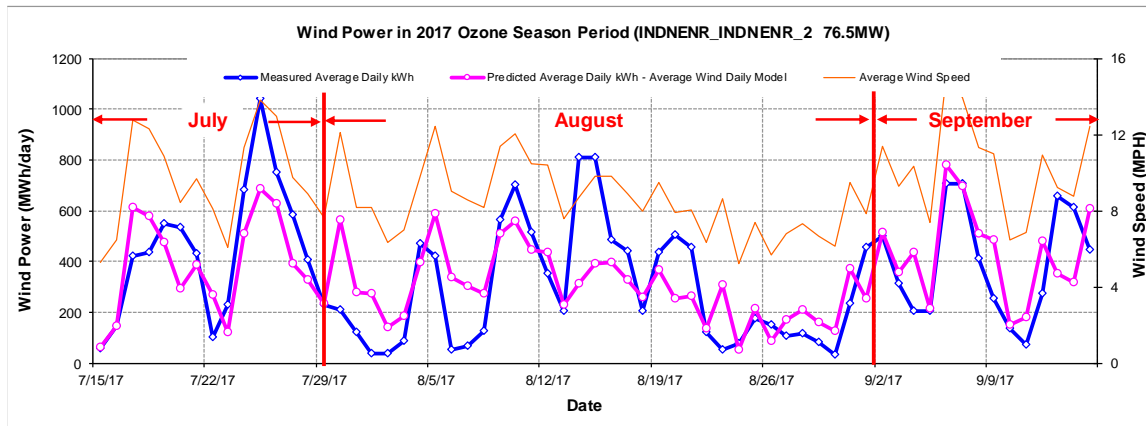
Figure 10-95: INDNENR\_INDNENR\_2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (FST) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.60	13,610	15,590	-14.55%	24%	27%
Feb-17	28	11.24	13,261	15,141	-14.18%	26%	29%
Mar-17	31	11.81	23,380	17,805	23.85%	41%	31%
Apr-17	30	13.08	23,531	19,453	17.33%	43%	35%
May-17	31	12.22	14,442	18,549	-28.44%	25%	33%
Jun-17	30	11.10	16,392	15,972	2.56%	30%	29%
Jul-17	31	11.01	14,486	15,230	-5.13%	25%	27%
Aug-17	31	8.40	8,827	9,026	-2.26%	16%	16%
Sep-17	30	11.19	15,006	15,241	-1.57%	27%	28%
Oct-17	31	10.75	18,116	15,874	12.38%	32%	28%
Nov-17	30	9.40	11,540	12,979	-12.46%	21%	24%
Dec-17	31	9.02	10,997	12,727	-15.73%	19%	22%
<b>Total</b>	<b>365</b>	<b>10.81</b>	<b>183,588</b>	<b>183,588</b>	<b>0.00%</b>	<b>27%</b>	<b>27%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>9.09</b>	<b>21,545</b>	<b>21,545</b>	<b>0.00%</b>	<b>19%</b>	<b>19%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

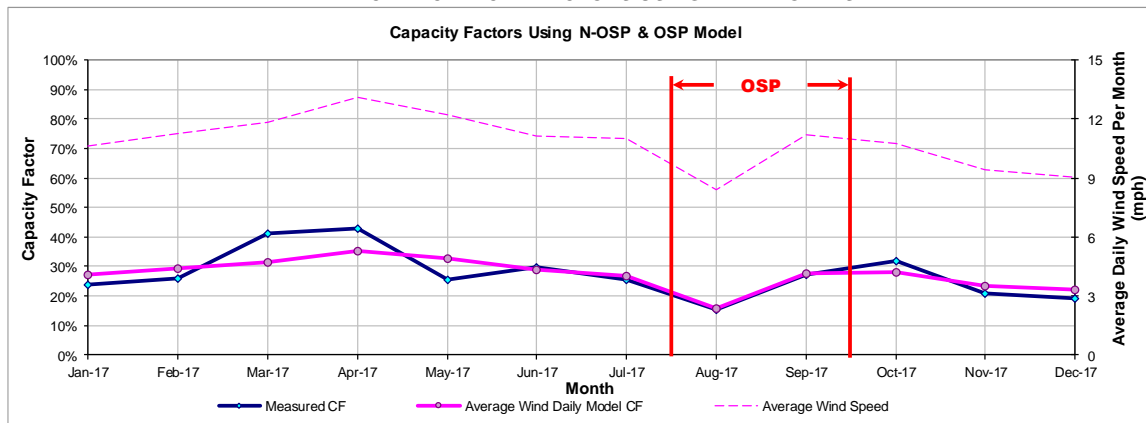


Figure 10-96: INDNENR\_INDNENR\_2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.25 Elbow Creek Wind

10.25.1 Elbow Creek Wind - ELB\_ELBCREEK

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
ELB_ELBCREEK	Wind	-	HOWARD	NRG Padoma Wind	Elbow Creek Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
53 Siemens 2.3 MW	ERCOT	W	Nov-08	West	ABI	121.9

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

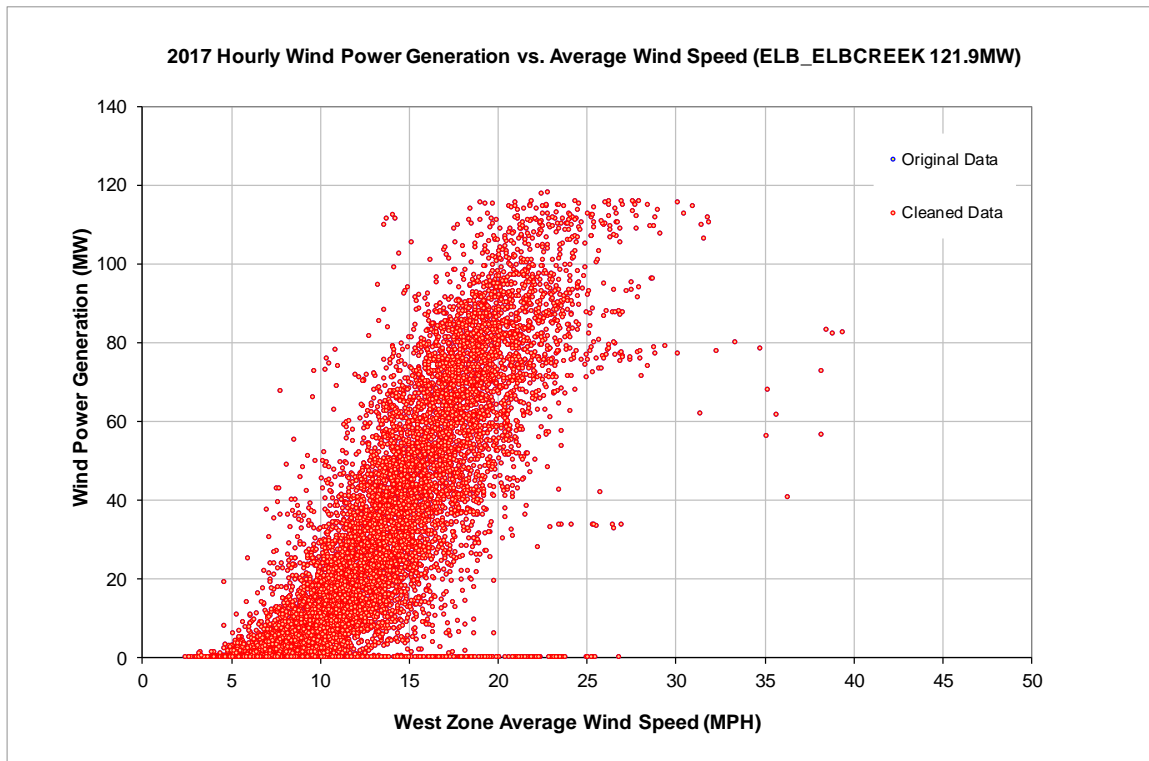


Figure 10-97: ELB\_ELBCREEK - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

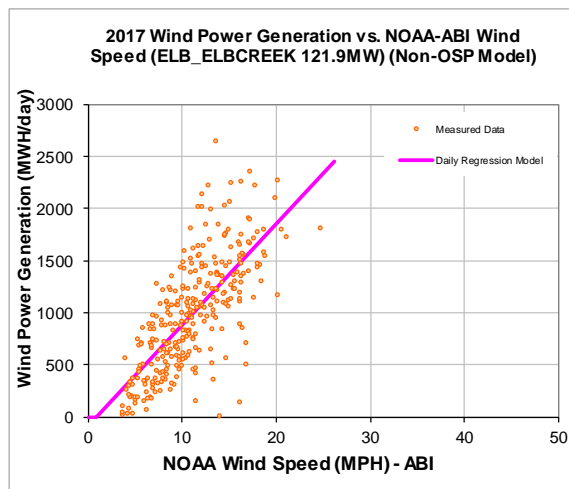
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-76.98
Left Slope (MWh/mph-day)	96.71
RMSE (MWh/day)	374.87
R2	0.51
CV-RMSE	37.8%
Daily Maximum (MWh/day)	2926

**OSP Model:**

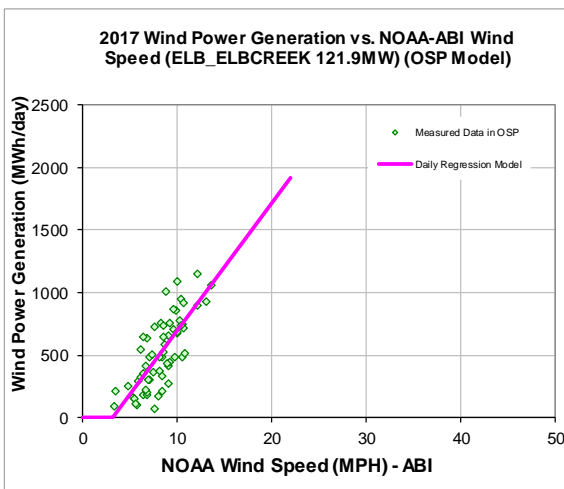
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-318.60
Left Slope (MWh/mph-day)	101.85
RMSE (MWh/day)	181.16
R2	0.59
CV-RMSE	34.3%
Daily Maximum (MWh/day)	2926

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
363,799	325,810

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
571	542

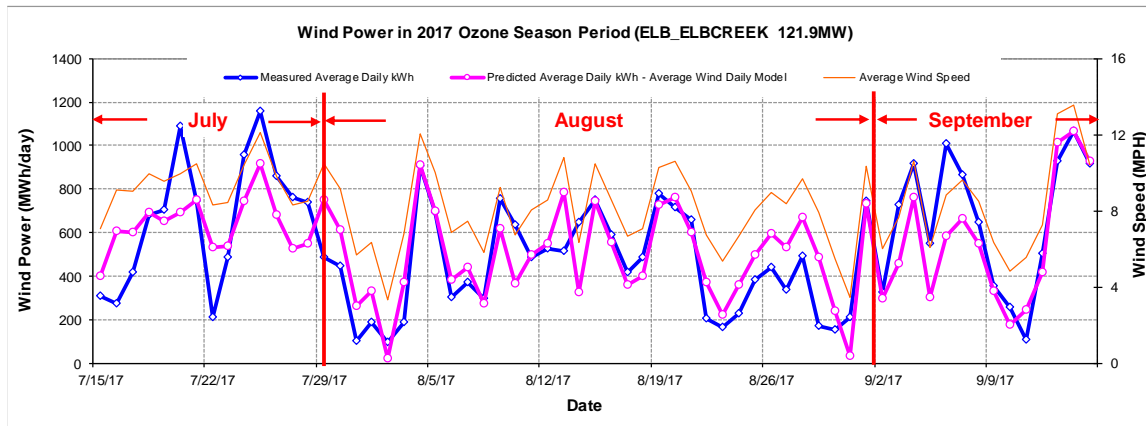
Figure 10-98: ELB\_ELBCREEK - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	37,815	28,896	23.59%	42%	32%
Feb-17	28	11.23	34,109	28,245	17.19%	42%	34%
Mar-17	31	12.96	35,777	36,464	-1.92%	39%	40%
Apr-17	30	13.28	25,398	31,381	-23.56%	29%	36%
May-17	31	11.55	30,206	32,249	-6.76%	33%	36%
Jun-17	30	10.72	23,048	28,792	-24.92%	26%	33%
Jul-17	31	9.17	20,468	21,817	-6.59%	23%	24%
Aug-17	31	7.87	13,665	14,961	-9.49%	15%	16%
Sep-17	30	9.51	23,522	22,271	5.32%	27%	25%
Oct-17	31	11.24	26,448	29,296	-10.77%	29%	32%
Nov-17	30	10.21	29,779	27,317	8.27%	34%	31%
Dec-17	31	9.11	25,575	24,121	5.68%	28%	27%
<b>Total</b>	<b>365</b>	<b>10.57</b>	<b>325,810</b>	<b>325,810</b>	<b>0.00%</b>	<b>31%</b>	<b>31%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>33,278</b>	<b>33,278</b>	<b>0.00%</b>	<b>18%</b>	<b>18%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

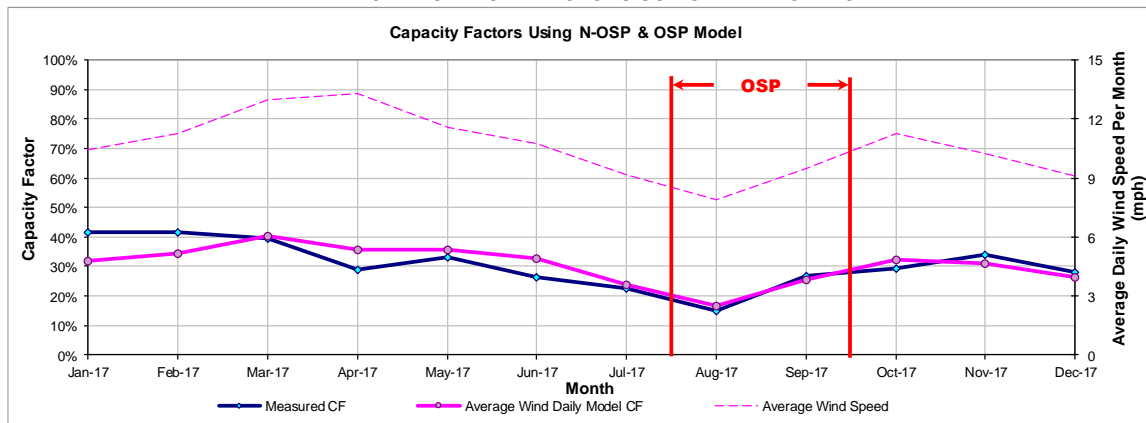


Figure 10-99: ELB\_ELBCREEK - Predicted Wind Power and Capacity Factor Using Daily Models

10.26 Electra Wind

10.26.1 Electra Wind - DIGBY\_UNIT1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
DIGBY_UNIT1	Wind	-	WILBARGER	Lincoln Clean Energy	Electra Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
43 GE 2.3 MW	ERCOT	W	Jan-17	West	ABI	98.9

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

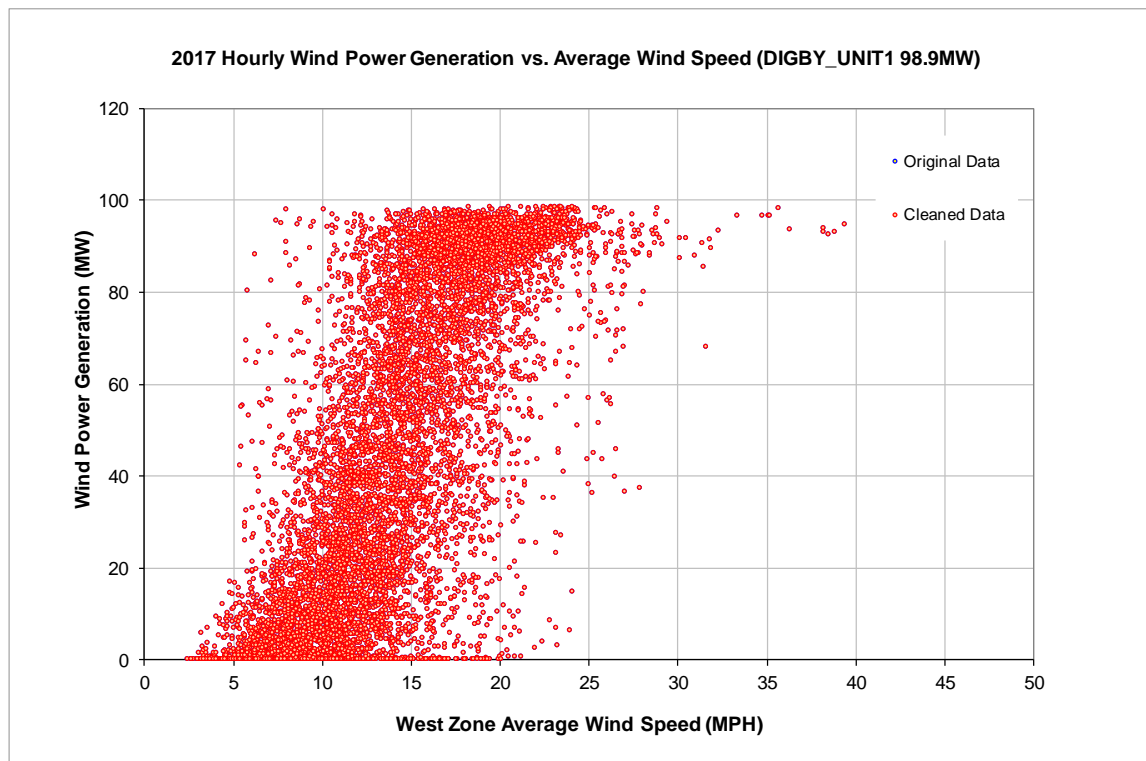


Figure 10-100: DIGBY\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

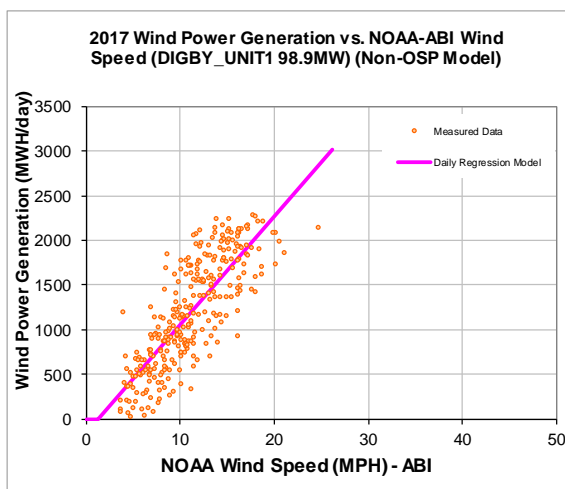
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-154.00
Left Slope (MWh/mph-day)	121.50
RMSE (MWh/day)	354.99
R2	0.65
CV-RMSE	29.7%
Daily Maximum (MWh/day)	2374

**OSP Model:**

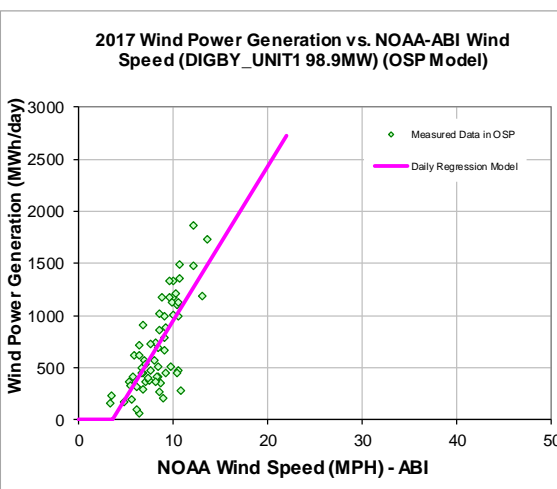
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-529.09
Left Slope (MWh/mph-day)	147.96
RMSE (MWh/day)	292.51
R2	0.54
CV-RMSE	41.7%
Daily Maximum (MWh/day)	2374

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
442,652	402,458

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
765	715

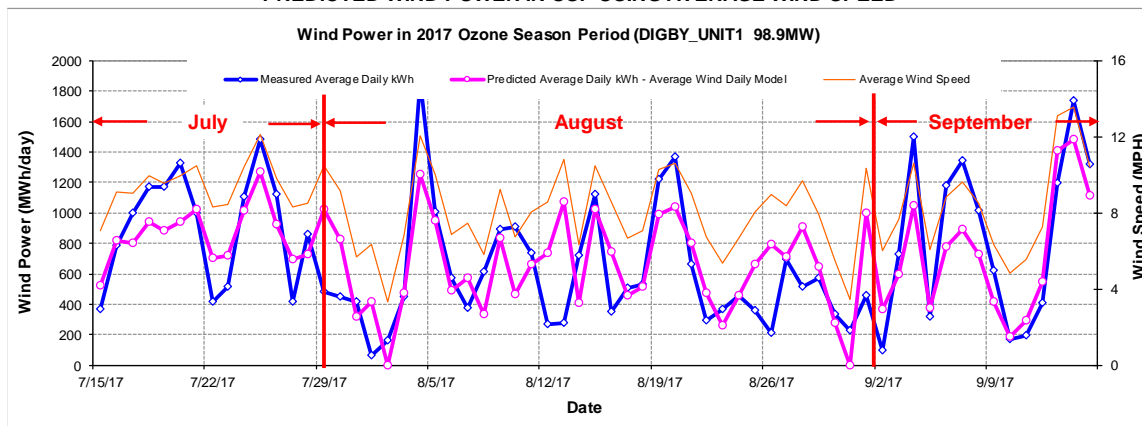
Figure 10-101: DIGBY\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

### COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	36,045	34,503	4.28%	49%	47%
Feb-17	28	11.23	35,776	33,880	5.30%	54%	51%
Mar-17	31	12.96	42,114	43,560	-3.43%	57%	59%
Apr-17	30	13.49	41,678	44,542	-6.87%	59%	63%
May-17	31	11.55	36,832	38,739	-5.18%	50%	53%
Jun-17	30	10.72	33,358	34,453	-3.28%	47%	48%
Jul-17	31	9.17	24,679	27,582	-11.76%	34%	37%
Aug-17	31	7.87	18,857	19,719	-4.57%	26%	27%
Sep-17	30	9.51	28,622	27,642	3.42%	40%	39%
Oct-17	31	11.24	39,590	35,143	11.23%	54%	48%
Nov-17	30	10.21	36,082	32,600	9.65%	51%	46%
Dec-17	31	9.14	28,825	29,651	-2.87%	39%	40%
<b>Total</b>	<b>365</b>	<b>10.61</b>	<b>402,458</b>	<b>402,013</b>	<b>0.11%</b>	<b>46%</b>	<b>46%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>44,176</b>	<b>44,229</b>	<b>-0.12%</b>	<b>30%</b>	<b>30%</b>

### PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



### PREDICTED CAPACITY FACTORS USING DAILY MODELS

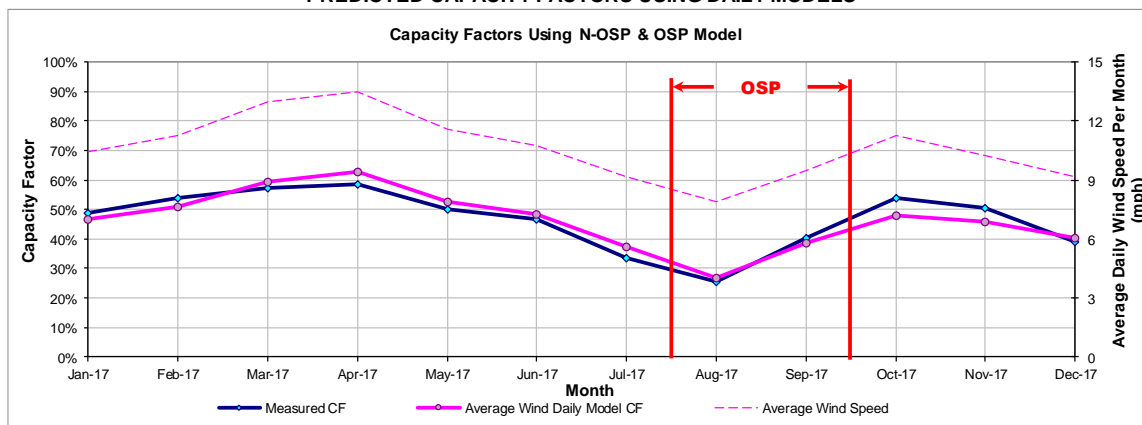


Figure 10-102: DIGBY\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models



10.26.2 Electra Wind - DIGBY\_UNIT2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
DIGBY_UNIT2	Wind	-	WILBARGER	Lincoln Clean Energy	Electra Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
57 GE 2.3 MW	ERCOT	W	Jan-17	West	ABI	131.1

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

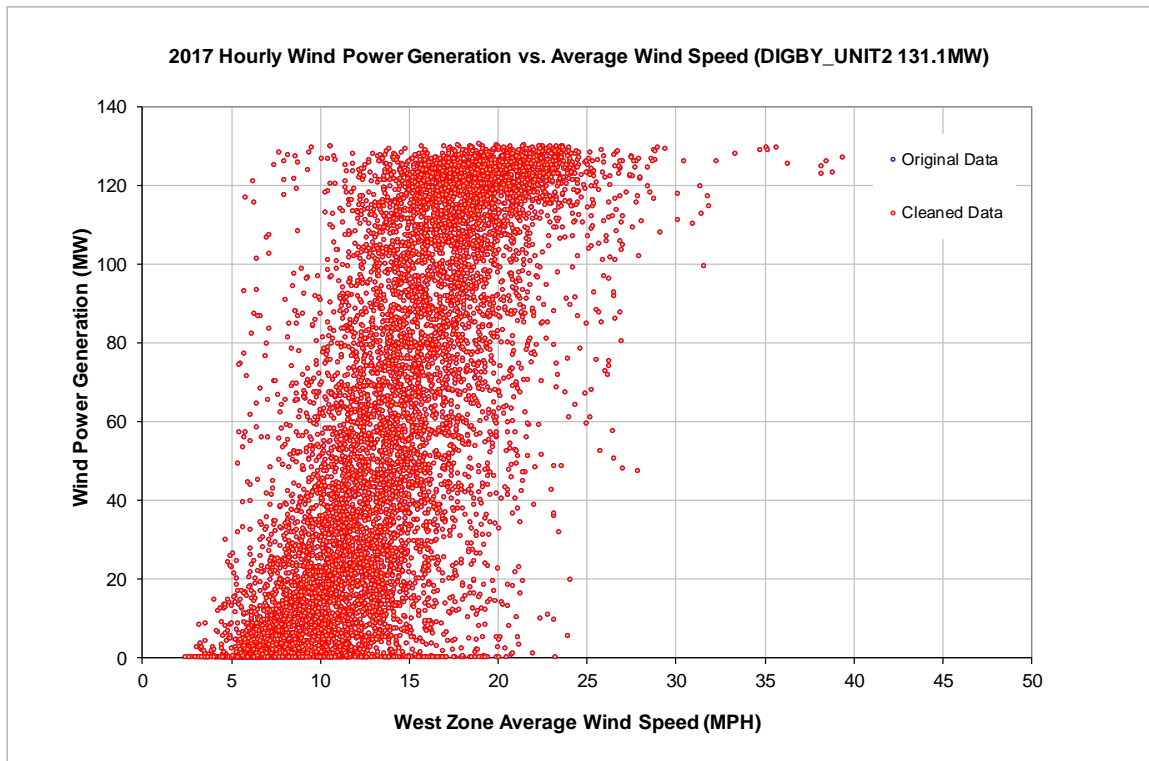


Figure 10-103: DIGBY\_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

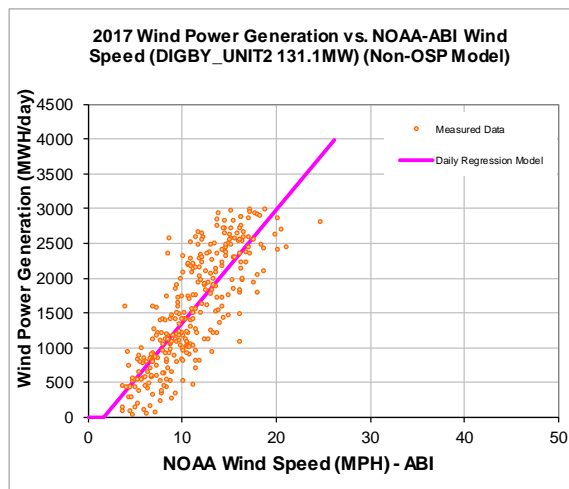
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-269.72
Left Slope (MWh/mph-day)	163.00
RMSE (MWh/day)	468.75
R2	0.66
CV-RMSE	30.5%
Daily Maximum (MWh/day)	3146

**OSP Model:**

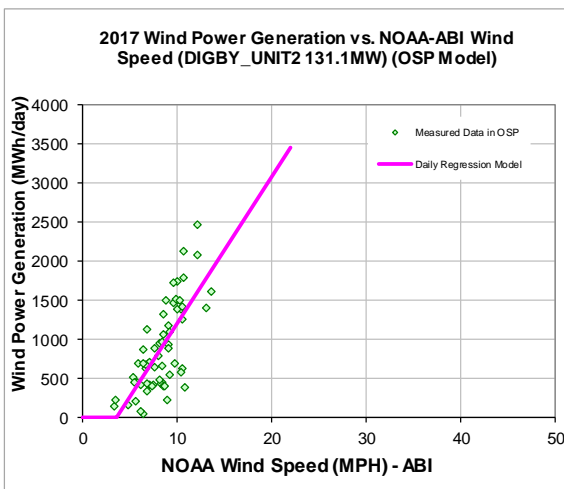
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-683.79
Left Slope (MWh/mph-day)	188.36
RMSE (MWh/day)	388.89
R2	0.52
CV-RMSE	44.1%
Daily Maximum (MWh/day)	3146

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
570,760	517,294

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
964	891

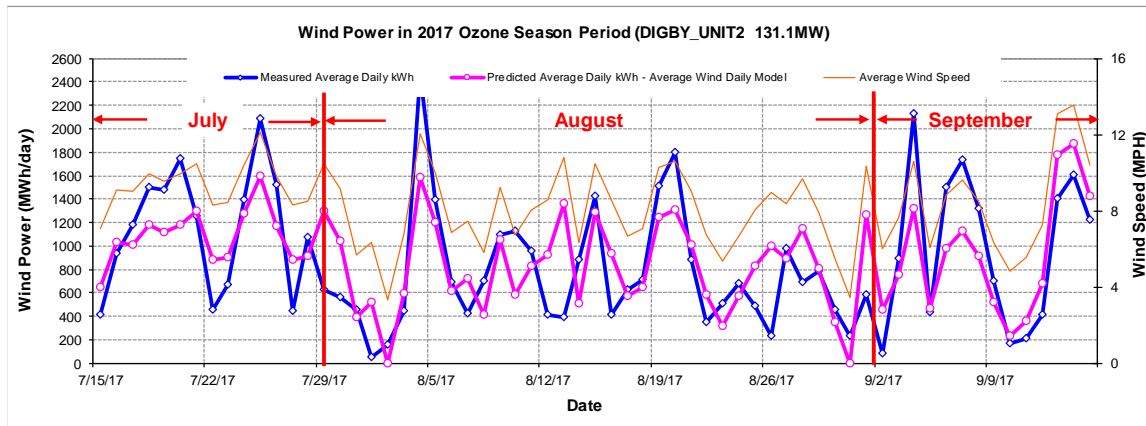
Figure 10-104: DIGBY\_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	47,824	44,354	7.26%	49%	45%
Feb-17	28	11.23	45,210	43,683	3.38%	51%	50%
Mar-17	31	12.96	53,262	56,504	-6.09%	55%	58%
Apr-17	30	13.49	53,661	57,860	-7.83%	57%	61%
May-17	31	11.55	49,137	50,011	-1.78%	50%	51%
Jun-17	30	10.72	43,663	44,325	-1.52%	46%	47%
Jul-17	31	9.17	31,437	34,956	-11.19%	32%	36%
Aug-17	31	7.87	24,202	24,795	-2.45%	25%	25%
Sep-17	30	9.51	34,695	35,300	-1.74%	37%	37%
Oct-17	31	11.24	50,791	45,315	10.78%	52%	46%
Nov-17	30	10.21	45,181	41,839	7.40%	48%	44%
Dec-17	31	9.14	38,230	37,821	1.07%	39%	39%
<b>Total</b>	<b>365</b>	<b>10.61</b>	<b>517,294</b>	<b>516,764</b>	<b>0.10%</b>	<b>45%</b>	<b>45%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>55,591</b>	<b>55,679</b>	<b>-0.16%</b>	<b>28%</b>	<b>28%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

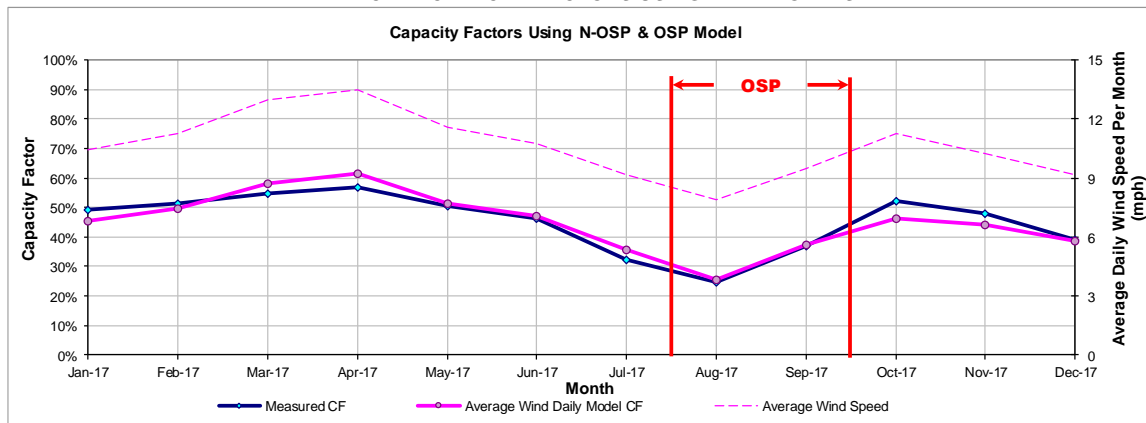


Figure 10-105: DIGBY\_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.27 Falvez Astra Wind

10.27.1 Falvez Astra Wind - ASTRA\_UNIT1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
ASTRA_UNIT1	Wind	Amarillo	DEAF SMITH	Falvez Energy	Falvez Astra Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
68 GE 2.4 MW	ERCOT	W	May-17	Panhandle	AMA	163.2

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

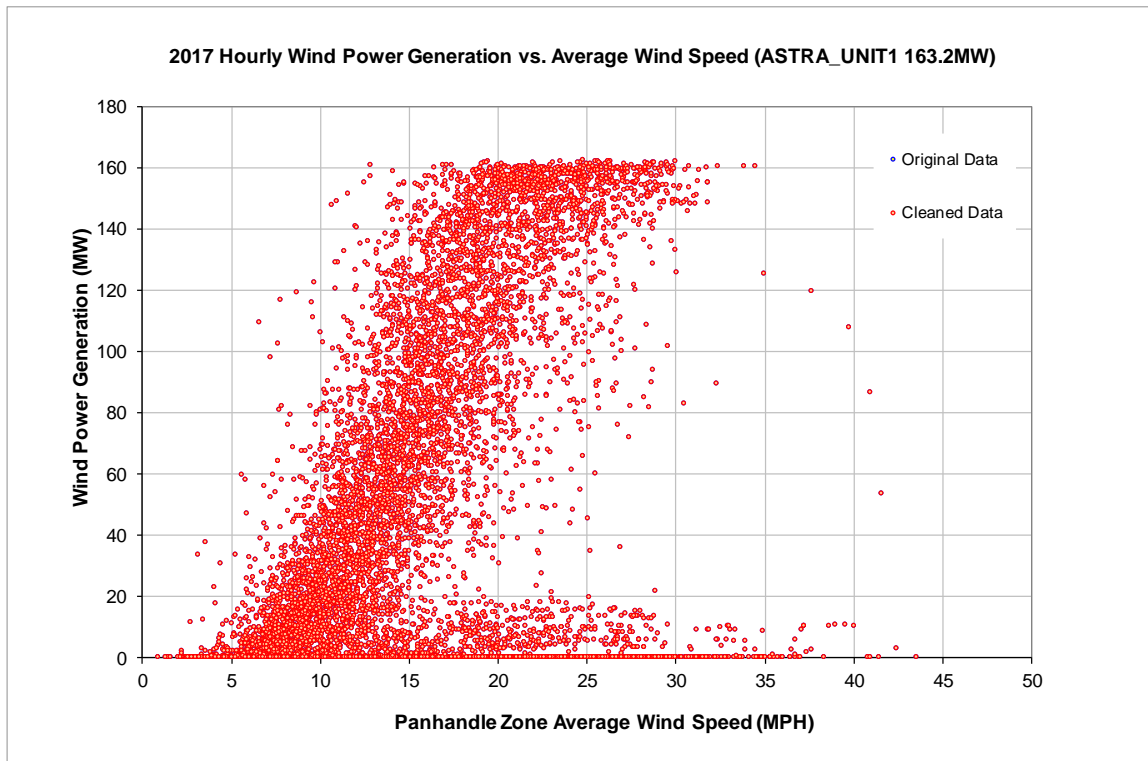


Figure 10-106: ASTRA\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

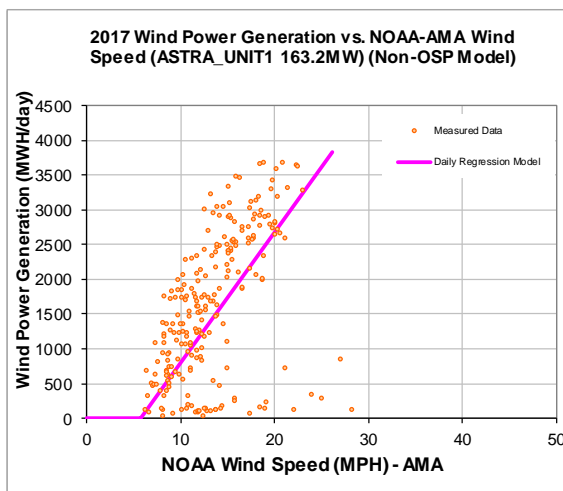
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-78.73
Left Slope (MWh/mph-day)	125.13
RMSE (MWh/day)	885.26
R2	0.26
CV-RMSE	55.0%
Daily Maximum (MWh/day)	3917

**OSP Model:**

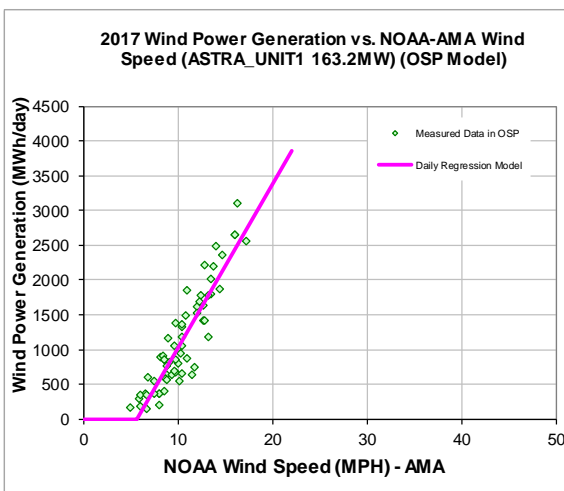
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-1344.21
Left Slope (MWh/mph-day)	236.82
RMSE (MWh/day)	301.36
R2	0.83
CV-RMSE	26.8%
Daily Maximum (MWh/day)	3917

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
596,074	449,449

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
1,296	1,140

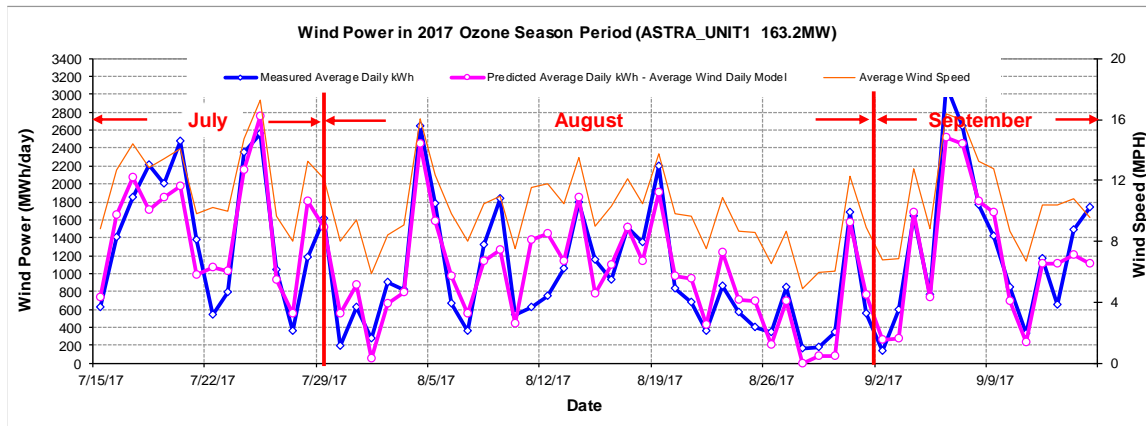
Figure 10-107: ASTRA\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	#DIV/0!	0	0	#DIV/0!	0%	0%
Feb-17	28	#DIV/0!	0	0	#DIV/0!	0%	0%
Mar-17	31	14.70	4,340	51,060	-1076.42%	4%	42%
Apr-17	30	15.99	42,946	51,895	-20.84%	37%	44%
May-17	31	13.42	59,774	49,610	17.00%	49%	41%
Jun-17	30	13.20	48,347	47,186	2.40%	41%	40%
Jul-17	31	11.40	36,596	38,278	-4.60%	30%	32%
Aug-17	31	9.62	28,717	29,101	-1.34%	24%	24%
Sep-17	30	11.96	44,694	41,589	6.95%	38%	35%
Oct-17	31	14.04	67,357	52,024	22.76%	55%	43%
Nov-17	30	12.81	63,780	45,726	28.31%	54%	39%
Dec-17	31	11.76	52,899	43,160	18.41%	44%	36%
<b>Total</b>	<b>365</b>	<b>12.85</b>	<b>449,449</b>	<b>449,629</b>	<b>-0.04%</b>	<b>31%</b>	<b>31%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>70,945</b>	<b>71,125</b>	<b>-0.25%</b>	<b>29%</b>	<b>29%</b>

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

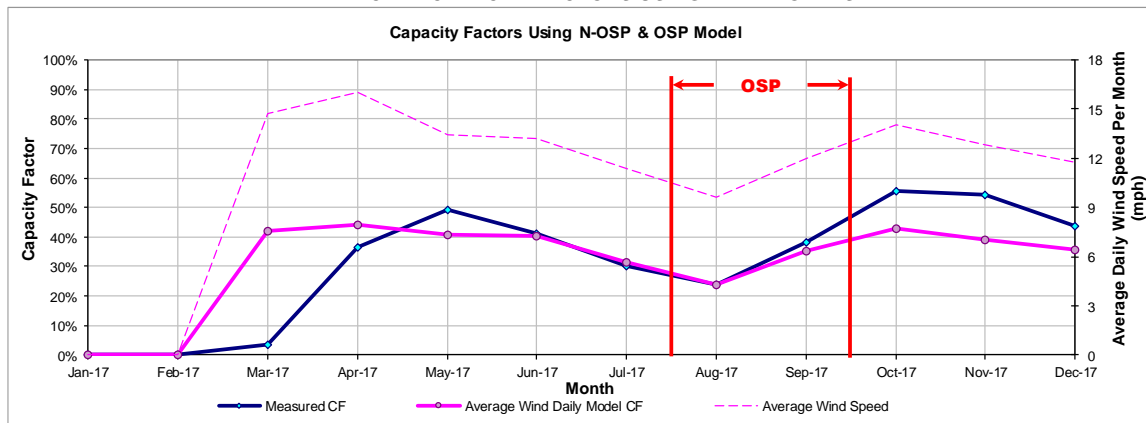


Figure 10-108: ASTRA\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.28 Forest Creek Wind Farm

10.28.1 Forest Creek Wind Farm - MCDLD\_FCW1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
MCDLD_FCW1	Wind	Abilene	STERLING	E.On Climate & Renewables	Forest Creek Wind Farm

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
54 Siemens 2.3 MW	ERCOT	W	Dec-06	West	ABI	124.2

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

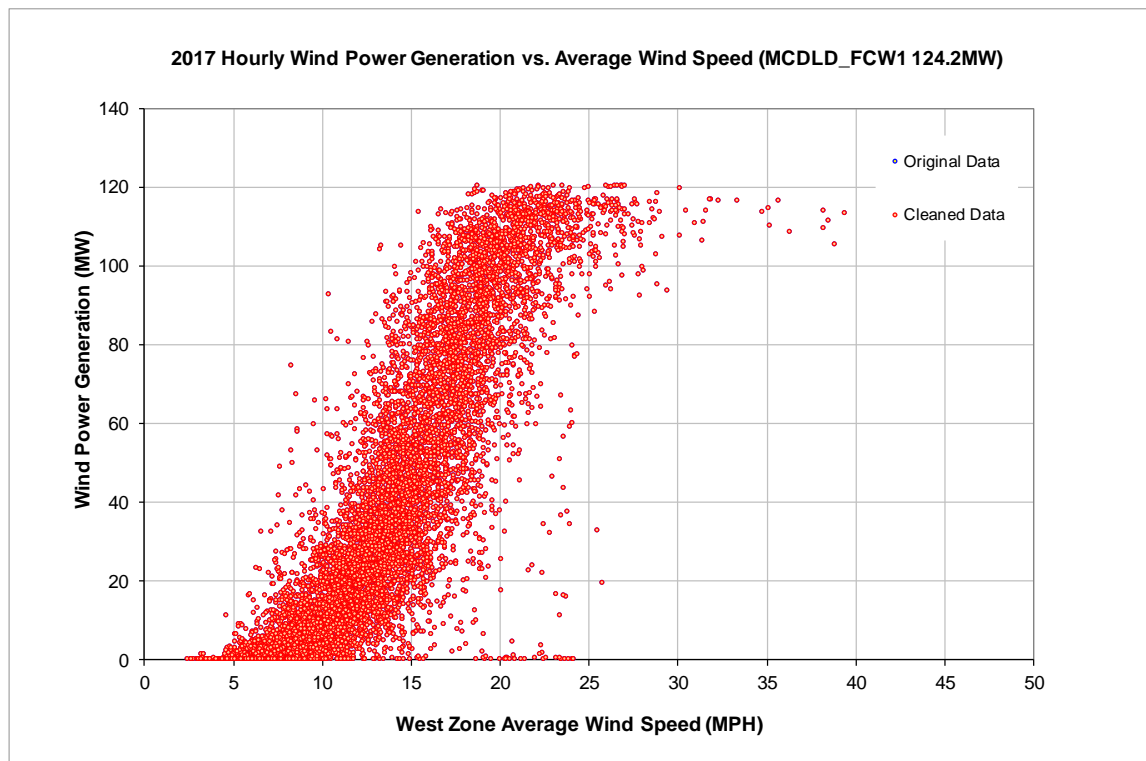


Figure 10-109: MCDLD\_FCW1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

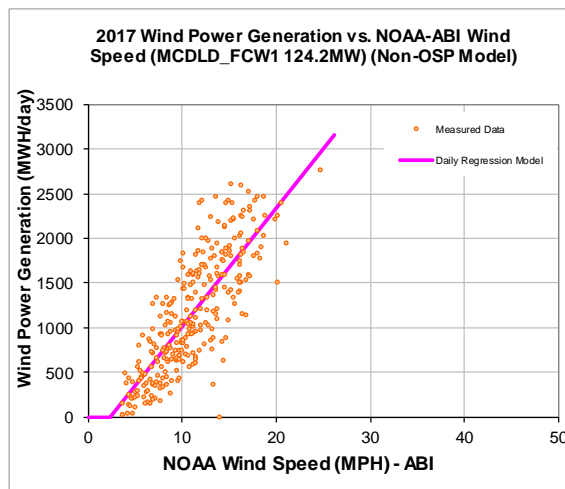
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-311.14
Left Slope (MWh/mph-day)	132.93
RMSE (MWh/day)	388.05
R2	0.65
CV-RMSE	33.4%
Daily Maximum (MWh/day)	2981

**OSP Model:**

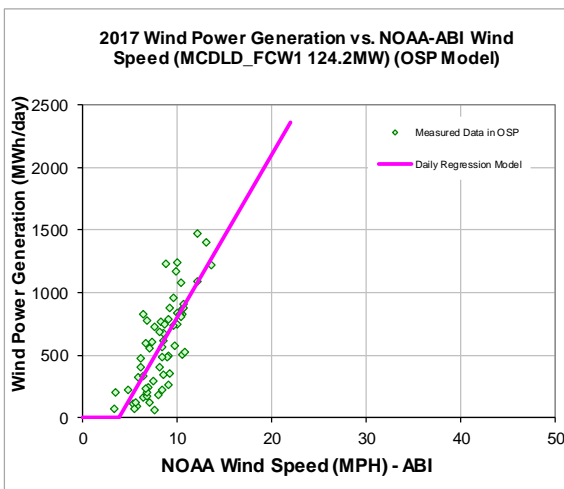
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-494.61
Left Slope (MWh/mph-day)	130.01
RMSE (MWh/day)	234.09
R2	0.59
CV-RMSE	39.9%
Daily Maximum (MWh/day)	2981

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
428,826	386,746

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
643	598

Figure 10-110: MCDLD\_FCW1 - Model Coefficients (Using Non-OSP and OSP Data)

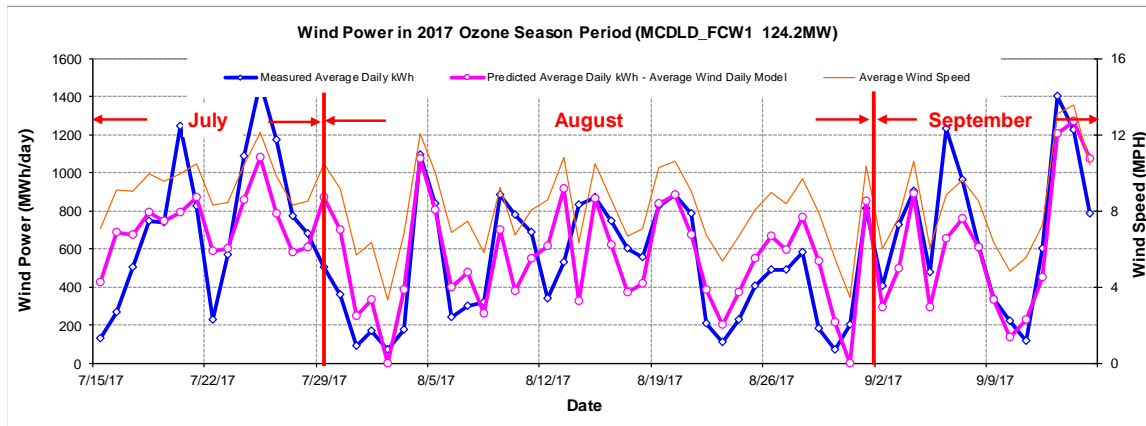


**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	37,305	33,350	10.60%	40%	36%
Feb-17	28	11.23	33,911	33,071	2.48%	41%	40%
Mar-17	31	12.96	45,627	43,752	4.11%	49%	47%
Apr-17	30	13.49	42,957	44,451	-3.48%	48%	50%
May-17	31	11.55	36,438	37,959	-4.17%	39%	41%
Jun-17	30	10.72	30,525	33,412	-9.46%	34%	37%
Jul-17	31	9.17	24,228	24,570	-1.41%	26%	27%
Aug-17	31	7.87	15,374	16,435	-6.90%	17%	18%
Sep-17	30	9.51	27,030	25,510	5.62%	30%	29%
Oct-17	31	11.07	36,298	35,965	0.92%	39%	39%
Nov-17	30	10.21	30,513	31,385	-2.86%	34%	35%
Dec-17	31	9.11	26,541	26,993	-1.71%	29%	29%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>386,746</b>	<b>386,852</b>	<b>-0.03%</b>	<b>36%</b>	<b>36%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>36,944</b>	<b>37,050</b>	<b>-0.29%</b>	<b>20%</b>	<b>20%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

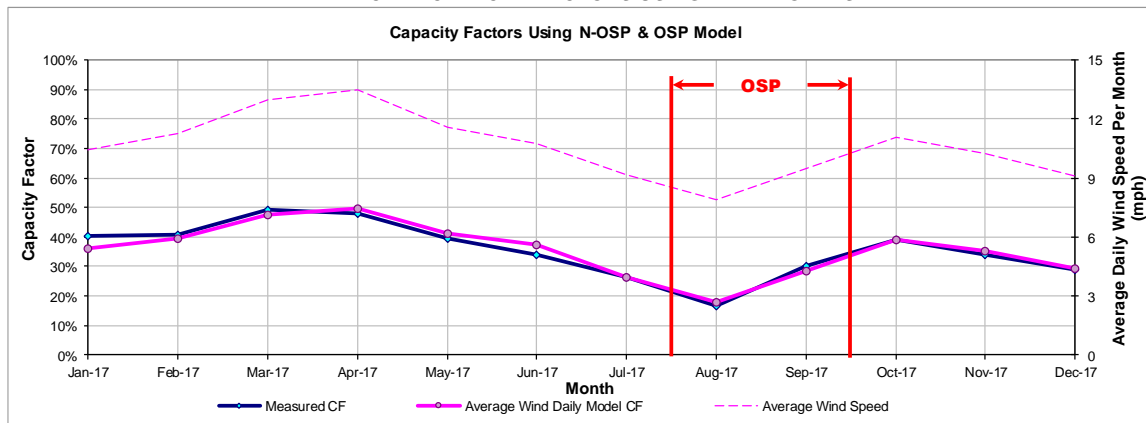


Figure 10-111: MCDLD\_FCW1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.29 Goat Wind

10.29.1 Goat Wind - GOAT\_GOATWIND

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
GOAT_GOATWIND	Wind	-	STERLING	Edison Mission Group	Goat Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
80 Mitsubishi 1 MW 29 Mitsubishi MWT-92 2.4 MW	ERCOT	W	Apr-08	West	SJT	149.6

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

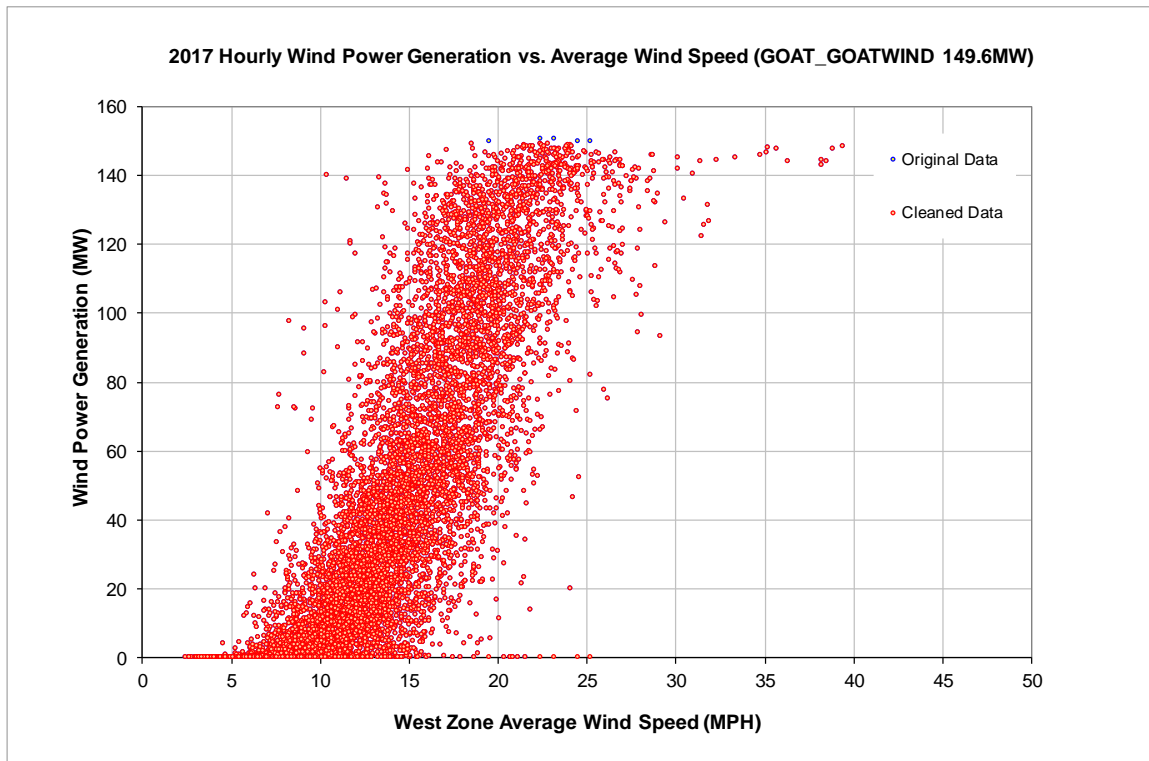


Figure 10-112: GOAT\_GOATWIND - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

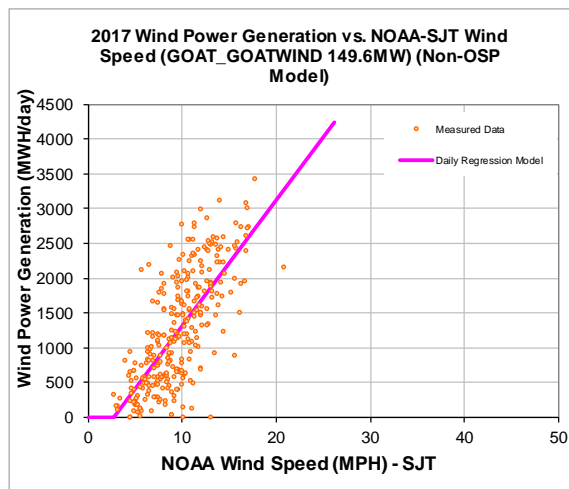
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-476.74
Left Slope (MWh/mph-day)	180.54
RMSE (MWh/day)	561.49
R2	0.52
CV-RMSE	44.7%
Daily Maximum (MWh/day)	3590

**OSP Model:**

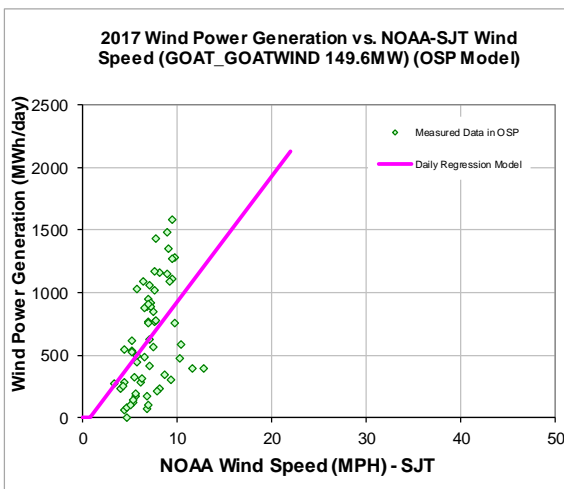
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-73.44
Left Slope (MWh/mph-day)	100.17
RMSE (MWh/day)	374.50
R2	0.21
CV-RMSE	59.2%
Daily Maximum (MWh/day)	3590

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
426,248	416,701

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
629	644

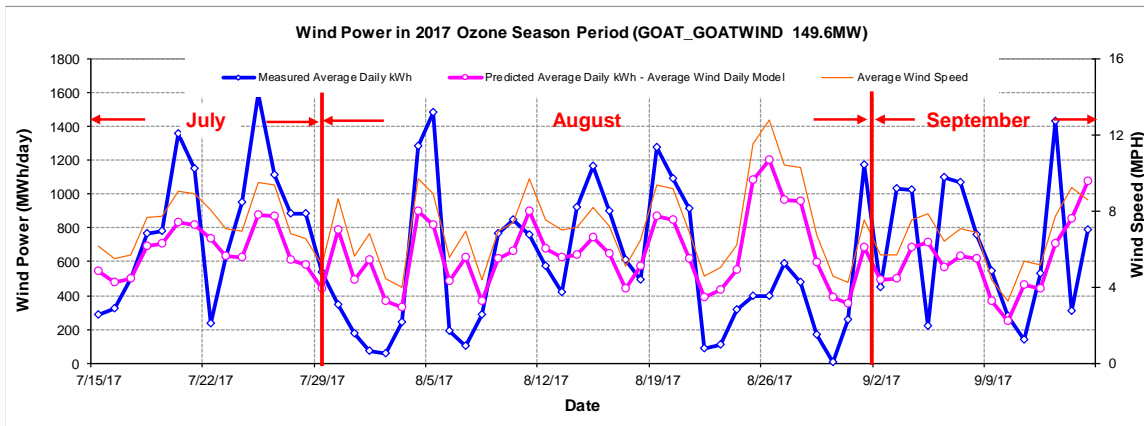
Figure 10-113: GOAT\_GOATWIND - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (SJT) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	9.99	37,409	41,144	-9.98%	34%	37%
Feb-17	28	9.86	35,122	36,481	-3.87%	35%	36%
Mar-17	31	10.72	50,608	45,221	10.64%	45%	41%
Apr-17	30	11.75	47,458	49,324	-3.93%	44%	46%
May-17	31	9.98	39,946	41,069	-2.81%	36%	37%
Jun-17	30	8.63	31,125	32,421	-4.16%	29%	30%
Jul-17	31	7.50	25,870	24,087	6.89%	23%	22%
Aug-17	31	7.30	17,150	20,395	-18.92%	15%	18%
Sep-17	30	7.69	25,712	25,860	-0.57%	24%	24%
Oct-17	31	8.76	41,743	34,238	17.98%	38%	31%
Nov-17	30	9.02	37,635	34,549	8.20%	35%	32%
Dec-17	31	8.74	26,922	31,912	-18.53%	24%	29%
<b>Total</b>	<b>365</b>	<b>9.16</b>	<b>416,701</b>	<b>416,701</b>	<b>0.00%</b>	<b>32%</b>	<b>32%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>7.05</b>	<b>39,882</b>	<b>39,882</b>	<b>0.00%</b>	<b>18%</b>	<b>18%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

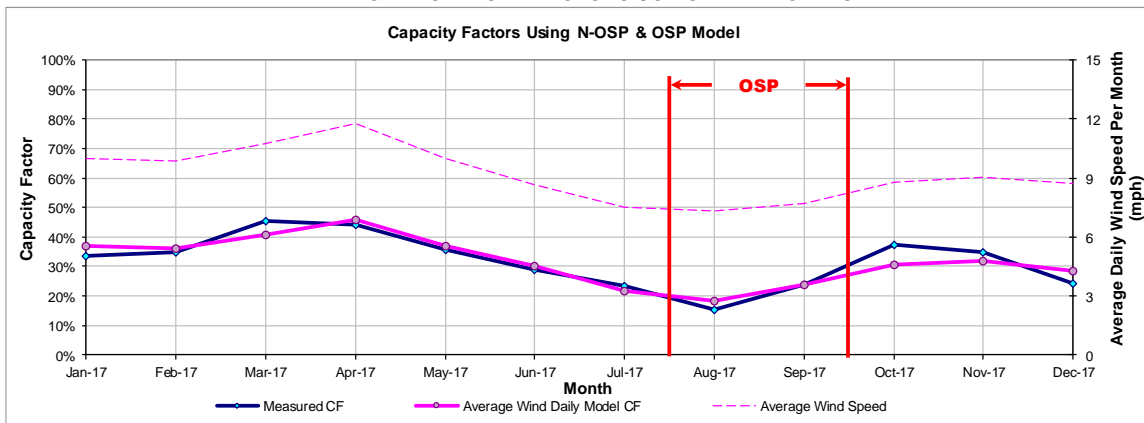


Figure 10-114: GOAT\_GOATWIND - Predicted Wind Power and Capacity Factor Using Daily Models

10.30 Goldthwaite Wind Energy

10.30.1 Goldthwaite Wind Energy - GWEC\_GWEC\_G1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
GWEC_GWEC_G1	Wind	-	MILLS	Invenergy	Goldthwaite Wind Energy

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
3 GE 2.5 MW 83 GE 1.7 MW	ERCOT	N	Jun-14	North	DFW	148.6

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

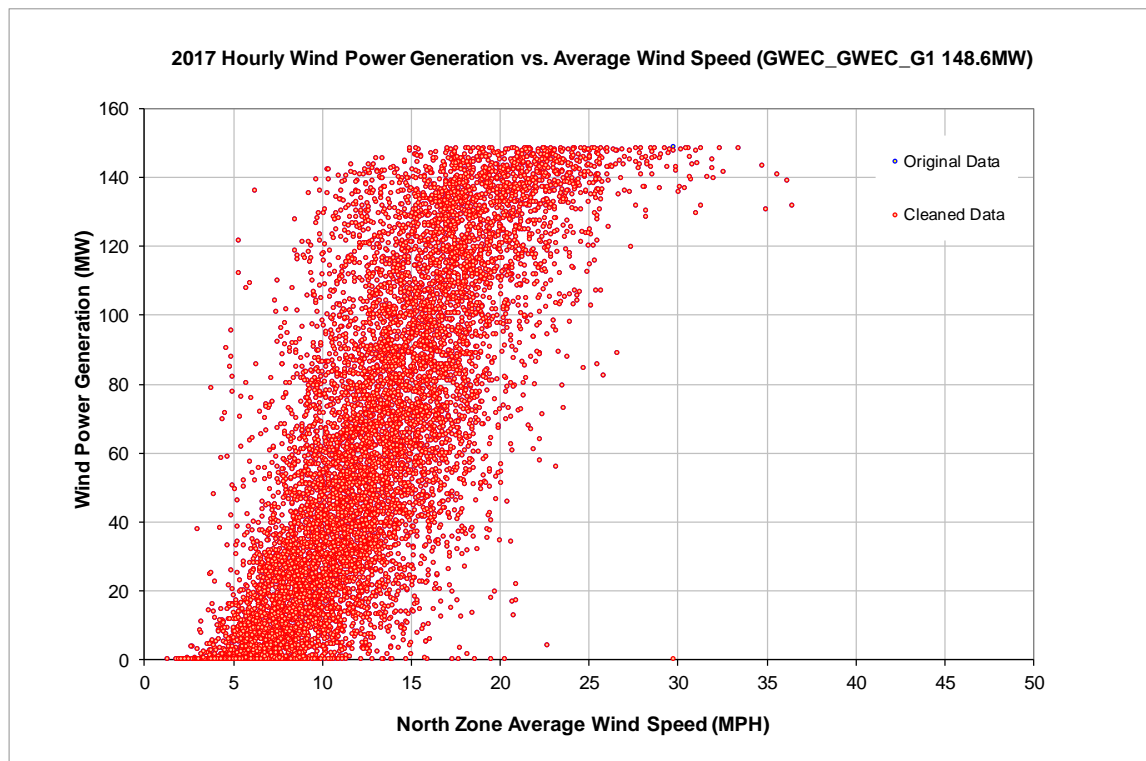


Figure 10-115: GWEC\_GWEC\_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

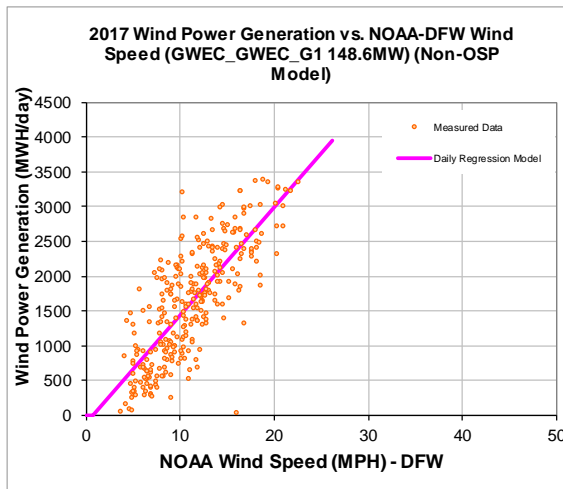
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-107.14
Left Slope (MWh/mph-day)	155.33
RMSE (MWh/day)	511.26
R2	0.60
CV-RMSE	31.4%
Daily Maximum (MWh/day)	3566

**OSP Model:**

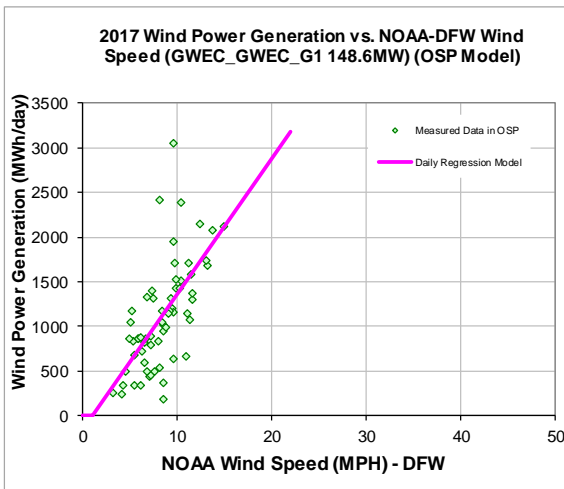
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-164.10
Left Slope (MWh/mph-day)	151.75
RMSE (MWh/day)	458.06
R2	0.42
CV-RMSE	41.4%
Daily Maximum (MWh/day)	3566

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
599,647	560,984

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
1,176	1,118

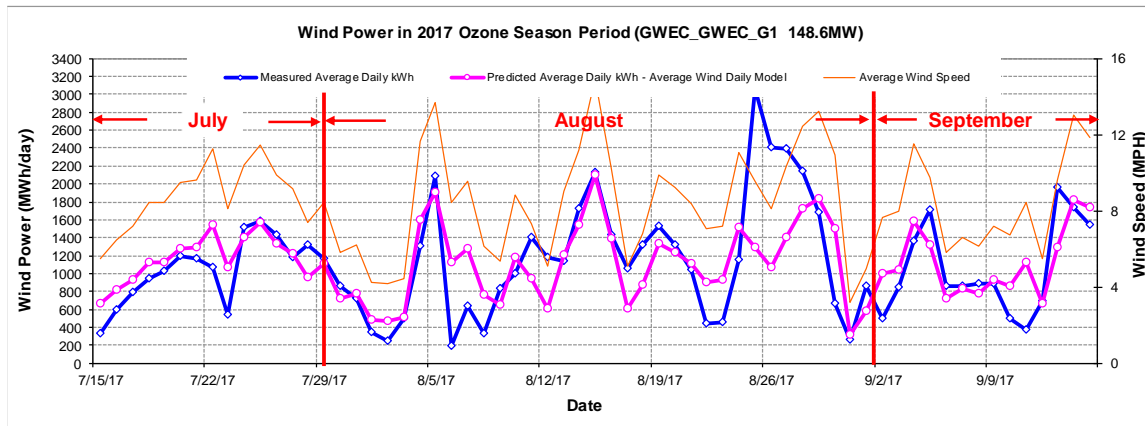
Figure 10-116: GWEC\_GWEC\_G1 - Model Coefficients (Using Non-OSP and OSP Data)

COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (DFW) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.24	56,730	50,805	10.44%	51%	46%
Feb-17	28	12.70	52,201	52,253	-0.10%	52%	52%
Mar-17	31	12.60	59,373	57,336	3.43%	54%	52%
Apr-17	30	13.20	59,028	58,317	1.21%	55%	55%
May-17	31	12.08	54,382	54,863	-0.89%	49%	50%
Jun-17	30	10.33	39,236	44,945	-14.55%	37%	42%
Jul-17	31	8.66	33,896	36,877	-8.79%	31%	33%
Aug-17	31	8.71	37,861	35,866	5.27%	34%	32%
Sep-17	30	8.87	33,775	36,854	-9.12%	32%	34%
Oct-17	31	10.28	49,786	46,158	7.29%	45%	42%
Nov-17	30	10.17	42,267	44,162	-4.48%	40%	41%
Dec-17	31	9.53	42,449	42,547	-0.23%	38%	38%
<b>Total</b>	<b>365</b>	<b>10.68</b>	<b>560,984</b>	<b>560,984</b>	<b>0.00%</b>	<b>43%</b>	<b>43%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.37</b>	<b>69,722</b>	<b>69,722</b>	<b>0.00%</b>	<b>31%</b>	<b>31%</b>

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

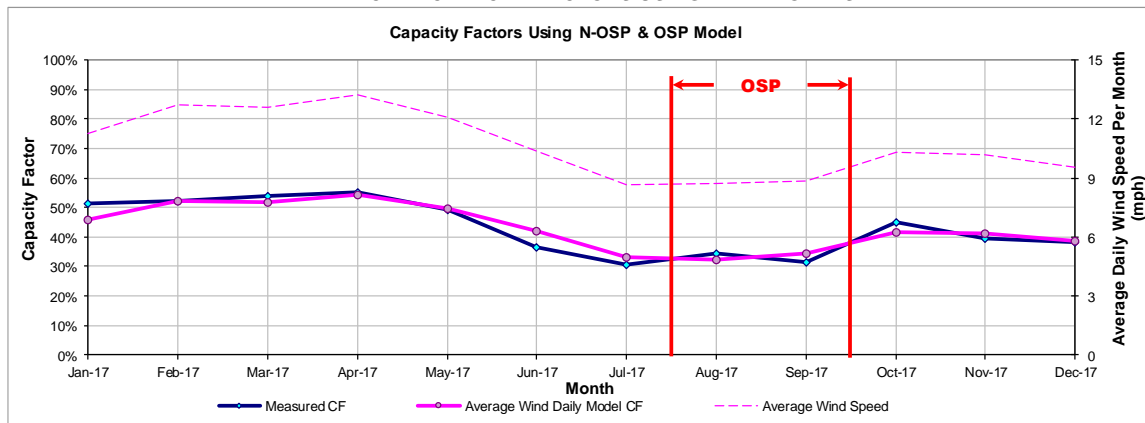


Figure 10-117: GWEC\_GWEC\_G1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.31 Grandview Phase 1 (Conway Windfarm)

10.31.1 Grandview Phase 1 (Conway Windfarm) - GRANDVW1\_GV1A

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
GRANDVW1_GV1A	Wind	Amarillo	CARSON	E.ON Climate & Renewables	Grandview Phase 1 (Conway Windfarm)

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
59 GE 1.7-100 wind turbine	ERCOT	W	Dec-14	Panhandle	AMA	107.4

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

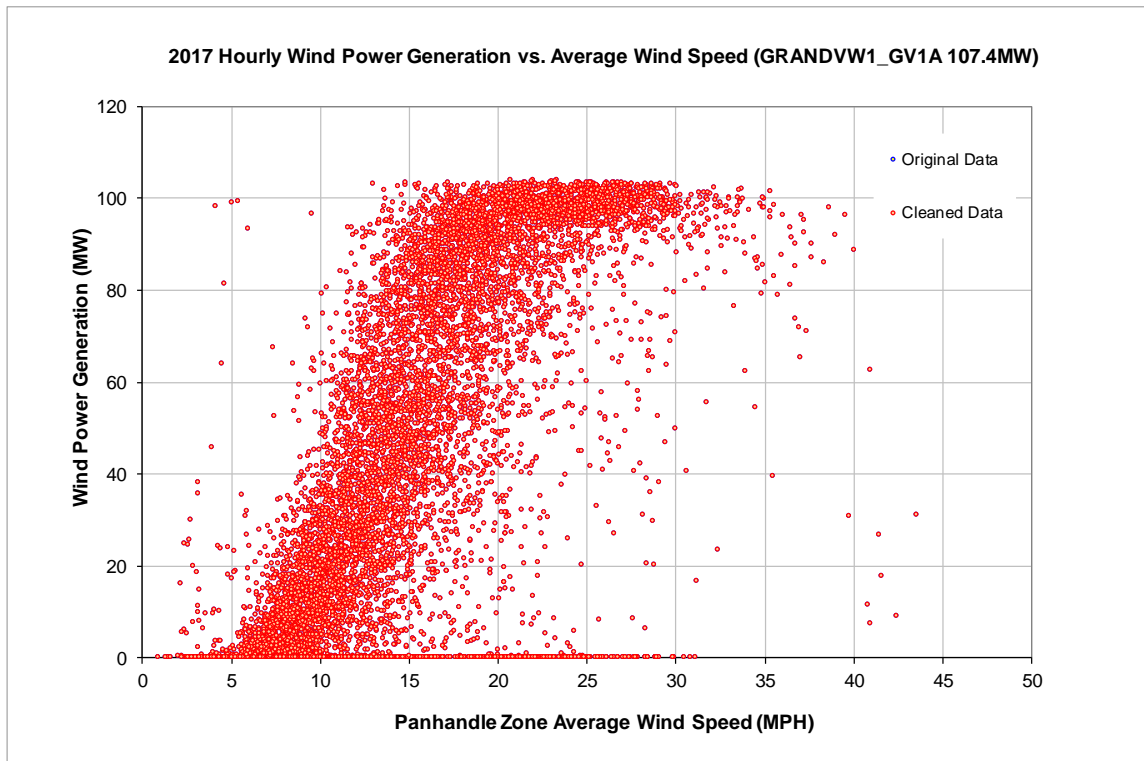


Figure 10-118: GRANDVW1\_GV1A - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

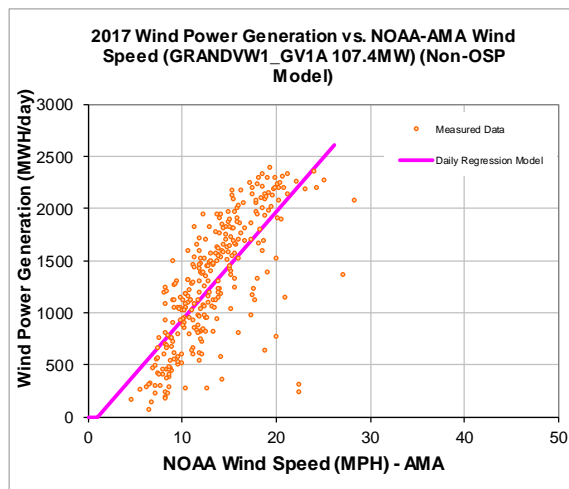
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-93.50
Left Slope (MWh/mph-day)	103.58
RMSE (MWh/day)	396.83
R2	0.55
CV-RMSE	30.9%
Daily Maximum (MWh/day)	2578

**OSP Model:**

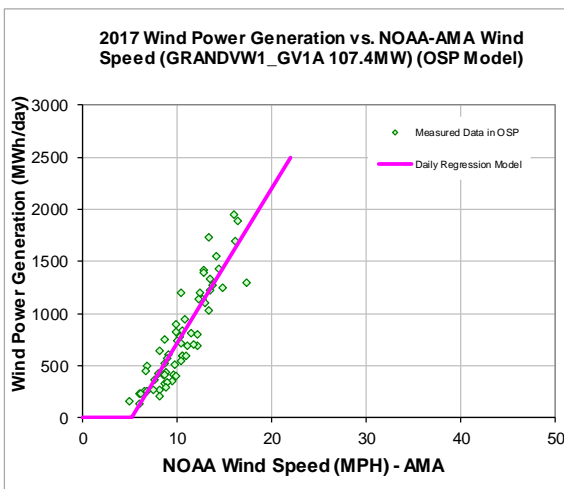
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-773.78
Left Slope (MWh/mph-day)	148.43
RMSE (MWh/day)	202.52
R2	0.81
CV-RMSE	26.1%
Daily Maximum (MWh/day)	2578

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
472,525	426,381

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
878	781

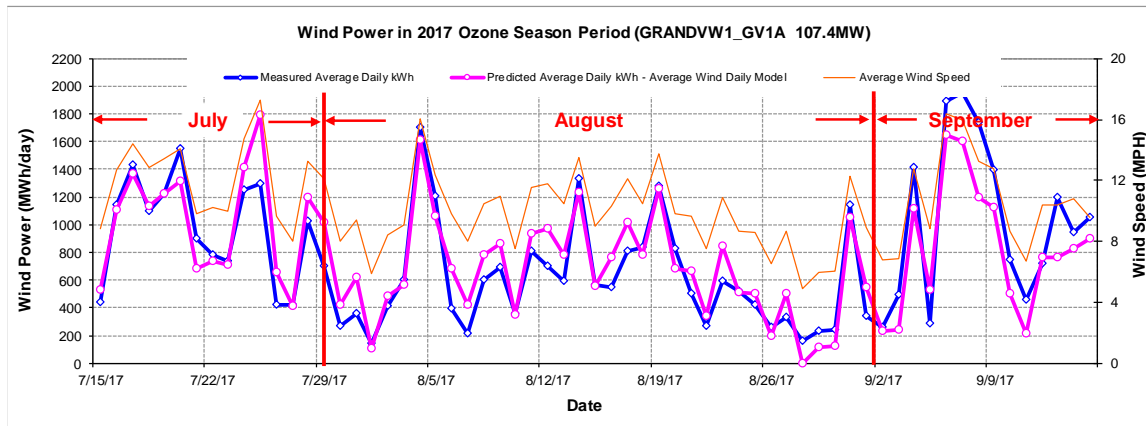
Figure 10-119: GRANDVW1\_GV1A - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.28	39,360	36,535	7.18%	49%	46%
Feb-17	28	13.17	40,704	35,568	12.62%	56%	49%
Mar-17	31	14.31	47,983	42,792	10.82%	60%	54%
Apr-17	30	15.90	47,791	46,459	2.79%	62%	60%
May-17	31	13.42	42,175	40,186	4.72%	53%	50%
Jun-17	30	13.20	32,215	38,208	-18.60%	42%	49%
Jul-17	31	11.35	26,359	30,847	-17.03%	33%	39%
Aug-17	31	9.62	18,500	20,300	-9.73%	23%	25%
Sep-17	30	11.96	31,693	31,394	0.94%	41%	41%
Oct-17	31	14.29	22,610	31,892	-41.05%	28%	40%
Nov-17	30	12.81	37,826	36,999	2.19%	49%	48%
Dec-17	31	11.76	39,164	34,847	11.02%	49%	44%
<b>Total</b>	<b>365</b>	<b>12.80</b>	<b>426,381</b>	<b>426,027</b>	<b>0.08%</b>	<b>45%</b>	<b>45%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>48,793</b>	<b>48,837</b>	<b>-0.09%</b>	<b>30%</b>	<b>30%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

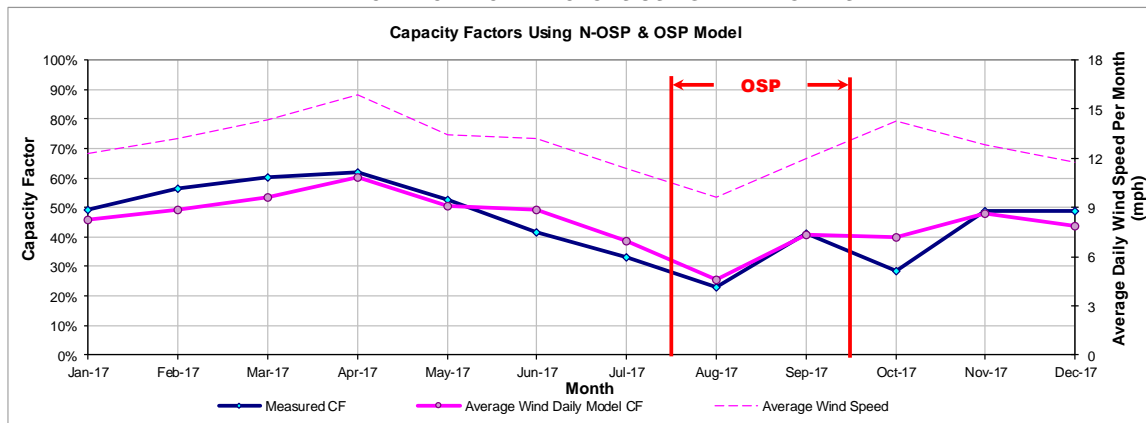


Figure 10-120: GRANDVW1\_GV1A - Predicted Wind Power and Capacity Factor Using Daily Models

10.31.2 Grandview Phase 1 (Conway Windfarm) - GRANDVW1\_GV1B

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
GRANDVW1_GV1B	Wind	Amarillo	CARSON	E.ON Climate & Renewables	Grandview Phase 1 (Conway Windfarm)

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
59 GE 1.7-100 wind turbine	ERCOT	W	Dec-14	Panhandle	AMA	103.8

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

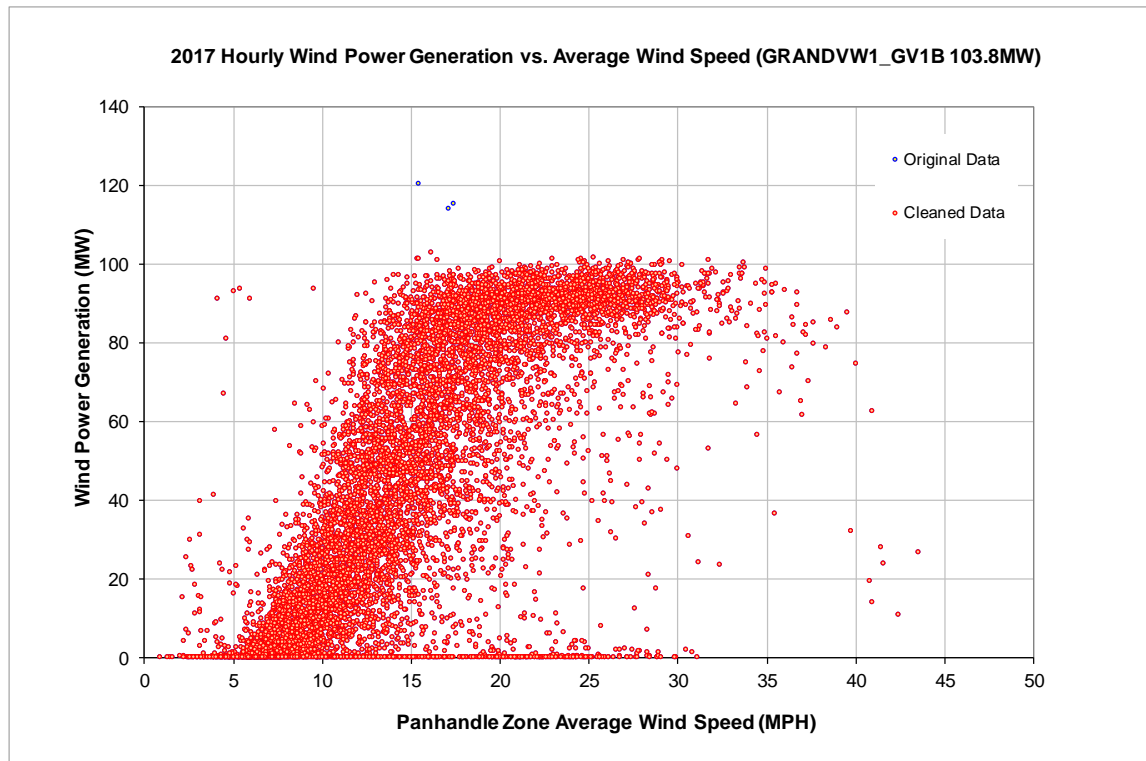


Figure 10-121: GRANDVW1\_GV1B - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

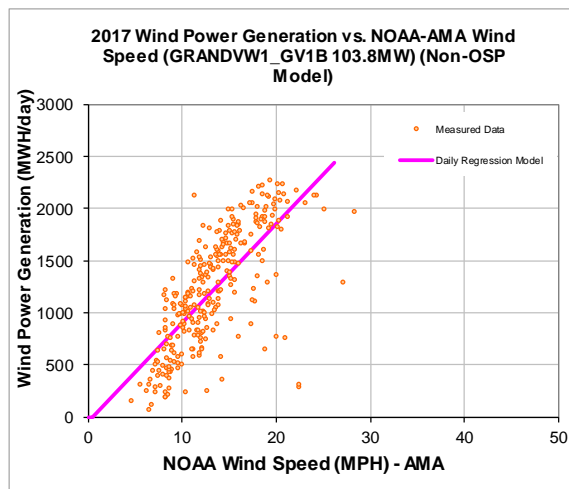
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-34.57
Left Slope (MWh/mph-day)	95.06
RMSE (MWh/day)	379.97
R2	0.53
CV-RMSE	30.9%
Daily Maximum (MWh/day)	2491

**OSP Model:**

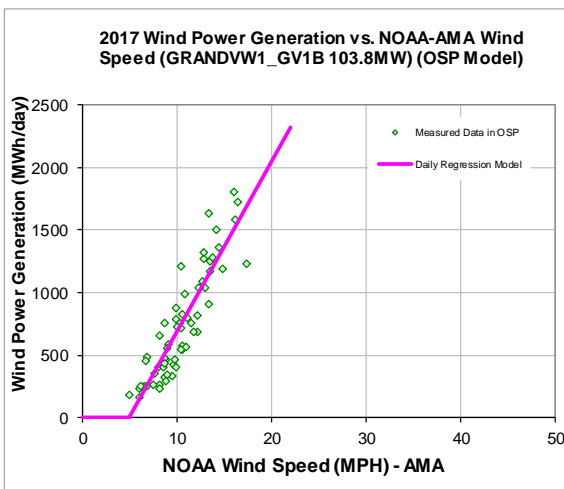
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-673.99
Left Slope (MWh/mph-day)	136.31
RMSE (MWh/day)	190.89
R2	0.80
CV-RMSE	25.5%
Daily Maximum (MWh/day)	2491

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
451,426	408,721

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
841	753

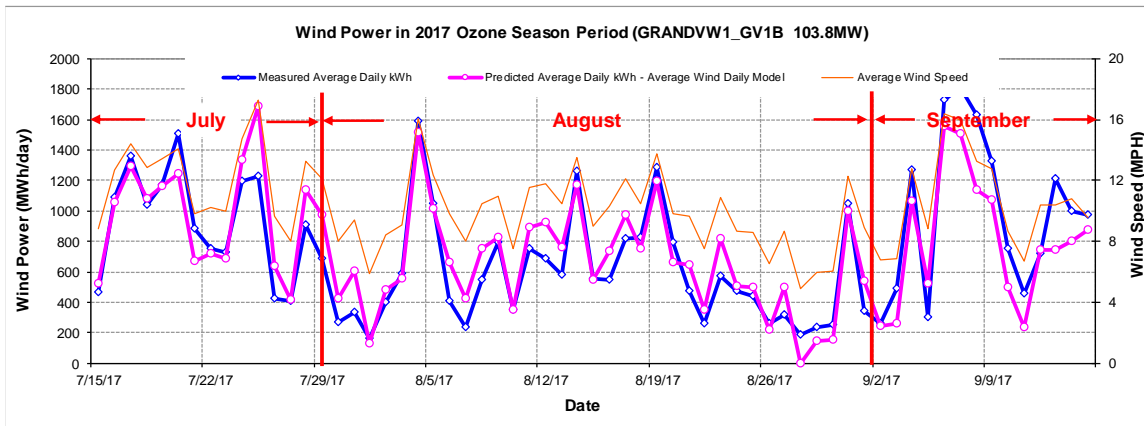
Figure 10-122: GRANDVW1\_GV1B - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.28	39,949	35,119	12.09%	52%	45%
Feb-17	28	13.17	40,158	34,078	15.14%	58%	49%
Mar-17	31	14.31	45,220	40,936	9.48%	59%	53%
Apr-17	30	15.90	44,878	44,250	1.40%	60%	59%
May-17	31	13.42	39,531	38,469	2.69%	51%	50%
Jun-17	30	13.20	30,354	36,603	-20.59%	41%	49%
Jul-17	31	11.35	25,789	29,661	-15.01%	33%	38%
Aug-17	31	9.62	18,033	19,743	-9.49%	23%	26%
Sep-17	30	11.96	30,999	30,139	2.78%	41%	40%
Oct-17	31	14.29	21,089	30,448	-44.38%	27%	39%
Nov-17	30	12.81	36,075	35,494	1.61%	48%	47%
Dec-17	31	11.76	36,646	33,570	8.39%	47%	43%
<b>Total</b>	<b>365</b>	<b>12.80</b>	<b>408,721</b>	<b>408,508</b>	<b>0.05%</b>	<b>45%</b>	<b>45%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>47,120</b>	<b>47,124</b>	<b>-0.01%</b>	<b>30%</b>	<b>30%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

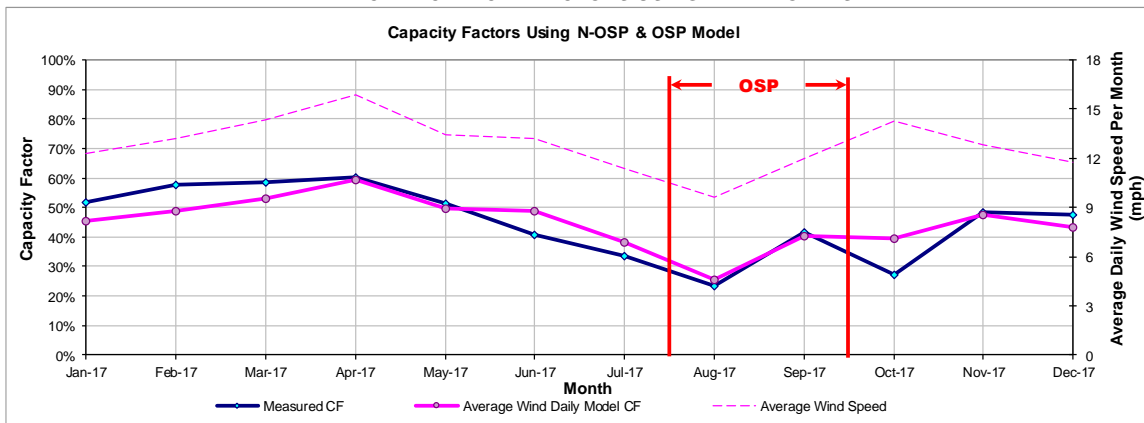


Figure 10-123: GRANDVW1\_GV1B - Predicted Wind Power and Capacity Factor Using Daily Models

10.32 Green Pastures W

10.32.1 Green Pastures W - GPASTURE\_WIND\_I

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
GPASTURE_WIND_I	Wind	-	KNOX	Capital Dynamics	Green Pastures W

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
50 Acciona 3 MW	ERCOT	W	Nov-15	West	ABI	150

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

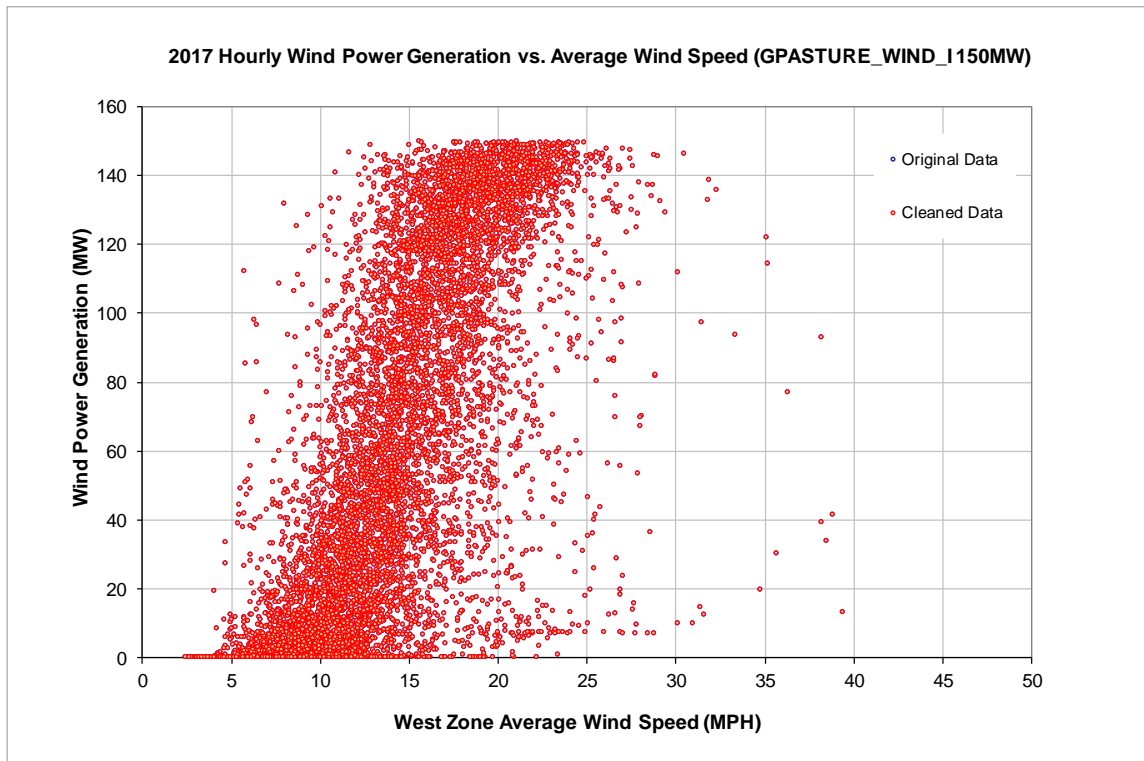


Figure 10-124: GPASTURE\_WIND\_I - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

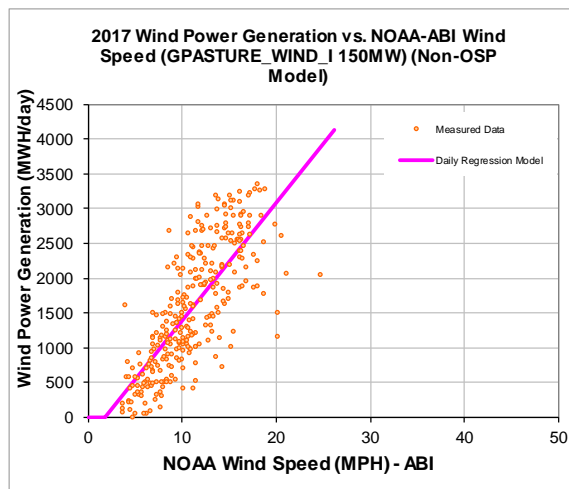
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-306.75
Left Slope (MWh/mph-day)	170.07
RMSE (MWh/day)	567.44
R2	0.59
CV-RMSE	36.0%
Daily Maximum (MWh/day)	3600

**OSP Model:**

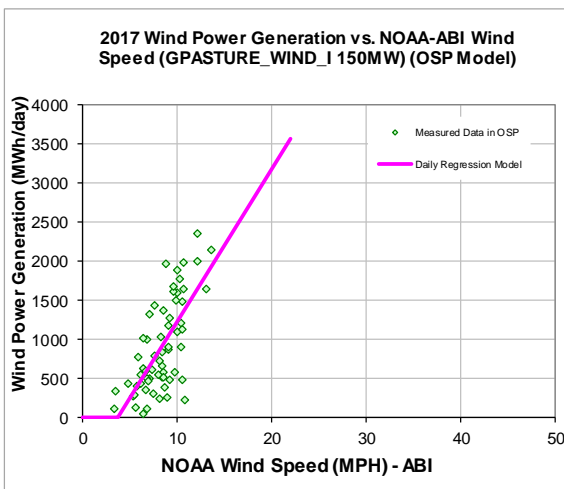
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-711.09
Left Slope (MWh/mph-day)	194.23
RMSE (MWh/day)	430.35
R2	0.49
CV-RMSE	47.6%
Daily Maximum (MWh/day)	3600

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
586,735	533,381

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
988	918

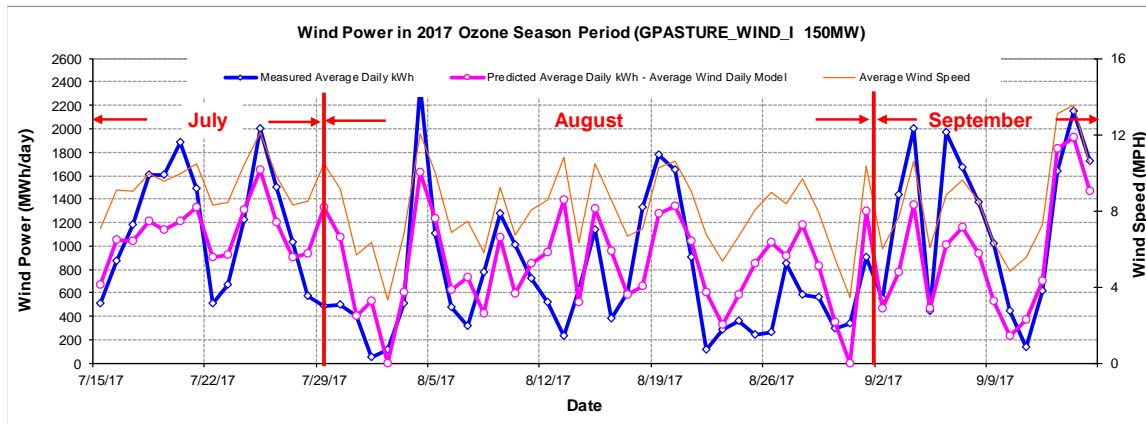
Figure 10-125: GPASTURE\_WIND\_I - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	42,507	45,501	-7.04%	38%	41%
Feb-17	28	11.23	46,910	44,869	4.35%	47%	45%
Mar-17	31	12.96	55,670	58,513	-5.11%	50%	52%
Apr-17	30	13.49	56,394	59,611	-5.70%	52%	55%
May-17	31	11.55	51,823	51,396	0.82%	46%	46%
Jun-17	30	10.72	43,387	45,488	-4.84%	40%	42%
Jul-17	31	9.17	33,535	35,794	-6.74%	30%	32%
Aug-17	31	7.87	21,820	25,387	-16.35%	20%	23%
Sep-17	30	9.51	40,499	36,212	10.59%	37%	34%
Oct-17	31	11.07	57,191	48,845	14.59%	51%	44%
Nov-17	30	10.21	46,170	42,895	7.09%	43%	40%
Dec-17	31	9.14	37,473	38,677	-3.21%	34%	35%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>533,381</b>	<b>533,188</b>	<b>0.04%</b>	<b>41%</b>	<b>41%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>56,944</b>	<b>57,047</b>	<b>-0.18%</b>	<b>25%</b>	<b>25%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

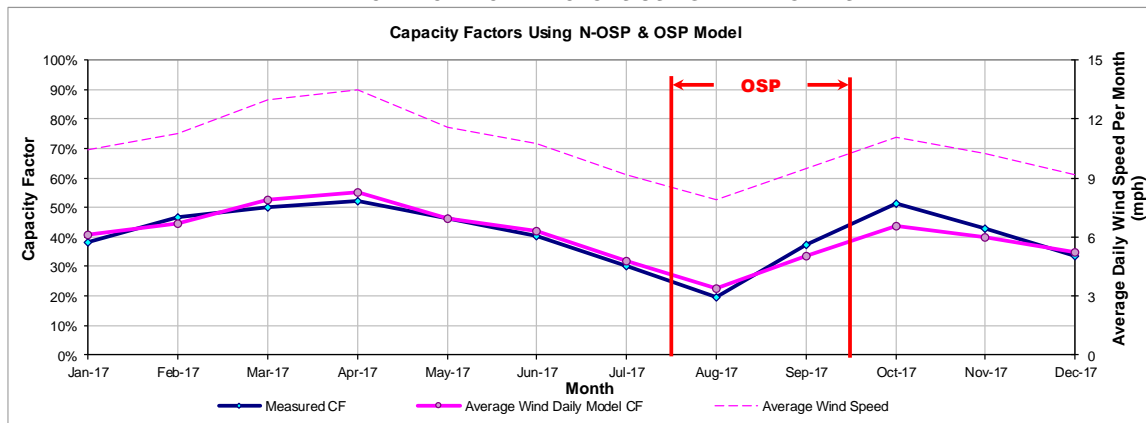


Figure 10-126: GPASTURE\_WIND\_I - Predicted Wind Power and Capacity Factor Using Daily Models



10.32.2 Green Pastures W - VERTIGO\_WIND\_I

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
VERTIGO_WIND_I	Wind	-	KNOX	Capital Dynamics	Green Pastures W

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
50 Acciona 3 MW	ERCOT	W	Nov-15	West	ABI	150

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

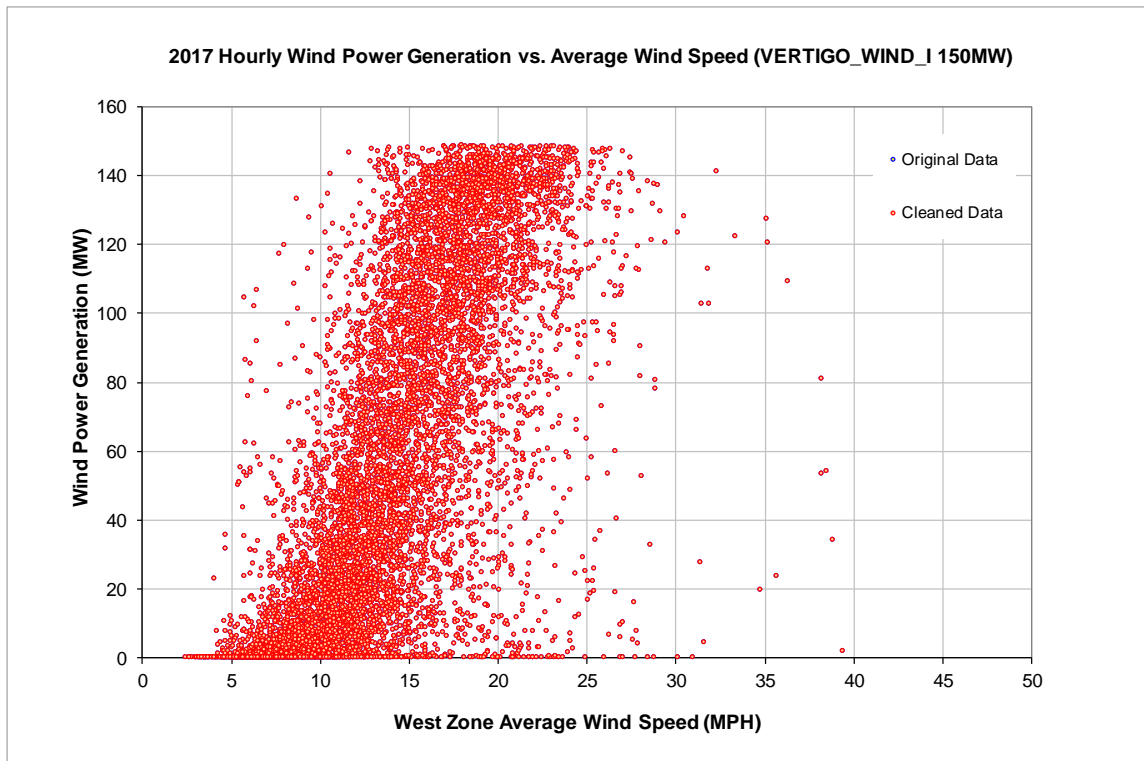


Figure 10-127: VERTIGO\_WIND\_I - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

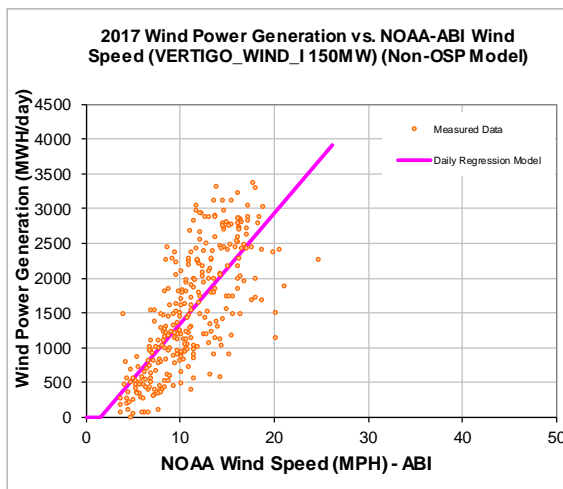
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-245.60
Left Slope (MWh/mph-day)	159.29
RMSE (MWh/day)	581.61
R2	0.54
CV-RMSE	38.3%
Daily Maximum (MWh/day)	3600

**OSP Model:**

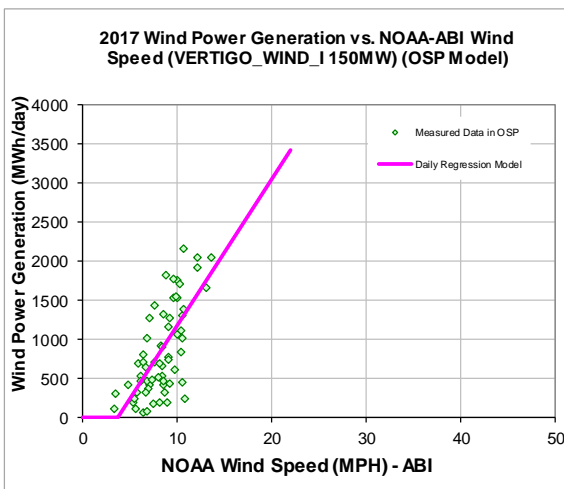
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-705.91
Left Slope (MWh/mph-day)	187.51
RMSE (MWh/day)	427.47
R2	0.47
CV-RMSE	50.1%
Daily Maximum (MWh/day)	3600

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
562,782	512,595

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
935	868

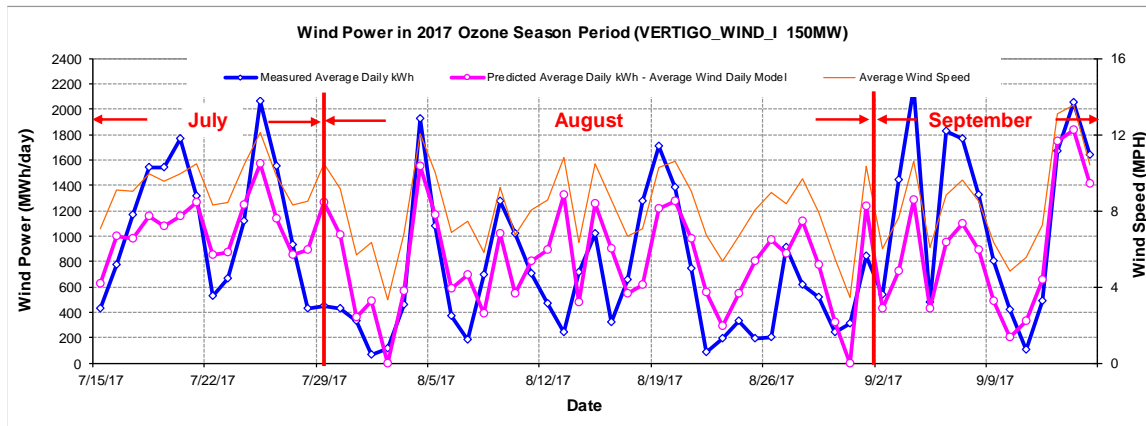
Figure 10-128: VERTIGO\_WIND\_I - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	40,788	43,910	-7.65%	37%	39%
Feb-17	28	11.23	44,268	43,194	2.43%	44%	43%
Mar-17	31	12.96	51,157	56,285	-10.02%	46%	50%
Apr-17	30	13.49	53,232	57,085	-7.24%	49%	53%
May-17	31	11.55	48,955	49,432	-0.98%	44%	44%
Jun-17	30	10.72	36,903	43,857	-18.84%	34%	41%
Jul-17	31	9.17	32,587	34,317	-5.31%	29%	31%
Aug-17	31	7.87	20,070	23,927	-19.22%	18%	21%
Sep-17	30	9.51	39,762	34,646	12.87%	37%	32%
Oct-17	31	11.07	56,452	47,043	16.67%	51%	42%
Nov-17	30	10.21	48,699	41,428	14.93%	45%	38%
Dec-17	31	9.14	39,722	37,519	5.55%	36%	34%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>512,595</b>	<b>512,643</b>	<b>-0.01%</b>	<b>39%</b>	<b>39%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>53,753</b>	<b>53,891</b>	<b>-0.26%</b>	<b>24%</b>	<b>24%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

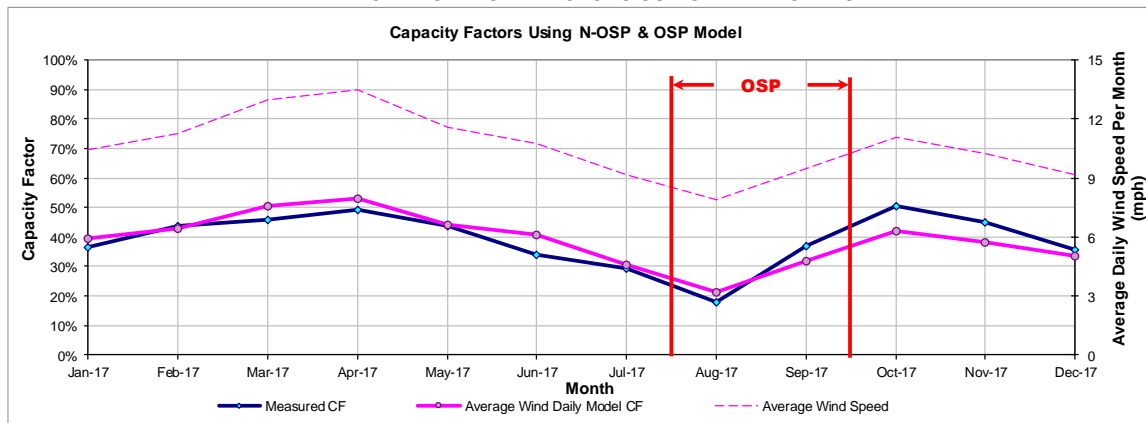


Figure 10-129: VERTIGO\_WIND\_I - Predicted Wind Power and Capacity Factor Using Daily Models

10.33 Gulf Wind

10.33.1 Gulf Wind - TGW\_T1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
TGW_T1	Wind	-	KENEDY	Babcock & Brown	Gulf Wind 1

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
59 Mitsubishi 2.4 MW	ERCOT	S	Nov-08	Coastal	CRP	141.6

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

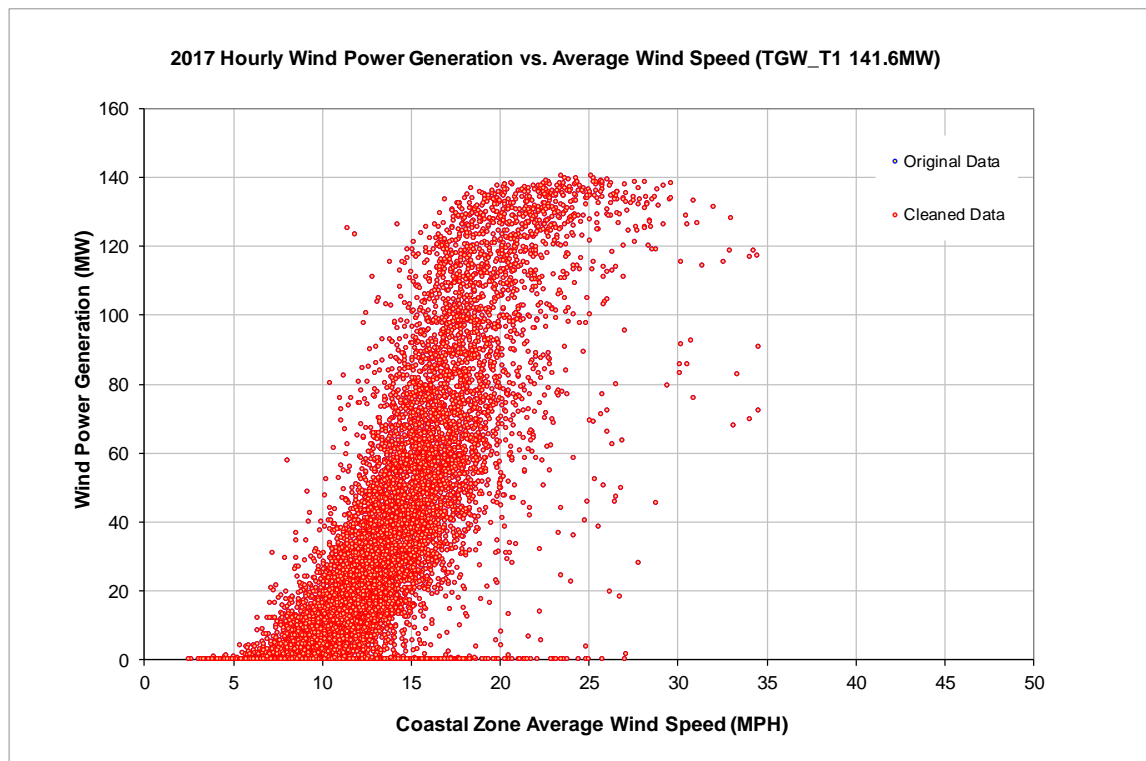


Figure 10-130: TGW\_T1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

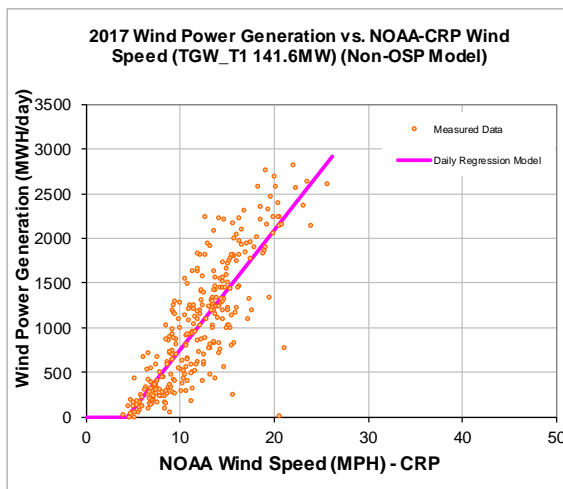
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-580.39
Left Slope (MWh/mph-day)	134.12
RMSE (MWh/day)	383.84
R2	0.69
CV-RMSE	37.8%
Daily Maximum (MWh/day)	3398

**OSP Model:**

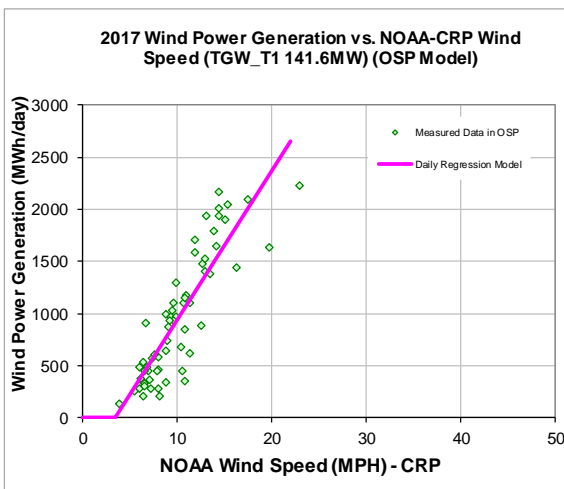
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-499.02
Left Slope (MWh/mph-day)	143.29
RMSE (MWh/day)	299.02
R2	0.76
CV-RMSE	31.1%
Daily Maximum (MWh/day)	3398

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
355,800	362,286

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
796	968

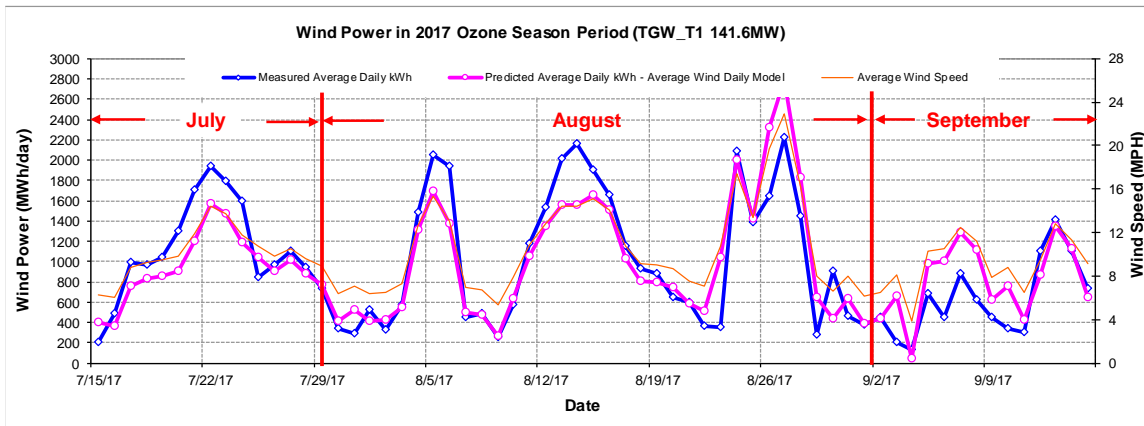
Figure 10-131: TGW\_T1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	34,829	36,968	-6.14%	33%	35%
Feb-17	28	13.29	29,921	33,646	-12.45%	31%	35%
Mar-17	31	14.29	35,840	41,433	-15.60%	34%	39%
Apr-17	30	14.70	42,152	41,729	1.00%	41%	41%
May-17	31	12.81	42,776	35,258	17.57%	41%	33%
Jun-17	30	9.21	25,698	19,627	23.62%	25%	19%
Jul-17	31	9.39	31,326	23,947	23.56%	30%	23%
Aug-17	31	11.11	34,316	33,874	1.29%	33%	32%
Sep-17	30	10.25	23,704	26,262	-10.79%	23%	26%
Oct-17	31	9.65	14,448	18,551	-28.40%	14%	18%
Nov-17	30	10.64	23,940	25,400	-6.10%	23%	25%
Dec-17	31	10.48	23,335	25,651	-9.93%	22%	24%
<b>Total</b>	<b>365</b>	<b>11.60</b>	<b>362,286</b>	<b>362,346</b>	<b>-0.02%</b>	<b>29%</b>	<b>29%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>60,539</b>	<b>60,539</b>	<b>0.00%</b>	<b>28%</b>	<b>28%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

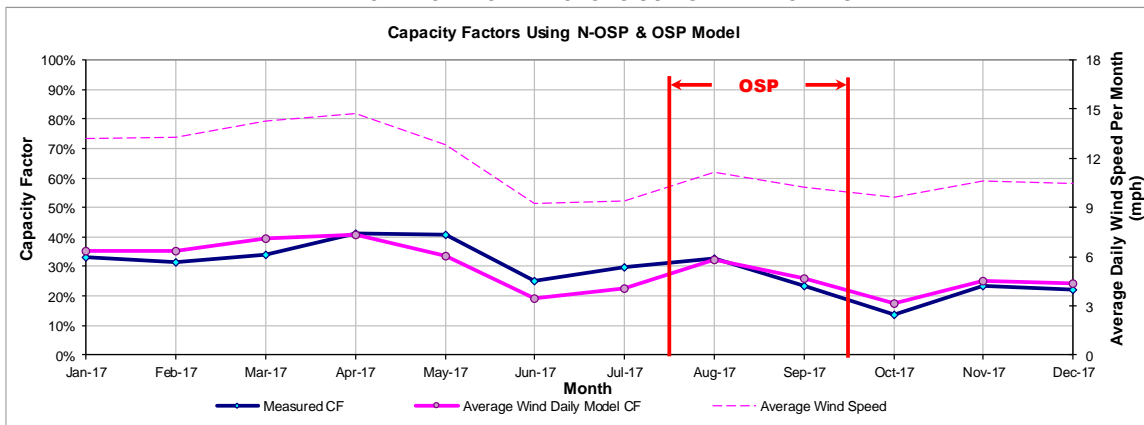


Figure 10-132: TGW\_T1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.33.2 Gulf Wind - TGW\_T2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
TGW_T2	Wind	-	KENEDY	Babcock & Brown	Gulf Wind 1

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
59 Mitsubishi 2.4 MW	ERCOT	S	Nov-08	Coastal	CRP	141.6

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

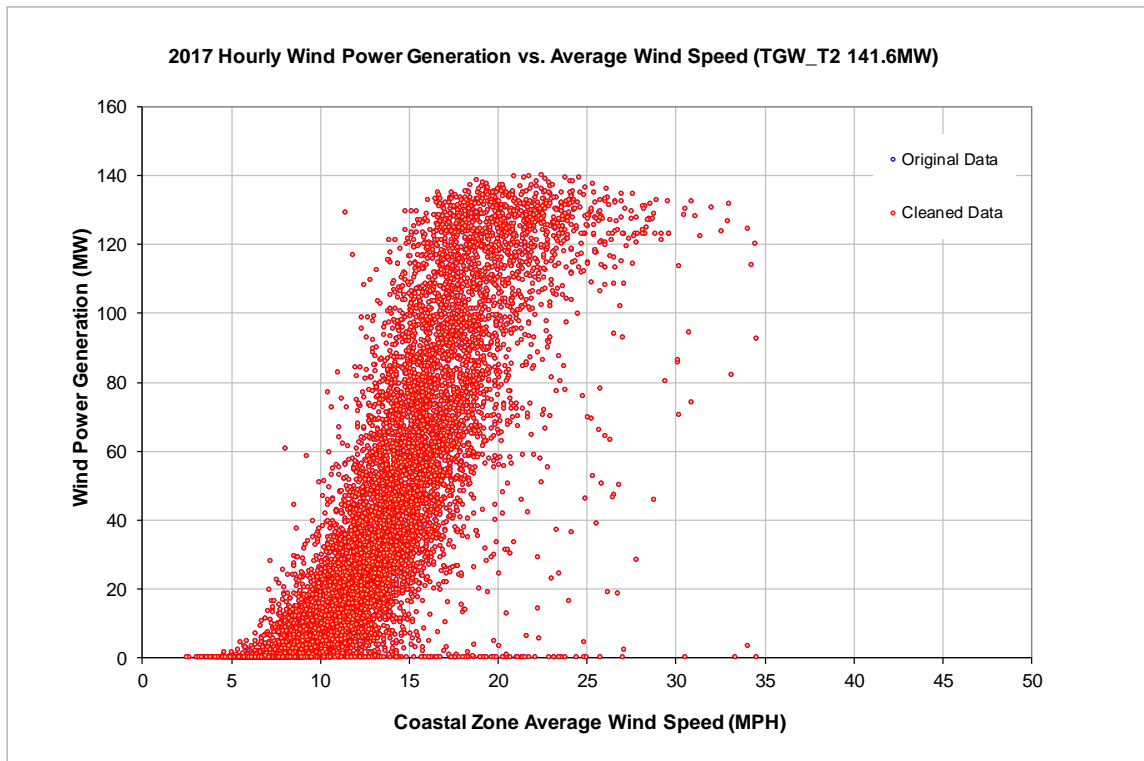


Figure 10-133: TGW\_T2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

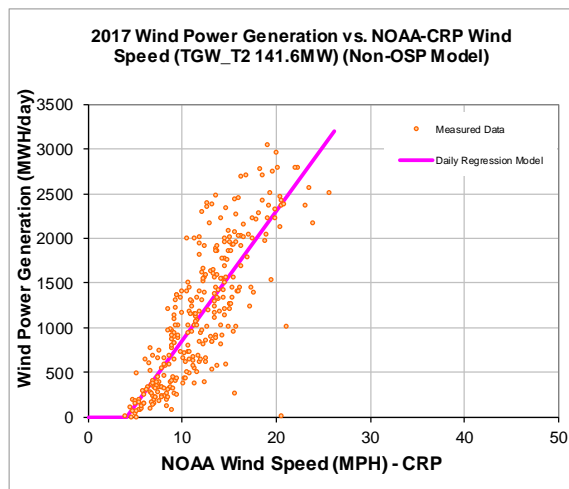
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-592.57
Left Slope (MWh/mph-day)	145.44
RMSE (MWh/day)	435.88
R2	0.67
CV-RMSE	38.5%
Daily Maximum (MWh/day)	3398

**OSP Model:**

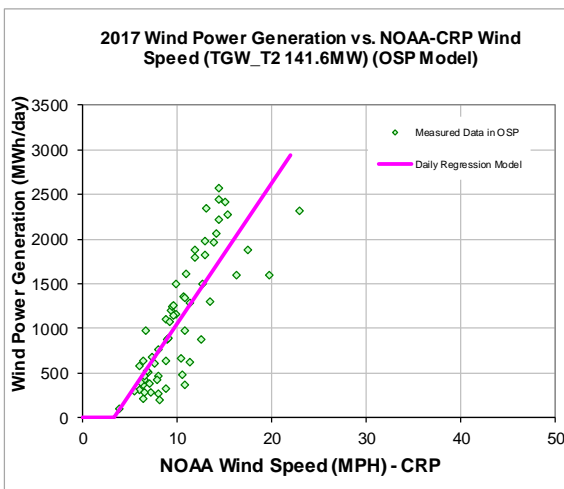
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-514.19
Left Slope (MWh/mph-day)	156.84
RMSE (MWh/day)	403.68
R2	0.67
CV-RMSE	37.2%
Daily Maximum (MWh/day)	3398

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
399,427	410,072

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
903	1,092

Figure 10-134: TGW\_T2 - Model Coefficients (Using Non-OSP and OSP Data)

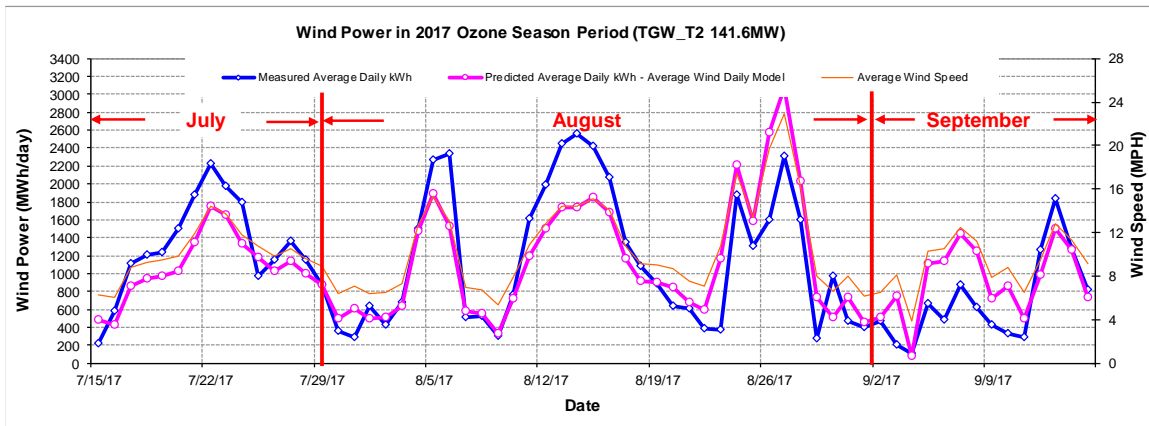


**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	38,432	41,229	-7.28%	36%	39%
Feb-17	28	13.29	33,559	37,516	-11.79%	35%	39%
Mar-17	31	14.29	37,859	46,071	-21.69%	36%	44%
Apr-17	30	14.70	45,930	46,354	-0.92%	45%	45%
May-17	31	12.81	47,728	39,375	17.50%	45%	37%
Jun-17	30	9.21	31,128	22,388	28.08%	31%	22%
Jul-17	31	9.39	35,740	27,179	23.95%	34%	26%
Aug-17	31	11.11	38,638	38,071	1.47%	37%	36%
Sep-17	30	10.25	26,701	29,630	-10.97%	26%	29%
Oct-17	31	9.56	20,024	24,722	-23.46%	19%	23%
Nov-17	30	10.64	28,175	28,647	-1.68%	28%	28%
Dec-17	31	10.48	26,157	28,920	-10.56%	25%	27%
<b>Total</b>	<b>365</b>	<b>11.57</b>	<b>410,072</b>	<b>410,101</b>	<b>-0.01%</b>	<b>33%</b>	<b>33%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>68,282</b>	<b>68,282</b>	<b>0.00%</b>	<b>32%</b>	<b>32%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

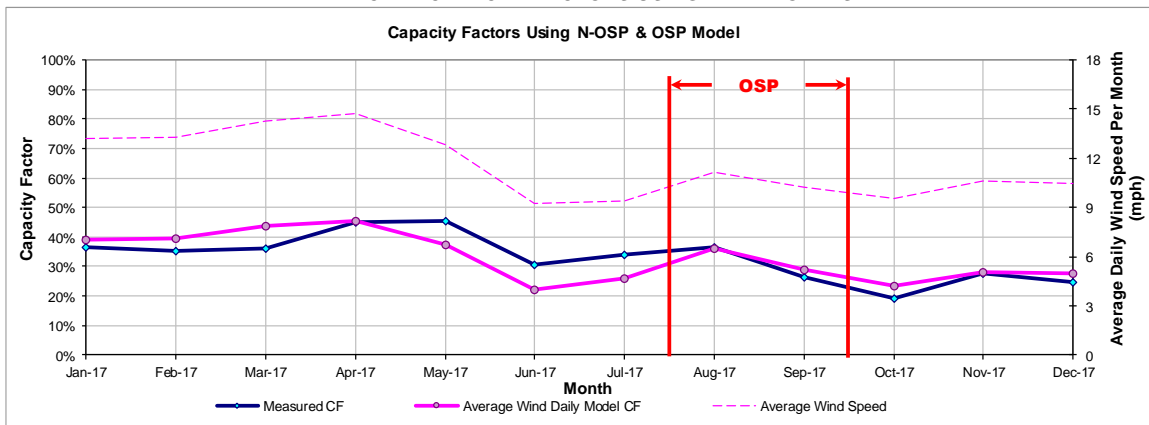


Figure 10-135: TGW\_T2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.34 Gunsight Mountain

10.34.1 Gunsight Mountain - GUNMTN\_G1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
GUNMTN_G1	Wind	Big Spring	HOWARD	Invenergy	Gunsight Mountain

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
67 GE 1.7 MW	ERCOT	W	Sep-16	West	MAF	119.9

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

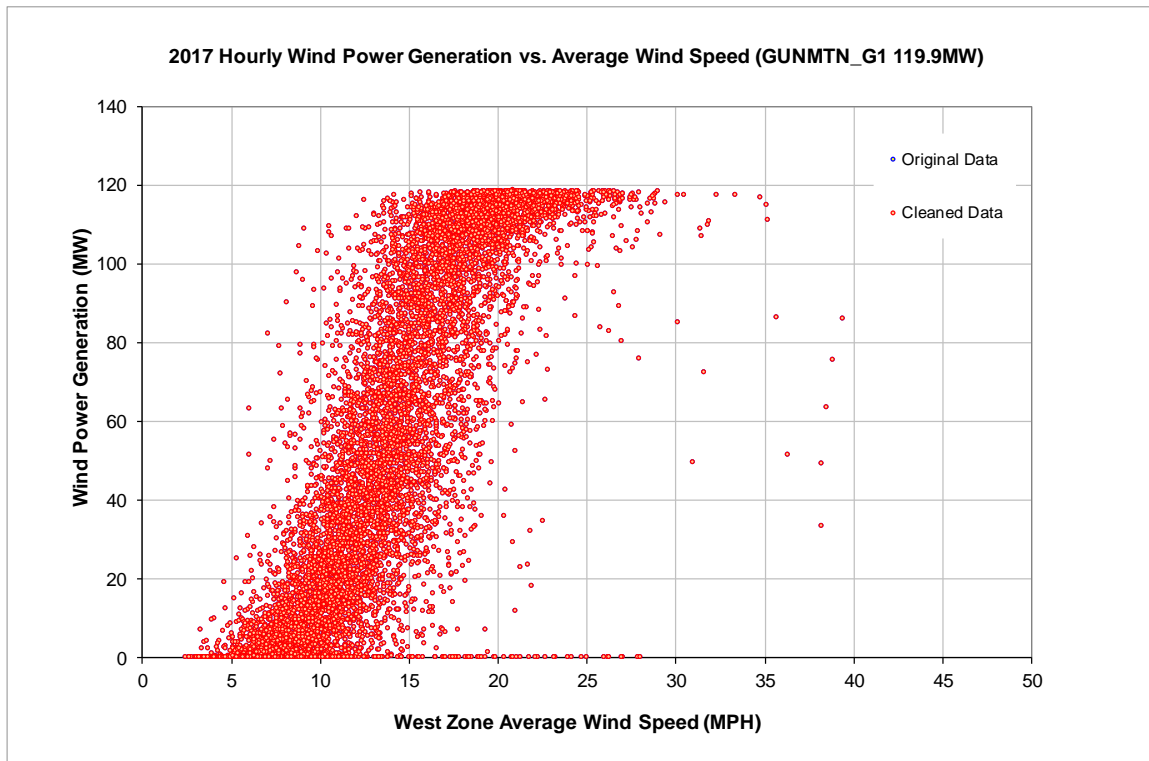


Figure 10-136: GUNMTN\_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

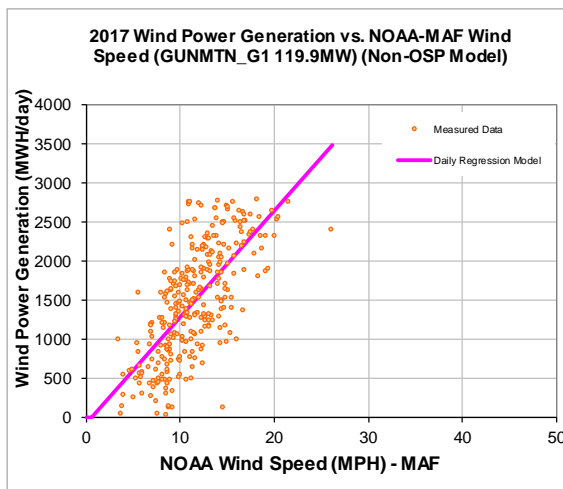
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-73.47
Left Slope (MWh/mph-day)	136.00
RMSE (MWh/day)	515.17
R2	0.47
CV-RMSE	34.7%
Daily Maximum (MWh/day)	2878

**OSP Model:**

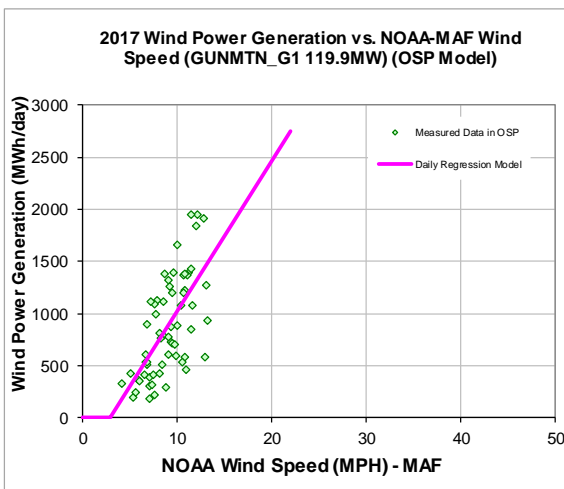
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-419.05
Left Slope (MWh/mph-day)	143.78
RMSE (MWh/day)	360.03
R2	0.43
CV-RMSE	41.4%
Daily Maximum (MWh/day)	2878

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
472,641	501,261

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
828	897

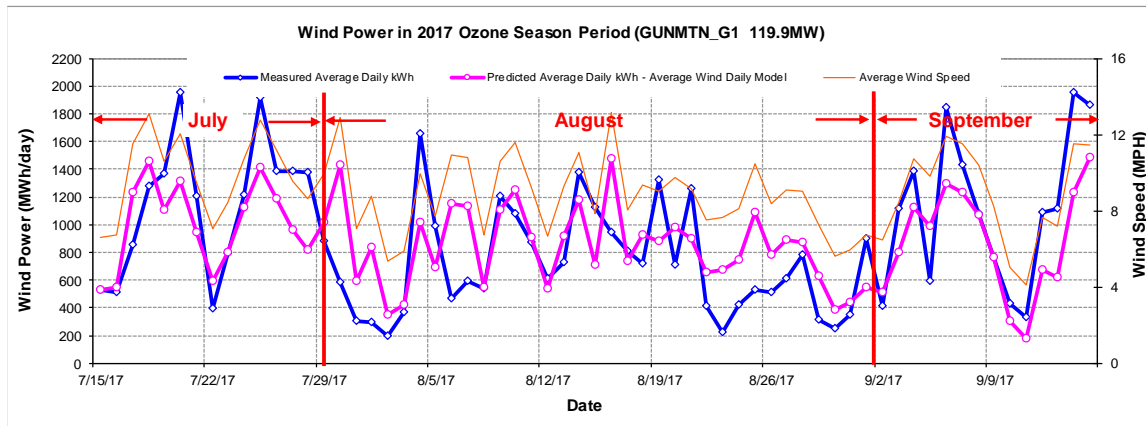
Figure 10-137: GUNMTN\_G1 - Model Coefficients (Using Non-OSP and OSP Data)

COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (MAF) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.88	47,269	43,582	7.80%	53%	49%
Feb-17	28	11.12	47,042	40,283	14.37%	58%	50%
Mar-17	31	12.31	53,259	49,026	7.95%	60%	55%
Apr-17	30	13.29	48,919	50,285	-2.79%	57%	58%
May-17	31	13.06	49,402	52,779	-6.83%	55%	59%
Jun-17	30	11.49	36,422	44,692	-22.71%	42%	52%
Jul-17	31	10.79	35,234	38,660	-9.72%	39%	43%
Aug-17	31	8.74	22,211	25,980	-16.97%	25%	29%
Sep-17	30	10.72	36,375	37,336	-2.64%	42%	43%
Oct-17	31	10.78	44,005	43,151	1.94%	49%	48%
Nov-17	30	9.84	42,854	37,926	11.50%	50%	44%
Dec-17	31	9.31	38,267	36,980	3.36%	43%	41%
Total	365	11.02	501,261	500,681	0.12%	48%	48%
Total in OSP (07/15-09/15)	63	8.97	54,830	54,830	0.00%	30%	30%

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

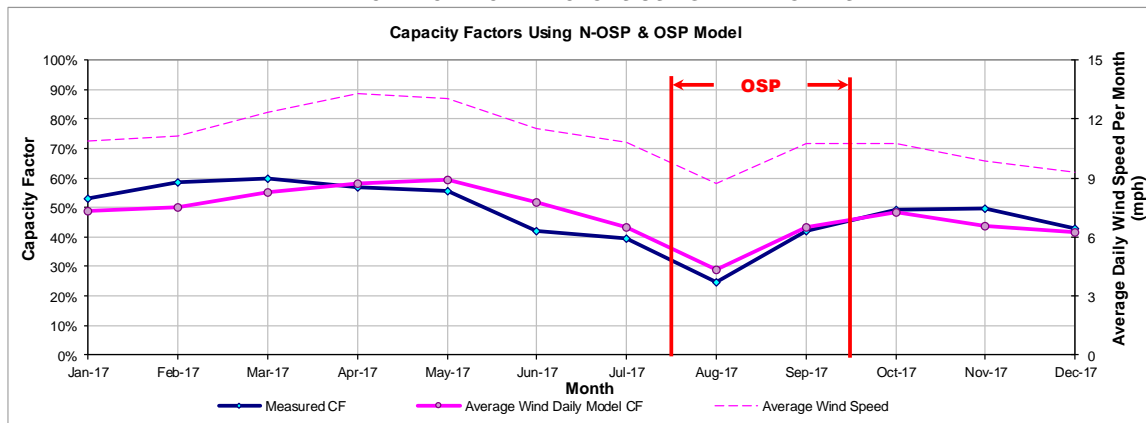


Figure 10-138: GUNMTN\_G1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.35 Hackberry Wind Farm

10.35.1 Hackberry Wind Farm - HWF\_HWFG1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
HWF_HWFG1	Wind	-	SHACKELFORD	Renewable Energy Systems	Hackberry Wind Farm

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
72 Siemens 2.3 MW	ERCOT	W	Nov-08	West	ABI	165.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

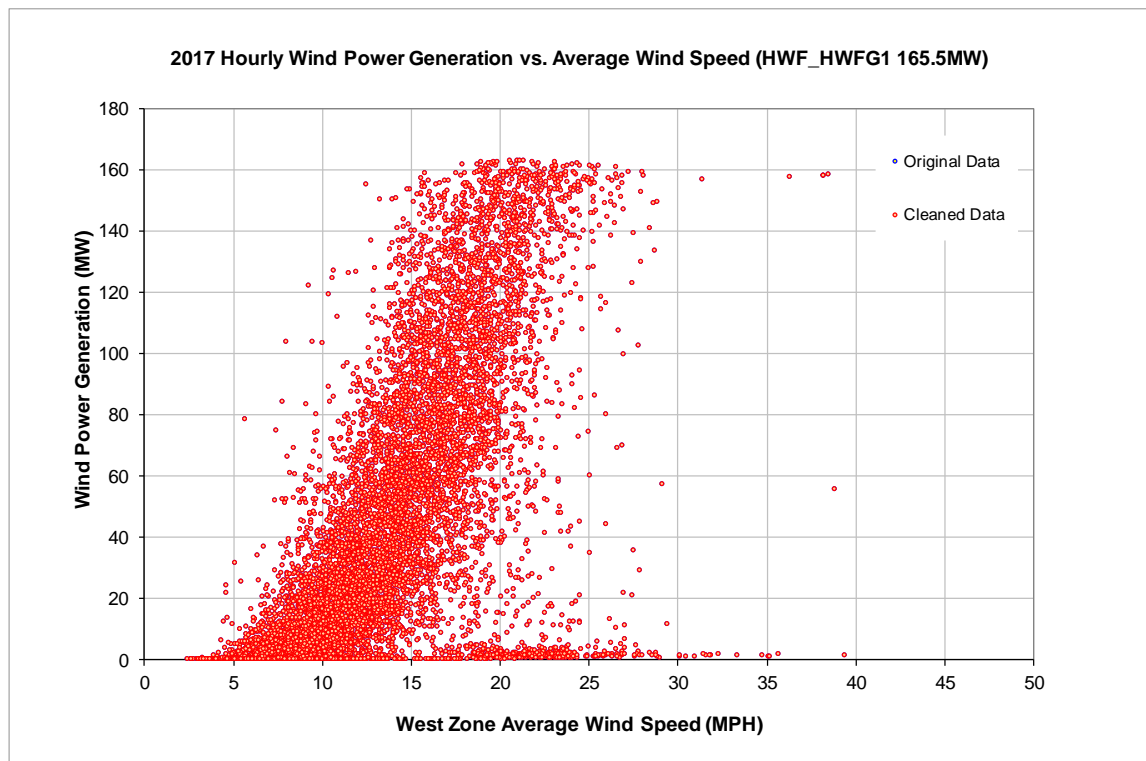


Figure 10-139: HWF\_HWFG1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

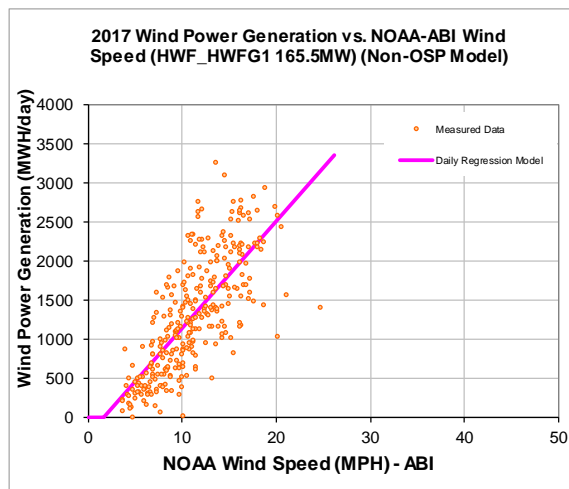
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-230.94
Left Slope (MWh/mph-day)	137.12
RMSE (MWh/day)	488.43
R2	0.56
CV-RMSE	37.9%
Daily Maximum (MWh/day)	3972

**OSP Model:**

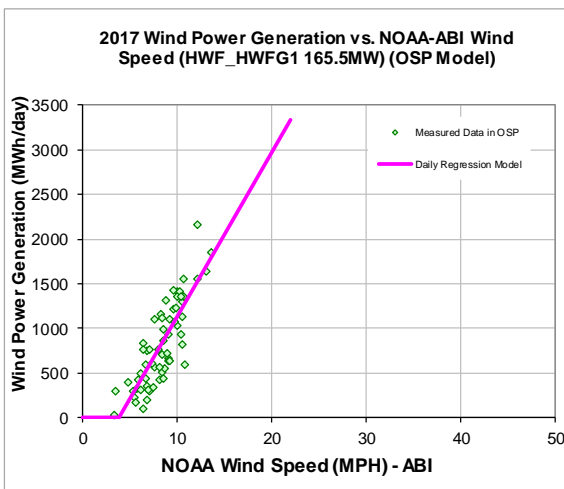
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-705.47
Left Slope (MWh/mph-day)	183.42
RMSE (MWh/day)	264.49
R2	0.69
CV-RMSE	32.3%
Daily Maximum (MWh/day)	3972

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
484,504	436,514

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
899	830

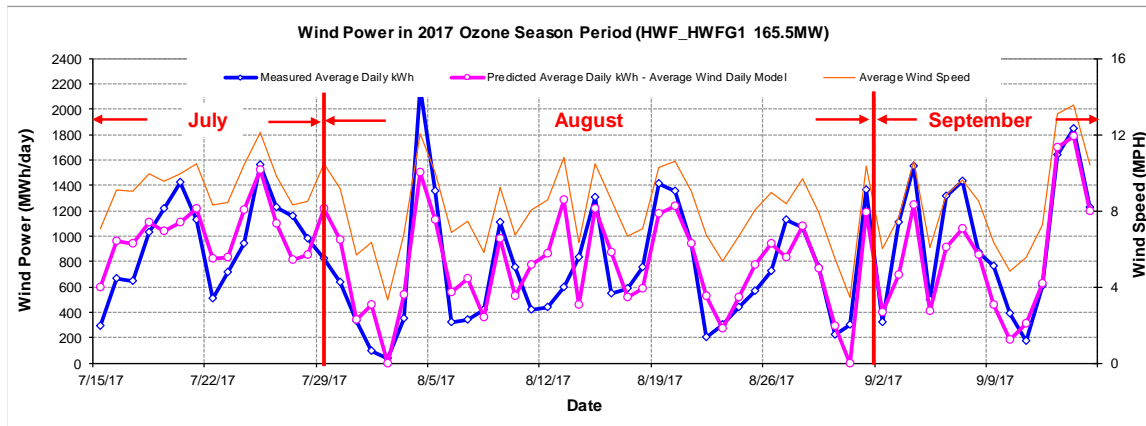
Figure 10-140: HWF\_HWFG1 - Model Coefficients (Using Non-OSP and OSP Data)

COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	34,262	37,192	-8.55%	28%	30%
Feb-17	28	11.23	34,561	36,634	-6.00%	31%	33%
Mar-17	31	12.96	46,396	47,922	-3.29%	38%	39%
Apr-17	30	13.49	48,286	48,552	-0.55%	41%	41%
May-17	31	11.55	41,954	41,946	0.02%	34%	34%
Jun-17	30	10.72	33,162	37,166	-12.08%	28%	31%
Jul-17	31	9.17	28,107	31,084	-10.59%	23%	25%
Aug-17	31	7.87	21,925	22,956	-4.70%	18%	19%
Sep-17	30	9.51	31,563	30,765	2.53%	26%	26%
Oct-17	31	11.08	42,566	37,380	12.18%	35%	30%
Nov-17	30	10.21	39,889	35,075	12.07%	33%	29%
Dec-17	31	8.98	33,843	30,007	11.33%	27%	24%
<b>Total</b>	<b>365</b>	<b>10.59</b>	<b>436,514</b>	<b>436,679</b>	<b>-0.04%</b>	<b>30%</b>	<b>30%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>51,636</b>	<b>51,801</b>	<b>-0.32%</b>	<b>21%</b>	<b>21%</b>

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

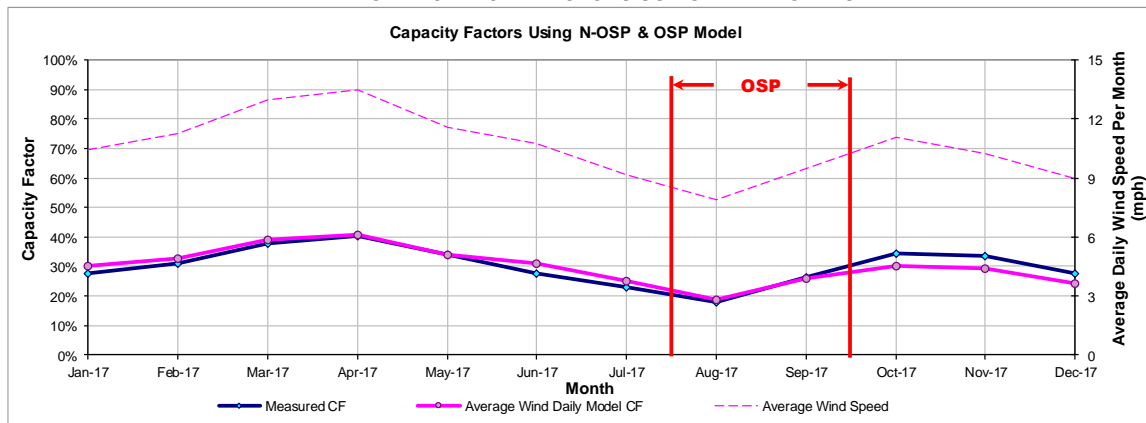


Figure 10-141: HWF\_HWFG1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.36 Harbor Wind Project

10.36.1 Harbor Wind Project - DG\_NUECE\_6UNITS

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
DG_NUECE_6UNITS	Wind	-	NUECES	Revolution Energy	Harbor Wind Project

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
6 Guodian United Power 1.5 MW	ERCOT	S	Mar-12	Coastal	CRP	9

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

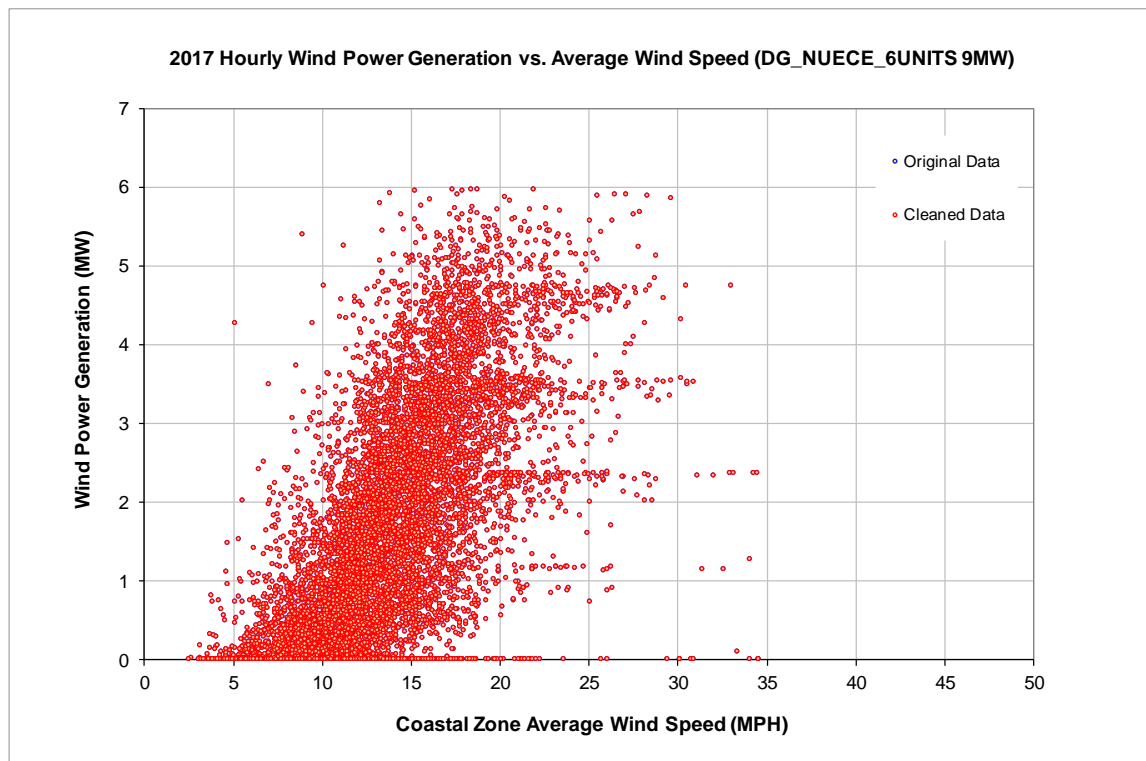


Figure 10-142: DG\_NUECE\_6UNITS - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

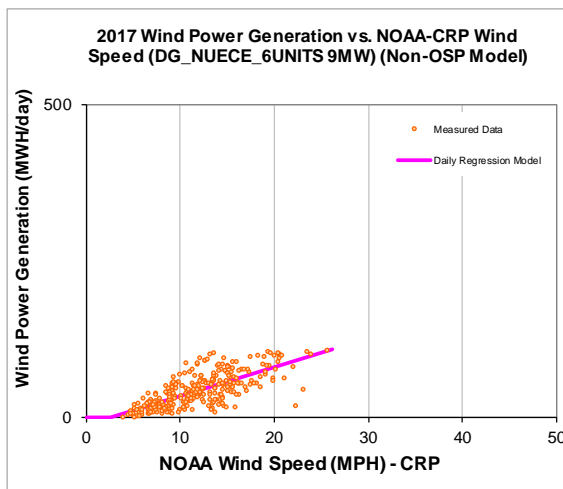
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-12.03
Left Slope (MWh/mph-day)	4.59
RMSE (MWh/day)	18.35
R2	0.53
CV-RMSE	43.1%
Daily Maximum (MWh/day)	216

**OSP Model:**

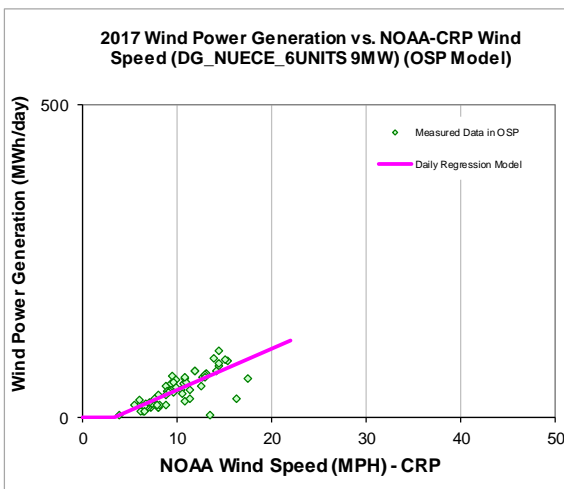
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-21.43
Left Slope (MWh/mph-day)	6.56
RMSE (MWh/day)	16.69
R2	0.60
CV-RMSE	38.8%
Daily Maximum (MWh/day)	216

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
15,227	15,428

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
38	43

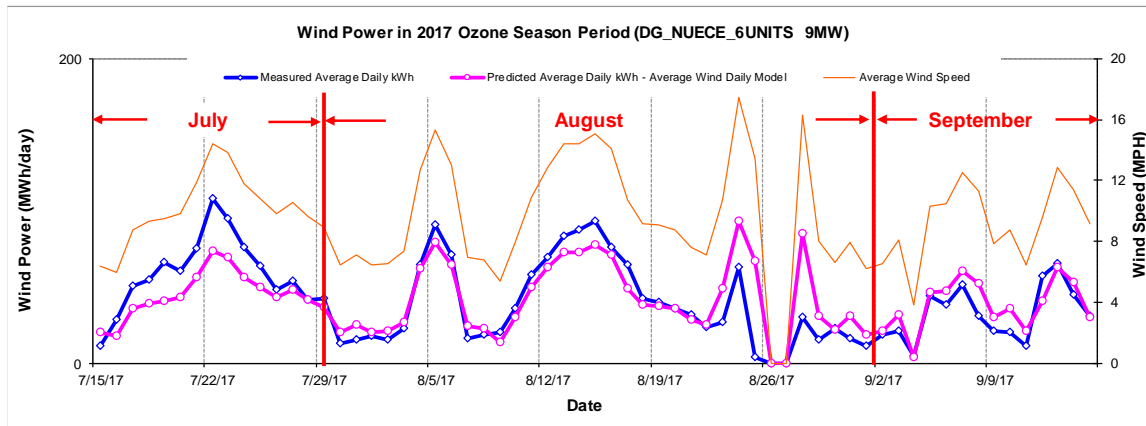
Figure 10-143: DG\_NUECE\_6UNITS - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	890	1,509	-69.63%	13%	23%
Feb-17	28	13.29	1,426	1,372	3.77%	24%	23%
Mar-17	31	14.29	1,703	1,662	2.43%	25%	25%
Apr-17	30	14.70	1,923	1,664	13.45%	30%	26%
May-17	31	12.81	1,529	1,451	5.10%	23%	22%
Jun-17	30	9.21	1,399	908	35.14%	22%	14%
Jul-17	31	9.39	1,677	1,127	32.83%	25%	17%
Aug-17	31	10.41	1,259	1,358	-7.89%	19%	20%
Sep-17	30	10.25	1,141	1,174	-2.88%	18%	18%
Oct-17	31	9.56	784	988	-26.02%	12%	15%
Nov-17	30	10.64	625	1,105	-76.92%	10%	17%
Dec-17	31	10.68	1,073	1,110	-3.53%	16%	17%
<b>Total</b>	<b>365</b>	<b>11.53</b>	<b>15,428</b>	<b>15,428</b>	<b>0.00%</b>	<b>20%</b>	<b>20%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>61</b>	<b>9.82</b>	<b>2,625</b>	<b>2,625</b>	<b>0.00%</b>	<b>20%</b>	<b>20%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

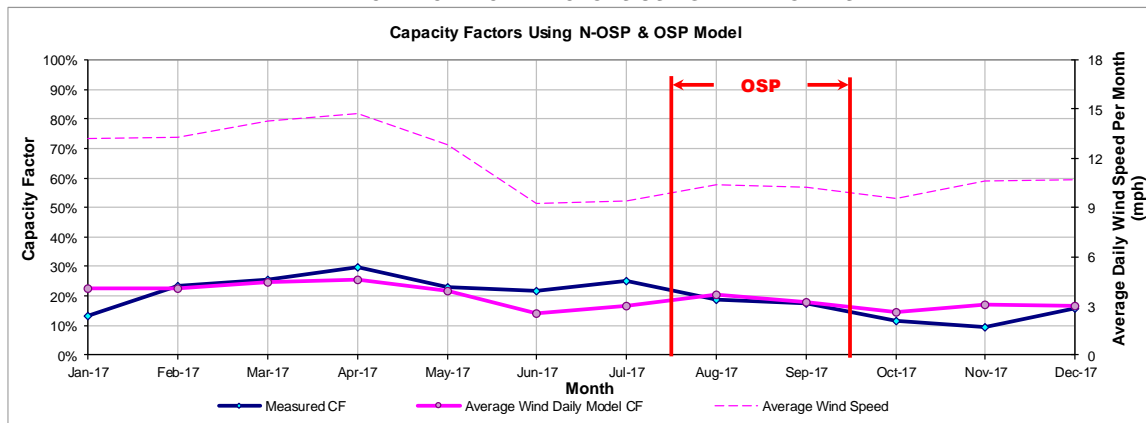


Figure 10-144: DG\_NUECE\_6UNITS - Predicted Wind Power and Capacity Factor Using Daily Models

10.37 Hereford Wind Project (Hereford 1)

10.37.1 Hereford Wind Project (Hereford 1) - HRFDWIND\_WIND\_G

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
HRFDWIND_WIND_G	Wind	Hereford	DEAF SMITH	EDF Renewable	Hereford Wind Project (Hereford 1)

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
54 GE 1.85 MW	ERCOT	W	May-15	Panhandle	AMA	99.9

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

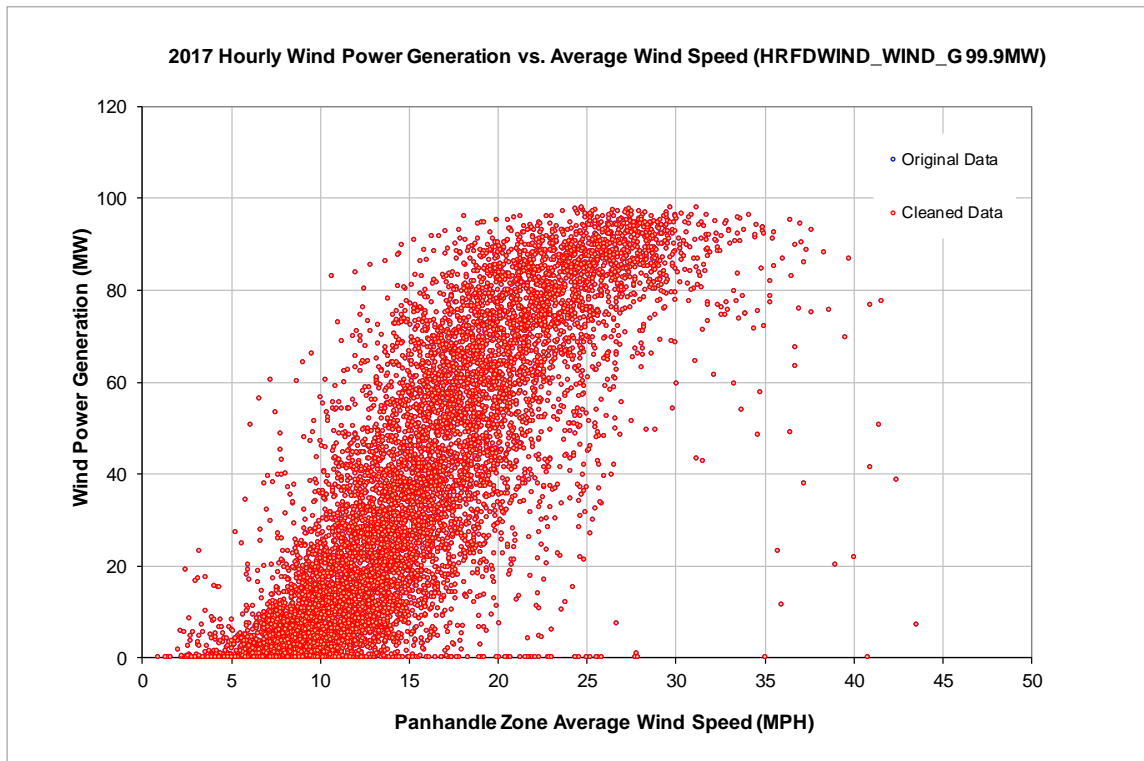


Figure 10-145: HRFDWIND\_WIND\_G - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

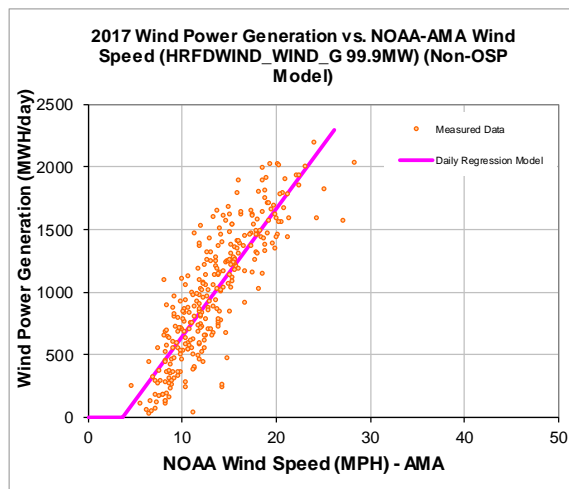
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-371.61
Left Slope (MWh/mph-day)	102.14
RMSE (MWh/day)	265.47
R2	0.73
CV-RMSE	26.8%
Daily Maximum (MWh/day)	2398

**OSP Model:**

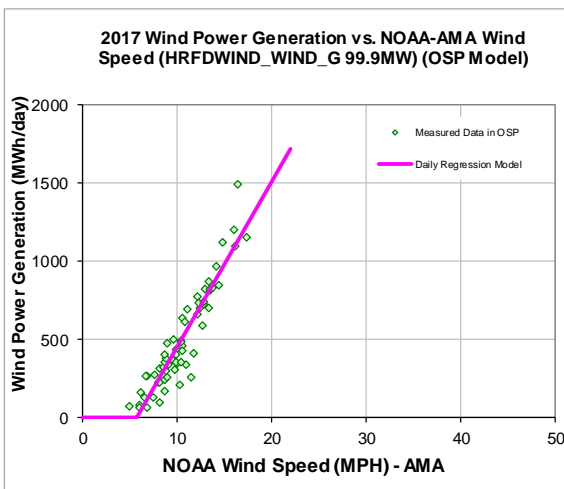
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-597.10
Left Slope (MWh/mph-day)	105.14
RMSE (MWh/day)	117.60
R2	0.87
CV-RMSE	23.5%
Daily Maximum (MWh/day)	2398

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
363,025	328,276

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
575	507

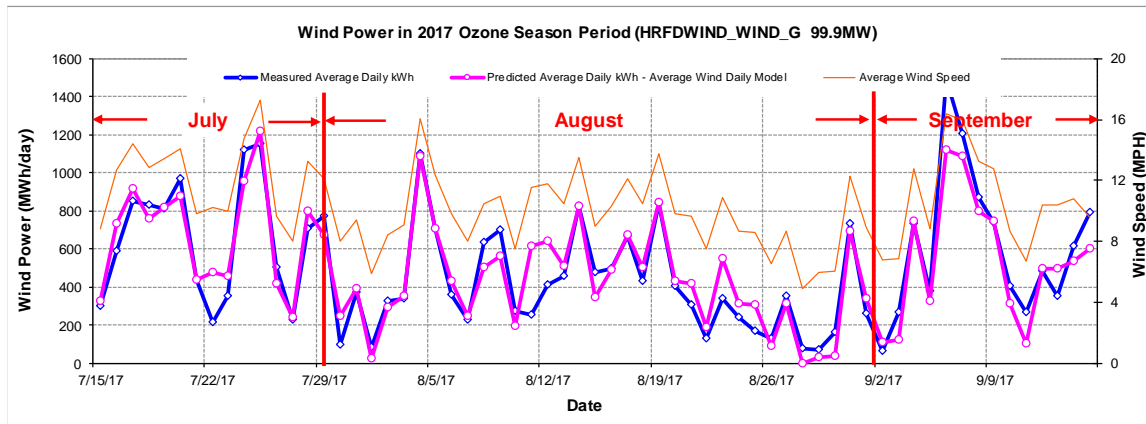
Figure 10-146: HRFD WIND\_WIND\_G - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.28	25,632	27,367	-6.77%	34%	37%
Feb-17	28	13.40	29,955	25,922	13.46%	45%	39%
Mar-17	31	14.31	35,288	33,673	4.58%	47%	45%
Apr-17	30	15.90	36,609	37,568	-2.62%	51%	52%
May-17	31	13.42	31,665	30,967	2.20%	43%	42%
Jun-17	30	13.20	24,398	29,296	-20.08%	34%	41%
Jul-17	31	11.35	18,863	21,185	-12.31%	25%	29%
Aug-17	31	9.62	12,364	12,912	-4.43%	17%	17%
Sep-17	30	11.96	21,944	22,598	-2.98%	31%	31%
Oct-17	31	14.04	32,238	32,938	-2.17%	43%	44%
Nov-17	30	12.81	31,864	28,104	11.80%	44%	39%
Dec-17	31	11.76	27,455	25,703	6.38%	37%	35%
<b>Total</b>	<b>365</b>	<b>12.82</b>	<b>328,276</b>	<b>328,234</b>	<b>0.01%</b>	<b>38%</b>	<b>38%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>31,479</b>	<b>31,560</b>	<b>-0.25%</b>	<b>21%</b>	<b>21%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

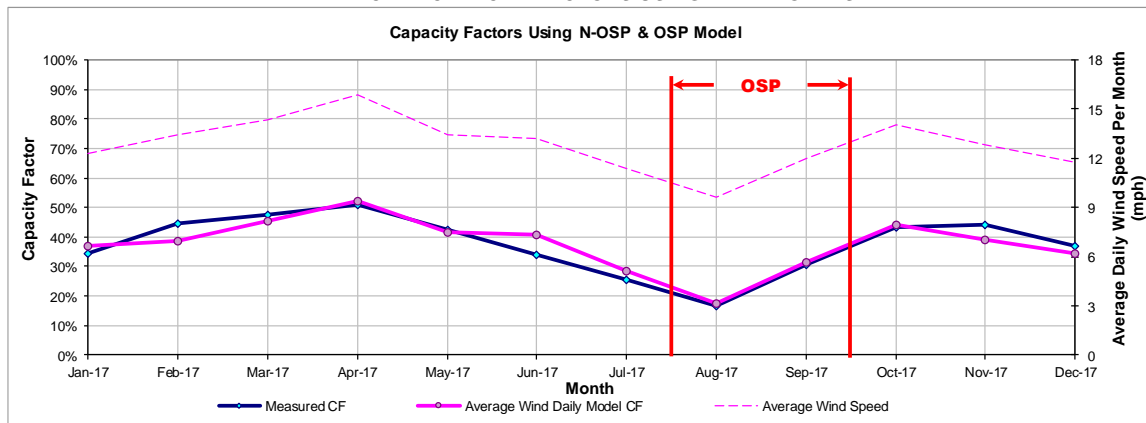


Figure 10-147: HRFDWND\_WIND\_G - Predicted Wind Power and Capacity Factor Using Daily Models

10.37.2 Hereford Wind Project (Hereford 1) - HRFDWIND\_WIND\_V

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
HRFDWIND_WIND_V	Wind	Hereford	DEAF SMITH	EDF Renewable	Hereford Wind Project (Hereford 1)

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
50 Vestas 2 MW	ERCOT	W	May-15	Panhandle	AMA	100

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

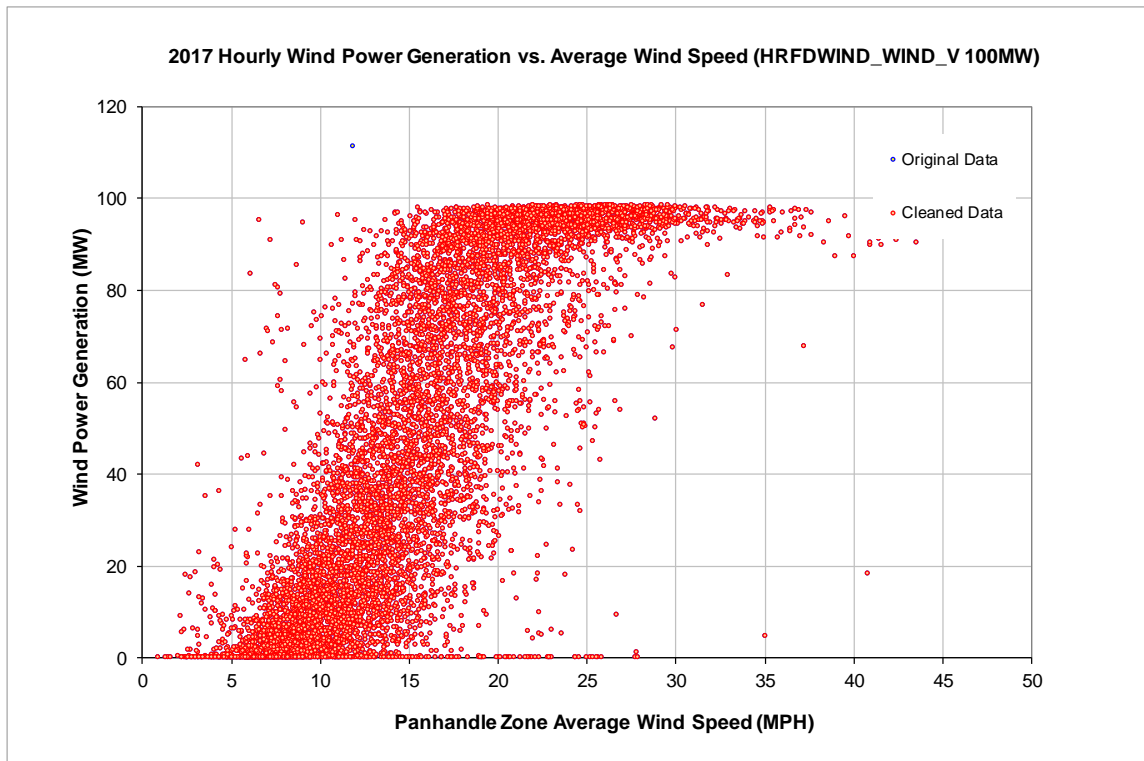


Figure 10-148: HRFDWIND\_WIND\_V - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

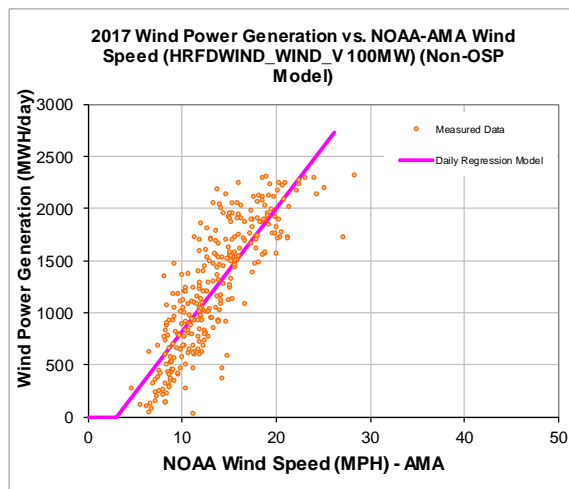
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-344.54
Left Slope (MWh/mph-day)	117.85
RMSE (MWh/day)	329.87
R2	0.70
CV-RMSE	26.9%
Daily Maximum (MWh/day)	2400

**OSP Model:**

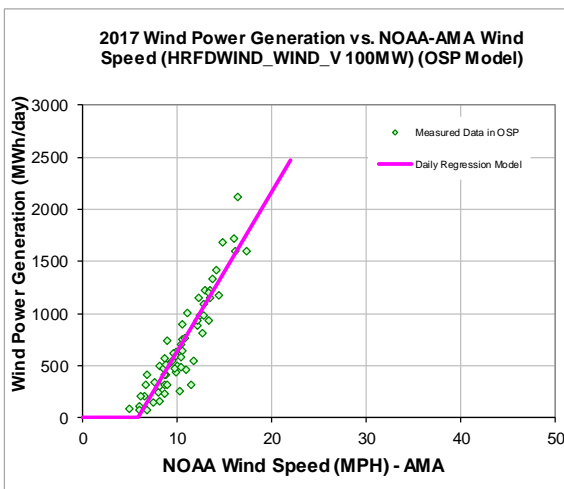
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-888.88
Left Slope (MWh/mph-day)	152.48
RMSE (MWh/day)	181.84
R2	0.85
CV-RMSE	25.9%
Daily Maximum (MWh/day)	2400

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
453,733	411,911

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
812	712

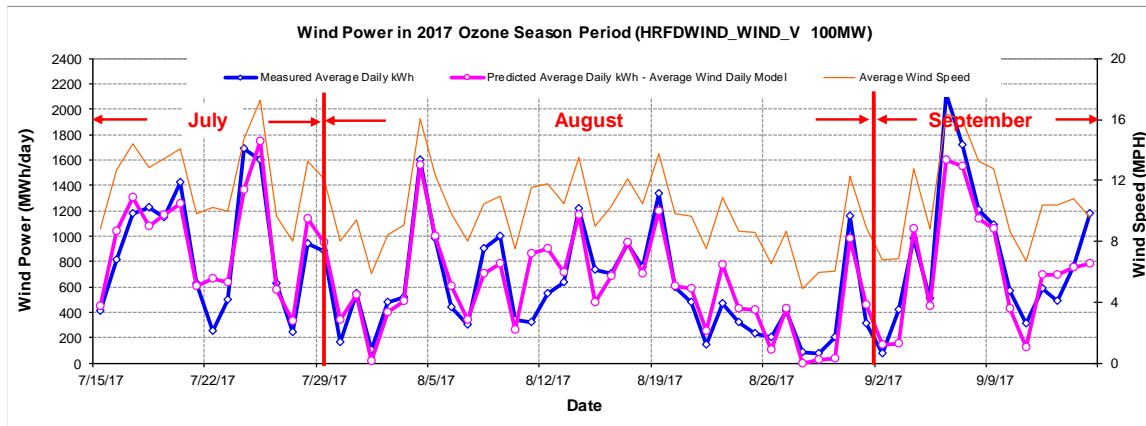
Figure 10-149: HRFD WIND\_WIND\_V - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.28	32,694	34,068	-4.20%	44%	46%
Feb-17	28	13.40	34,941	32,098	8.14%	52%	48%
Mar-17	31	14.31	41,623	40,800	1.98%	56%	55%
Apr-17	30	15.90	43,997	45,333	-3.04%	61%	63%
May-17	31	13.42	37,950	38,340	-1.03%	51%	52%
Jun-17	30	13.20	30,696	36,328	-18.35%	43%	50%
Jul-17	31	11.35	25,417	28,381	-11.66%	34%	38%
Aug-17	31	9.62	17,665	18,037	-2.10%	24%	24%
Sep-17	30	11.96	29,591	29,372	0.74%	41%	41%
Oct-17	31	14.04	42,405	40,614	4.22%	57%	55%
Nov-17	30	12.81	40,162	34,953	12.97%	56%	49%
Dec-17	31	11.76	34,770	32,266	7.20%	47%	43%
<b>Total</b>	<b>365</b>	<b>12.82</b>	<b>411,911</b>	<b>410,590</b>	<b>0.32%</b>	<b>47%</b>	<b>47%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>44,208</b>	<b>44,347</b>	<b>-0.31%</b>	<b>29%</b>	<b>29%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

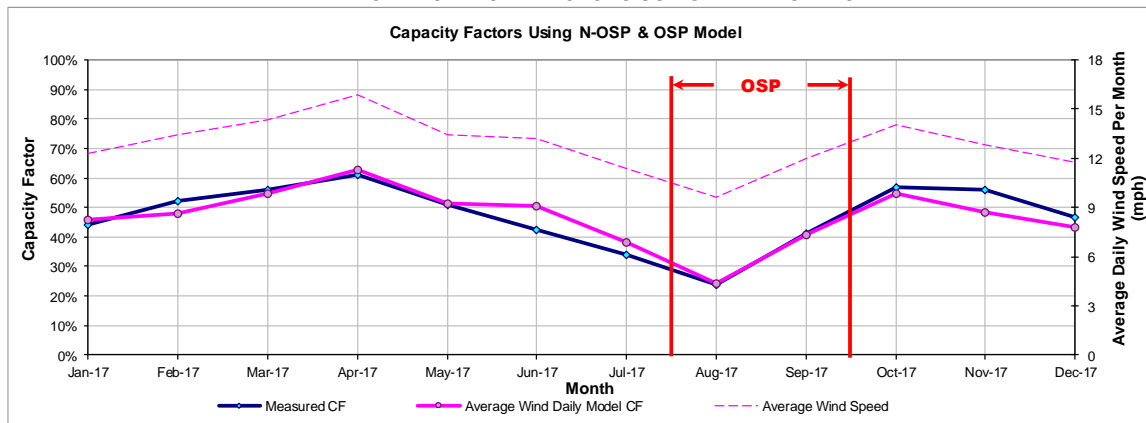


Figure 10-150: HRFD WIND\_WIND\_V - Predicted Wind Power and Capacity Factor Using Daily Models



10.38 Hidalgo & Starr Wind

10.38.1 Hidalgo & Starr Wind - MIRASOLE\_MIR11

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
MIRASOLE_MIR11	Wind	McCook	HIDALGO	EDP Renovaveis	Hidalgo & Starr Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
26 Vestas 2 MW	ERCOT	S	Dec-16	South	CRP	52

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

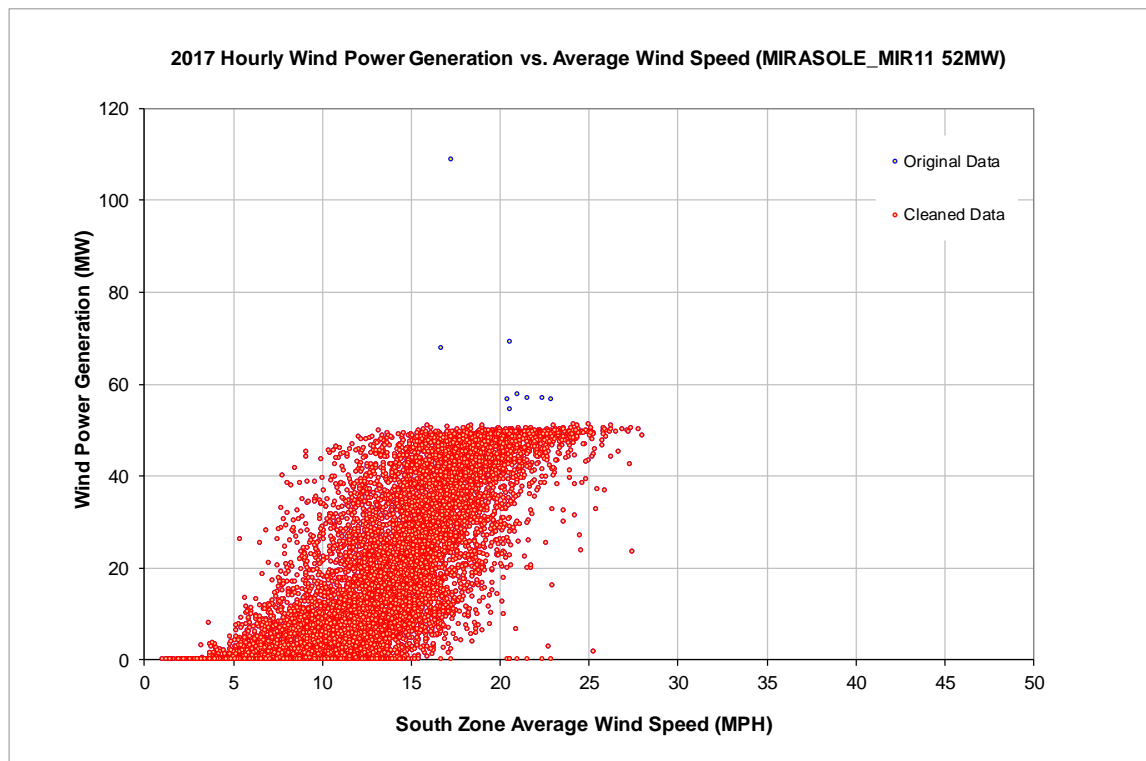


Figure 10-151: MIRASOLE\_MIR11 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

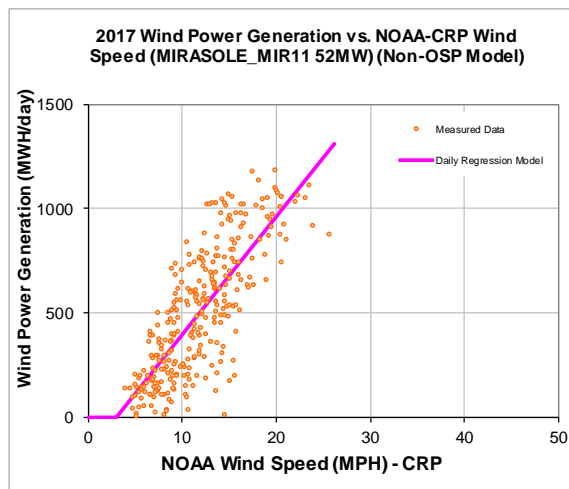
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-164.68
Left Slope (MWh/mph-day)	56.48
RMSE (MWh/day)	192.86
R2	0.61
CV-RMSE	38.0%
Daily Maximum (MWh/day)	1248

**OSP Model:**

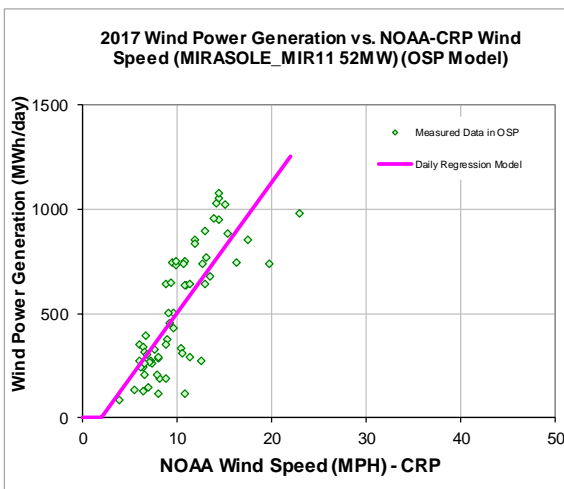
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-123.72
Left Slope (MWh/mph-day)	62.62
RMSE (MWh/day)	181.79
R2	0.62
CV-RMSE	35.3%
Daily Maximum (MWh/day)	1248

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
180,702	183,043

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
442	517

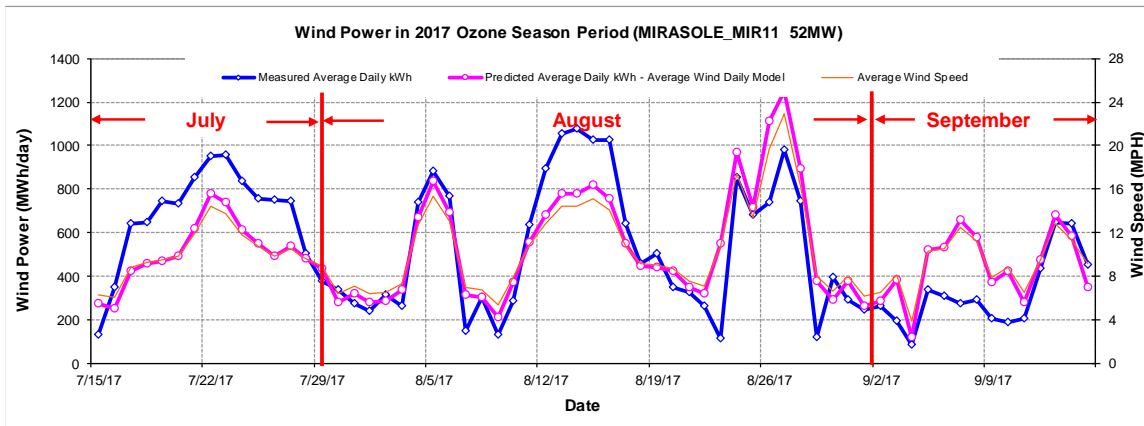
Figure 10-152: MIRASOLE\_MIR11 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.29	17,352	17,581	-1.32%	45%	45%
Feb-17	28	13.35	14,870	15,322	-3.04%	43%	44%
Mar-17	31	14.29	19,097	19,921	-4.31%	49%	51%
Apr-17	30	14.70	18,154	19,933	-9.80%	48%	53%
May-17	31	12.81	18,223	17,320	4.96%	47%	45%
Jun-17	30	9.21	13,611	10,658	21.70%	36%	28%
Jul-17	31	9.39	18,703	13,044	30.26%	48%	34%
Aug-17	31	11.11	17,227	17,667	-2.55%	45%	46%
Sep-17	30	10.25	12,402	13,858	-11.74%	33%	37%
Oct-17	31	9.65	10,040	11,404	-13.58%	26%	29%
Nov-17	30	10.64	12,165	13,089	-7.59%	32%	35%
Dec-17	31	10.68	11,199	13,152	-17.44%	29%	34%
<b>Total</b>	<b>365</b>	<b>11.60</b>	<b>183,043</b>	<b>182,947</b>	<b>0.05%</b>	<b>40%</b>	<b>40%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>32,405</b>	<b>32,342</b>	<b>0.20%</b>	<b>41%</b>	<b>41%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

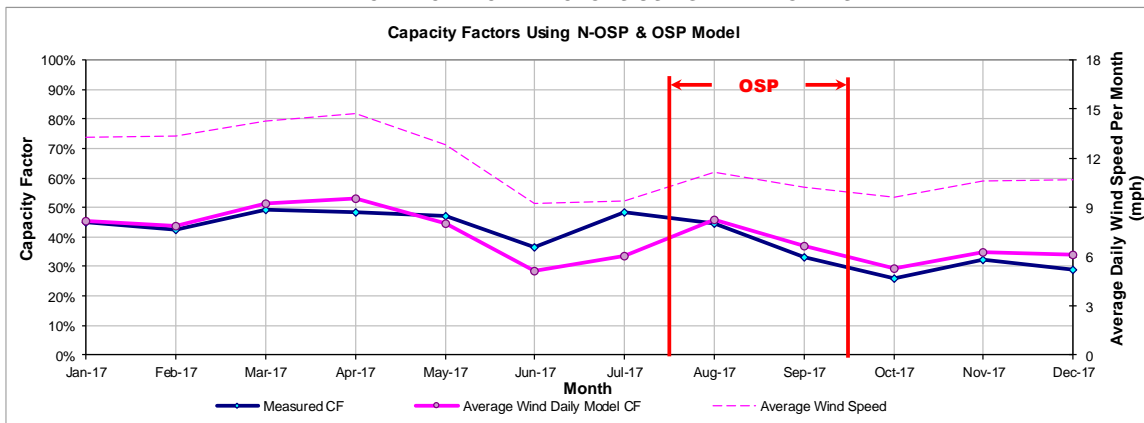


Figure 10-153: MIRASOLE\_MIR11 - Predicted Wind Power and Capacity Factor Using Daily Models

10.38.2 Hidalgo & Starr Wind - MIRASOLE\_MIR12

**SITE INFORMATION**

GENSITECODE_EERCOT	Renewable Energy	City	County	Company	Facility
MIRASOLE_MIR12	Wind	McCook	HIDALGO	EDP Renovaveis	Hidalgo & Starr Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
49 Vestas 2 MW	ERCOT	S	Dec-16	South	CRP	98

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

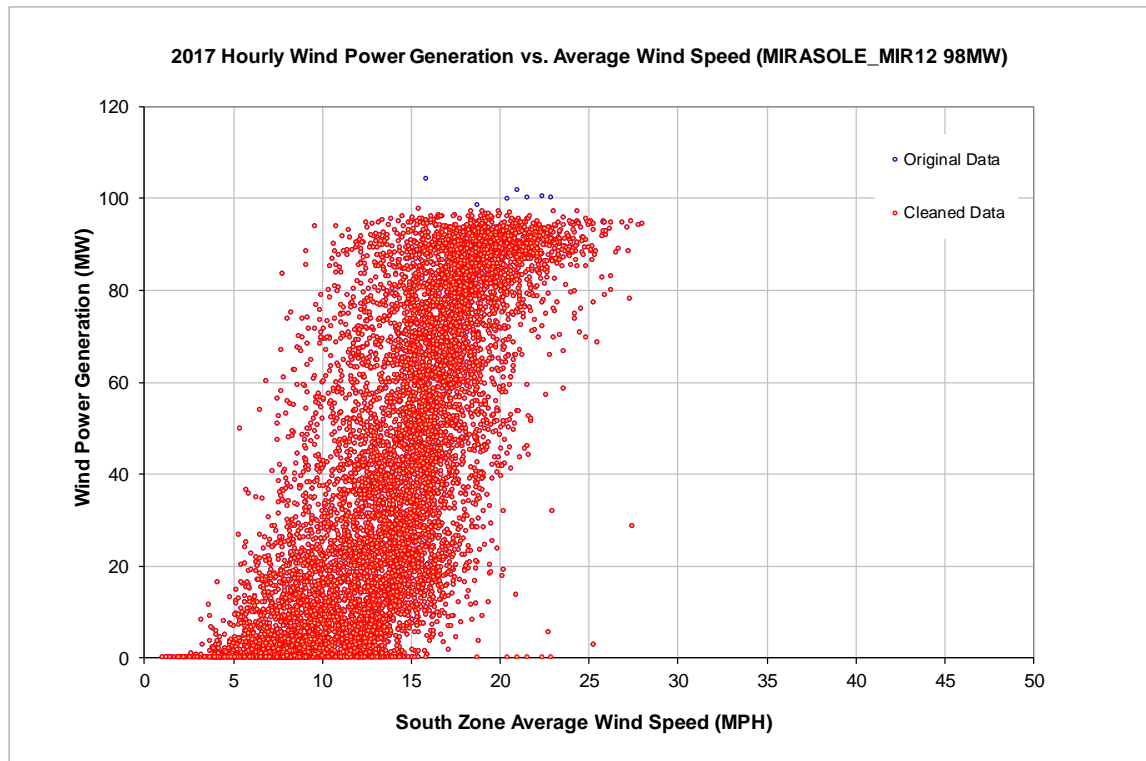


Figure 10-154: MIRASOLE\_MIR12 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

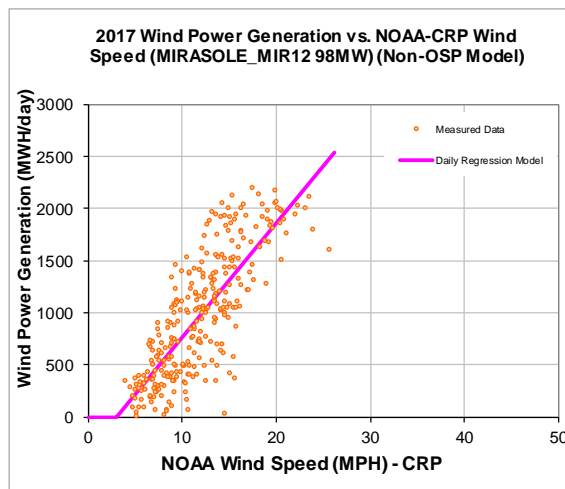
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-318.58
Left Slope (MWh/mph-day)	109.53
RMSE (MWh/day)	357.84
R2	0.63
CV-RMSE	36.4%
Daily Maximum (MWh/day)	2352

**OSP Model:**

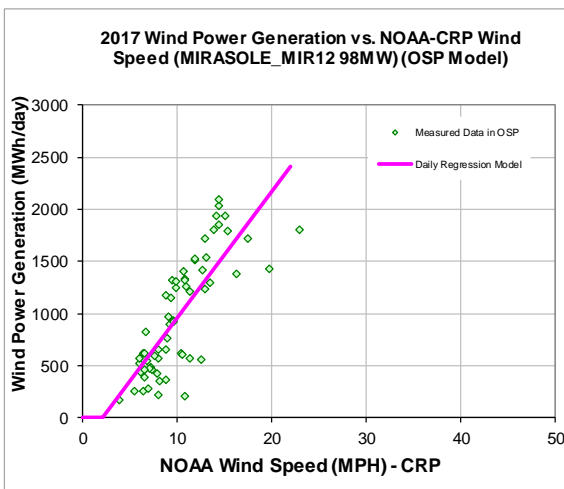
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-256.24
Left Slope (MWh/mph-day)	121.00
RMSE (MWh/day)	335.25
R2	0.64
CV-RMSE	34.3%
Daily Maximum (MWh/day)	2352

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
349,378	353,881	837	982

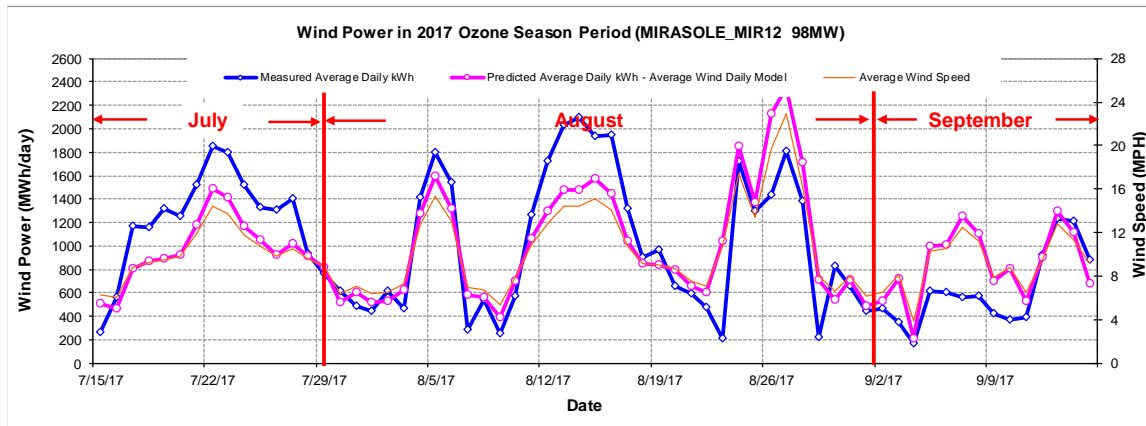
Figure 10-155: MIRASOLE\_MIR12 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.29	33,279	34,117	-2.52%	46%	47%
Feb-17	28	13.35	30,261	29,733	1.74%	46%	45%
Mar-17	31	14.29	36,340	38,655	-6.37%	50%	53%
Apr-17	30	14.70	34,954	38,609	-10.46%	50%	55%
May-17	31	12.81	35,389	33,612	5.02%	49%	46%
Jun-17	30	9.21	25,778	20,691	19.73%	37%	29%
Jul-17	31	9.39	34,068	24,955	26.75%	47%	34%
Aug-17	31	11.11	33,232	33,561	-0.99%	46%	46%
Sep-17	30	10.25	23,676	26,581	-12.27%	34%	38%
Oct-17	31	9.65	19,641	22,138	-12.71%	27%	30%
Nov-17	30	10.64	23,956	25,405	-6.05%	34%	36%
Dec-17	31	10.68	23,308	25,528	-9.53%	32%	35%
<b>Total</b>	<b>365</b>	<b>11.60</b>	<b>353,881</b>	<b>353,585</b>	<b>0.08%</b>	<b>41%</b>	<b>41%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>61,528</b>	<b>61,364</b>	<b>0.27%</b>	<b>42%</b>	<b>41%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

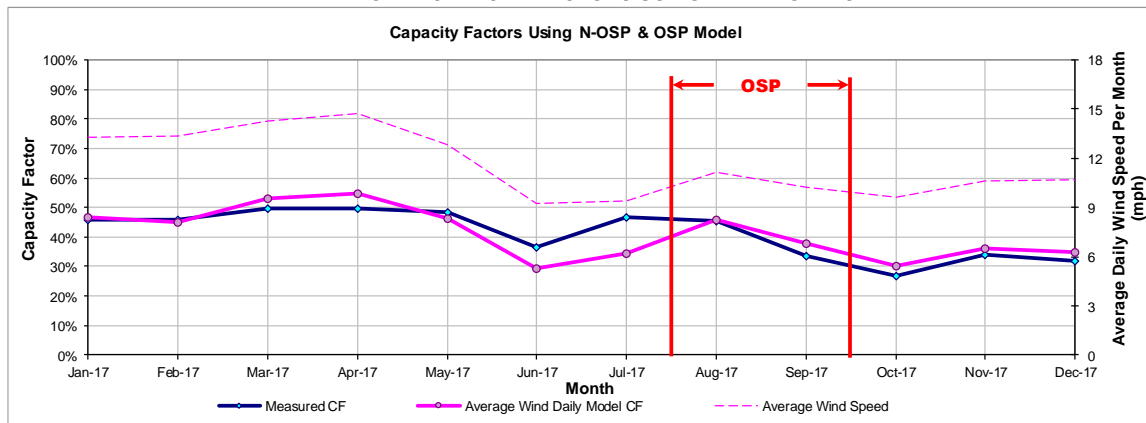


Figure 10-156: MIRASOLE\_MIR12 - Predicted Wind Power and Capacity Factor Using Daily Models

10.38.3 Hidalgo & Starr Wind - MIRASOLE\_MIR21

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
MIRASOLE_MIR21	Wind	McCook	HIDALGO	EDP Renovaveis	Hidalgo & Starr Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
50 Vestas 2 MW	ERCOT	S	Dec-16	South	CRP	100

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

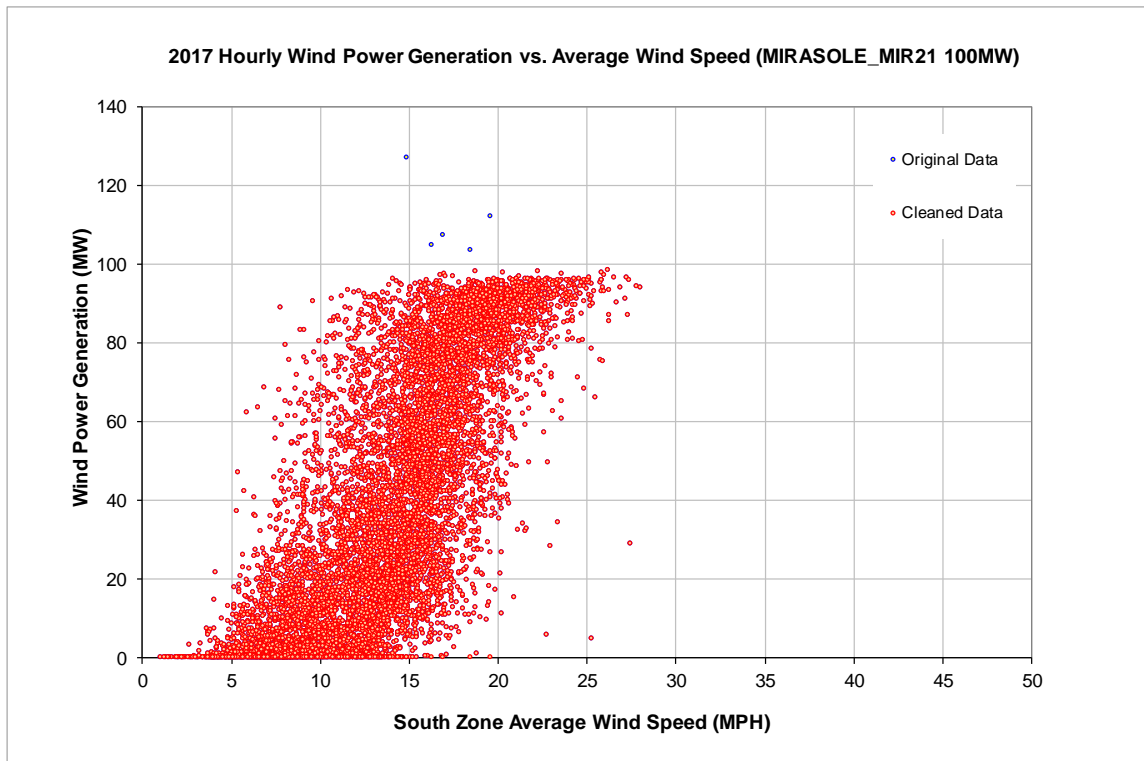


Figure 10-157: MIRASOLE\_MIR21 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

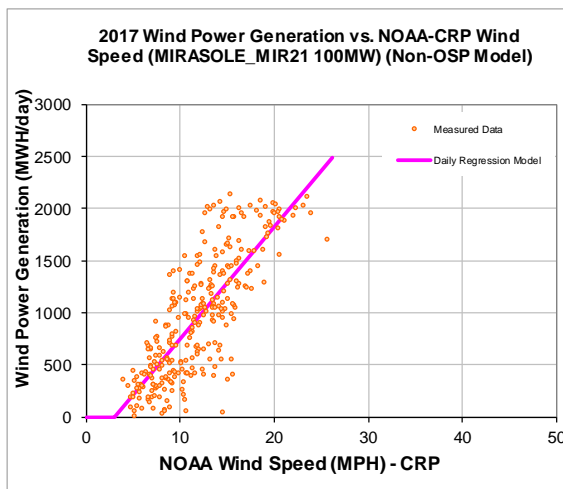
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-314.23
Left Slope (MWh/mph-day)	107.57
RMSE (MWh/day)	352.76
R2	0.63
CV-RMSE	36.5%
Daily Maximum (MWh/day)	2400

**OSP Model:**

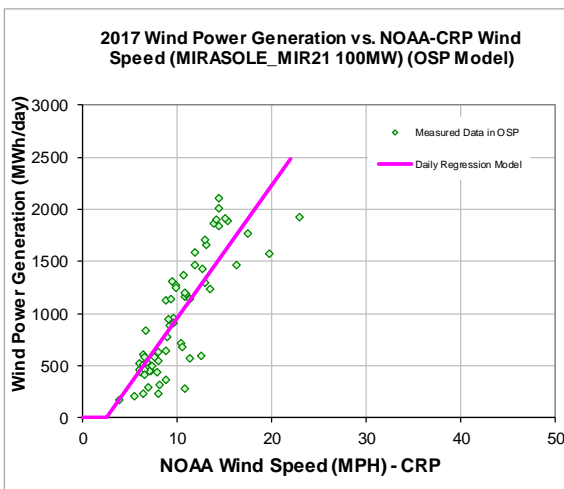
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-319.83
Left Slope (MWh/mph-day)	127.36
RMSE (MWh/day)	314.63
R2	0.69
CV-RMSE	32.2%
Daily Maximum (MWh/day)	2400

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
343,273	348,323

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
831	981

Figure 10-158: MIRASOLE\_MIR21 - Model Coefficients (Using Non-OSP and OSP Data)

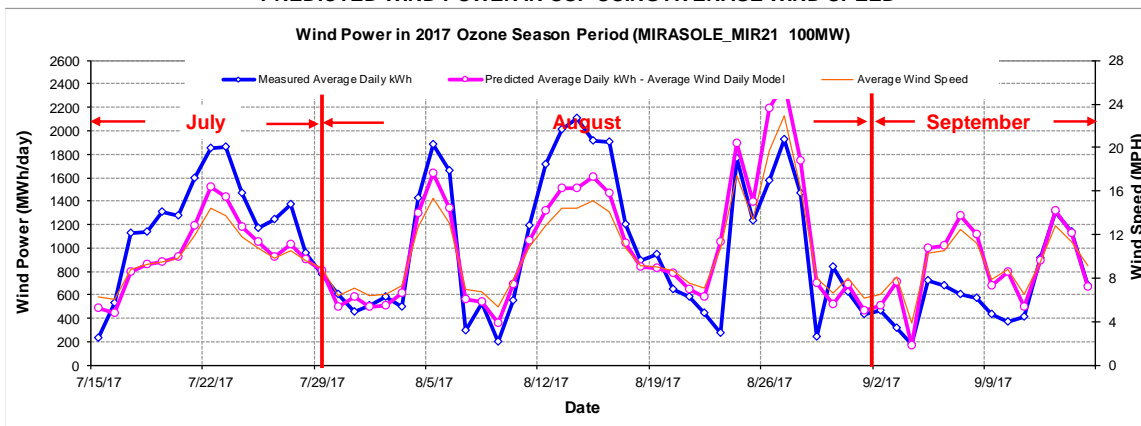


COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.29	31,751	33,466	-5.40%	43%	45%
Feb-17	28	13.35	29,770	29,165	2.03%	44%	43%
Mar-17	31	14.29	35,598	37,921	-6.53%	48%	51%
Apr-17	30	14.70	35,310	37,969	-7.53%	49%	53%
May-17	31	12.81	34,633	32,968	4.81%	47%	44%
Jun-17	30	9.21	25,841	20,280	21.52%	36%	28%
Jul-17	31	9.39	34,013	24,725	27.31%	46%	33%
Aug-17	31	11.11	33,482	33,746	-0.79%	45%	45%
Sep-17	30	10.25	22,546	26,205	-16.23%	31%	36%
Oct-17	31	9.65	19,067	21,701	-13.81%	26%	29%
Nov-17	30	10.64	23,801	24,910	-4.66%	33%	35%
Dec-17	31	10.68	22,510	25,031	-11.20%	30%	34%
Total	365	11.60	348,323	348,087	0.07%	40%	40%
Total in OSP (07/15-09/15)	63	10.19	61,604	61,405	0.32%	41%	41%

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

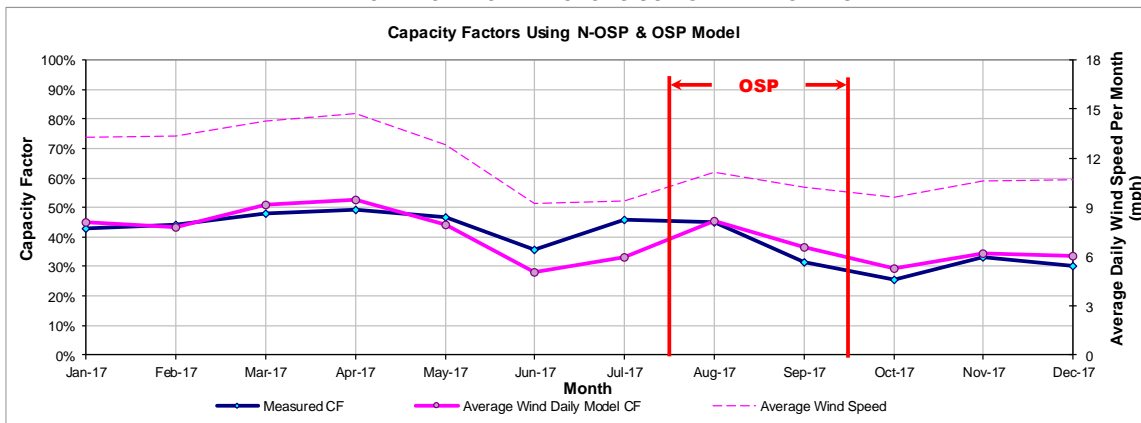


Figure 10-159: MIRASOLE\_MIR21 - Predicted Wind Power and Capacity Factor Using Daily Models

10.39 Horse Creek Wind

10.39.1 Horse Creek Wind - HORSECRK\_UNIT1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
HORSECRK_UNIT1	Wind	-	HASKELL	Lincoln Clean Energy	Horse Creek Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
57 GE 2.3 MW	ERCOT	W	Jan-17	West	ABI	131.1

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

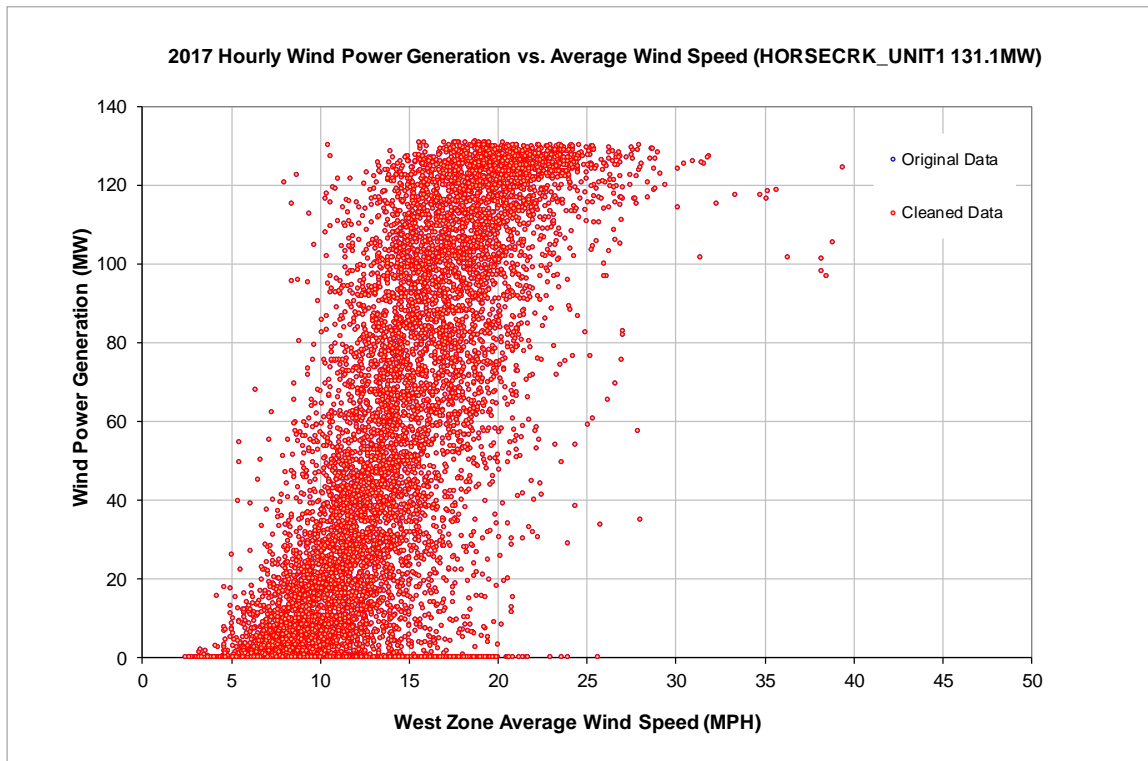


Figure 10-160: HORSECRK\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

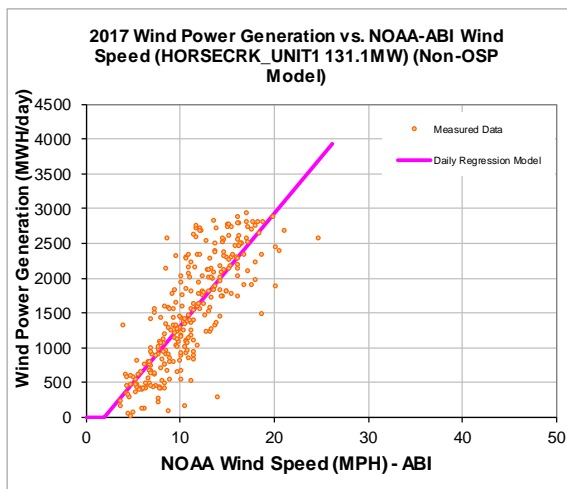
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-313.77
Left Slope (MWh/mph-day)	162.77
RMSE (MWh/day)	462.03
R2	0.66
CV-RMSE	30.9%
Daily Maximum (MWh/day)	3146

**OSP Model:**

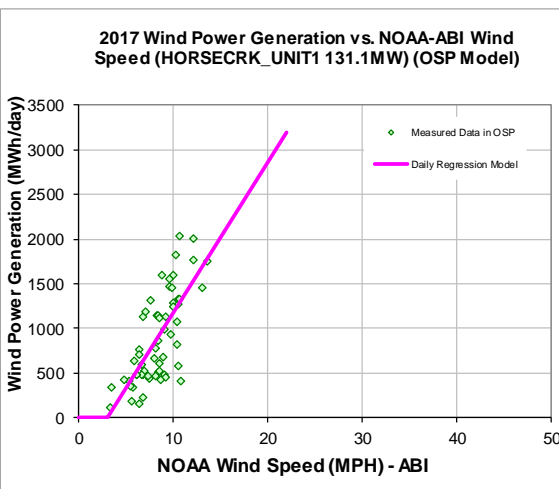
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-521.67
Left Slope (MWh/mph-day)	168.88
RMSE (MWh/day)	350.45
R2	0.53
CV-RMSE	39.6%
Daily Maximum (MWh/day)	3146

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
555,981	479,533

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
954	895

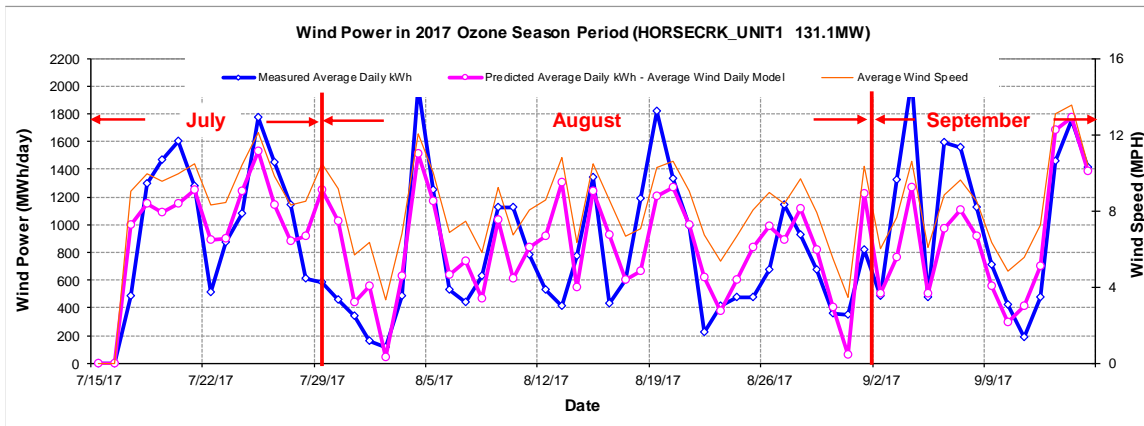
Figure 10-161: HORSECRK\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	45,189	42,922	5.02%	46%	44%
Feb-17	28	11.23	45,892	42,378	7.66%	52%	48%
Mar-17	31	12.96	52,096	55,097	-5.76%	53%	56%
Apr-17	30	13.49	53,978	56,448	-4.58%	57%	60%
May-17	31	11.55	47,929	48,565	-1.33%	49%	50%
Jun-17	30	11.07	37,931	41,673	-9.86%	40%	44%
Jul-17	31	9.18	22,259	26,224	-17.81%	23%	27%
Aug-17	31	7.87	23,775	25,014	-5.21%	24%	26%
Sep-17	30	9.51	36,045	34,629	3.93%	38%	37%
Oct-17	31	10.89	34,552	29,181	15.54%	35%	30%
Nov-17	30	10.21	43,696	40,449	7.43%	46%	43%
Dec-17	31	9.14	36,191	36,391	-0.55%	37%	37%
<b>Total</b>	<b>365</b>	<b>10.63</b>	<b>479,533</b>	<b>478,972</b>	<b>0.12%</b>	<b>42%</b>	<b>42%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>60</b>	<b>8.34</b>	<b>53,161</b>	<b>53,161</b>	<b>0.00%</b>	<b>28%</b>	<b>28%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

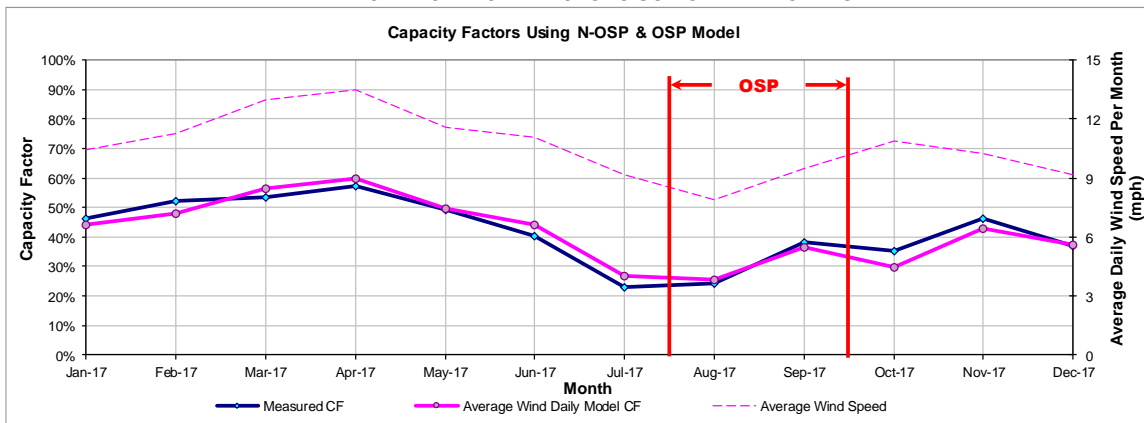


Figure 10-162: HORSECRK\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.39.2 Horse Creek Wind - HORSECRK\_UNIT2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
HORSECRK_UNIT2	Wind	-	HASKELL	Lincoln Clean Energy	Horse Creek Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
43 GE 2.3 MW	ERCOT	W	Jan-17	West	ABI	98.9

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

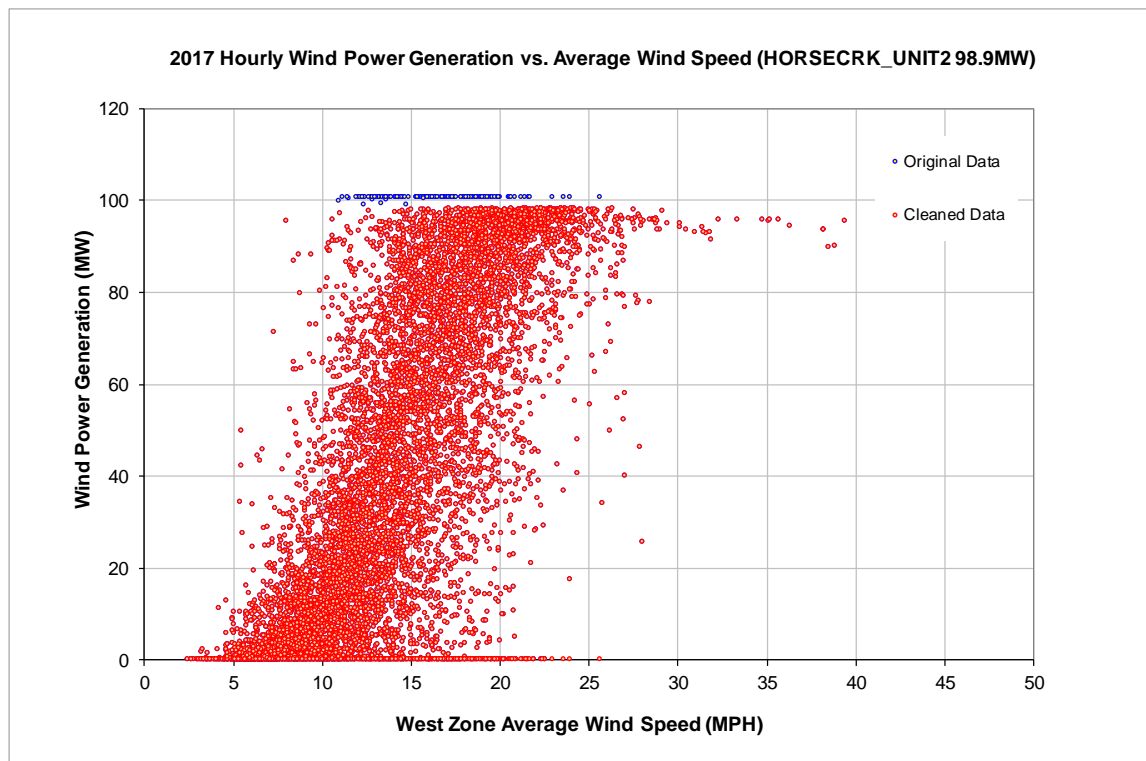


Figure 10-163: HORSECRK\_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

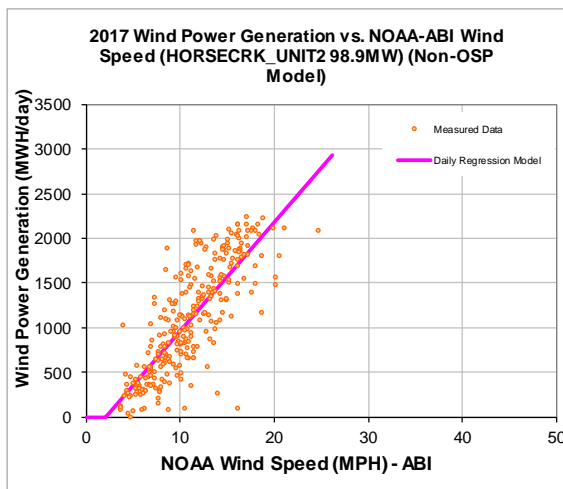
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-240.80
Left Slope (MWh/mph-day)	121.66
RMSE (MWh/day)	358.32
R2	0.65
CV-RMSE	32.5%
Daily Maximum (MWh/day)	2374

**OSP Model:**

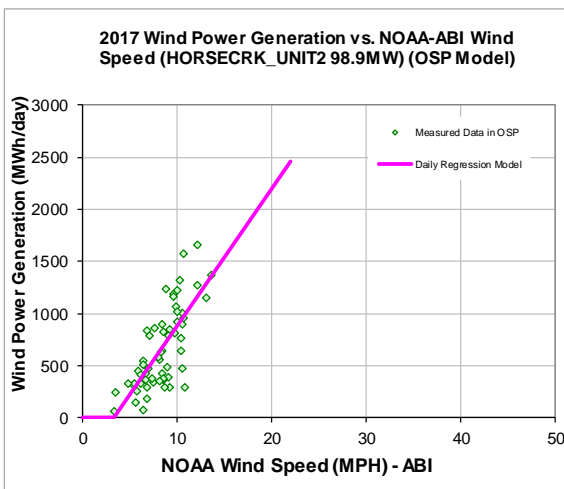
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-431.39
Left Slope (MWh/mph-day)	131.31
RMSE (MWh/day)	265.58
R2	0.54
CV-RMSE	40.1%
Daily Maximum (MWh/day)	2374

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
413,851	354,384

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
716	670

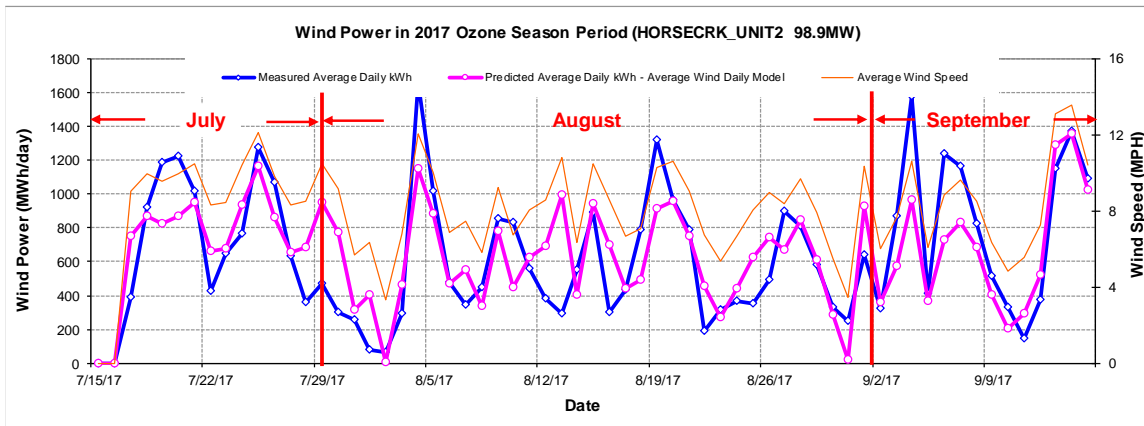
Figure 10-164: HORSECRK\_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	32,135	31,886	0.78%	44%	43%
Feb-17	28	11.23	32,378	31,498	2.72%	49%	47%
Mar-17	31	12.96	39,177	41,014	-4.69%	53%	56%
Apr-17	30	13.49	41,205	42,001	-1.93%	58%	59%
May-17	31	11.55	37,414	36,103	3.50%	51%	49%
Jun-17	30	11.07	29,381	30,971	-5.41%	41%	43%
Jul-17	31	9.18	16,214	19,640	-21.13%	22%	27%
Aug-17	31	7.87	17,923	18,649	-4.05%	24%	25%
Sep-17	30	9.51	27,883	25,785	7.52%	39%	36%
Oct-17	31	9.95	21,044	19,399	7.82%	29%	26%
Nov-17	30	10.21	31,999	30,043	6.11%	45%	42%
Dec-17	31	9.14	27,632	27,004	2.27%	38%	37%
<b>Total</b>	<b>365</b>	<b>10.58</b>	<b>354,384</b>	<b>353,992</b>	<b>0.11%</b>	<b>41%</b>	<b>41%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>60</b>	<b>8.34</b>	<b>39,786</b>	<b>39,786</b>	<b>0.00%</b>	<b>28%</b>	<b>28%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

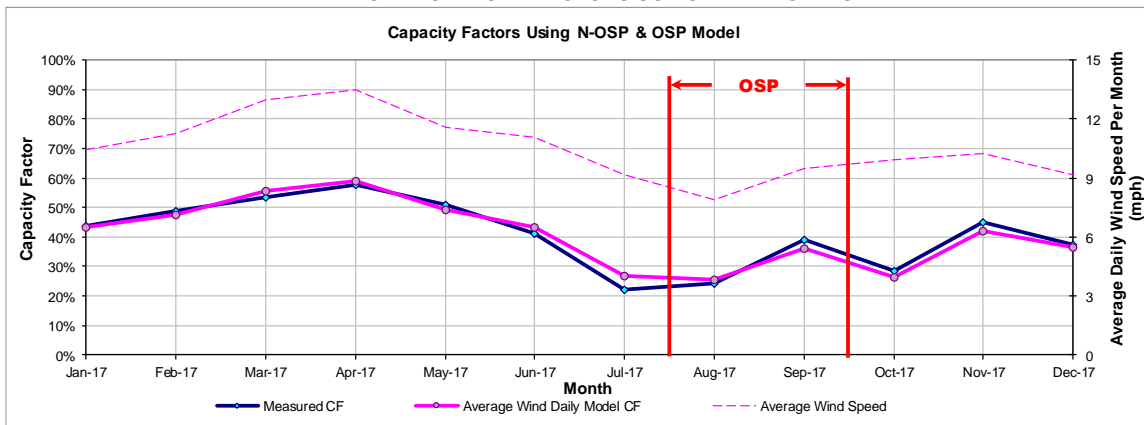


Figure 10-165: HORSECRK\_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.40 Horse Hollow Phase 1

10.40.1 Horse Hollow Phase 1 - H\_HOLLOW\_WND1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
H_HOLLOW_WND1	Wind	Abilene	TAYLOR	NextEra	Horse Hollow Phase 1

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
142 GE Energy 1.5 MW	ERCOT	W	Oct-05	West	ABI	213

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

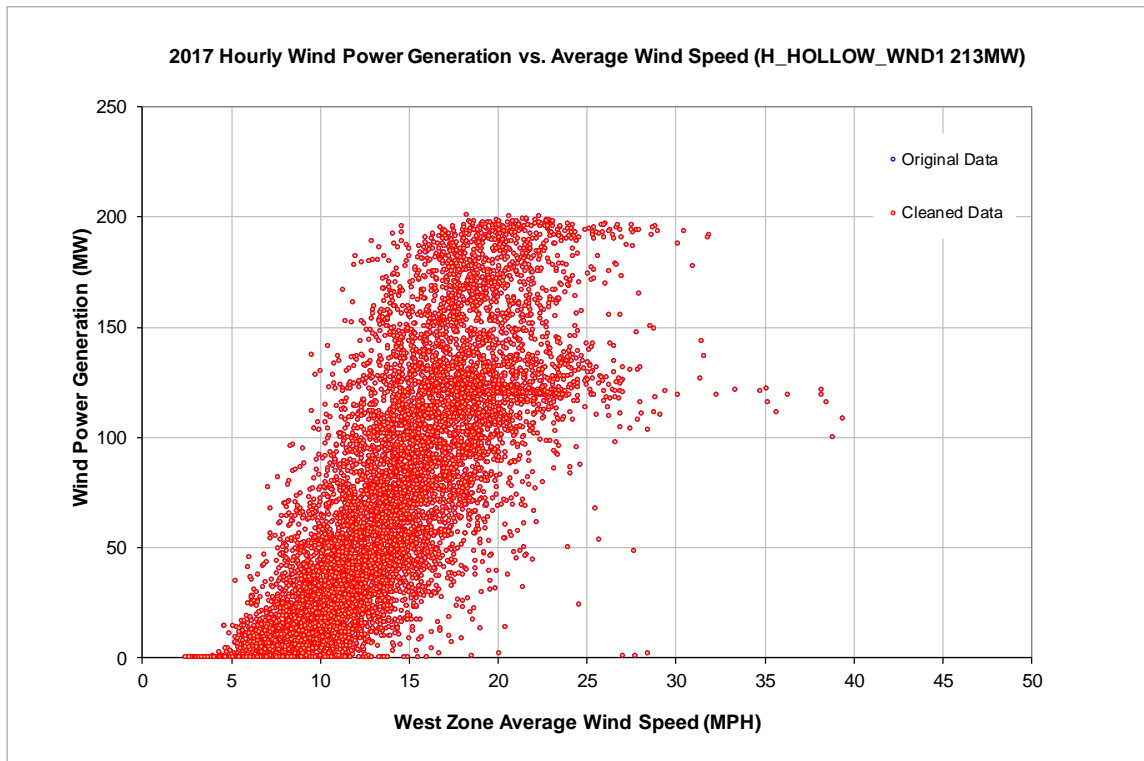


Figure 10-166: H\_HOLLOW\_WND1 - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

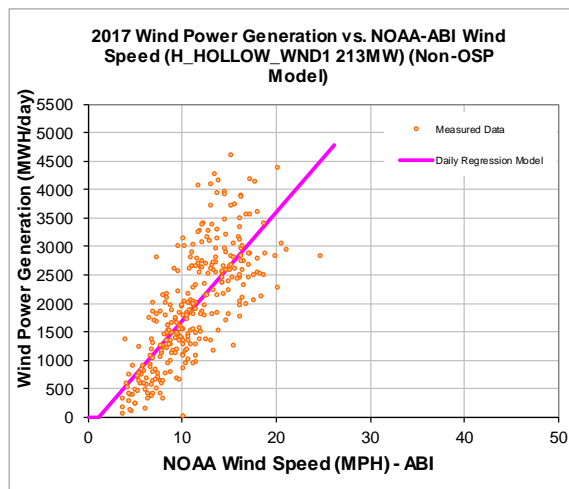
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-209.23
Left Slope (MWh/mph-day)	191.79
RMSE (MWh/day)	658.12
R2	0.57
CV-RMSE	34.3%
Daily Maximum (MWh/day)	5112

**OSP Model:**

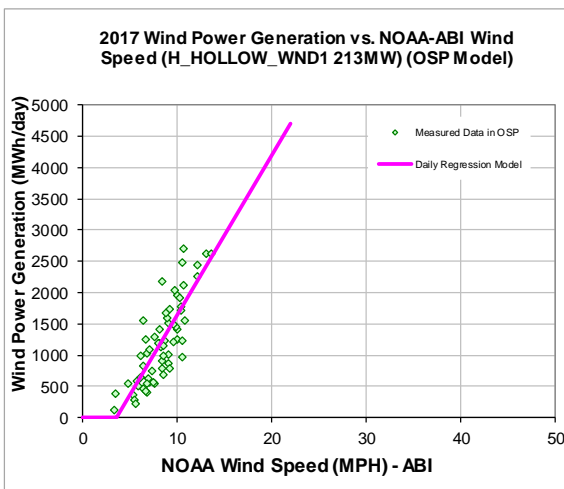
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-916.32
Left Slope (MWh/mph-day)	255.50
RMSE (MWh/day)	377.12
R2	0.68
CV-RMSE	31.2%
Daily Maximum (MWh/day)	5112

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
715,970	651,528	1,318	1,228

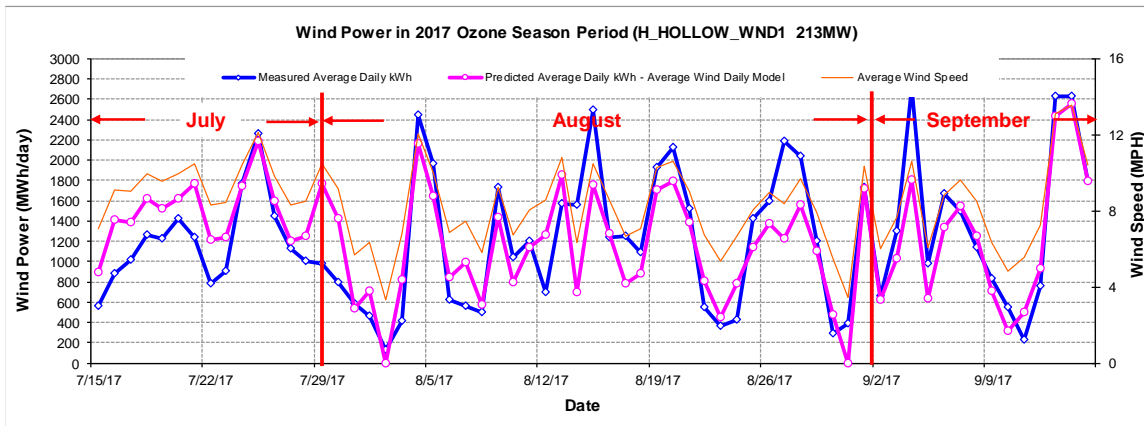
Figure 10-167: H\_HOLLOW\_WND1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	60,982	55,550	8.91%	38%	35%
Feb-17	28	11.23	55,187	54,428	1.38%	39%	38%
Mar-17	31	12.96	55,776	70,558	-26.50%	35%	45%
Apr-17	30	13.49	56,098	71,327	-27.15%	37%	47%
May-17	31	11.55	50,783	62,199	-22.48%	32%	39%
Jun-17	30	10.72	47,964	55,400	-15.50%	31%	36%
Jul-17	31	9.17	40,087	46,102	-15.01%	25%	29%
Aug-17	31	7.87	37,187	33,969	8.65%	23%	21%
Sep-17	30	9.51	49,253	45,601	7.42%	32%	30%
Oct-17	31	11.07	77,054	59,322	23.01%	49%	37%
Nov-17	30	10.21	65,765	52,475	20.21%	43%	34%
Dec-17	31	9.13	55,391	44,693	19.31%	35%	28%
<b>Total</b>	<b>365</b>	<b>10.61</b>	<b>651,528</b>	<b>651,625</b>	<b>-0.01%</b>	<b>35%</b>	<b>35%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>76,111</b>	<b>76,208</b>	<b>-0.13%</b>	<b>24%</b>	<b>24%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

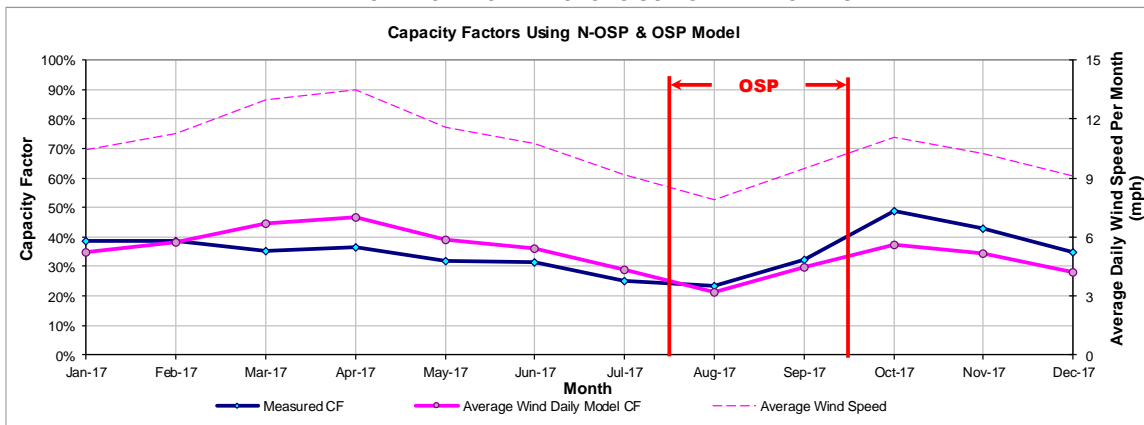


Figure 10-168: H\_HOLLOW\_WND1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.41 Horse Hollow Phase 2

10.41.1 Horse Hollow Phase 2 - HHOLLOW2\_WIND1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
HHOLLOW2_WIND1	Wind	Abilene	TAYLOR	NextEra	Horse Hollow Phase 2

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
80 Siemens 2.3 MW	ERCOT	W	May-06	West	ABI	184

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

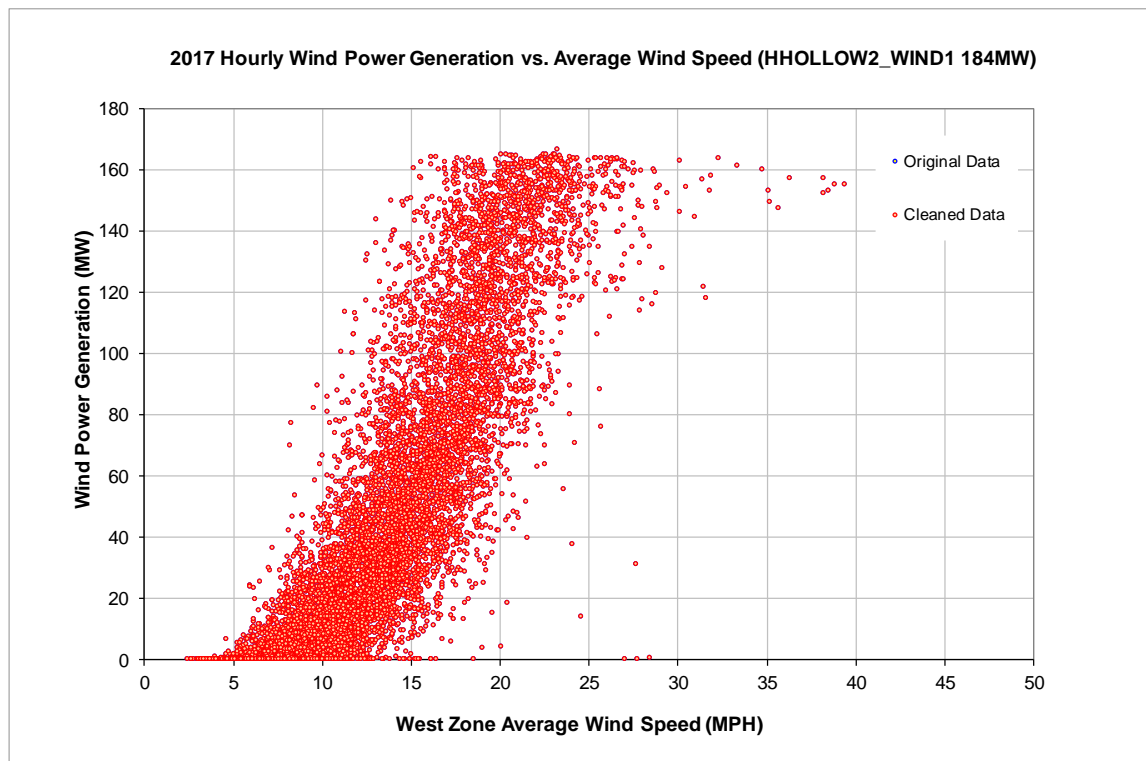


Figure 10-169: HHOLLOW2\_WIND1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

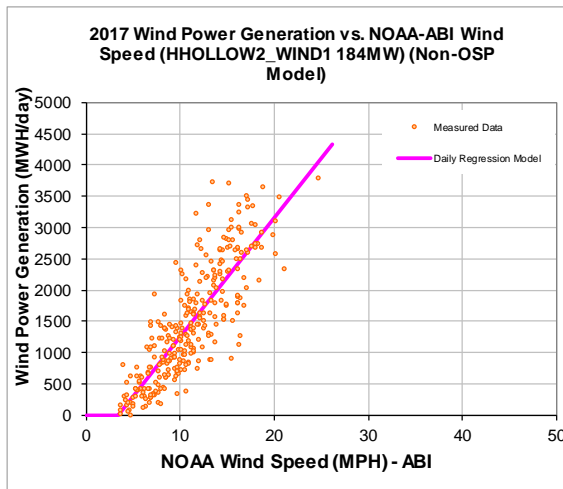
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-645.19
Left Slope (MWh/mph-day)	190.94
RMSE (MWh/day)	500.01
R2	0.70
CV-RMSE	34.0%
Daily Maximum (MWh/day)	4416

**OSP Model:**

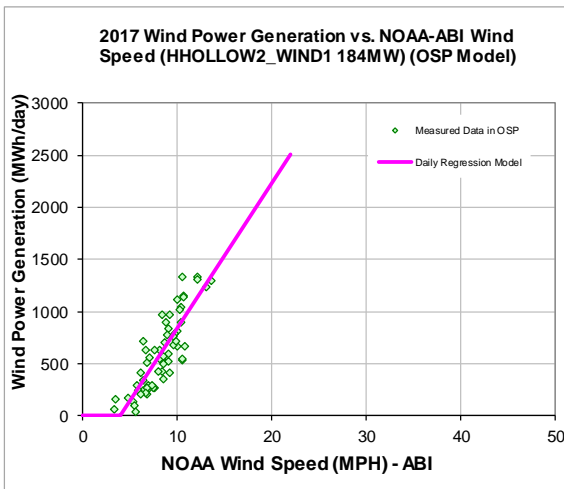
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-558.57
Left Slope (MWh/mph-day)	139.40
RMSE (MWh/day)	186.14
R2	0.72
CV-RMSE	31.0%
Daily Maximum (MWh/day)	4416

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
539,428	478,612	661	608

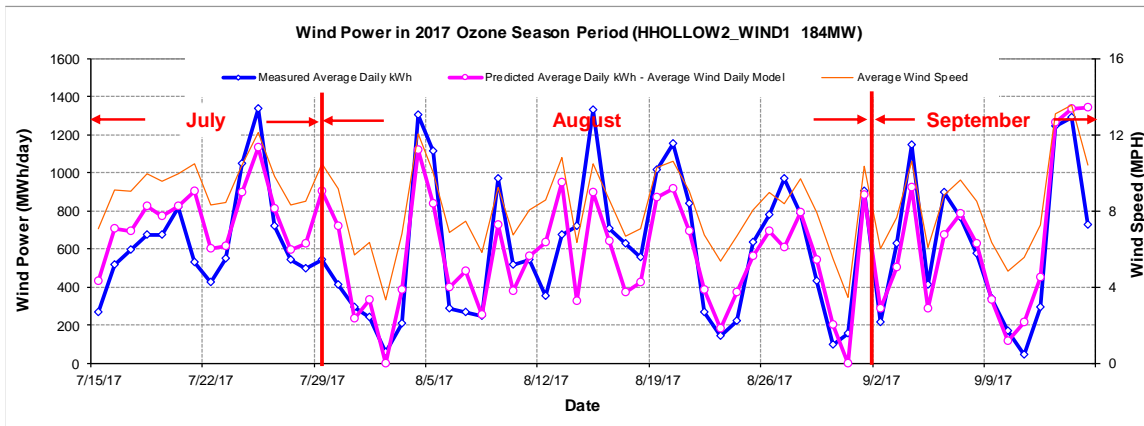
Figure 10-170: HHOLLOW2\_WIND1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	42,406	41,761	1.52%	31%	31%
Feb-17	28	11.23	41,397	41,954	-1.35%	33%	34%
Mar-17	31	12.96	57,834	56,702	1.96%	42%	41%
Apr-17	30	13.49	56,502	57,904	-2.48%	43%	44%
May-17	31	11.55	46,109	48,380	-4.92%	34%	35%
Jun-17	30	10.72	41,945	42,048	-0.24%	32%	32%
Jul-17	31	9.17	22,854	27,610	-20.81%	17%	20%
Aug-17	31	7.87	18,342	16,773	8.55%	13%	12%
Sep-17	30	9.51	23,052	30,192	-30.97%	17%	23%
Oct-17	31	11.07	39,934	45,516	-13.98%	29%	33%
Nov-17	30	10.21	48,473	39,136	19.26%	37%	30%
Dec-17	31	8.94	39,763	30,807	22.52%	29%	23%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>478,612</b>	<b>478,782</b>	<b>-0.04%</b>	<b>30%</b>	<b>30%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>37,830</b>	<b>38,001</b>	<b>-0.45%</b>	<b>14%</b>	<b>14%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

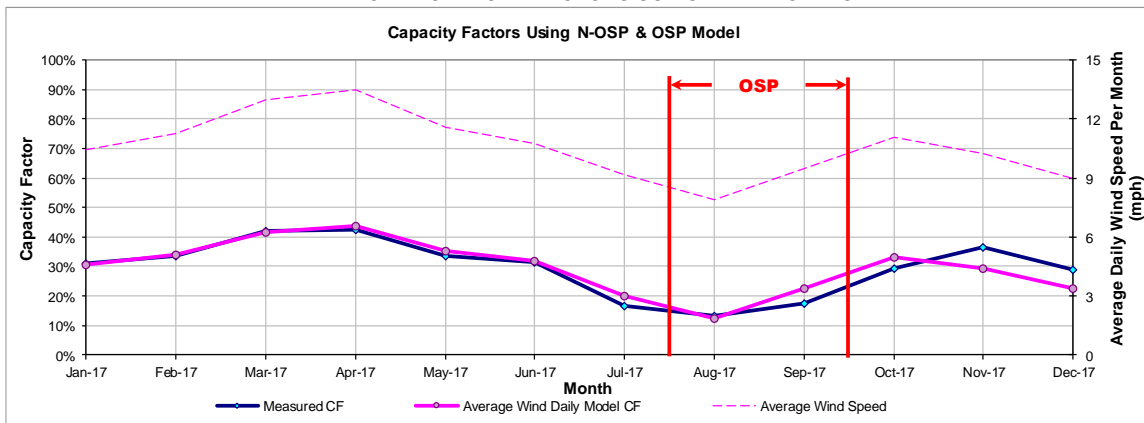


Figure 10-171: HHOLLOW2\_WIND1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.41.2 Horse Hollow Phase 2 - HHOLLOW4\_WND1

**SITE INFORMATION**

GENSITECODE_EERCOT	Renewable Energy	City	County	Company	Facility
HHOLLOW4_WND1	Wind	Abilene	TAYLOR	NextEra	Horse Hollow Phase 2

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
50 Siemens 2.3 MW	ERCOT	W	May-06	West	ABI	115

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

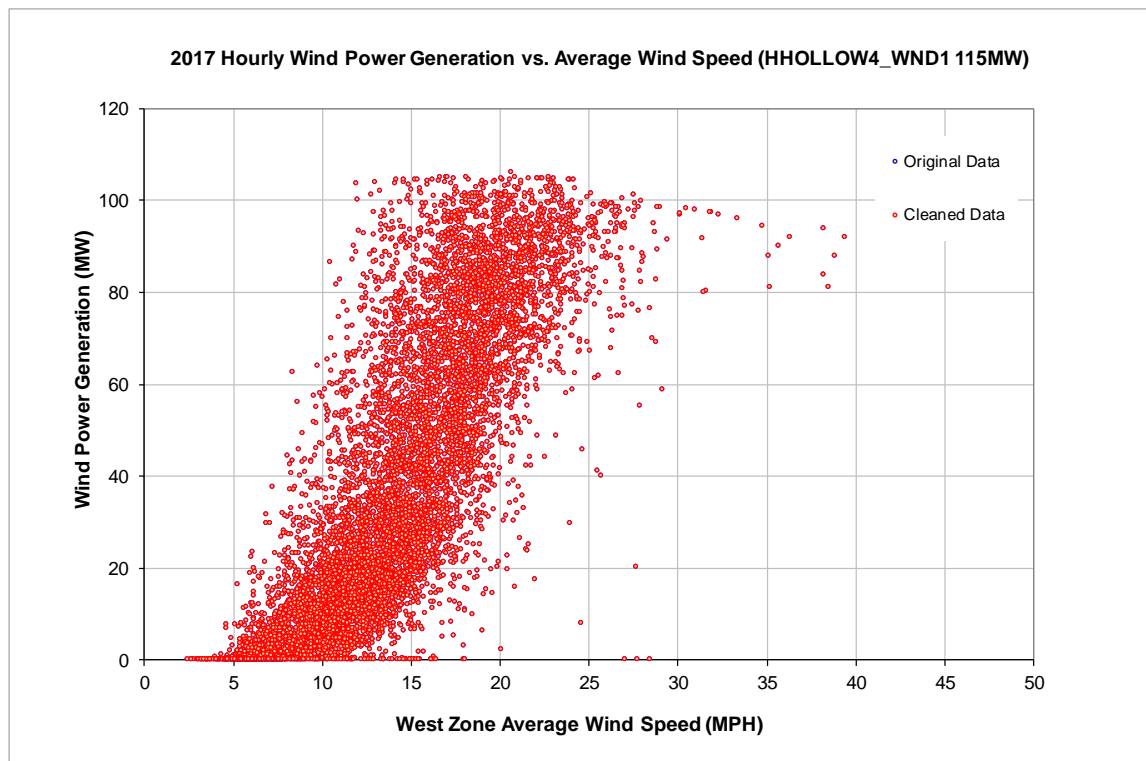


Figure 10-172: HHOLLOW4\_WND1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

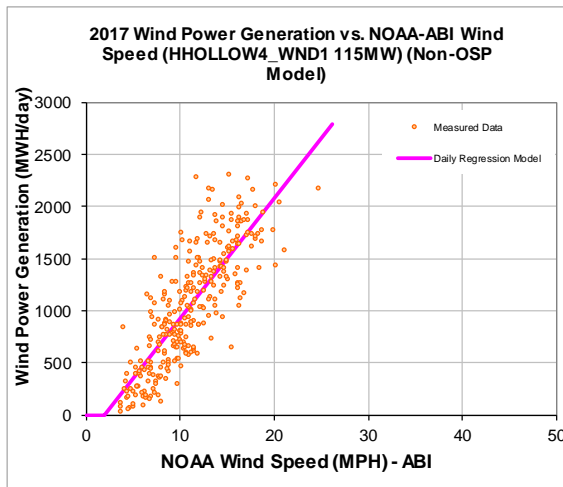
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-221.56
Left Slope (MWh/mph-day)	115.28
RMSE (MWh/day)	324.27
R2	0.67
CV-RMSE	30.7%
Daily Maximum (MWh/day)	2760

**OSP Model:**

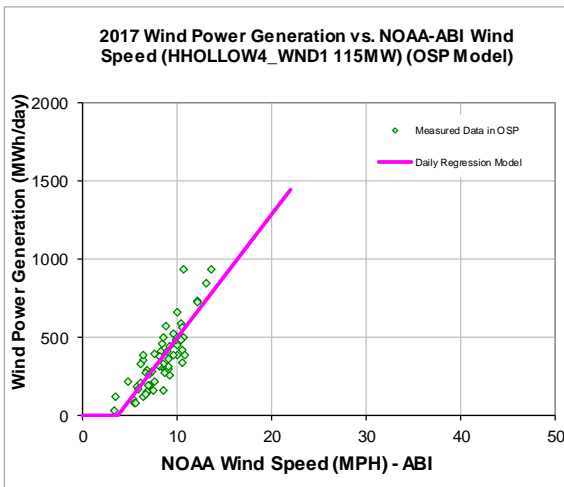
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-290.35
Left Slope (MWh/mph-day)	78.96
RMSE (MWh/day)	109.28
R2	0.71
CV-RMSE	29.8%
Daily Maximum (MWh/day)	2760

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
376,640	339,275

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
400	373

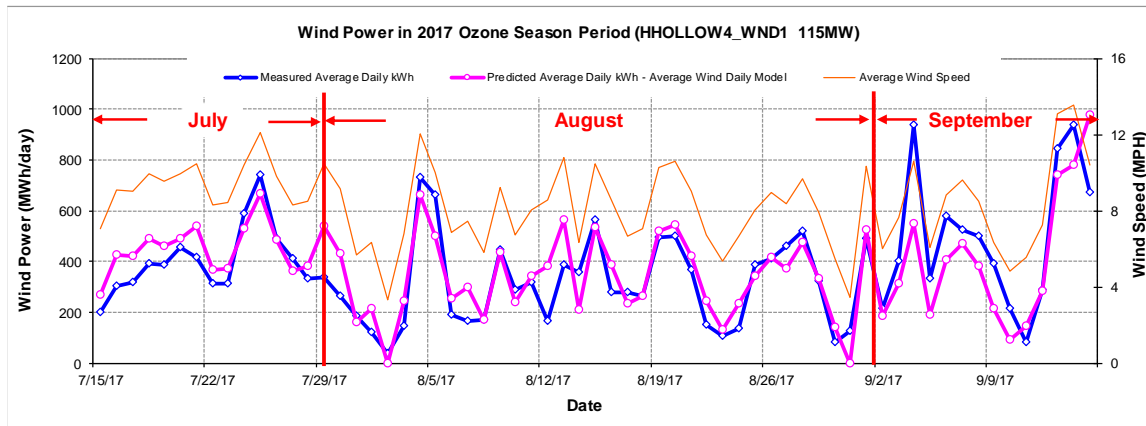
Figure 10-173: HHOLLOW4\_WND1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	32,624	30,422	6.75%	38%	36%
Feb-17	28	11.23	29,951	30,034	-0.28%	39%	39%
Mar-17	31	12.96	38,380	39,443	-2.77%	45%	46%
Apr-17	30	13.49	36,817	40,000	-8.65%	44%	48%
May-17	31	11.55	29,907	34,418	-15.08%	35%	40%
Jun-17	30	10.72	24,258	30,427	-25.43%	29%	37%
Jul-17	31	9.17	14,517	18,996	-30.85%	17%	22%
Aug-17	31	7.87	9,717	10,282	-5.82%	11%	12%
Sep-17	30	9.51	19,764	20,790	-5.19%	24%	25%
Oct-17	31	11.07	36,546	32,689	10.55%	43%	38%
Nov-17	30	10.21	36,244	28,669	20.90%	44%	35%
Dec-17	31	9.09	30,549	23,151	24.22%	36%	27%
<b>Total</b>	<b>365</b>	<b>10.61</b>	<b>339,275</b>	<b>339,319</b>	<b>-0.01%</b>	<b>34%</b>	<b>34%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>23,068</b>	<b>23,113</b>	<b>-0.19%</b>	<b>13%</b>	<b>13%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

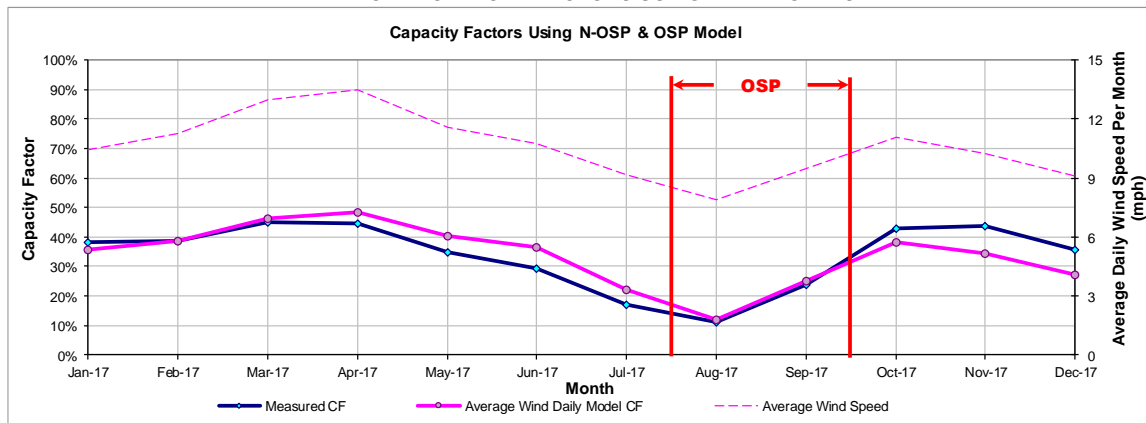


Figure 10-174: HHOLLOW4\_WND1 - Predicted Wind Power and Capacity Factor Using Daily Models



10.42 Horse Hollow Phase 3

10.42.1 Horse Hollow Phase 3 - HHOLLOW3\_WND\_1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
HHOLLOW3_WND_1	Wind	Abilene	TAYLOR	NextEra	Horse Hollow Phase 3

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
149 GE 1.5 MW	ERCOT	W	Sep-06	West	ABI	223.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

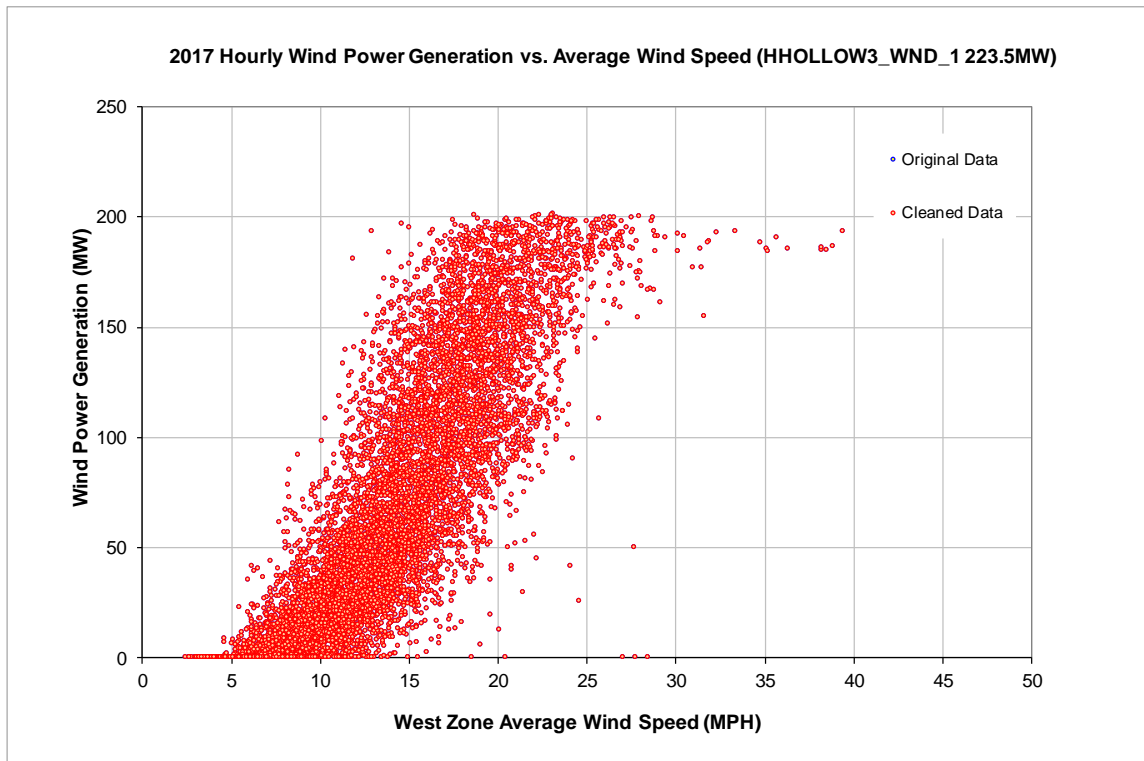


Figure 10-175: HHOLLOW3\_WND\_1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

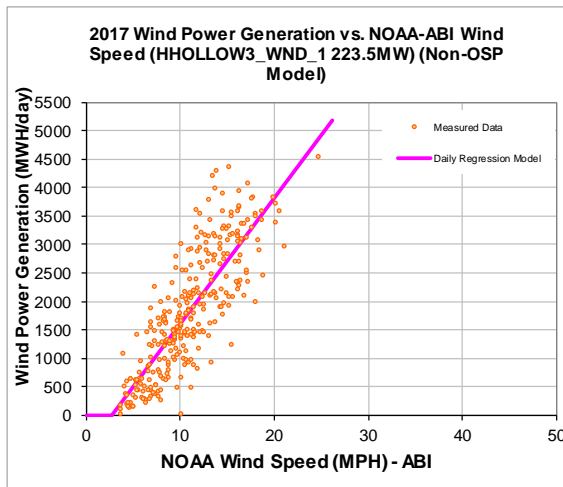
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-606.65
Left Slope (MWh/mph-day)	222.13
RMSE (MWh/day)	614.66
R2	0.67
CV-RMSE	33.1%
Daily Maximum (MWh/day)	5364

**OSP Model:**

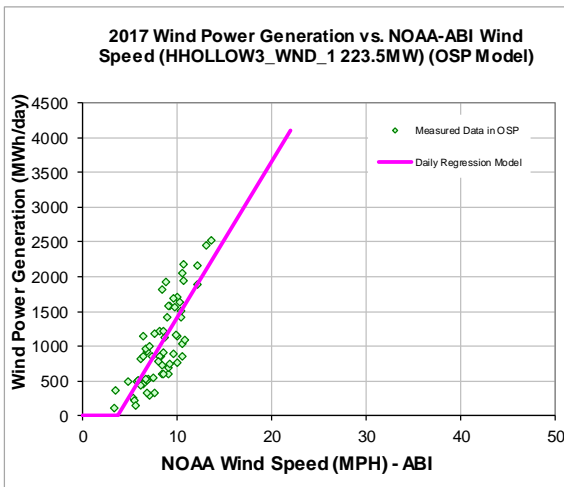
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-824.78
Left Slope (MWh/mph-day)	223.95
RMSE (MWh/day)	364.28
R2	0.64
CV-RMSE	35.1%
Daily Maximum (MWh/day)	5364

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
694,102	622,492

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
1,134	1,055

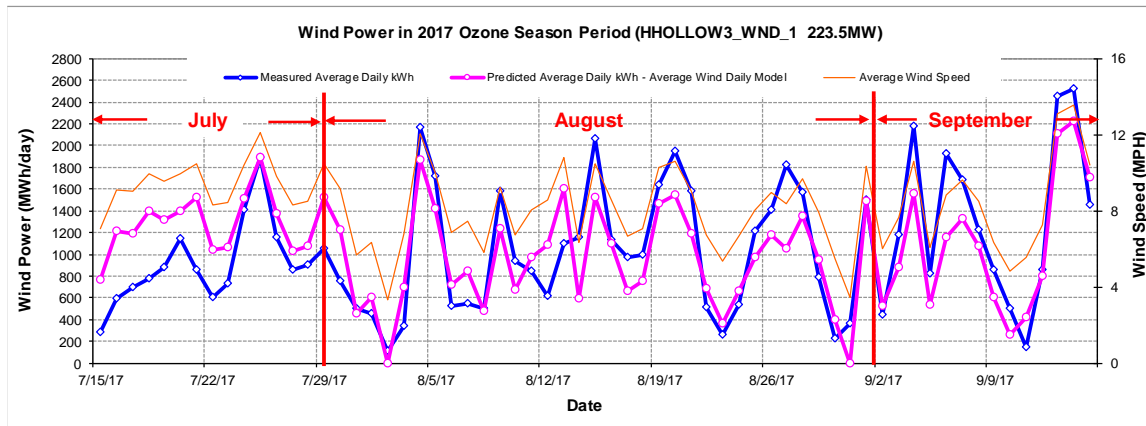
Figure 10-176: HHOLLOW3\_WND\_1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	56,381	53,044	5.92%	34%	32%
Feb-17	28	11.23	52,704	52,837	-0.25%	35%	35%
Mar-17	31	12.96	70,902	70,425	0.67%	43%	42%
Apr-17	30	13.49	68,668	71,680	-4.39%	43%	45%
May-17	31	11.55	51,066	60,744	-18.95%	31%	37%
Jun-17	30	10.72	33,930	53,234	-56.89%	21%	33%
Jul-17	31	9.17	26,757	40,932	-52.98%	16%	25%
Aug-17	31	7.87	31,753	29,126	8.28%	19%	18%
Sep-17	30	9.51	48,237	42,144	12.63%	30%	26%
Oct-17	31	11.07	73,377	57,412	21.76%	44%	35%
Nov-17	30	10.21	59,637	49,846	16.42%	37%	31%
Dec-17	31	9.13	49,080	41,198	16.06%	30%	25%
<b>Total</b>	<b>365</b>	<b>10.61</b>	<b>622,492</b>	<b>622,621</b>	<b>-0.02%</b>	<b>32%</b>	<b>32%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>65,351</b>	<b>65,479</b>	<b>-0.20%</b>	<b>19%</b>	<b>19%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

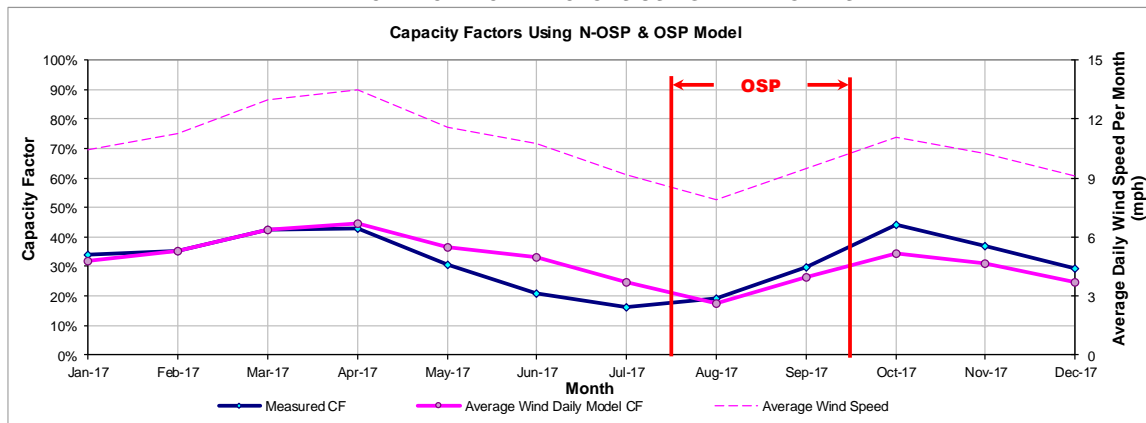


Figure 10-177: HHOLLOW3\_WND\_1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.43 Inadale Wind

10.43.1 Inadale Wind - INDL\_INADALE1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
INDL_INADALE1	Wind	-	NOLAN	E.On Climate & Renewables	Inadale

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
197 Mitsubishi 1 MW	ERCOT	W	Nov-08	West	ABI	197

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

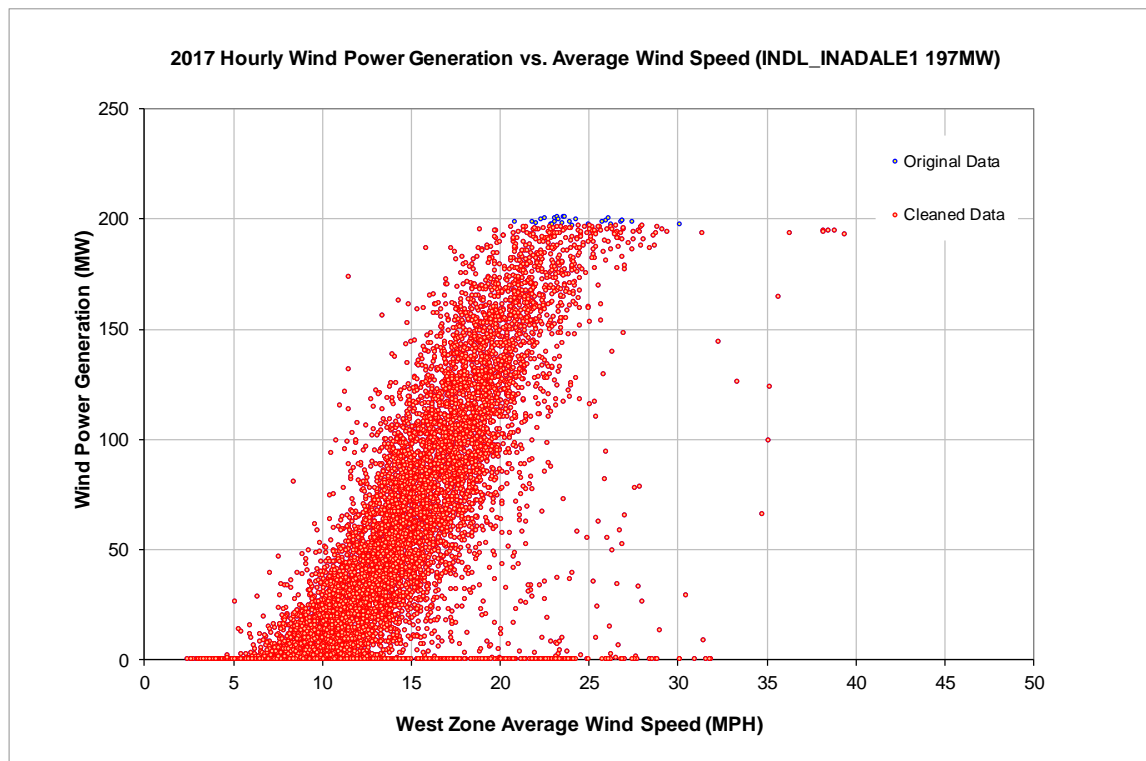


Figure 10-178: INDL\_INADALE1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

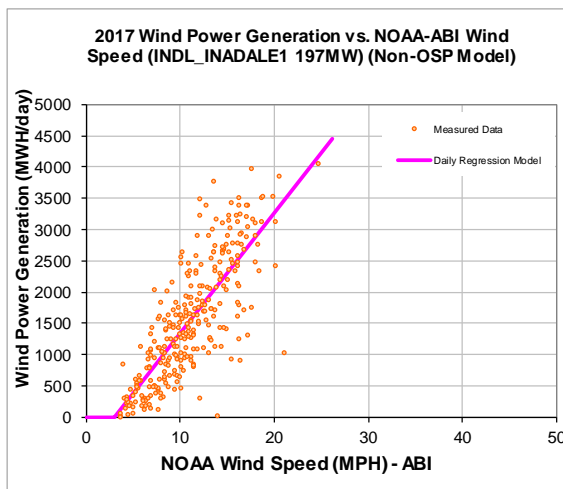
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-573.87
Left Slope (MWh/mph-day)	192.22
RMSE (MWh/day)	583.94
R2	0.63
CV-RMSE	37.3%
Daily Maximum (MWh/day)	4728

**OSP Model:**

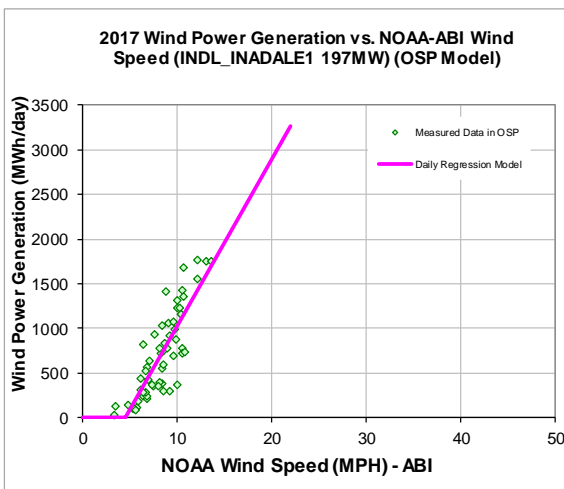
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-831.55
Left Slope (MWh/mph-day)	186.24
RMSE (MWh/day)	263.90
R2	0.71
CV-RMSE	36.7%
Daily Maximum (MWh/day)	4728

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
574,398	506,888

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
800	724

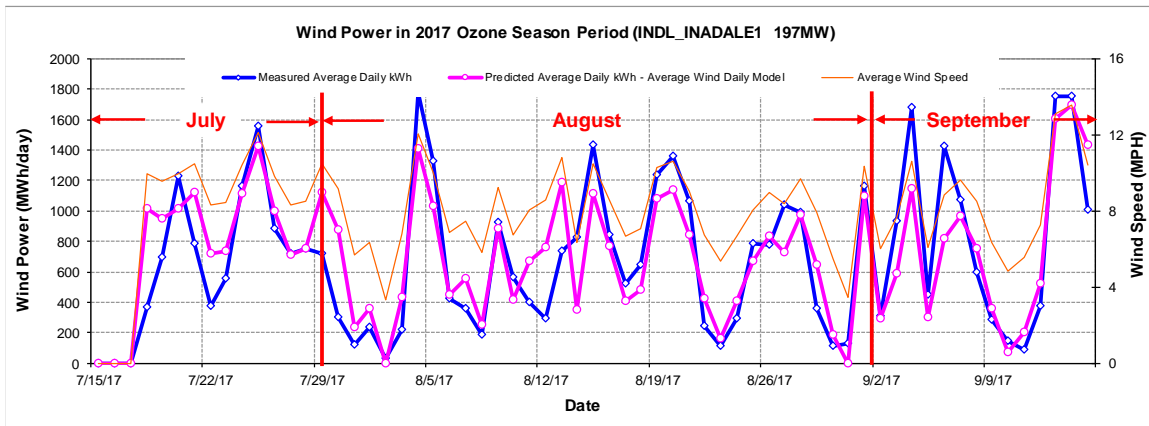
Figure 10-179: INDL\_INADALE1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	45,920	44,386	3.34%	31%	30%
Feb-17	28	11.23	44,191	44,353	-0.37%	33%	34%
Mar-17	31	12.96	61,314	59,427	3.08%	42%	41%
Apr-17	30	13.49	57,811	60,561	-4.76%	41%	43%
May-17	31	11.55	51,297	51,049	0.48%	35%	35%
Jun-17	30	10.72	42,390	44,599	-5.21%	30%	31%
Jul-17	31	9.30	19,867	25,048	-26.08%	14%	17%
Aug-17	31	7.87	20,196	19,852	1.70%	14%	14%
Sep-17	30	9.51	34,022	33,193	2.44%	24%	23%
Oct-17	31	11.07	50,535	48,166	4.69%	34%	33%
Nov-17	30	10.21	42,548	41,668	2.07%	30%	29%
Dec-17	31	9.26	36,798	34,985	4.93%	25%	24%
<b>Total</b>	<b>365</b>	<b>10.66</b>	<b>506,888</b>	<b>507,286</b>	<b>-0.08%</b>	<b>29%</b>	<b>29%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>59</b>	<b>8.32</b>	<b>42,405</b>	<b>42,803</b>	<b>-0.94%</b>	<b>15%</b>	<b>15%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

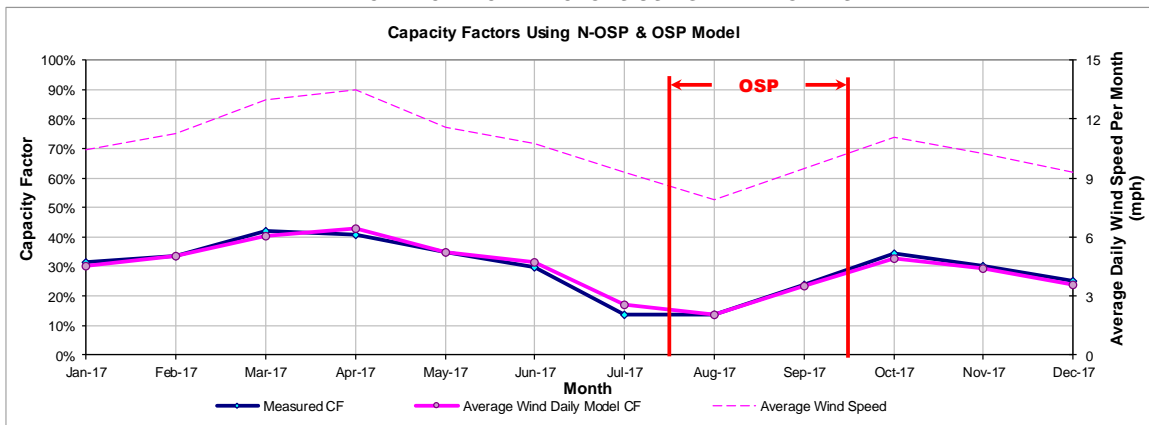


Figure 10-180: INDL\_INADALE1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.44 Indian Mesa I

10.44.1 Indian Mesa I - INDNNWP\_INDNNWP

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
INDNNWP_INDNNWP	Wind	Iraan	PECOS	Orion Energy/American National Wind Power	Indian Mesa

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
125 Vestas 0.66 MW	ERCOT	W	Jun-01	West	FST	82.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

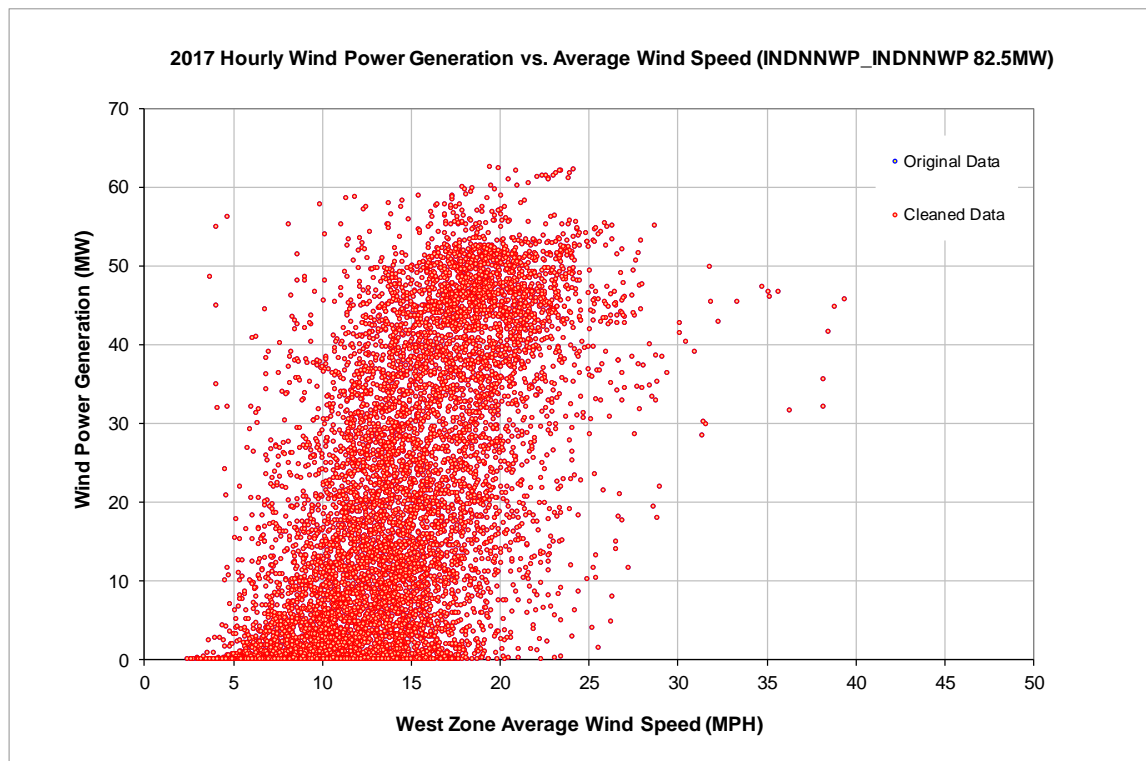


Figure 10-181: INDNNWP\_INDNNWP - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

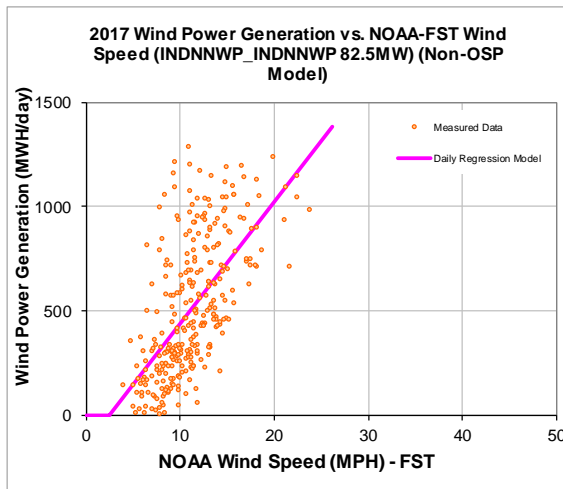
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-140.60
Left Slope (MWh/mph-day)	58.46
RMSE (MWh/day)	255.12
R2	0.38
CV-RMSE	49.6%
Daily Maximum (MWh/day)	1980

**OSP Model:**

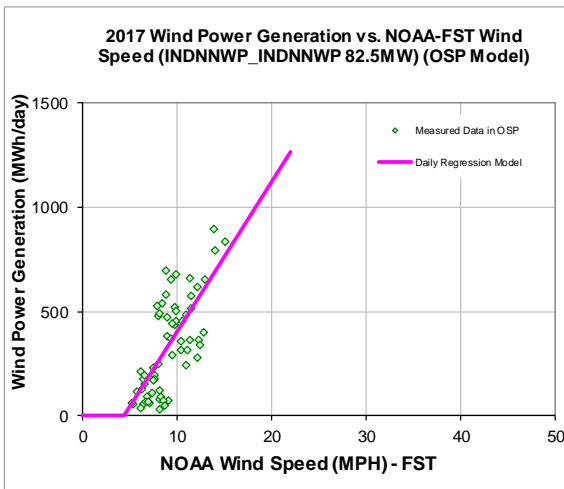
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-320.41
Left Slope (MWh/mph-day)	72.16
RMSE (MWh/day)	160.28
R2	0.52
CV-RMSE	47.8%
Daily Maximum (MWh/day)	1980

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
176,465	175,553

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
319	341

Figure 10-182: INDNNWP\_INDNNWP - Model Coefficients (Using Non-OSP and OSP Data)

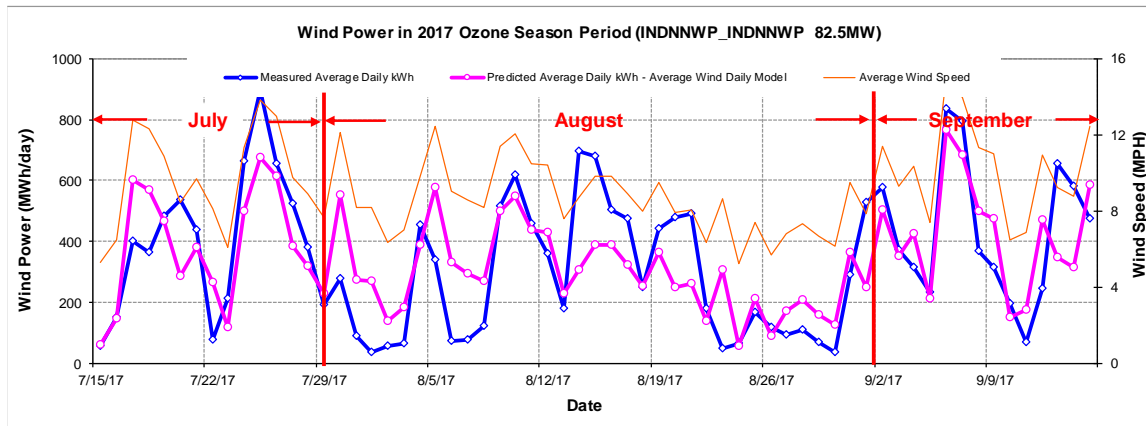


COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (FST) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.81	11,427	14,733	-28.93%	19%	24%
Feb-17	28	11.24	11,947	14,464	-21.07%	22%	26%
Mar-17	31	11.81	20,594	17,053	17.20%	34%	28%
Apr-17	30	13.08	20,126	18,721	6.98%	34%	32%
May-17	31	12.22	16,202	17,796	-9.84%	26%	29%
Jun-17	30	11.10	15,057	15,247	-1.26%	25%	26%
Jul-17	31	11.01	14,696	14,764	-0.47%	24%	24%
Aug-17	31	8.40	8,336	8,863	-6.33%	14%	14%
Sep-17	30	11.19	15,468	14,756	4.60%	26%	25%
Oct-17	31	10.91	17,685	14,909	15.70%	29%	24%
Nov-17	30	9.40	13,422	12,261	8.65%	23%	21%
Dec-17	31	9.02	10,594	11,986	-13.15%	17%	20%
Total	365	10.84	175,553	175,553	0.00%	24%	24%
Total in OSP (07/15-09/15)	63	9.09	21,137	21,137	0.00%	17%	17%

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

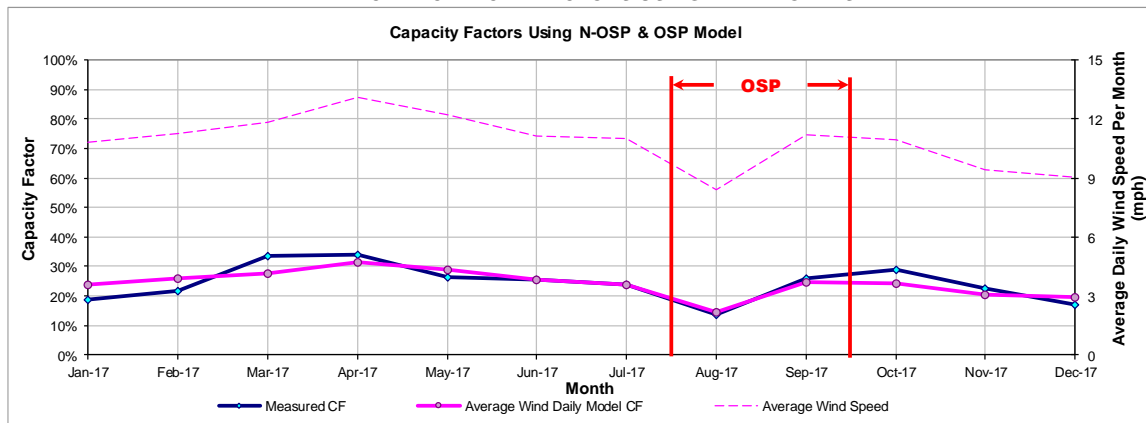


Figure 10-183: INDNNWP\_INDNNWP - Predicted Wind Power and Capacity Factor Using Daily Models

10.45 Javelina 2 Wind

10.45.1 Javelina 2 Wind - BORDAS2\_JAVEL2\_A

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
BORDAS2_JAVEL2_A	Wind	Mirando	ZAPATA	NextEra	Javelina 2 Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
48 GE 2 MW	ERCOT	S	Feb-17	South	CRP	96

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

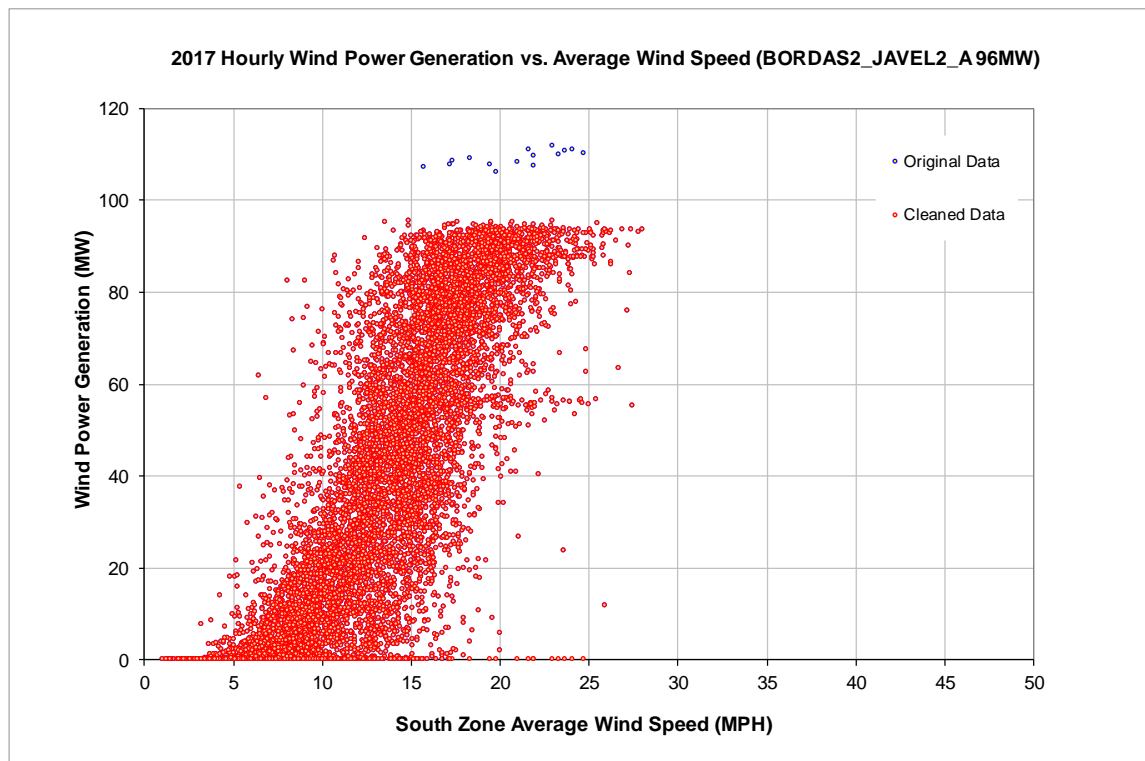


Figure 10-184: BORDAS2\_JAVEL2\_A - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

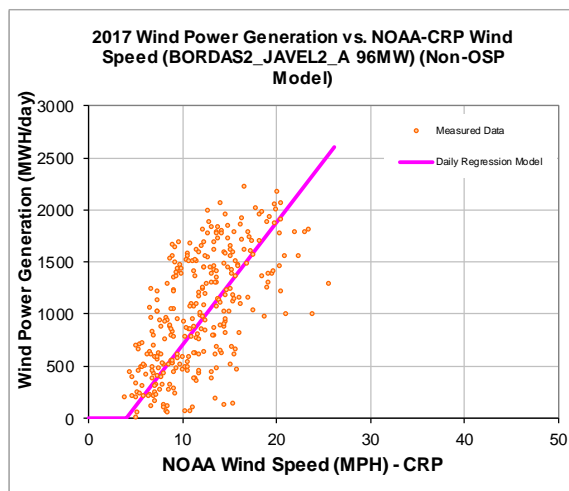
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	73.54
Left Slope (MWh/mph-day)	79.53
RMSE (MWh/day)	426.92
R2	0.39
CV-RMSE	41.9%
Daily Maximum (MWh/day)	2304

**OSP Model:**

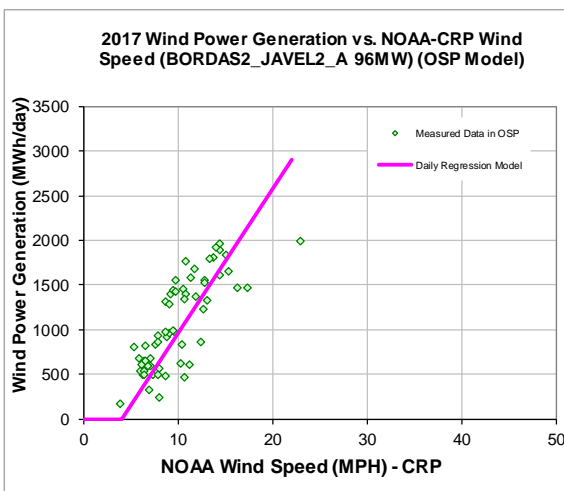
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-92.01
Left Slope (MWh/mph-day)	115.34
RMSE (MWh/day)	312.16
R2	0.63
CV-RMSE	29.3%
Daily Maximum (MWh/day)	2304

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
367,638	372,600

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
950	1,074

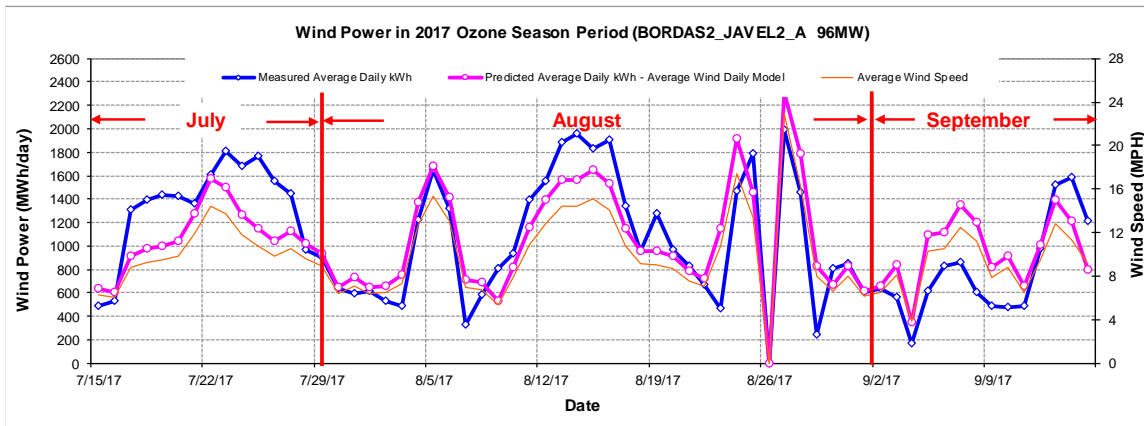
Figure 10-185: BORDAS2\_JAVEL2\_A - Model Coefficients (Using Non-OSP and OSP Data)

COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	31,396	34,872	-11.07%	44%	49%
Feb-17	28	13.29	27,094	31,649	-16.81%	42%	49%
Mar-17	31	14.29	36,107	37,519	-3.91%	51%	53%
Apr-17	30	14.70	38,381	37,277	2.88%	56%	54%
May-17	31	12.81	38,479	33,857	12.01%	54%	47%
Jun-17	30	9.21	29,783	24,170	18.84%	43%	35%
Jul-17	31	9.39	40,080	28,481	28.94%	56%	40%
Aug-17	31	10.82	33,836	34,439	-1.78%	47%	48%
Sep-17	30	10.25	28,690	28,967	-0.96%	42%	42%
Oct-17	31	9.56	24,568	25,845	-5.20%	34%	36%
Nov-17	30	10.64	22,943	27,594	-20.27%	33%	40%
Dec-17	31	10.68	21,245	27,683	-30.30%	30%	39%
<b>Total</b>	<b>365</b>	<b>11.57</b>	<b>372,600</b>	<b>372,353</b>	<b>0.07%</b>	<b>44%</b>	<b>44%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>62</b>	<b>10.04</b>	<b>66,059</b>	<b>65,812</b>	<b>0.37%</b>	<b>46%</b>	<b>46%</b>

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

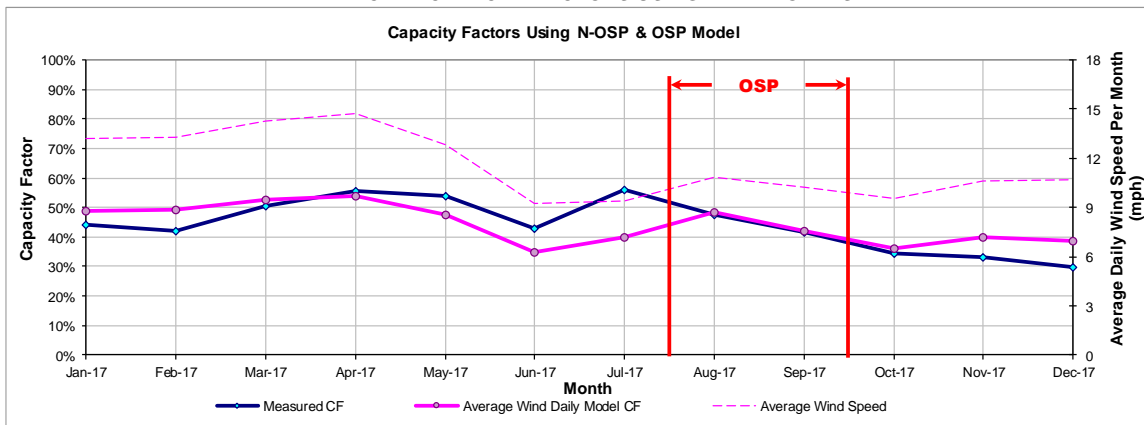


Figure 10-186: BORDAS2\_JAVEL2\_A - Predicted Wind Power and Capacity Factor Using Daily Models

10.45.2 Javelina 2 Wind - BORDAS2\_JAVEL2\_B

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
BORDAS2_JAVEL2_B	Wind	Mirando	ZAPATA	NextEra	Javelina 2 Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
37 GE 2 MW	ERCOT	S	Feb-17	South	CRP	74

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

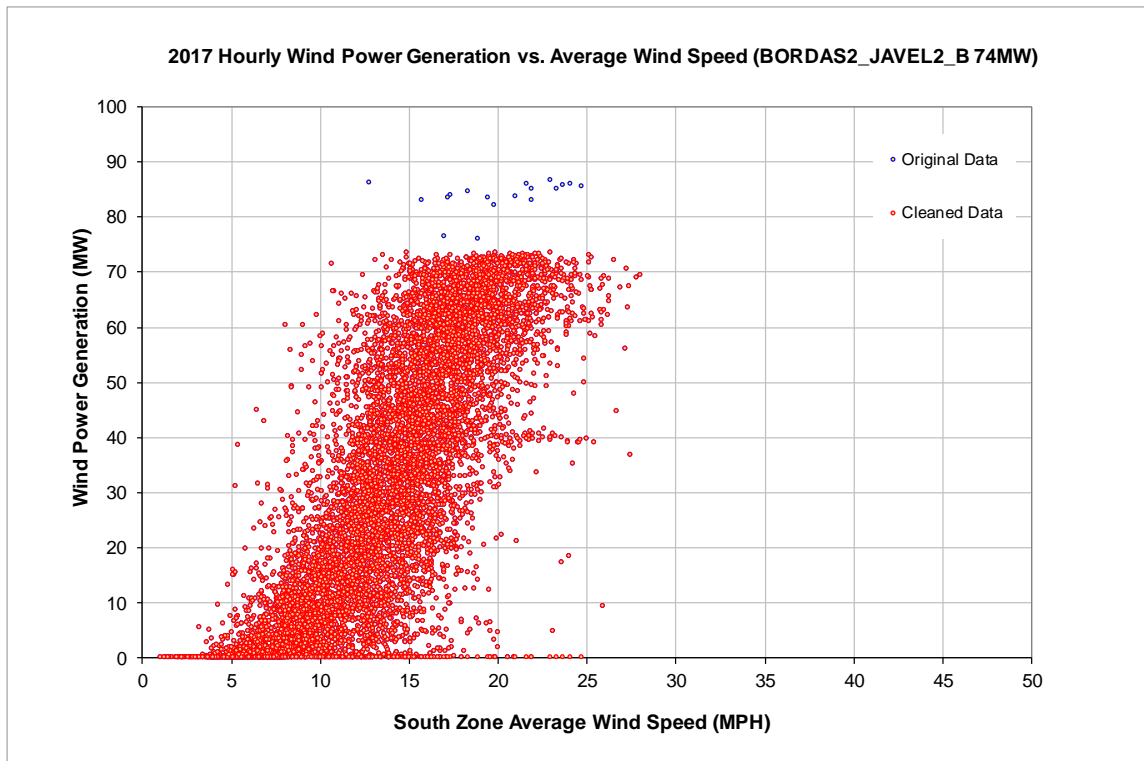


Figure 10-187: BORDAS2\_JAVEL2\_B - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

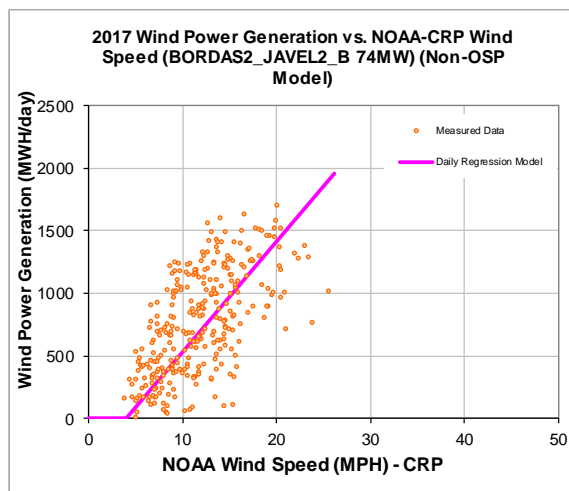
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	53.97
Left Slope (MWh/mph-day)	59.71
RMSE (MWh/day)	323.98
R2	0.38
CV-RMSE	42.4%
Daily Maximum (MWh/day)	1776

**OSP Model:**

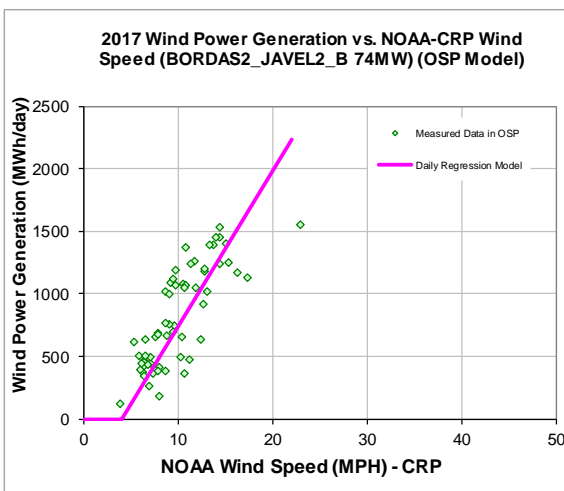
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-87.43
Left Slope (MWh/mph-day)	89.97
RMSE (MWh/day)	240.86
R2	0.63
CV-RMSE	29.5%
Daily Maximum (MWh/day)	1776

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
276,417	280,342

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
726	823

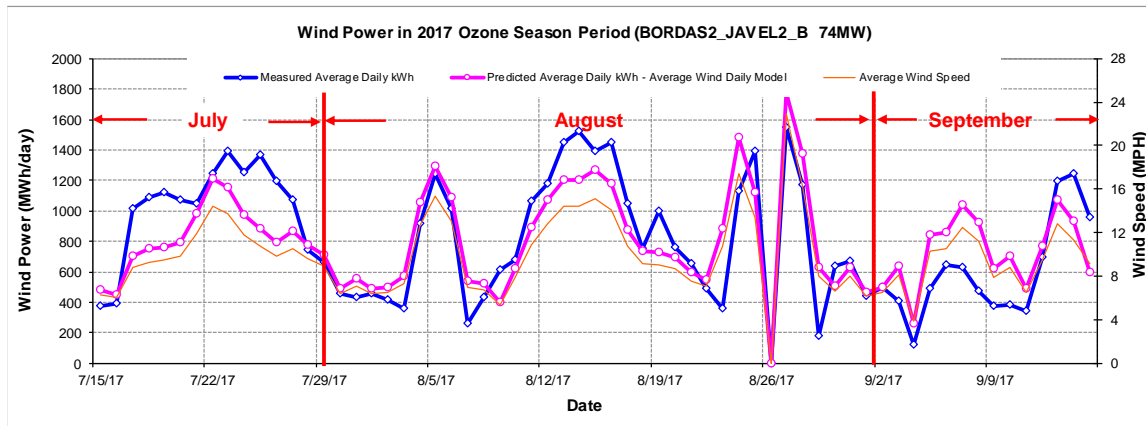
Figure 10-188: BORDAS2\_JAVEL2\_B - Model Coefficients (Using Non-OSP and OSP Data)

COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	24,461	26,144	-6.88%	44%	47%
Feb-17	28	13.29	18,998	23,728	-24.89%	38%	48%
Mar-17	31	14.29	25,621	28,132	-9.80%	47%	51%
Apr-17	30	14.70	28,917	27,951	3.34%	54%	52%
May-17	31	12.81	29,372	25,382	13.58%	53%	46%
Jun-17	30	9.21	23,111	18,110	21.64%	43%	34%
Jul-17	31	9.39	30,093	21,607	28.20%	55%	39%
Aug-17	31	10.82	25,985	26,389	-1.56%	47%	48%
Sep-17	30	10.25	22,051	21,907	0.65%	41%	41%
Oct-17	31	9.56	18,456	19,366	-4.93%	34%	35%
Nov-17	30	10.64	17,153	20,681	-20.57%	32%	39%
Dec-17	31	10.68	16,124	20,748	-28.67%	29%	38%
Total	365	11.57	280,342	280,144	0.07%	43%	43%
Total in OSP (07/15-09/15)	62	10.04	50,560	50,361	0.39%	46%	46%

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

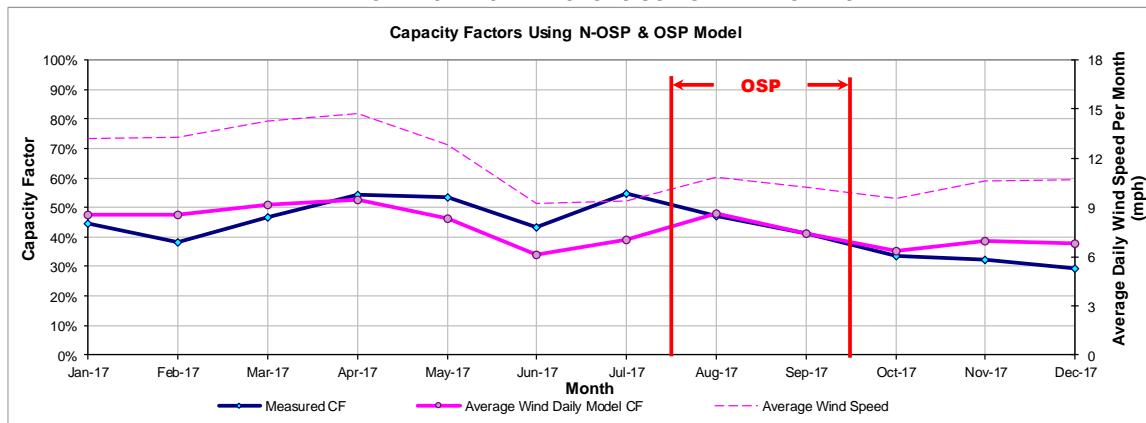


Figure 10-189: BORDAS2\_JAVEL2\_B - Predicted Wind Power and Capacity Factor Using Daily Models

10.45.3 Javelina 2 Wind - BORDAS2\_JAVEL2\_C

**SITE INFORMATION**

GENSITECODE_EERCOT	Renewable Energy	City	County	Company	Facility
BORDAS2_JAVEL2_C	Wind	Mirando	ZAPATA	NextEra	Javelina 2 Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
15 GE 2 MW	ERCOT	S	Feb-17	South	CRP	30

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

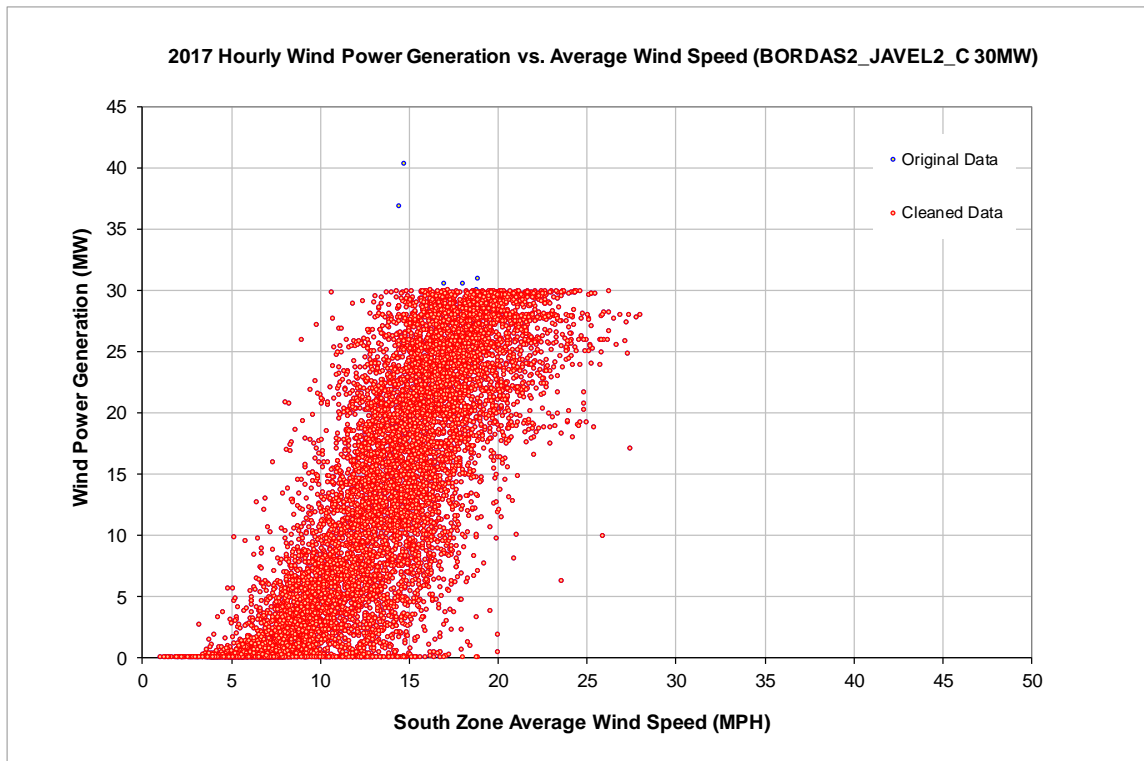


Figure 10-190: BORDAS2\_JAVEL2\_C - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

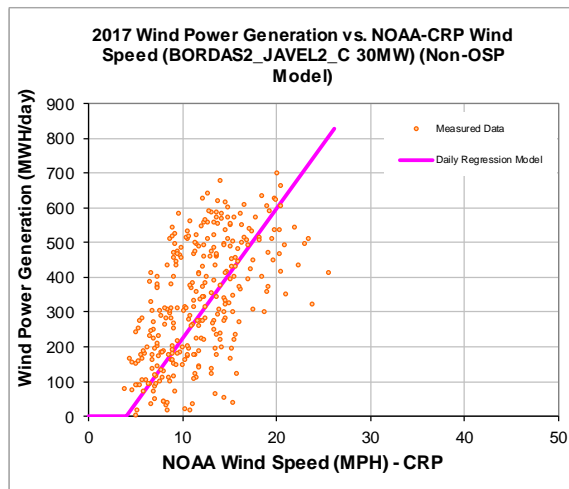
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	59.47
Left Slope (MWh/mph-day)	22.78
RMSE (MWh/day)	139.48
R2	0.33
CV-RMSE	42.3%
Daily Maximum (MWh/day)	720

**OSP Model:**

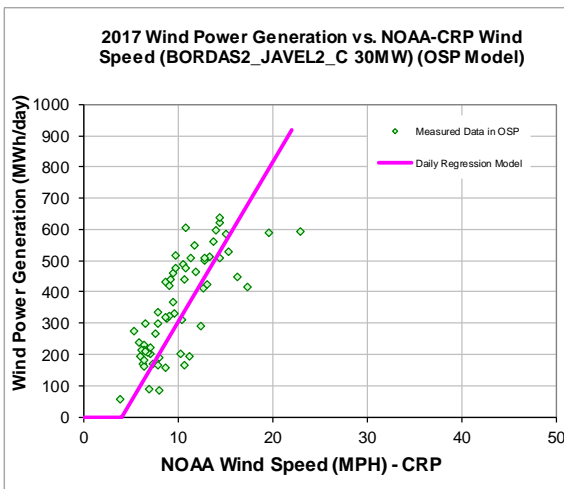
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	17.83
Left Slope (MWh/mph-day)	32.94
RMSE (MWh/day)	104.46
R2	0.58
CV-RMSE	29.6%
Daily Maximum (MWh/day)	720

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
119,662	121,624

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
315	356

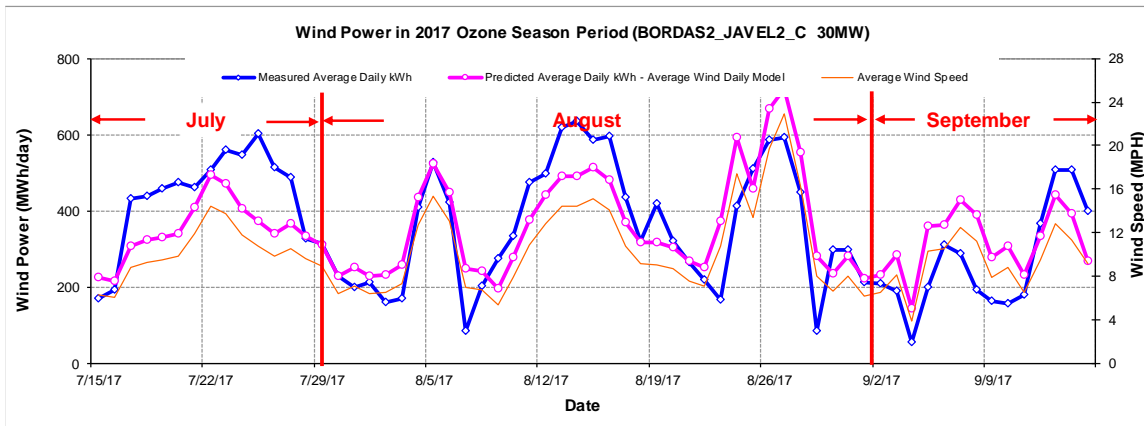
Figure 10-191: BORDAS2\_JAVEL2\_C - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	8,986	11,178	-24.39%	40%	50%
Feb-17	28	13.29	8,605	10,140	-17.84%	43%	50%
Mar-17	31	14.29	11,570	11,937	-3.17%	52%	53%
Apr-17	30	14.70	12,250	11,829	3.44%	57%	55%
May-17	31	12.81	12,668	10,888	14.06%	57%	49%
Jun-17	30	9.21	9,935	8,075	18.72%	46%	37%
Jul-17	31	9.39	13,241	9,430	28.78%	59%	42%
Aug-17	31	11.11	11,481	11,842	-3.15%	51%	53%
Sep-17	30	10.25	9,583	9,522	0.63%	44%	44%
Oct-17	31	9.56	8,378	8,593	-2.57%	38%	38%
Nov-17	30	10.64	7,869	9,055	-15.08%	36%	42%
Dec-17	31	10.68	7,058	9,081	-28.67%	32%	41%
<b>Total</b>	<b>365</b>	<b>11.59</b>	<b>121,624</b>	<b>121,571</b>	<b>0.04%</b>	<b>46%</b>	<b>46%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>22,265</b>	<b>22,213</b>	<b>0.24%</b>	<b>49%</b>	<b>49%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

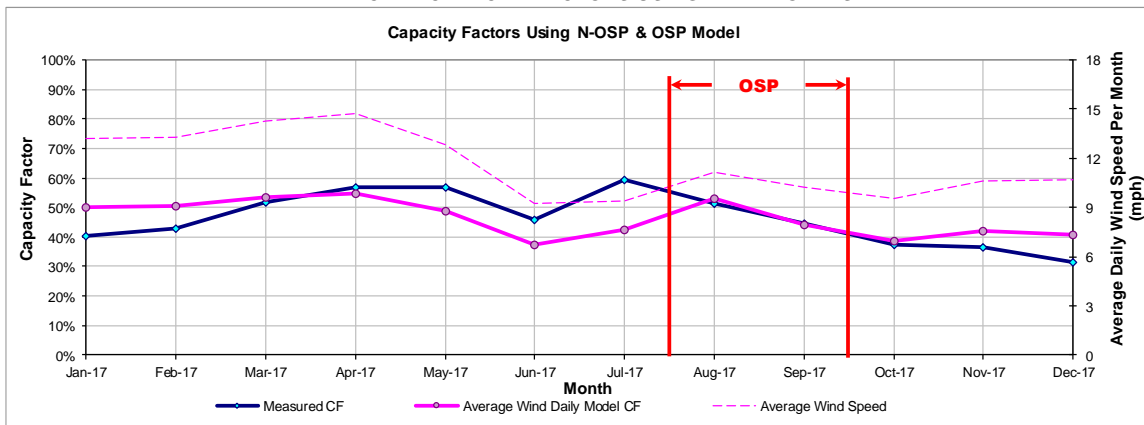


Figure 10-192: BORDAS2\_JAVEL2\_C - Predicted Wind Power and Capacity Factor Using Daily Models

10.46 Javelina Wind

10.46.1 Javelina Wind - BORDAS\_JAVEL18

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
BORDAS_JAVEL18	Wind	Mirando	ZAPATA	Map Royalty	Javelina Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
11 GE 1.7 MW 115 GE 2 MW	ERCOT	S	Dec-15	South	CRP	249.7

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

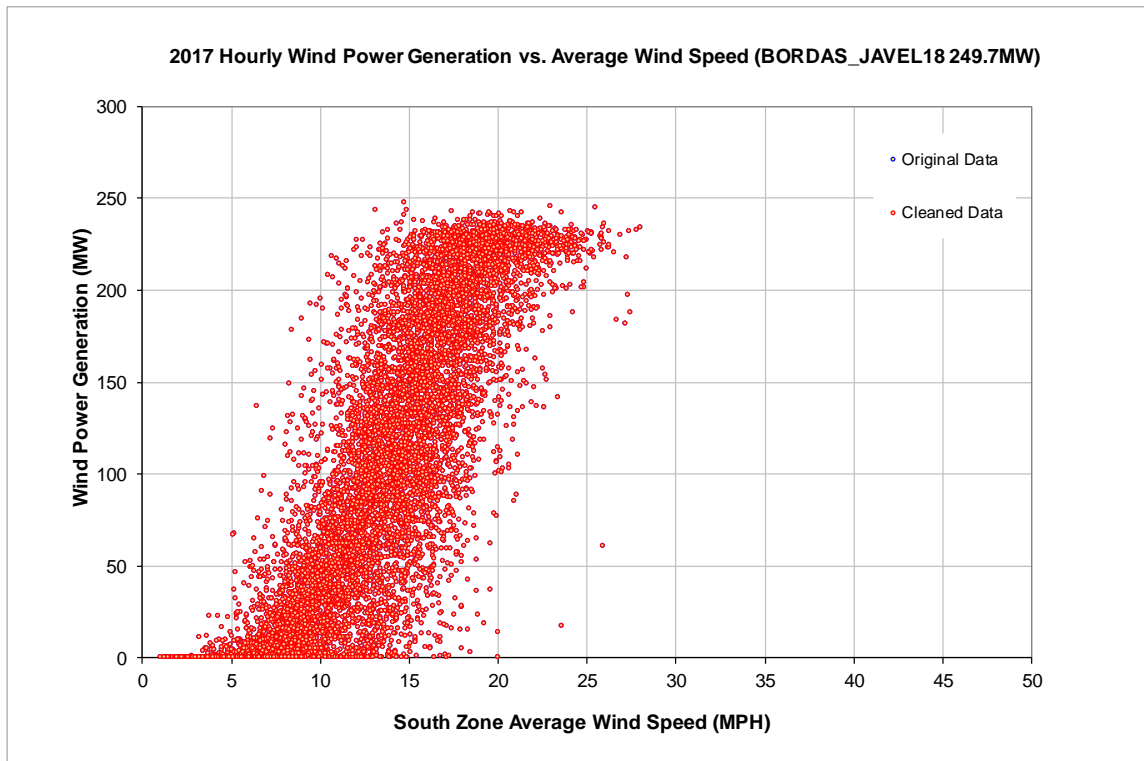


Figure 10-193: BORDAS\_JAVEL18 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

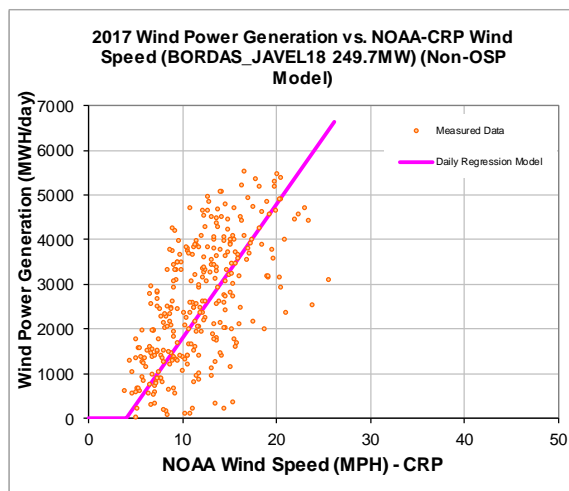
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	244.94
Left Slope (MWh/mph-day)	198.29
RMSE (MWh/day)	1068.91
R2	0.39
CV-RMSE	41.1%
Daily Maximum (MWh/day)	5993

**OSP Model:**

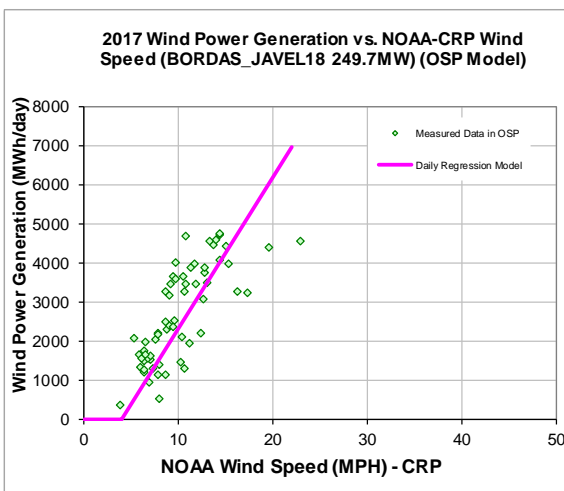
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	2.71
Left Slope (MWh/mph-day)	260.98
RMSE (MWh/day)	800.21
R2	0.59
CV-RMSE	30.1%
Daily Maximum (MWh/day)	5993

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
934,742	950,499

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
2,361	2,684

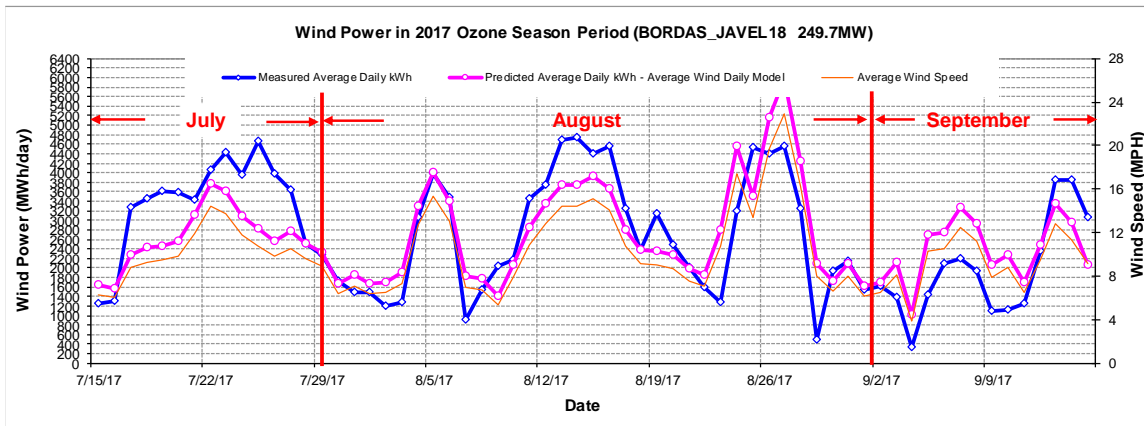
Figure 10-194: BORDAS\_JAVEL18 - Model Coefficients (Using Non-OSP and OSP Data)

COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	88,614	88,850	-0.27%	48%	48%
Feb-17	28	13.29	72,927	80,630	-10.56%	43%	48%
Mar-17	31	14.29	92,417	95,451	-3.28%	50%	51%
Apr-17	30	14.70	95,096	94,785	0.33%	53%	53%
May-17	31	12.81	96,373	86,322	10.43%	52%	46%
Jun-17	30	9.21	74,829	62,109	17.00%	42%	35%
Jul-17	31	9.39	99,130	71,472	27.90%	53%	38%
Aug-17	31	11.11	86,726	89,961	-3.73%	47%	48%
Sep-17	30	10.25	72,115	73,065	-1.32%	40%	41%
Oct-17	31	9.56	61,286	66,344	-8.25%	33%	36%
Nov-17	30	10.64	61,874	70,644	-14.17%	34%	39%
Dec-17	31	10.68	49,112	70,867	-44.30%	26%	38%
Total	365	11.59	950,499	950,499	0.00%	43%	43%
Total in OSP (07/15-09/15)	63	10.19	167,701	167,701	0.00%	44%	44%

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

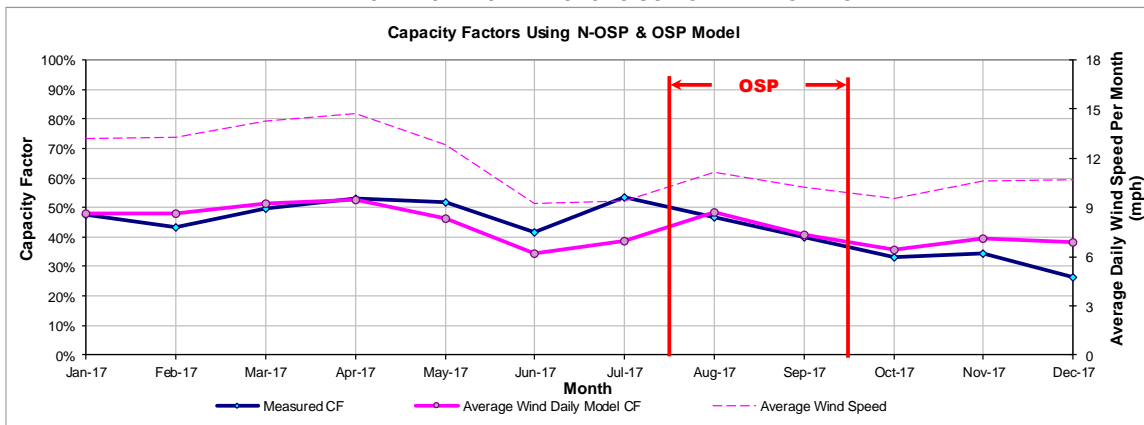


Figure 10-195: BORDAS\_JAVEL18 - Predicted Wind Power and Capacity Factor Using Daily Models

10.47 Jumbo Road Wind (Hereford 2)

10.47.1 Jumbo Road Wind (Hereford 2) - HRFDWIND\_JRDWIND1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
HRFDWIND_JRDWIND1	Wind	Hereford	CASTRO	BHE Renewables	Jumbo Road Wind (Hereford 2)

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
79 GE 1.85 MW	ERCOT	W	Apr-15	Panhandle	AMA	146.2

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

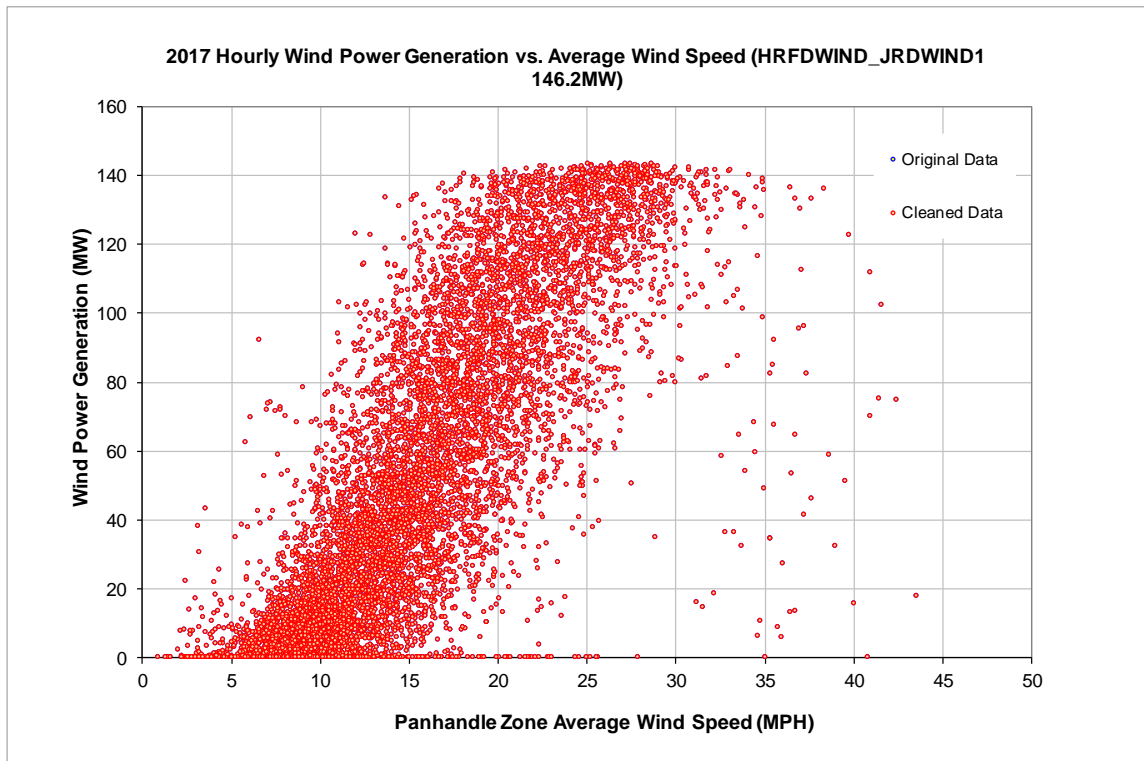


Figure 10-196: HRFDWIND\_JRDWIND1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

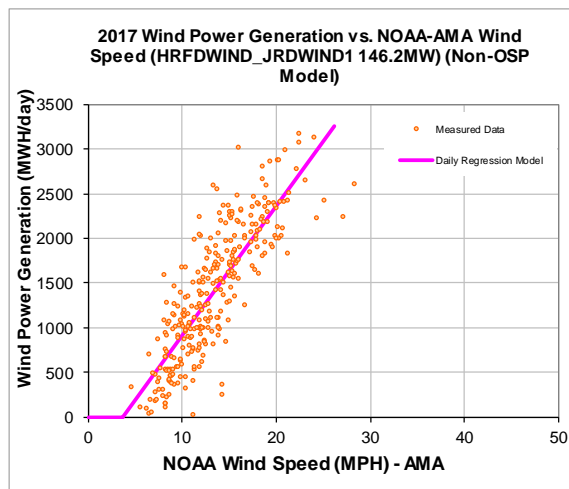
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-523.02
Left Slope (MWh/mph-day)	144.62
RMSE (MWh/day)	406.08
R2	0.69
CV-RMSE	28.9%
Daily Maximum (MWh/day)	3509

**OSP Model:**

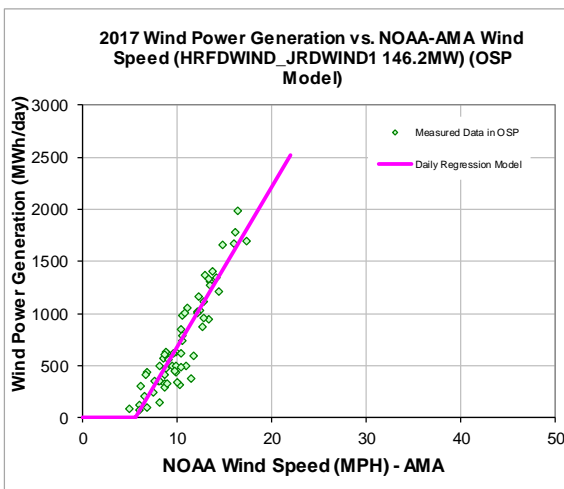
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-864.50
Left Slope (MWh/mph-day)	153.69
RMSE (MWh/day)	184.48
R2	0.85
CV-RMSE	25.0%
Daily Maximum (MWh/day)	3509

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
517,117	467,714

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
848	750

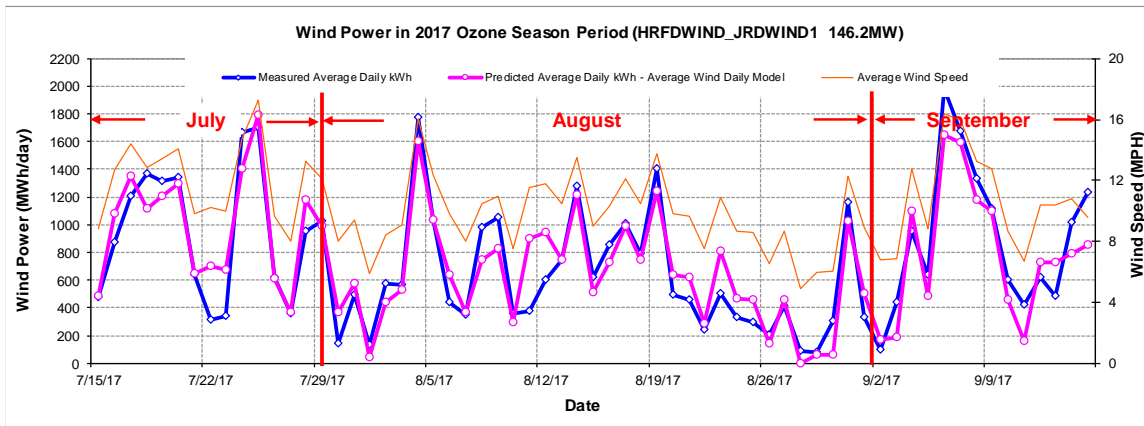
Figure 10-197: HRFDWIND\_JRDWIND1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.28	37,973	38,846	-2.30%	35%	36%
Feb-17	28	13.40	40,536	36,785	9.25%	41%	37%
Mar-17	31	14.31	48,142	47,885	0.53%	44%	44%
Apr-17	30	15.90	50,585	53,289	-5.35%	48%	51%
May-17	31	13.42	43,652	43,944	-0.67%	40%	40%
Jun-17	30	13.20	35,240	41,575	-17.97%	33%	39%
Jul-17	31	11.35	27,524	30,668	-11.43%	25%	28%
Aug-17	31	9.62	18,851	19,123	-1.44%	17%	18%
Sep-17	30	11.96	32,080	32,536	-1.42%	30%	31%
Oct-17	31	14.04	50,021	46,734	6.57%	46%	43%
Nov-17	30	12.81	45,826	39,887	12.96%	44%	38%
Dec-17	31	11.76	37,282	36,490	2.13%	34%	34%
<b>Total</b>	<b>365</b>	<b>12.82</b>	<b>467,714</b>	<b>467,763</b>	<b>-0.01%</b>	<b>37%</b>	<b>37%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>46,538</b>	<b>46,647</b>	<b>-0.23%</b>	<b>21%</b>	<b>21%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

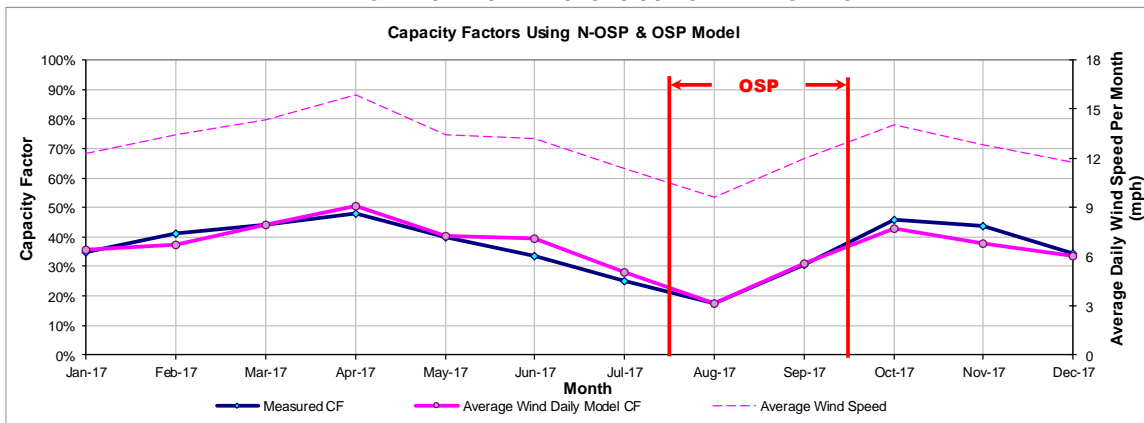


Figure 10-198: HRFD WIND\_JRD WIND1 - Predicted Wind Power and Capacity Factor Using Daily Models



10.47.2 Jumbo Road Wind (Hereford 2) - HRFDWIND\_JRDWIND2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
HRFDWIND_JRDWIND2	Wind	Hereford	CASTRO	BHE Renewables	Jumbo Road Wind (Hereford 2)

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
83 GE 1.85 MW	ERCOT	W	Apr-15	Panhandle	AMA	153.6

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

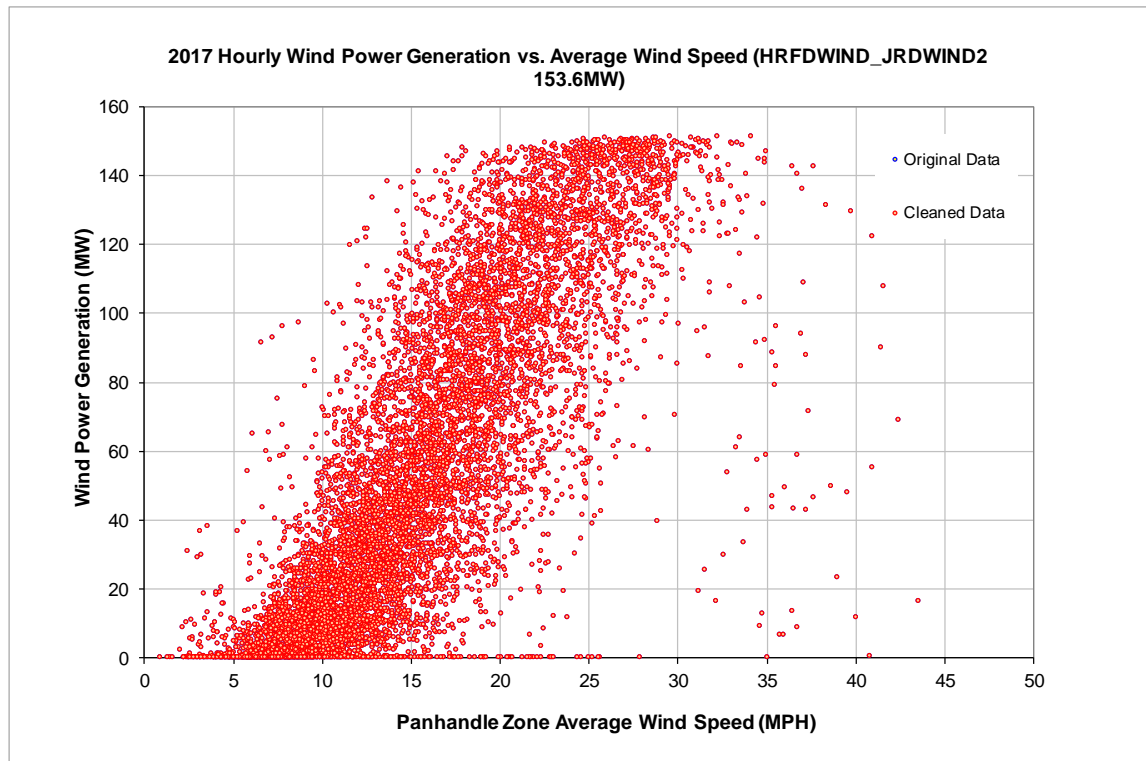


Figure 10-199: HRFDWIND\_JRDWIND2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

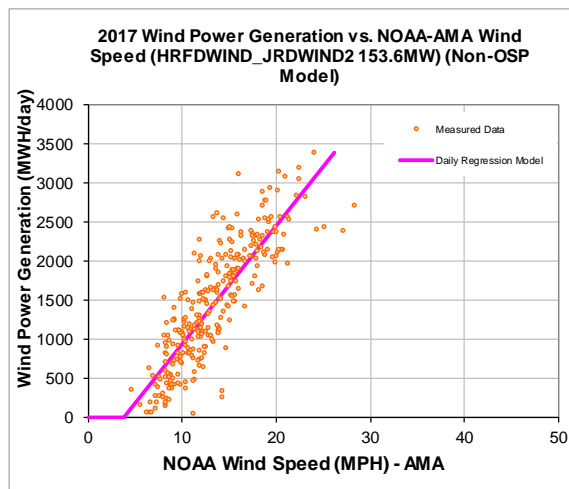
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-564.12
Left Slope (MWh/mph-day)	150.98
RMSE (MWh/day)	401.72
R2	0.72
CV-RMSE	27.8%
Daily Maximum (MWh/day)	3686

**OSP Model:**

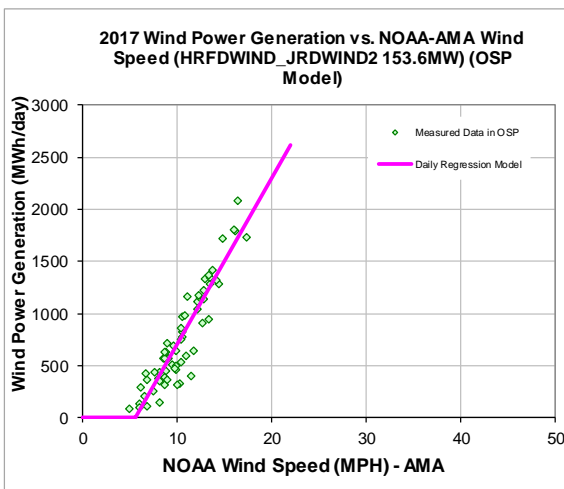
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-895.97
Left Slope (MWh/mph-day)	159.82
RMSE (MWh/day)	183.83
R2	0.86
CV-RMSE	23.8%
Daily Maximum (MWh/day)	3686

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
534,294	482,812	885	782

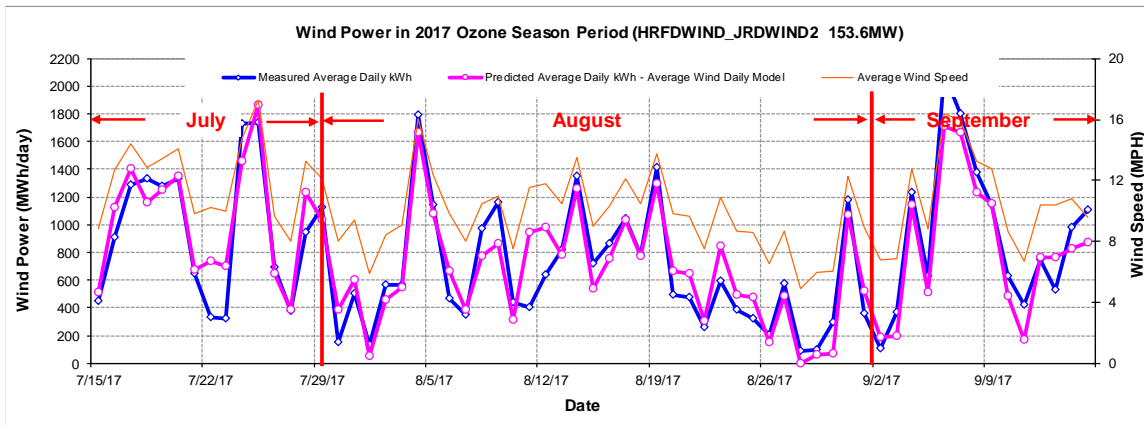
Figure 10-200: HRFDWINND\_JRDWIND2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.28	39,250	39,990	-1.88%	34%	35%
Feb-17	28	13.40	41,982	37,929	9.66%	41%	37%
Mar-17	31	14.31	50,667	49,468	2.37%	44%	43%
Apr-17	30	15.90	53,485	55,085	-2.99%	48%	50%
May-17	31	13.42	46,261	45,312	2.05%	40%	40%
Jun-17	30	13.20	36,345	42,856	-17.92%	33%	39%
Jul-17	31	11.35	27,756	31,749	-14.39%	24%	28%
Aug-17	31	9.62	19,921	19,975	-0.27%	17%	17%
Sep-17	30	11.96	32,579	33,690	-3.41%	29%	30%
Oct-17	31	14.04	49,785	48,224	3.13%	44%	42%
Nov-17	30	12.81	46,406	41,095	11.45%	42%	37%
Dec-17	31	11.76	38,375	37,530	2.20%	34%	33%
<b>Total</b>	<b>365</b>	<b>12.82</b>	<b>482,812</b>	<b>482,902</b>	<b>-0.02%</b>	<b>36%</b>	<b>36%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>48,582</b>	<b>48,692</b>	<b>-0.23%</b>	<b>21%</b>	<b>21%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

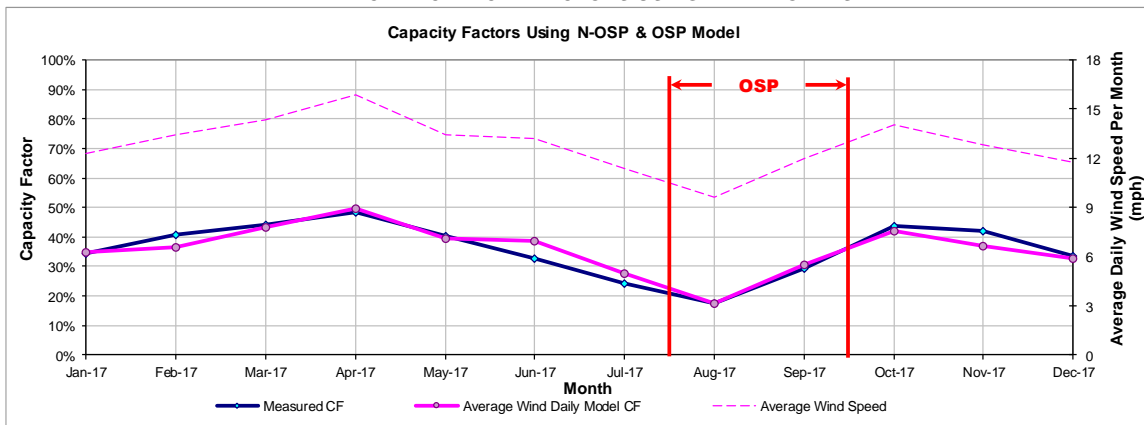


Figure 10-201: HRFD WIND\_JRD WIND2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.48 Keechi Wind

10.48.1 Keechi Wind - KEECHI\_U1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
KEECHI_U1	Wind	-	JACK	RES Americas	Keechi Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
55 Vestas 2 MW	ERCOT	N	Jan-15	North	ABI	110

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

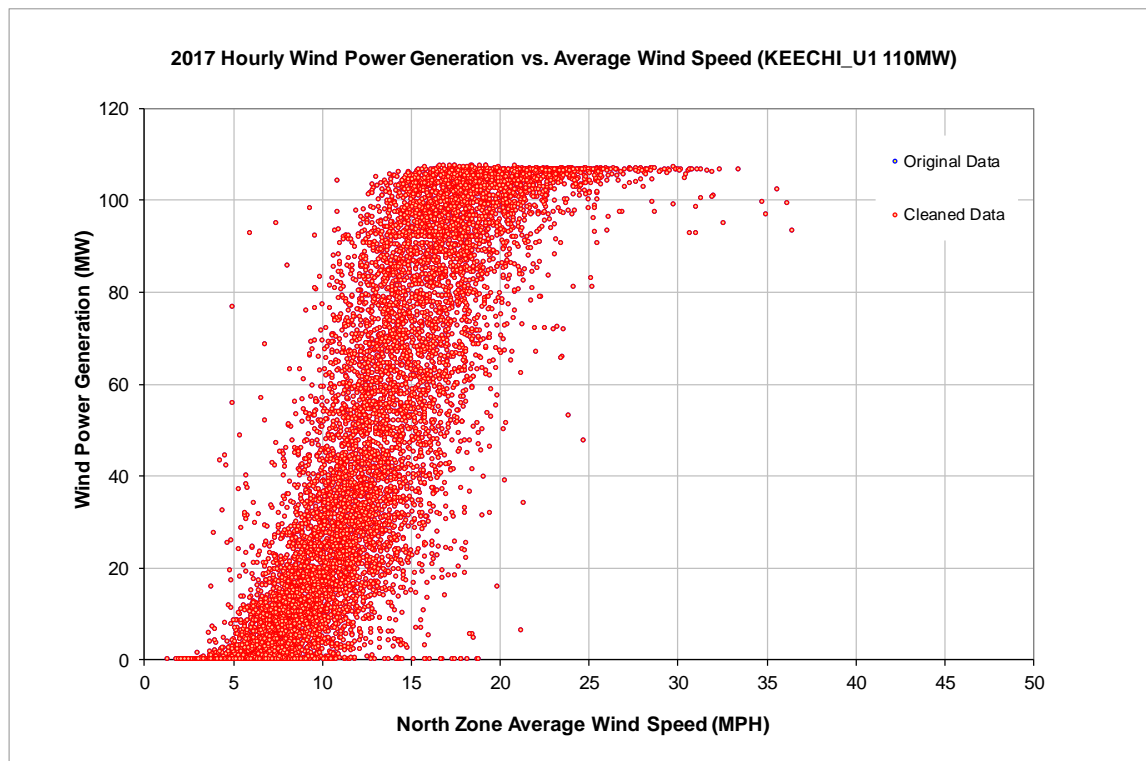


Figure 10-202: KEECHI\_U1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

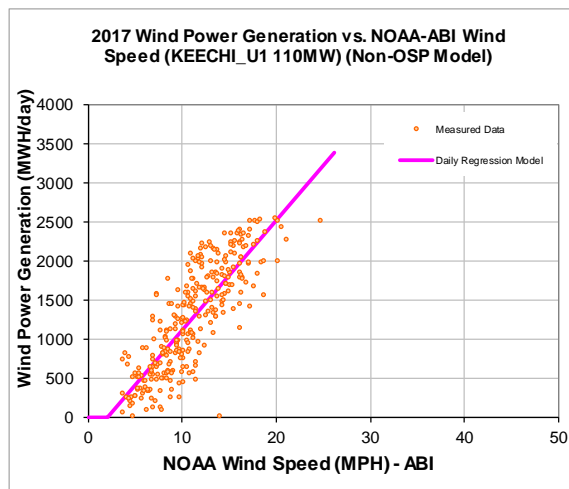
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-287.66
Left Slope (MWh/mph-day)	140.64
RMSE (MWh/day)	375.10
R2	0.69
CV-RMSE	29.5%
Daily Maximum (MWh/day)	2640

**OSP Model:**

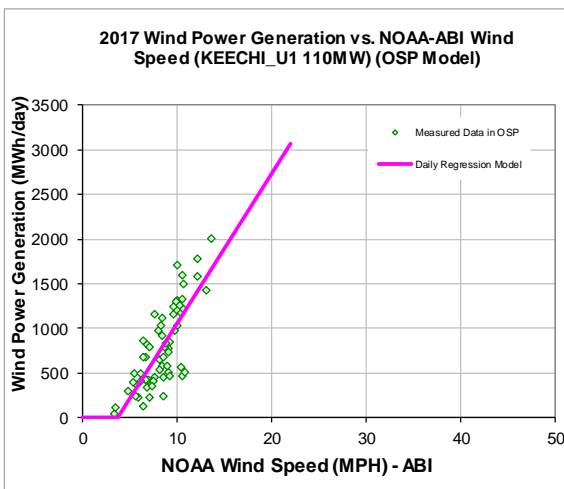
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-609.19
Left Slope (MWh/mph-day)	167.19
RMSE (MWh/day)	290.43
R2	0.61
CV-RMSE	37.2%
Daily Maximum (MWh/day)	2640

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
477,208	432,943

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
853	801

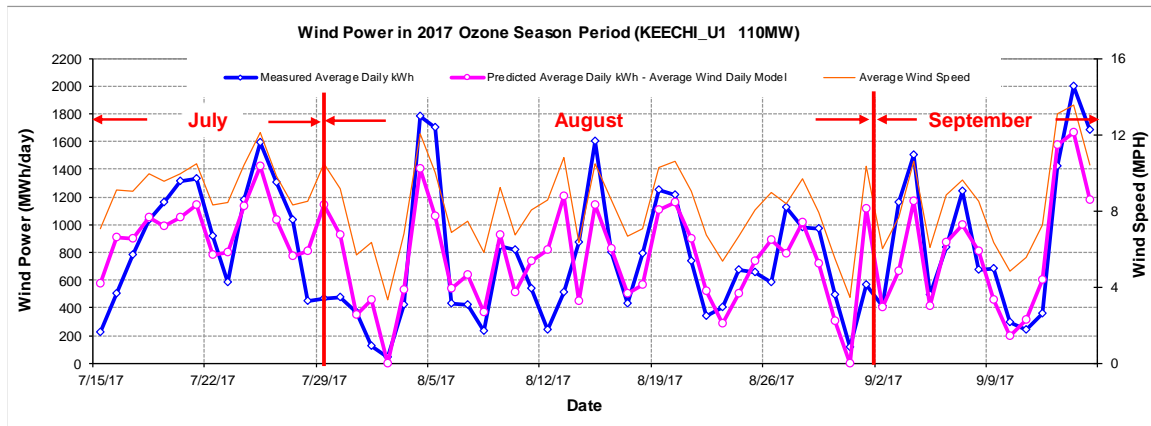
Figure 10-203: KEECHI\_U1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	38,892	36,549	6.03%	48%	45%
Feb-17	28	11.23	40,863	36,154	11.52%	55%	49%
Mar-17	31	12.96	47,703	47,033	1.41%	58%	57%
Apr-17	30	13.49	45,660	48,278	-5.73%	58%	61%
May-17	31	11.55	40,849	41,450	-1.47%	50%	51%
Jun-17	30	10.72	32,101	36,599	-14.01%	41%	46%
Jul-17	31	9.17	27,781	29,805	-7.29%	34%	36%
Aug-17	31	7.87	22,389	21,941	2.00%	27%	27%
Sep-17	30	9.51	28,823	29,918	-3.80%	36%	38%
Oct-17	31	11.07	43,579	39,341	9.72%	53%	48%
Nov-17	30	10.21	33,745	34,454	-2.10%	43%	44%
Dec-17	31	9.14	30,558	30,931	-1.22%	37%	38%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>432,943</b>	<b>432,452</b>	<b>0.11%</b>	<b>45%</b>	<b>45%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>49,202</b>	<b>49,284</b>	<b>-0.17%</b>	<b>30%</b>	<b>30%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

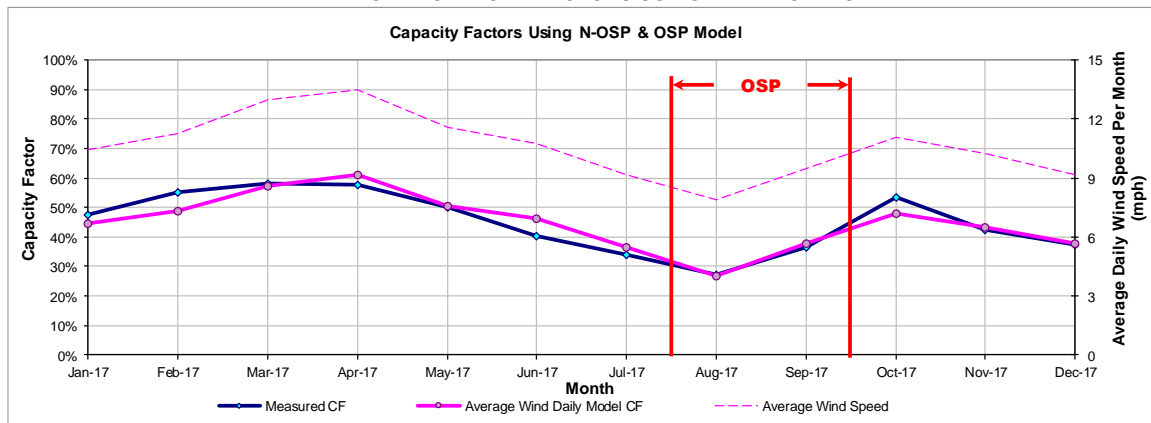


Figure 10-204: KEECHI\_U1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.49 King Mountain Wind Ranch

10.49.1 King Mountain Wind Ranch - KING\_NE\_KINGNE

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
KING_NE_KINGNE	Wind	McCamey	UPTON	FPL/Cielo	King Mountain Wind Ranch

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
61 Bonus 1.3 MW	ERCOT	W	Dec-01	West	FST	79.3

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

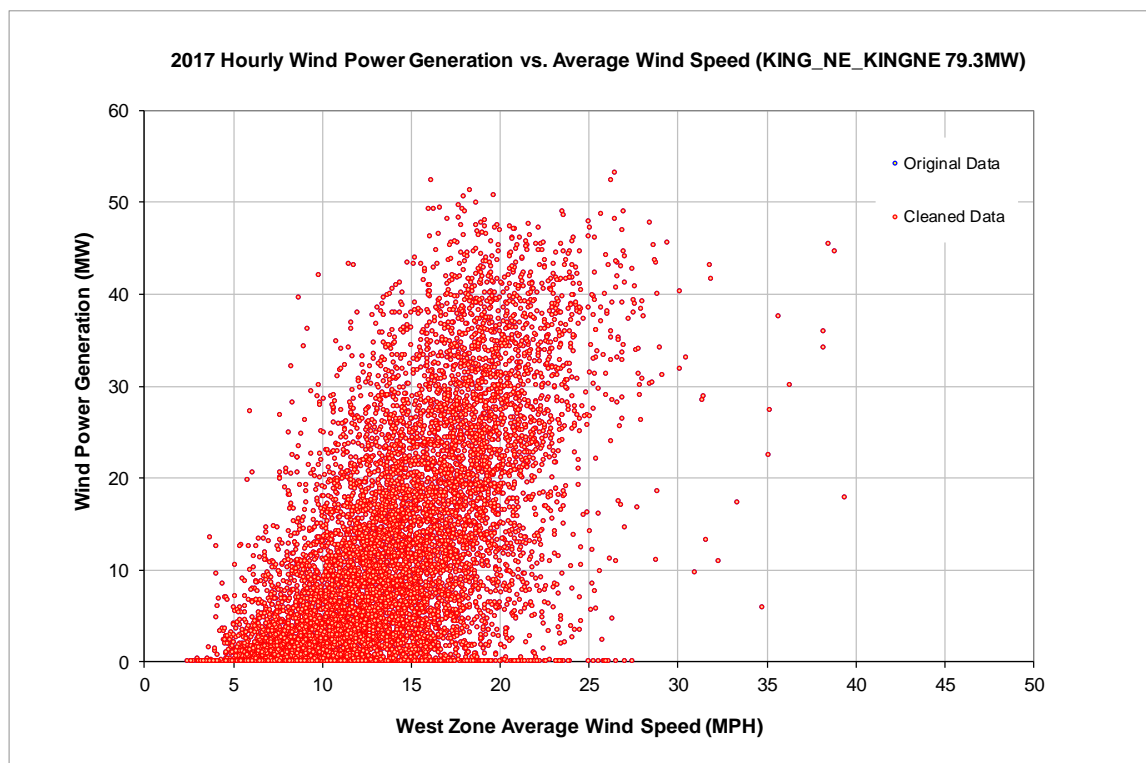


Figure 10-205: KING\_NE\_KINGNE - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

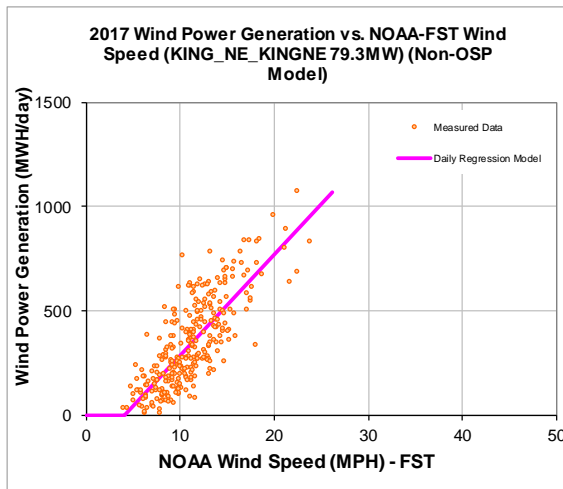
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-194.34
Left Slope (MWh/mph-day)	48.37
RMSE (MWh/day)	132.31
R2	0.61
CV-RMSE	38.6%
Daily Maximum (MWh/day)	1903

**OSP Model:**

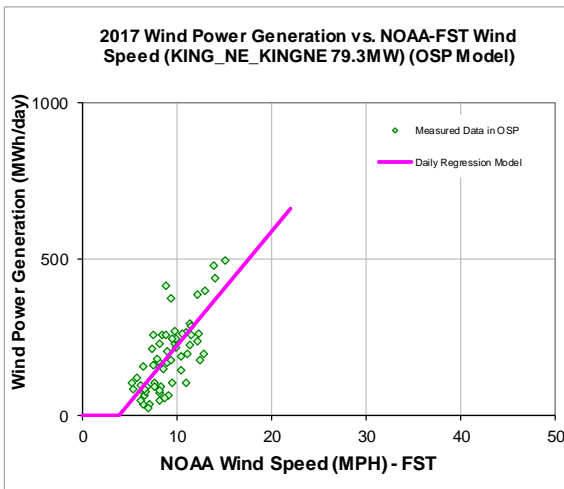
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-140.40
Left Slope (MWh/mph-day)	36.46
RMSE (MWh/day)	77.68
R2	0.54
CV-RMSE	40.7%
Daily Maximum (MWh/day)	1903

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
117,340	113,588

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
183	194

Figure 10-206: KING\_NE\_KINGNE - Model Coefficients (Using Non-OSP and OSP Data)

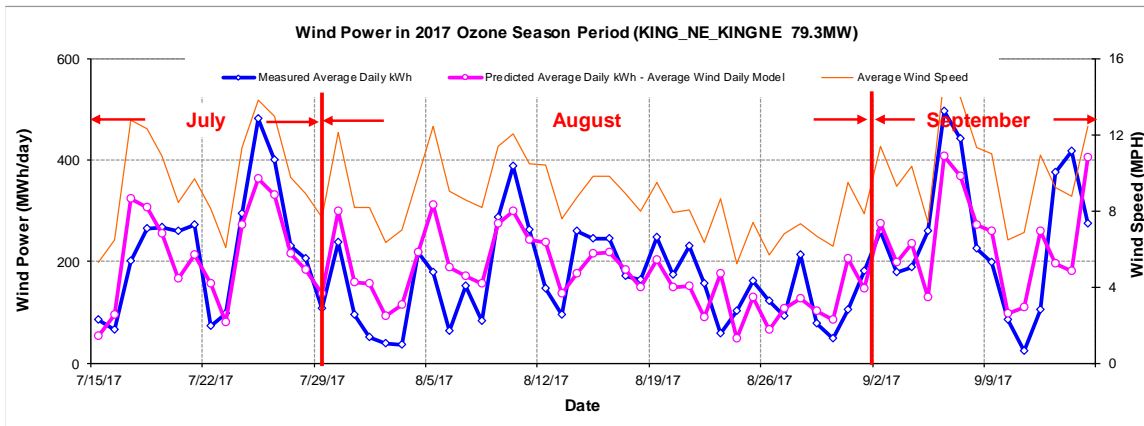


**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (FST) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.60	9,314	9,863	-5.89%	16%	17%
Feb-17	28	11.24	10,736	9,783	8.88%	20%	18%
Mar-17	31	11.47	11,537	10,097	12.48%	20%	17%
Apr-17	30	13.07	11,860	11,825	0.30%	21%	21%
May-17	31	12.22	11,796	12,305	-4.31%	20%	21%
Jun-17	30	11.10	9,641	10,275	-6.57%	17%	18%
Jul-17	31	11.01	8,597	9,461	-10.06%	15%	16%
Aug-17	31	8.40	4,869	5,145	-5.67%	8%	9%
Sep-17	30	11.19	10,046	9,435	6.07%	18%	17%
Oct-17	31	10.75	11,156	10,096	9.50%	19%	17%
Nov-17	30	9.40	7,607	7,804	-2.59%	13%	14%
Dec-17	31	9.02	6,430	7,504	-16.70%	11%	13%
<b>Total</b>	<b>365</b>	<b>10.76</b>	<b>113,588</b>	<b>113,593</b>	<b>0.00%</b>	<b>16%</b>	<b>16%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>9.09</b>	<b>12,035</b>	<b>12,035</b>	<b>0.00%</b>	<b>10%</b>	<b>10%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

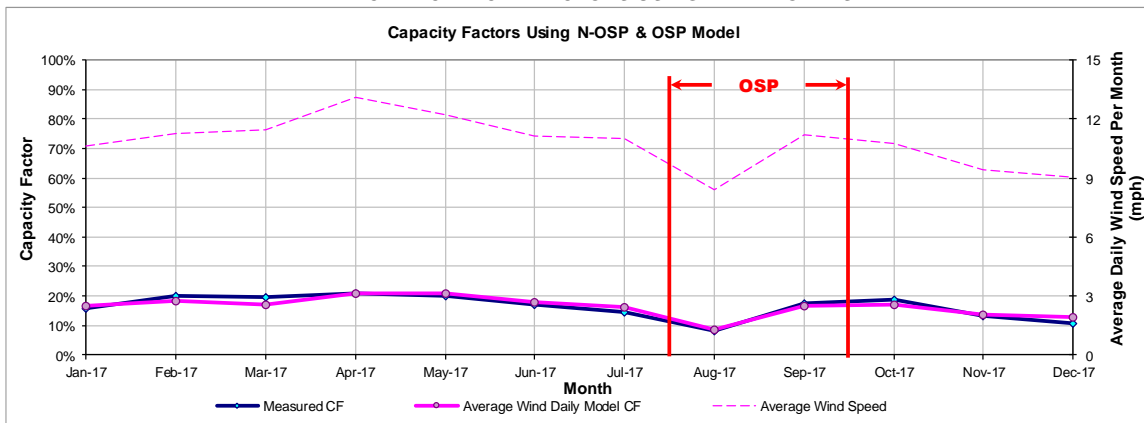


Figure 10-207: KING\_NE\_KINGNE - Predicted Wind Power and Capacity Factor Using Daily Models

10.49.2 King Mountain Wind Ranch - KING\_NW\_KINGNW

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
KING_NW_KINGNW	Wind	McCamey	UPTON	FPL/Cielo	King Mountain Wind Ranch

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
61 Bonus 1.3 MW	ERCOT	W	Dec-01	West	FST	79.3

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

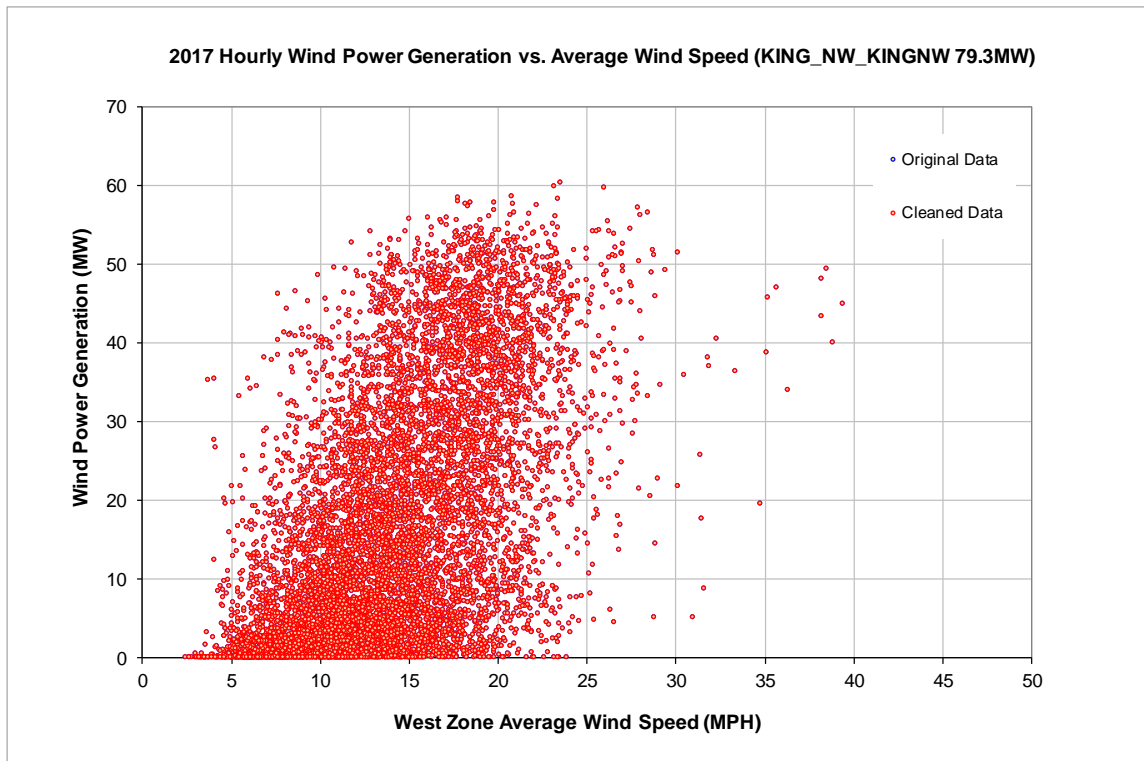


Figure 10-208: KING\_NW\_KINGNW - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

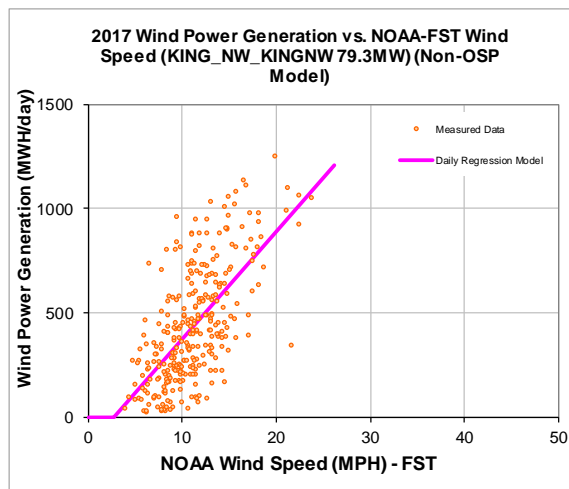
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-138.86
Left Slope (MWh/mph-day)	51.63
RMSE (MWh/day)	209.31
R2	0.42
CV-RMSE	47.8%
Daily Maximum (MWh/day)	1903

**OSP Model:**

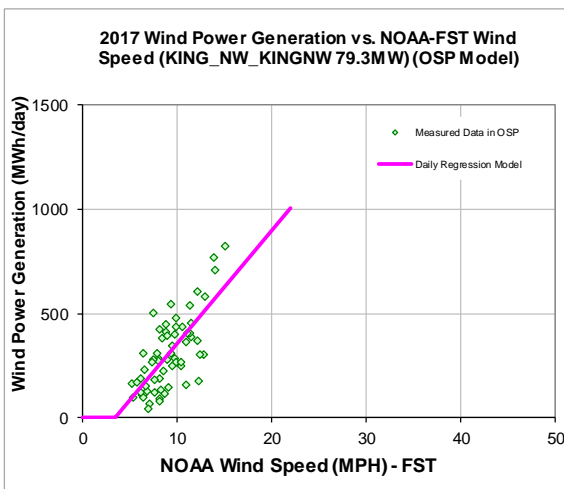
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-189.20
Left Slope (MWh/mph-day)	54.30
RMSE (MWh/day)	123.65
R2	0.51
CV-RMSE	40.6%
Daily Maximum (MWh/day)	1903

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
152,006	151,404

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
292	308

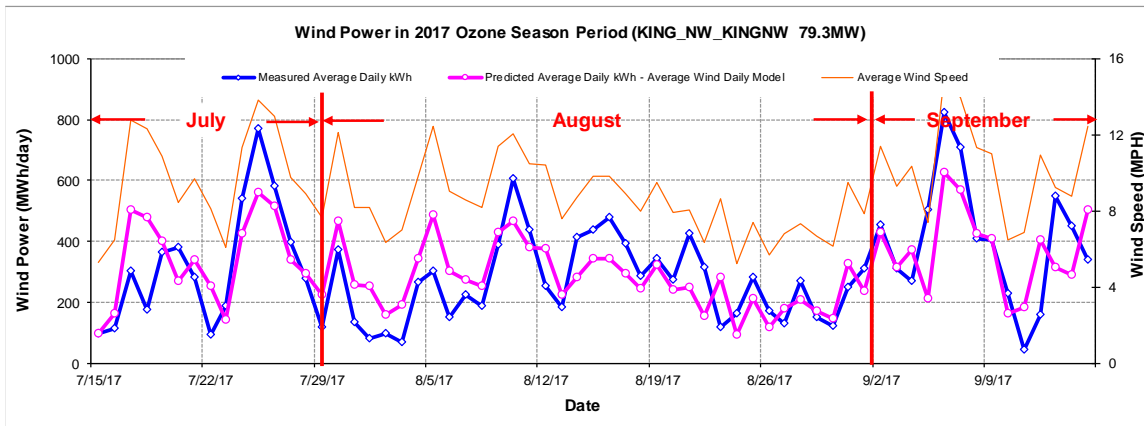
Figure 10-209: KING\_NW\_KINGNW - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (FST) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.60	8,670	12,654	-45.94%	15%	21%
Feb-17	28	11.24	9,396	12,363	-31.57%	18%	23%
Mar-17	31	11.81	17,965	14,605	18.70%	30%	25%
Apr-17	30	13.08	17,460	16,093	7.83%	31%	28%
May-17	31	12.22	16,259	15,261	6.14%	28%	26%
Jun-17	30	11.10	14,576	13,025	10.64%	26%	23%
Jul-17	31	11.01	11,805	12,893	-9.22%	20%	22%
Aug-17	31	8.40	8,145	8,278	-1.63%	14%	14%
Sep-17	30	11.19	14,837	12,809	13.66%	26%	22%
Oct-17	31	10.75	15,692	12,903	17.77%	27%	22%
Nov-17	30	9.40	9,243	10,388	-12.39%	16%	18%
Dec-17	31	9.02	7,356	10,130	-37.72%	12%	17%
<b>Total</b>	<b>365</b>	<b>10.81</b>	<b>151,404</b>	<b>151,404</b>	<b>0.00%</b>	<b>22%</b>	<b>22%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>9.09</b>	<b>19,175</b>	<b>19,175</b>	<b>0.00%</b>	<b>16%</b>	<b>16%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

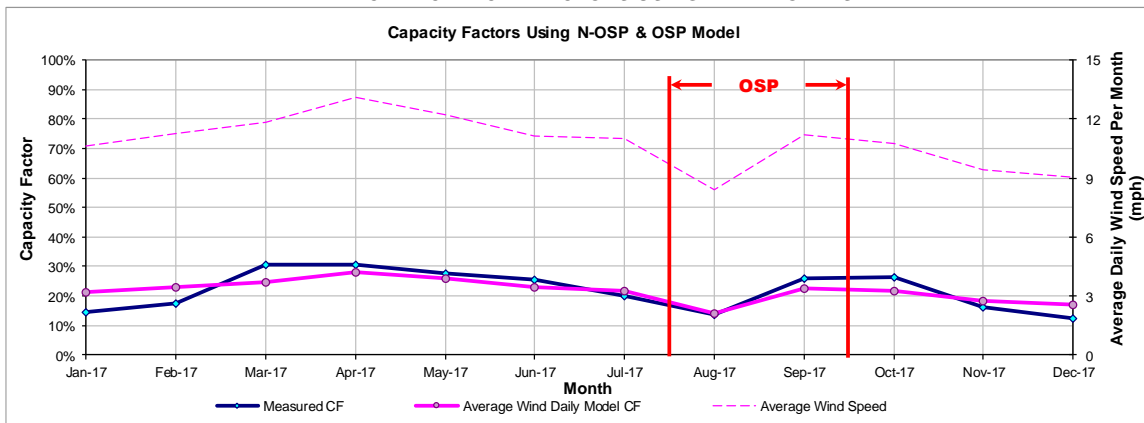


Figure 10-210: KING\_NW\_KINGNW - Predicted Wind Power and Capacity Factor Using Daily Models

## 10.49.3 King Mountain Wind Ranch - KING\_SE\_KINGSE

## SITE INFORMATION

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
KING_SE_KINGSE	Wind	McCamey	UPTON	FPL/Cielo	King Mountain Wind Ranch

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
31 Bonus 1.3 MW	ERCOT	W	Dec-01	West	FST	40.3

## HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED

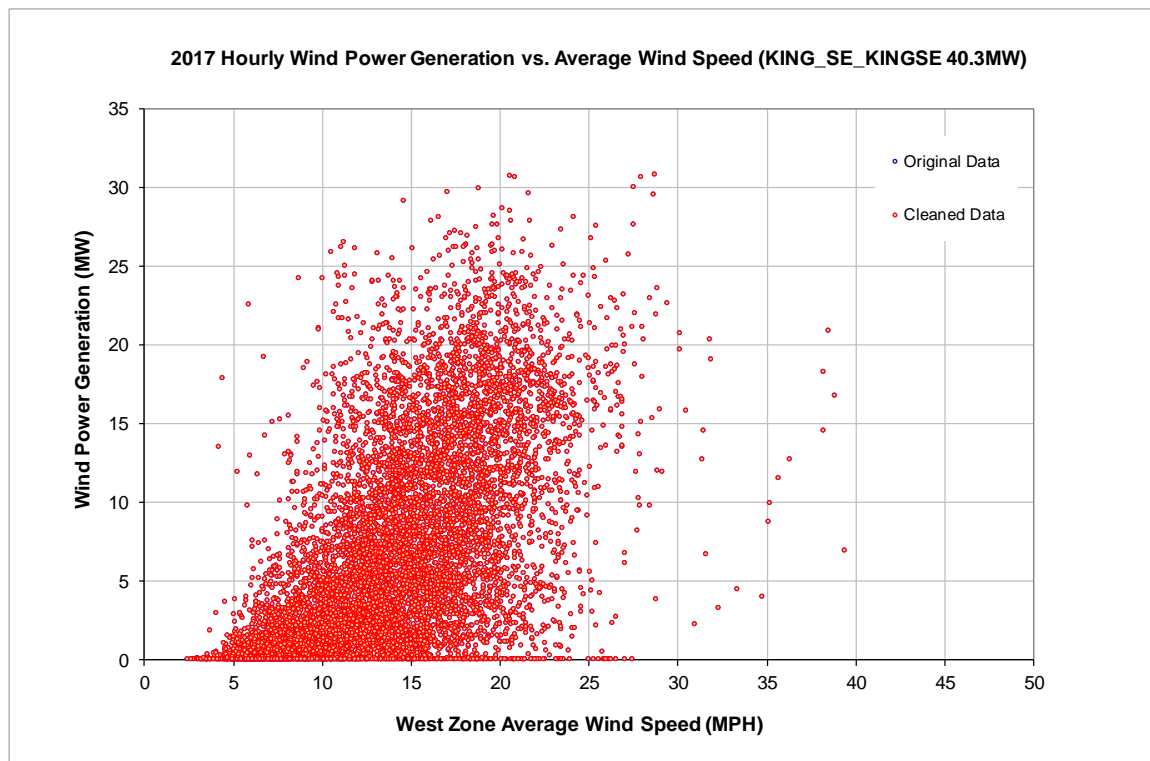


Figure 10-211: KING\_SE\_KINGSE - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

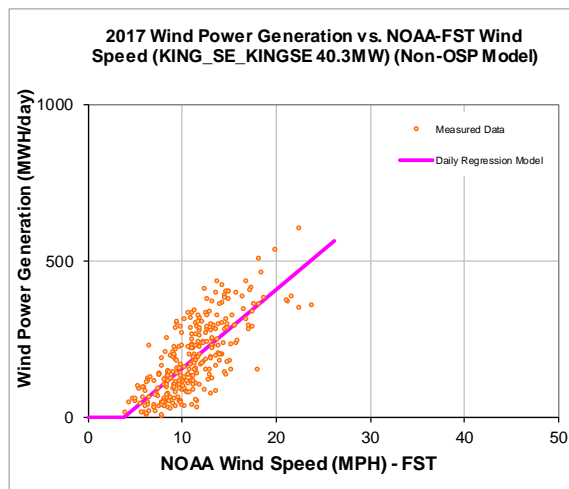
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-95.24
Left Slope (MWh/mph-day)	25.31
RMSE (MWh/day)	76.67
R2	0.57
CV-RMSE	41.2%
Daily Maximum (MWh/day)	967

**OSP Model:**

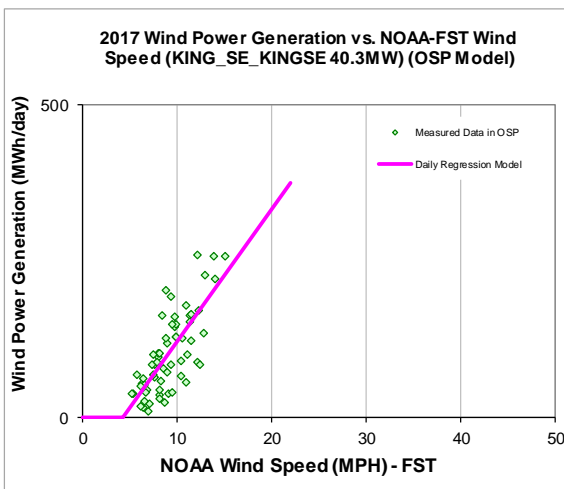
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-89.77
Left Slope (MWh/mph-day)	21.17
RMSE (MWh/day)	43.24
R2	0.56
CV-RMSE	42.1%
Daily Maximum (MWh/day)	967

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
63,496	61,525

**OSD**

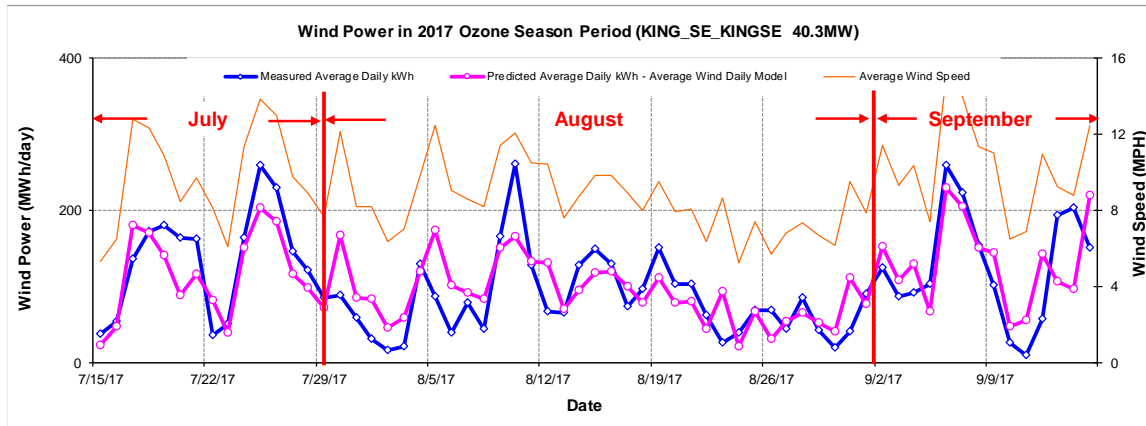
2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
98	104

Figure 10-212: KING\_SE\_KINGSE - Model Coefficients (Using Non-OSP and OSP Data)

Average Wind Speed (FST) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.60	4,652	5,361	-15.25%	16%	18%
Feb-17	28	11.24	5,686	5,300	6.78%	21%	20%
Mar-17	31	11.47	5,736	5,465	4.74%	19%	18%
Apr-17	30	13.07	6,120	6,363	-3.97%	21%	22%
May-17	31	12.22	5,909	6,640	-12.36%	20%	22%
Jun-17	30	11.10	5,446	5,571	-2.29%	19%	19%
Jul-17	31	11.01	4,867	5,105	-4.88%	16%	17%
Aug-17	31	8.40	2,573	2,732	-6.17%	9%	9%
Sep-17	30	11.19	5,311	5,103	3.93%	18%	18%
Oct-17	31	10.75	6,480	5,484	15.38%	22%	18%
Nov-17	30	9.40	4,559	4,278	6.17%	16%	15%
Dec-17	31	9.02	4,185	4,124	1.45%	14%	14%
<b>Total</b>	<b>365</b>	<b>10.76</b>	<b>61,525</b>	<b>61,525</b>	<b>0.00%</b>	<b>17%</b>	<b>17%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>9.09</b>	<b>6,469</b>	<b>6,469</b>	<b>0.00%</b>	<b>11%</b>	<b>11%</b>

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

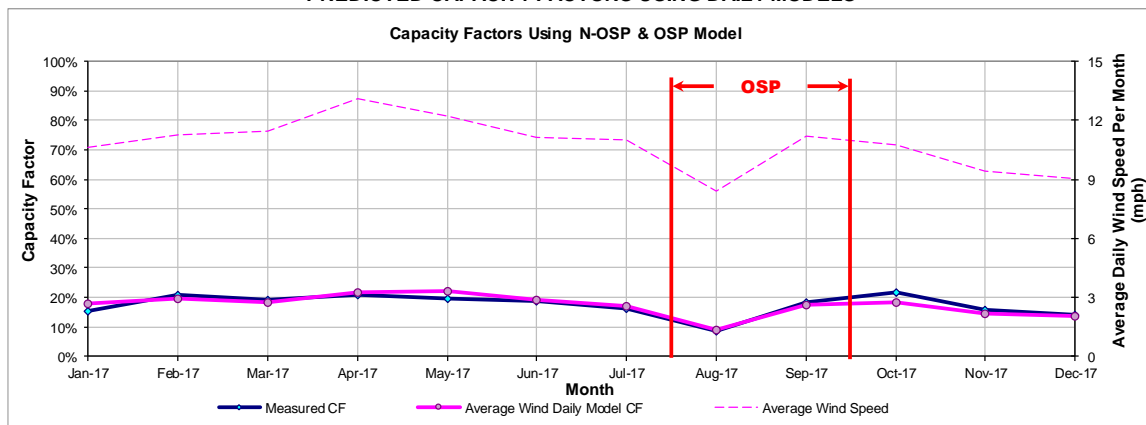


Figure 10-213: KING\_SE\_KINGSE - Predicted Wind Power and Capacity Factor Using Daily Models

10.49.4 King Mountain Wind Ranch - KING\_SW\_KINGSW

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
KING_SW_KINGSW	Wind	McCamey	UPTON	FPL/Cielo	King Mountain Wind Ranch

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
61 Bonus 1.3 MW	ERCOT	W	Dec-01	West	FST	79.3

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

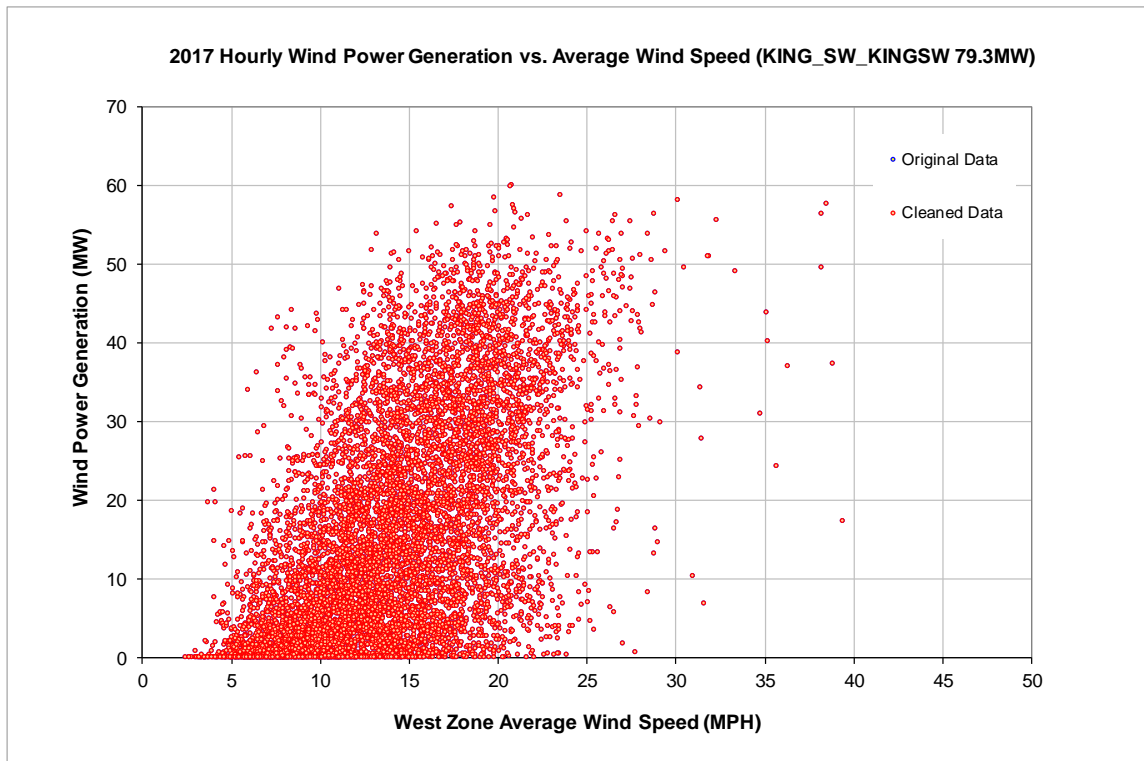


Figure 10-214: KING\_SW\_KINGSW - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

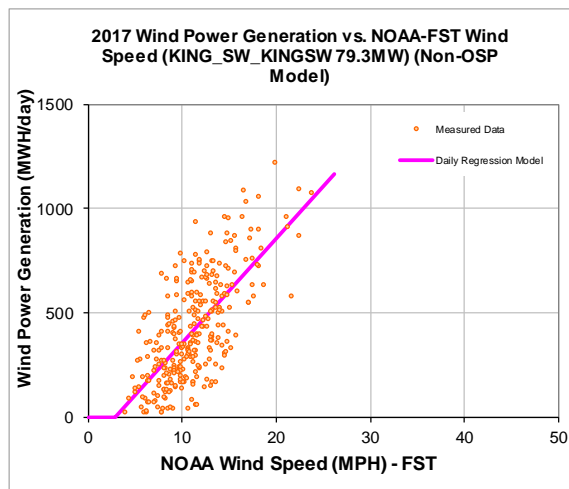
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-141.35
Left Slope (MWh/mph-day)	50.13
RMSE (MWh/day)	182.26
R2	0.48
CV-RMSE	43.5%
Daily Maximum (MWh/day)	1903

**OSP Model:**

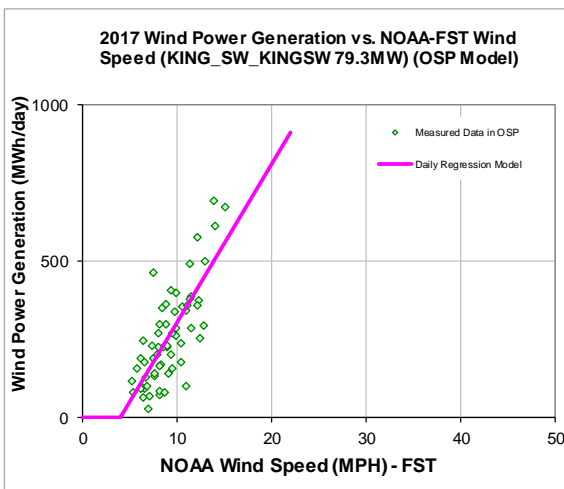
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-200.63
Left Slope (MWh/mph-day)	50.54
RMSE (MWh/day)	99.33
R2	0.58
CV-RMSE	38.4%
Daily Maximum (MWh/day)	1903

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
143,362	142,713

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
247	261

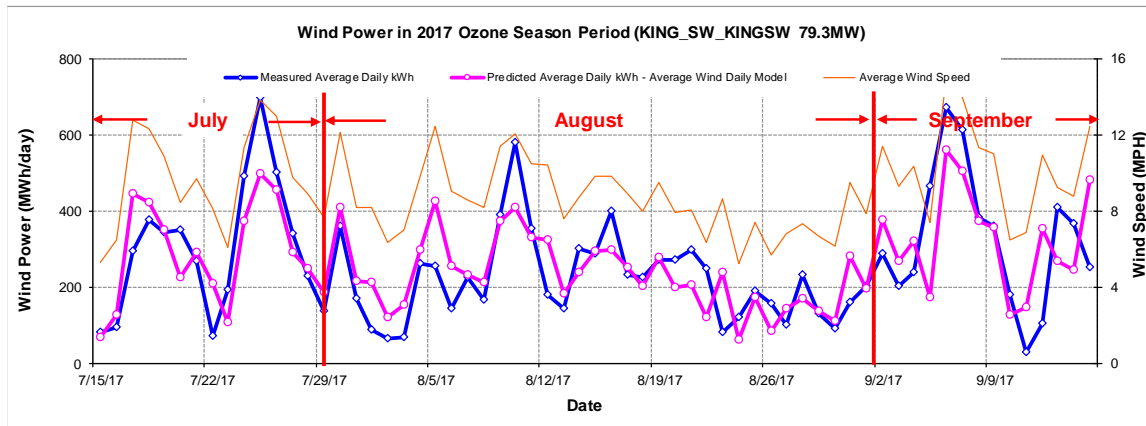
Figure 10-215: KING\_SW\_KINGSW - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (FST) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.60	9,946	12,084	-21.50%	17%	20%
Feb-17	28	11.24	11,055	11,820	-6.92%	21%	22%
Mar-17	31	11.81	17,790	13,978	21.43%	30%	24%
Apr-17	30	13.08	16,222	15,429	4.89%	28%	27%
May-17	31	12.22	14,398	14,615	-1.51%	24%	25%
Jun-17	30	11.10	12,259	12,450	-1.56%	21%	22%
Jul-17	31	11.01	11,192	11,784	-5.29%	19%	20%
Aug-17	31	8.40	6,716	6,945	-3.40%	11%	12%
Sep-17	30	11.19	13,347	11,759	11.90%	23%	21%
Oct-17	31	10.75	14,278	12,326	13.67%	24%	21%
Nov-17	30	9.40	8,659	9,890	-14.21%	15%	17%
Dec-17	31	9.02	6,851	9,633	-40.62%	12%	16%
<b>Total</b>	<b>365</b>	<b>10.81</b>	<b>142,713</b>	<b>142,713</b>	<b>0.00%</b>	<b>21%</b>	<b>21%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>9.09</b>	<b>16,302</b>	<b>16,302</b>	<b>0.00%</b>	<b>14%</b>	<b>14%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

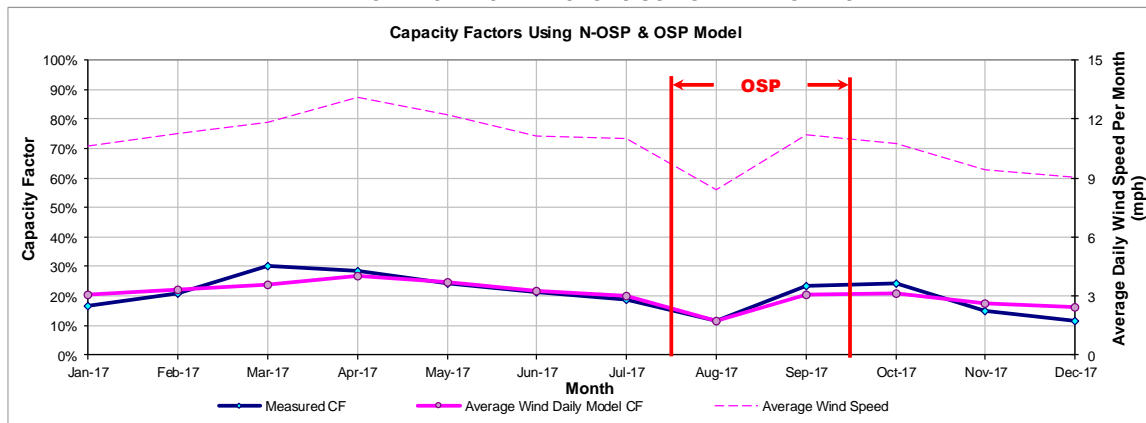


Figure 10-216: KING\_SW\_KINGSW - Predicted Wind Power and Capacity Factor Using Daily Models

### 10.50 Langford Wind Power

#### 10.50.1 Langford Wind Power - LGD\_LANGFORD

##### SITE INFORMATION

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
LGD_LANGFORD	Wind	-	TOM GREEN	Padoma	Langford Wind Power

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
100 GE 1.2 MW	ERCOT	W	Oct-09	West	SJT	150

##### HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED

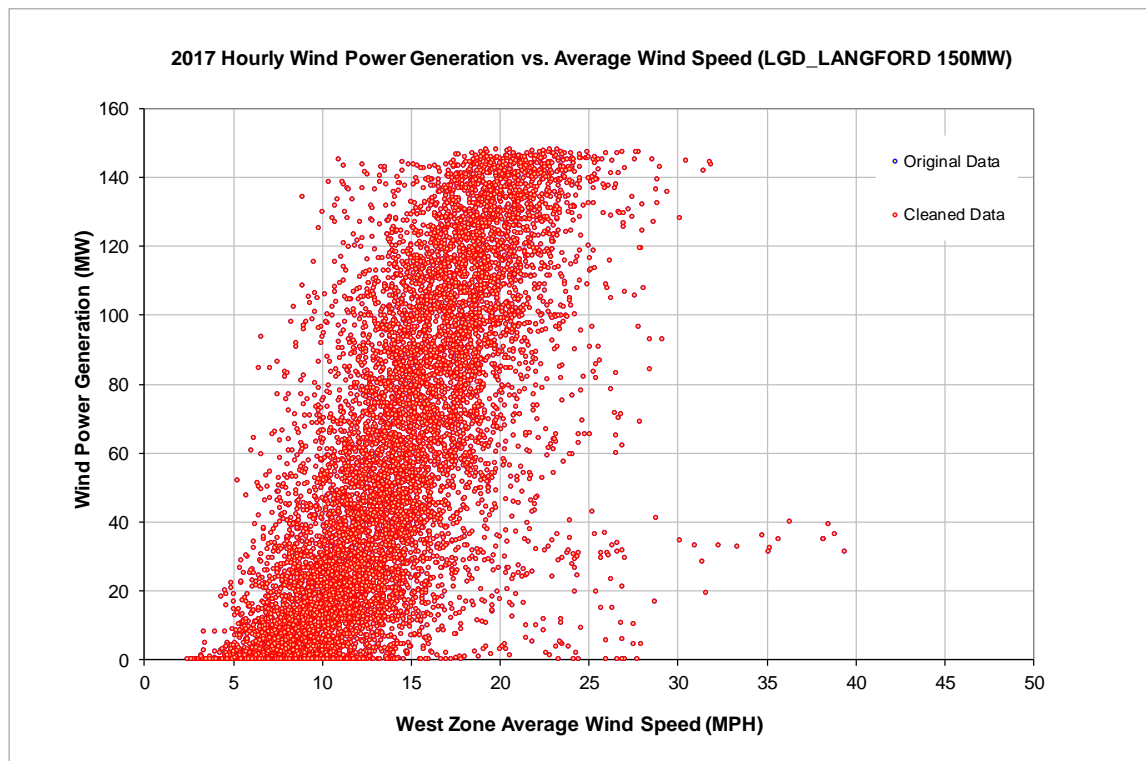


Figure 10-217: LGD\_LANGFORD - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

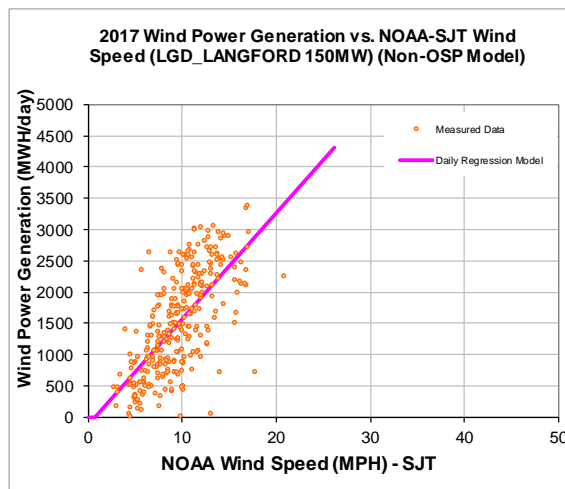
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-111.48
Left Slope (MWh/mph-day)	169.52
RMSE (MWh/day)	587.76
R2	0.47
CV-RMSE	38.9%
Daily Maximum (MWh/day)	3600

**OSP Model:**

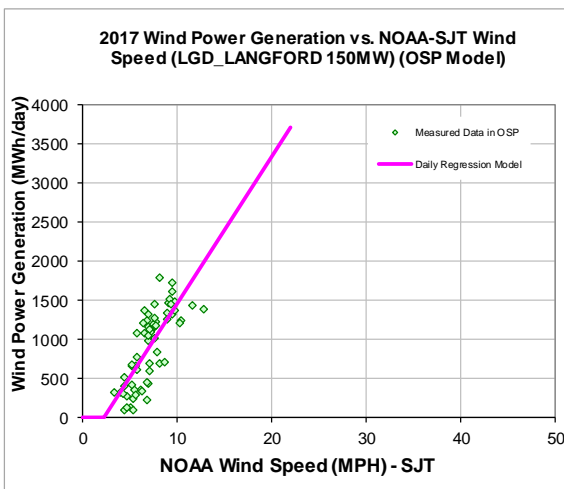
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-426.92
Left Slope (MWh/mph-day)	188.52
RMSE (MWh/day)	308.44
R2	0.59
CV-RMSE	34.2%
Daily Maximum (MWh/day)	3600

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
521,212	513,691

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
895	918

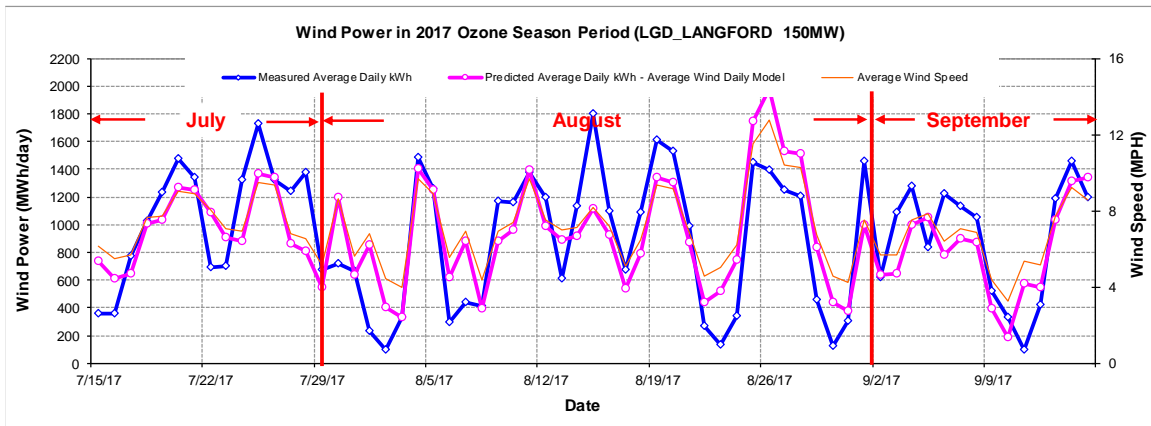
Figure 10-218: LGD\_LANGFORD - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (SJT) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	9.99	48,133	49,052	-1.91%	43%	44%
Feb-17	28	9.86	43,062	43,665	-1.40%	43%	43%
Mar-17	31	10.72	55,688	52,880	5.04%	50%	47%
Apr-17	30	11.75	57,761	56,396	2.36%	53%	52%
May-17	31	9.98	41,104	48,981	-19.16%	37%	44%
Jun-17	30	8.63	40,502	40,525	-0.06%	38%	38%
Jul-17	31	7.50	34,452	32,951	4.36%	31%	30%
Aug-17	31	7.30	27,273	29,435	-7.93%	24%	26%
Sep-17	30	7.69	32,386	32,834	-1.38%	30%	30%
Oct-17	31	8.76	49,628	42,568	14.23%	44%	38%
Nov-17	30	9.02	45,447	42,524	6.43%	42%	39%
Dec-17	31	8.63	38,256	41,883	-9.48%	34%	38%
<b>Total</b>	<b>365</b>	<b>9.14</b>	<b>513,691</b>	<b>513,691</b>	<b>0.00%</b>	<b>39%</b>	<b>39%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>7.05</b>	<b>56,871</b>	<b>56,871</b>	<b>0.00%</b>	<b>25%</b>	<b>25%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

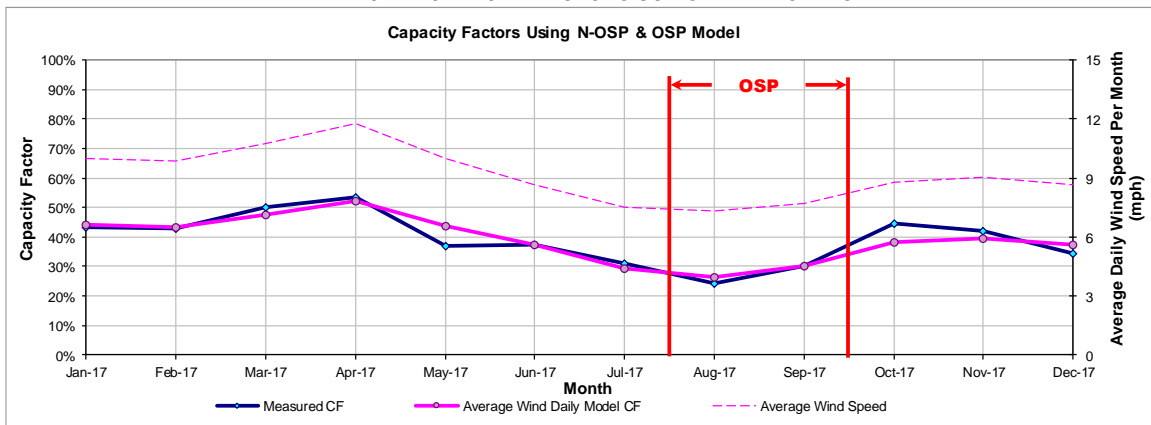


Figure 10-219: LGD\_LANGFORD - Predicted Wind Power and Capacity Factor Using Daily Models

10.51 Logan's Gap Wind I

10.51.1 Logan's Gap Wind I - LGW\_UNIT1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
LGW_UNIT1	Wind	-	COMANCHE	Pattern Energy	Logan's Gap Wind I

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
43 Siemens 2.3 MW	ERCOT	N	Sep-15	North	ABI	103.8

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

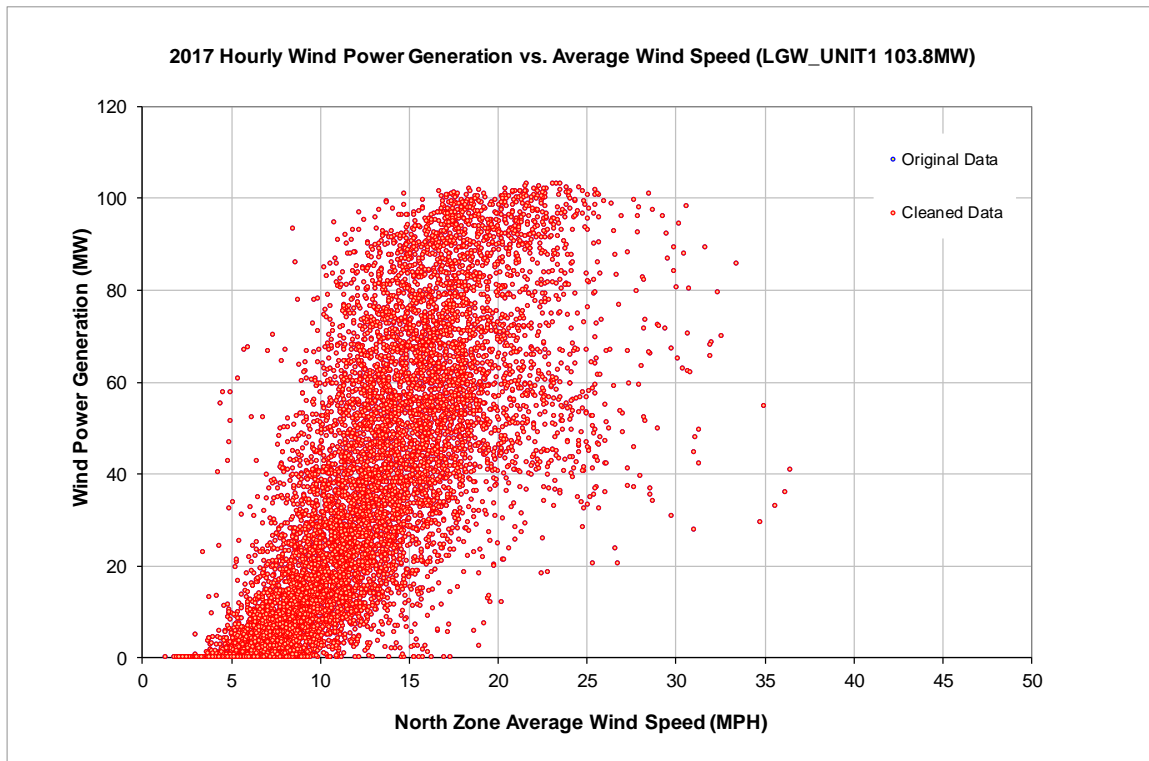


Figure 10-220: LGW\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

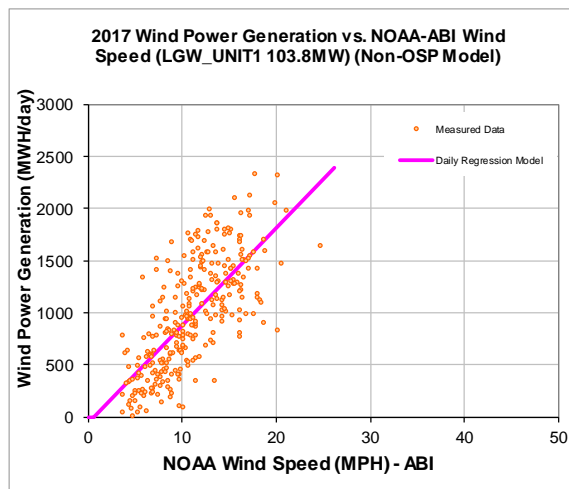
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-46.97
Left Slope (MWh/mph-day)	93.28
RMSE (MWh/day)	362.93
R2	0.51
CV-RMSE	36.8%
Daily Maximum (MWh/day)	2491

**OSP Model:**

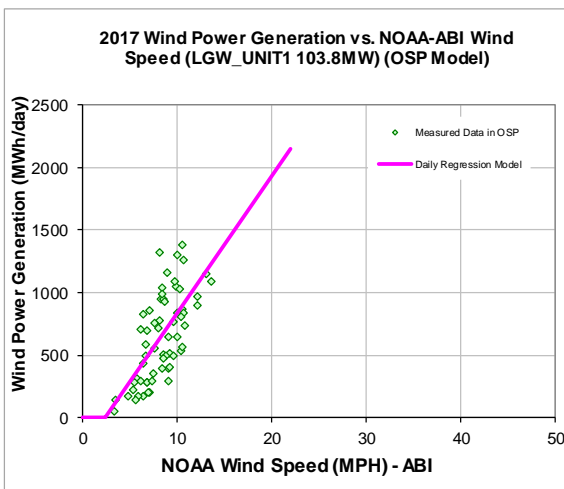
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-261.45
Left Slope (MWh/mph-day)	109.48
RMSE (MWh/day)	258.74
R2	0.45
CV-RMSE	39.9%
Daily Maximum (MWh/day)	2491

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
368,206	337,558

**OSD**

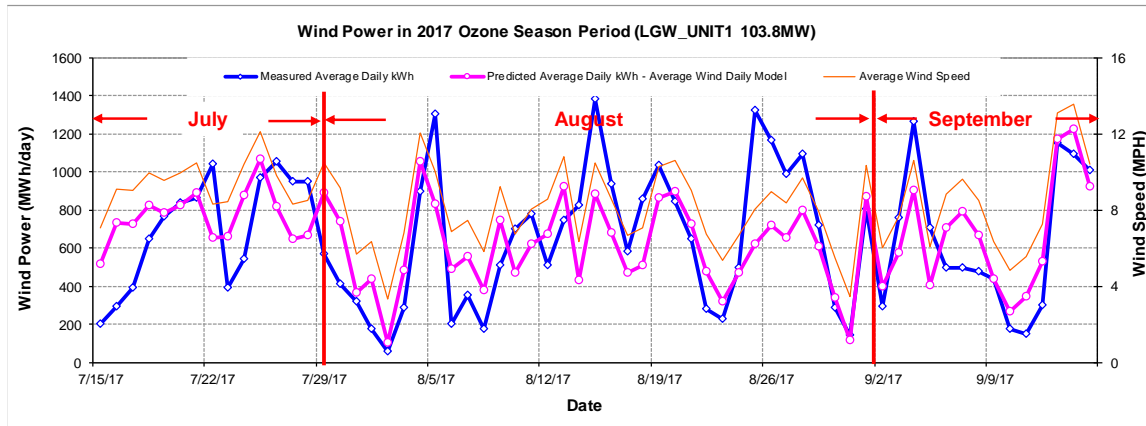
2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
695	656

Figure 10-221: LGW\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	36,077	28,715	20.41%	47%	37%
Feb-17	28	11.23	37,824	28,005	25.96%	54%	40%
Mar-17	31	12.96	34,662	36,014	-3.90%	45%	47%
Apr-17	30	13.49	26,600	36,333	-36.59%	36%	49%
May-17	31	11.55	26,083	31,949	-22.49%	34%	41%
Jun-17	30	10.72	21,913	28,587	-30.46%	29%	38%
Jul-17	31	9.17	22,261	23,982	-7.73%	29%	31%
Aug-17	31	7.87	20,687	18,594	10.12%	27%	24%
Sep-17	30	9.51	20,773	23,947	-15.27%	28%	32%
Oct-17	31	11.07	32,964	30,550	7.32%	43%	40%
Nov-17	30	10.21	28,874	27,165	5.92%	39%	36%
Dec-17	31	8.98	28,838	23,717	17.76%	37%	31%
<b>Total</b>	<b>365</b>	<b>10.59</b>	<b>337,558</b>	<b>337,558</b>	<b>0.00%</b>	<b>37%</b>	<b>37%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>40,878</b>	<b>40,878</b>	<b>0.00%</b>	<b>26%</b>	<b>26%</b>

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

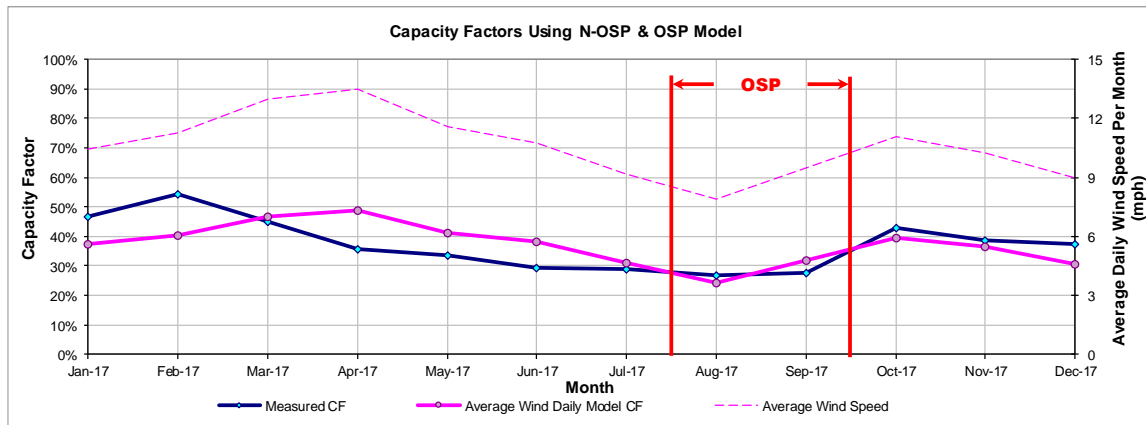


Figure 10-222: LGW\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models



10.51.2 Logan's Gap Wind I - LGW\_UNIT2

**SITE INFORMATION**

GENSITECODE_EERCOT	Renewable Energy	City	County	Company	Facility
LGW_UNIT2	Wind	-	COMANCHE	Pattern Energy	Logan's Gap Wind I

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
44 Siemens 2.3 MW	ERCOT	N	Sep-15	North	ABI	106.3

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

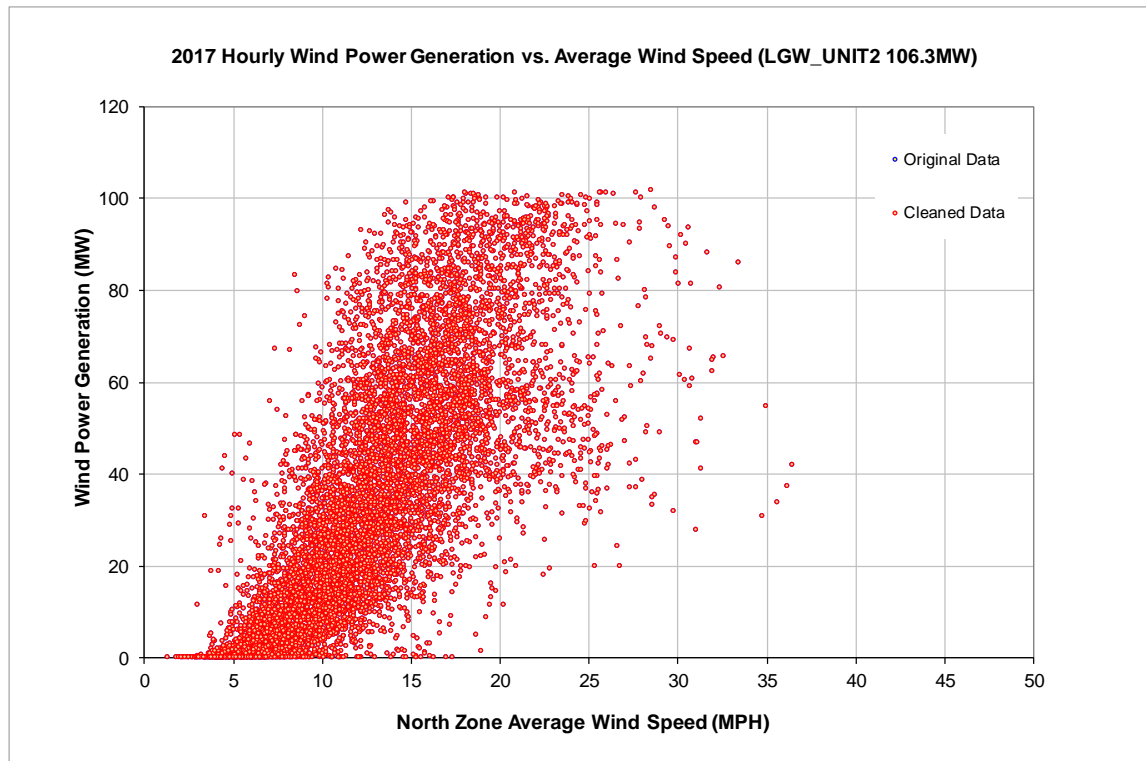


Figure 10-223: LGW\_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

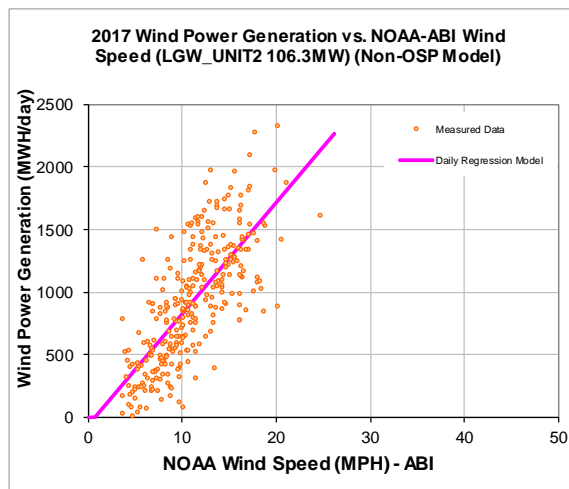
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-63.92
Left Slope (MWh/mph-day)	89.46
RMSE (MWh/day)	329.27
R2	0.54
CV-RMSE	35.5%
Daily Maximum (MWh/day)	2551

**OSP Model:**

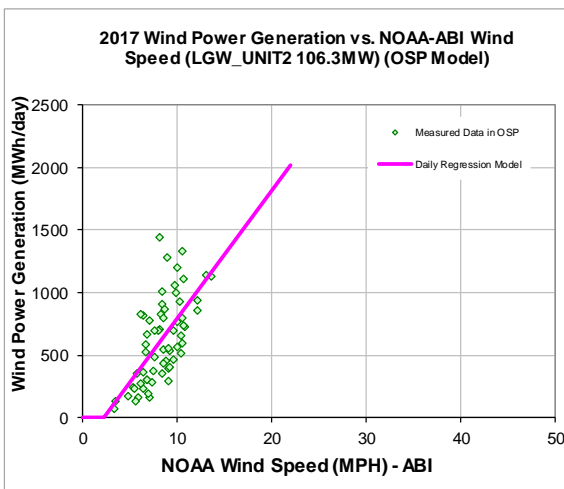
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-224.44
Left Slope (MWh/mph-day)	101.79
RMSE (MWh/day)	257.40
R2	0.42
CV-RMSE	41.4%
Daily Maximum (MWh/day)	2551

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
347,292	318,023

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
665	631

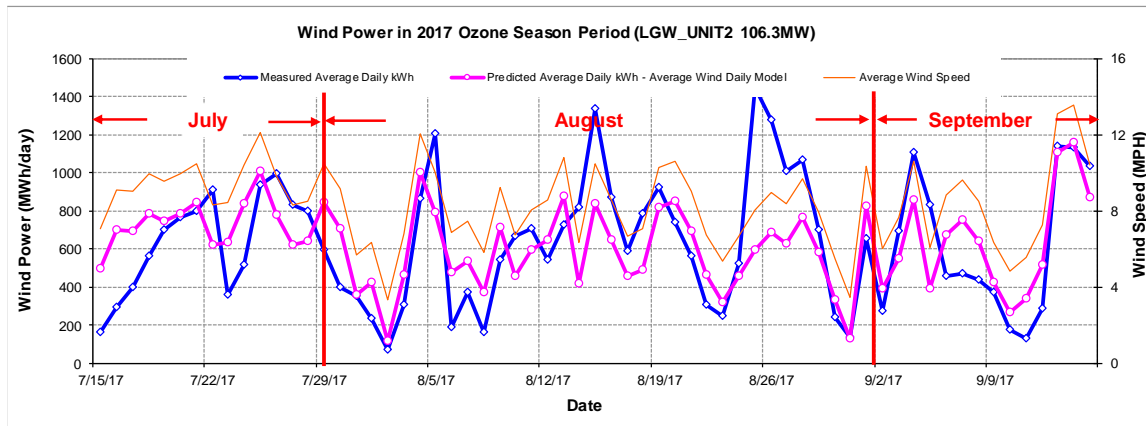
Figure 10-224: LGW\_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	34,275	26,953	21.36%	43%	34%
Feb-17	28	11.23	34,684	26,329	24.09%	49%	37%
Mar-17	31	12.96	32,340	33,953	-4.99%	41%	43%
Apr-17	30	13.49	25,268	34,278	-35.66%	33%	45%
May-17	31	11.55	25,228	30,055	-19.13%	32%	38%
Jun-17	30	10.72	21,457	26,850	-25.13%	28%	35%
Jul-17	31	9.17	20,477	22,675	-10.73%	26%	29%
Aug-17	31	7.87	20,375	17,866	12.31%	26%	23%
Sep-17	30	9.51	19,751	22,686	-14.86%	26%	30%
Oct-17	31	11.07	30,539	28,713	5.98%	39%	36%
Nov-17	30	10.21	27,476	25,485	7.25%	36%	33%
Dec-17	31	8.98	26,153	22,179	15.19%	33%	28%
<b>Total</b>	<b>365</b>	<b>10.59</b>	<b>318,023</b>	<b>318,023</b>	<b>0.00%</b>	<b>34%</b>	<b>34%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>39,180</b>	<b>39,180</b>	<b>0.00%</b>	<b>24%</b>	<b>24%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

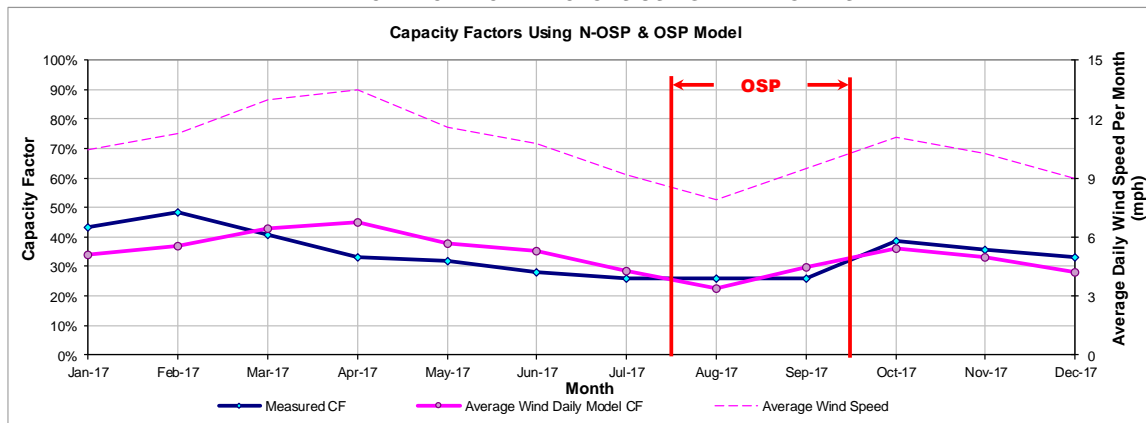


Figure 10-225: LGW\_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.52 Lone Star - Mesquite Wind

10.52.1 Lone Star - Mesquite Wind - LNCRK\_G83

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
LNCRK_G83	Wind	Abilene	SHACKELFORD	EDP Renovaveis	Lone Star - Mesquite Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
100 Gamesa 2 MW	ERCOT	W	Dec-07	West	ABI	200

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

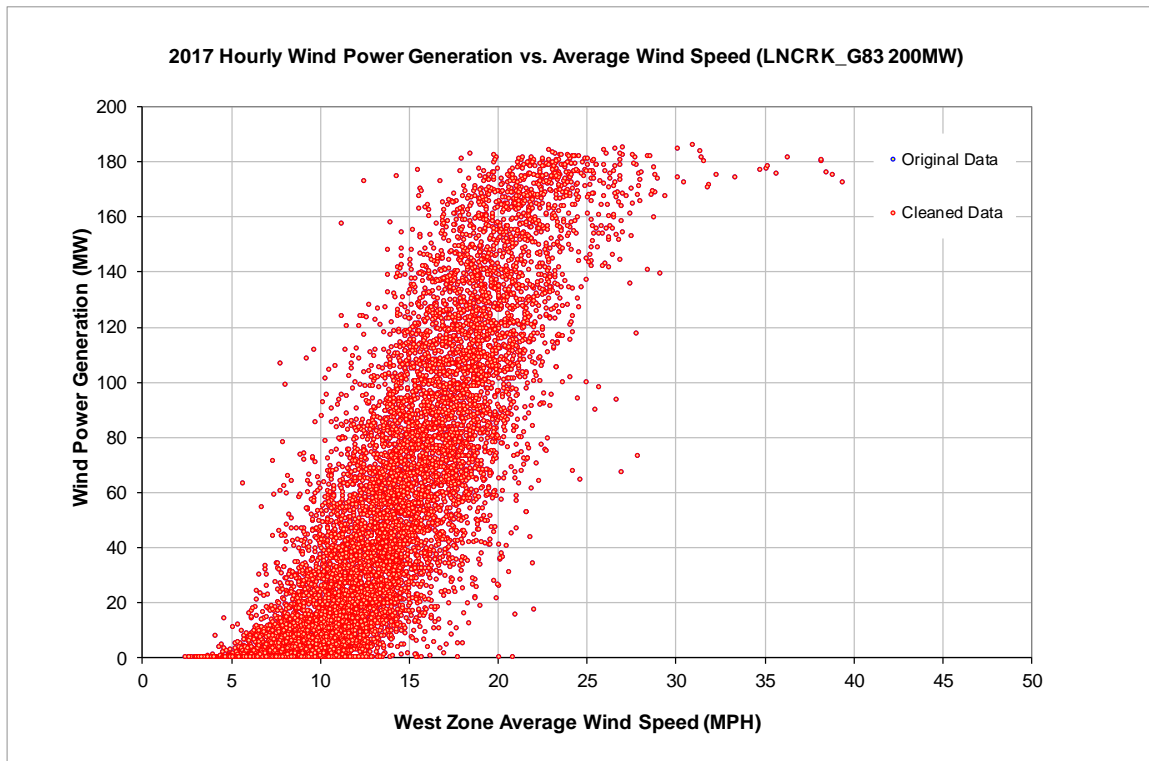


Figure 10-226: LNCRK\_G83 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

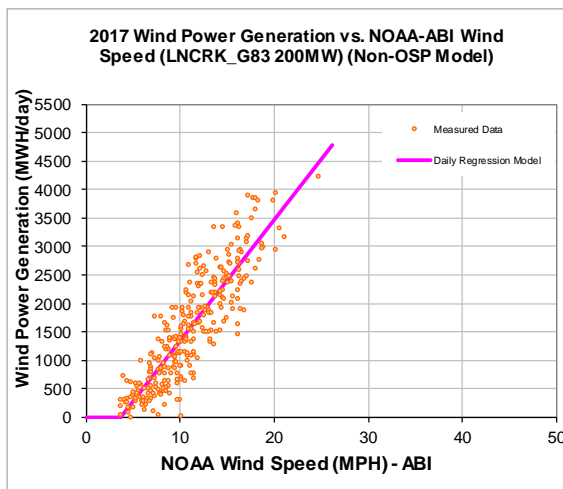
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-790.56
Left Slope (MWh/mph-day)	213.56
RMSE (MWh/day)	465.10
R2	0.77
CV-RMSE	29.6%
Daily Maximum (MWh/day)	4800

**OSP Model:**

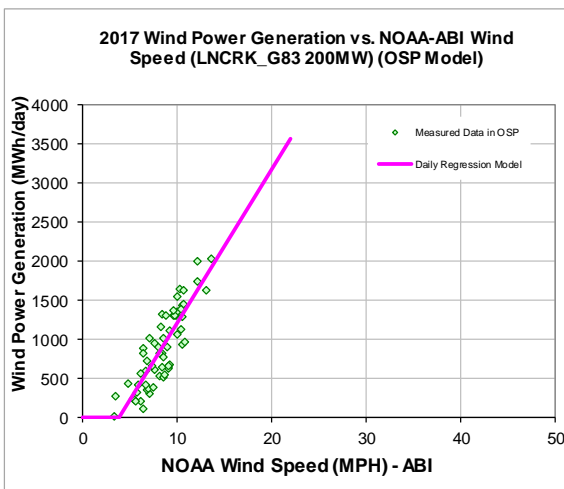
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-753.97
Left Slope (MWh/mph-day)	196.63
RMSE (MWh/day)	253.16
R2	0.74
CV-RMSE	28.6%
Daily Maximum (MWh/day)	4800

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
596,798	528,607

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
967	898

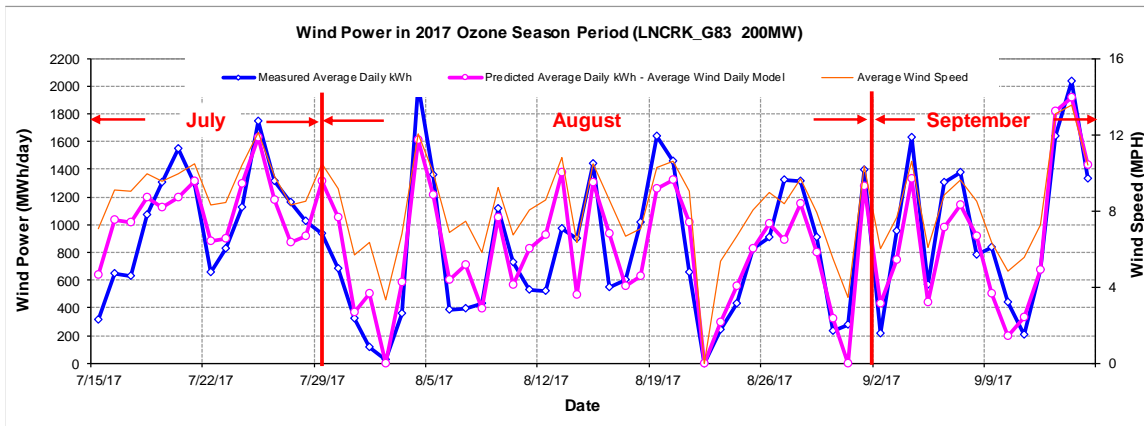
Figure 10-227: LNCRK\_G83 - Model Coefficients (Using Non-OSP and OSP Data)

COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	48,954	44,571	8.95%	33%	30%
Feb-17	28	11.23	49,317	44,994	8.77%	37%	33%
Mar-17	31	12.96	61,422	61,283	0.23%	41%	41%
Apr-17	30	13.49	61,117	62,696	-2.58%	42%	44%
May-17	31	11.55	50,818	51,975	-2.28%	34%	35%
Jun-17	30	10.72	37,057	44,961	-21.33%	26%	31%
Jul-17	31	9.17	30,569	34,160	-11.75%	21%	23%
Aug-17	31	7.90	23,706	24,106	-1.69%	16%	16%
Sep-17	30	9.51	33,519	35,745	-6.64%	23%	25%
Oct-17	31	11.07	50,453	48,797	3.28%	34%	33%
Nov-17	30	10.21	45,161	41,721	7.62%	31%	29%
Dec-17	31	8.98	36,513	33,828	7.35%	25%	23%
Total	365	10.60	528,607	528,837	-0.04%	30%	30%
Total in OSP (07/15-09/15)	62	8.34	54,930	55,103	-0.31%	18%	19%

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

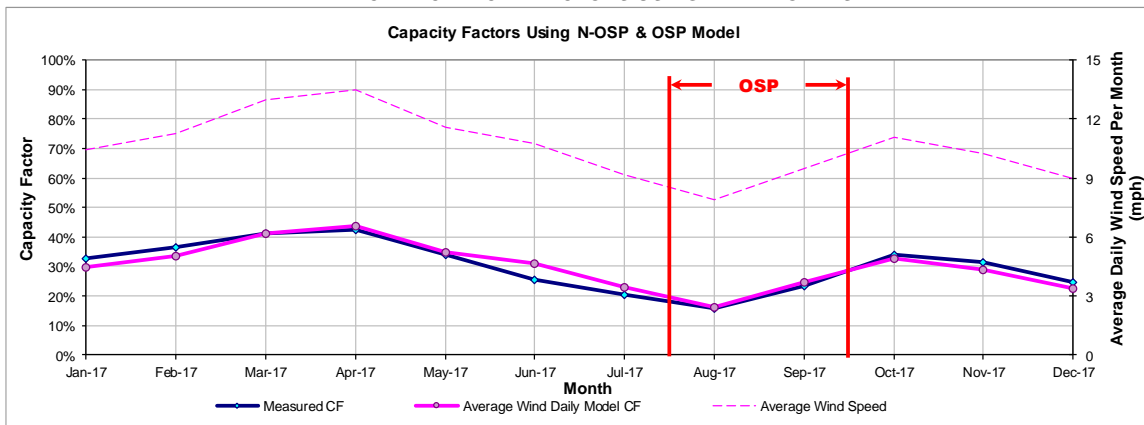


Figure 10-228: LNCRK\_G83 - Predicted Wind Power and Capacity Factor Using Daily Models

10.53 Lone Star - Post Oak Wind

10.53.1 Lone Star - Post Oak Wind - LNCRK2\_G871

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
LNCRK2_G871	Wind	-	SHACKELFORD	EDP Renovaveis	Lone Star - Post Oak Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
50 Gamesa 2 MW	ERCOT	W	May-08	West	ABI	100

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

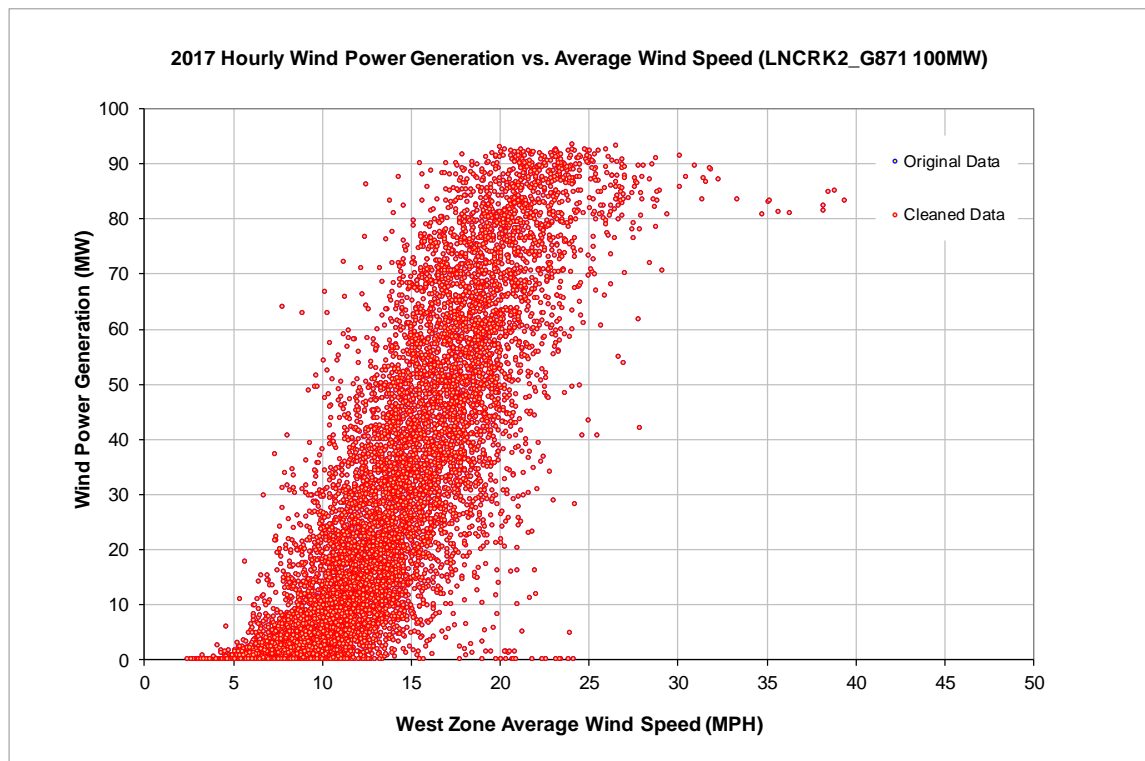


Figure 10-229: LNCRK2\_G871 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

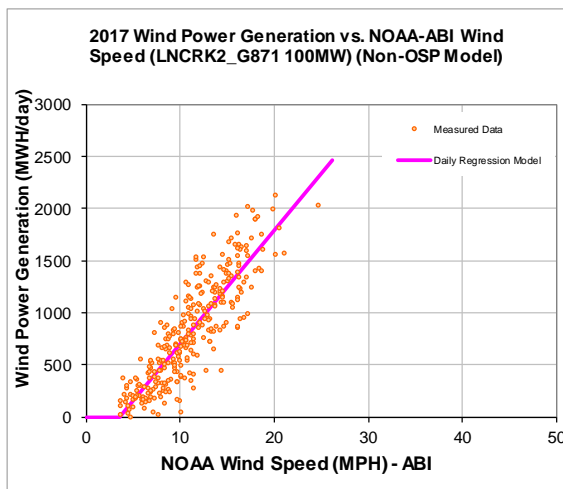
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-378.11
Left Slope (MWh/mph-day)	108.98
RMSE (MWh/day)	249.58
R2	0.75
CV-RMSE	30.1%
Daily Maximum (MWh/day)	2400

**OSP Model:**

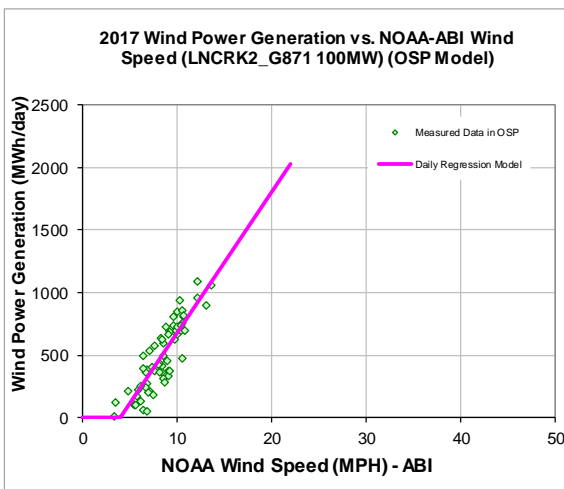
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-448.87
Left Slope (MWh/mph-day)	112.68
RMSE (MWh/day)	132.36
R2	0.77
CV-RMSE	27.1%
Daily Maximum (MWh/day)	2400

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
314,958	280,074

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
537	494

Figure 10-230: LNCRK2\_G871 - Model Coefficients (Using Non-OSP and OSP Data)

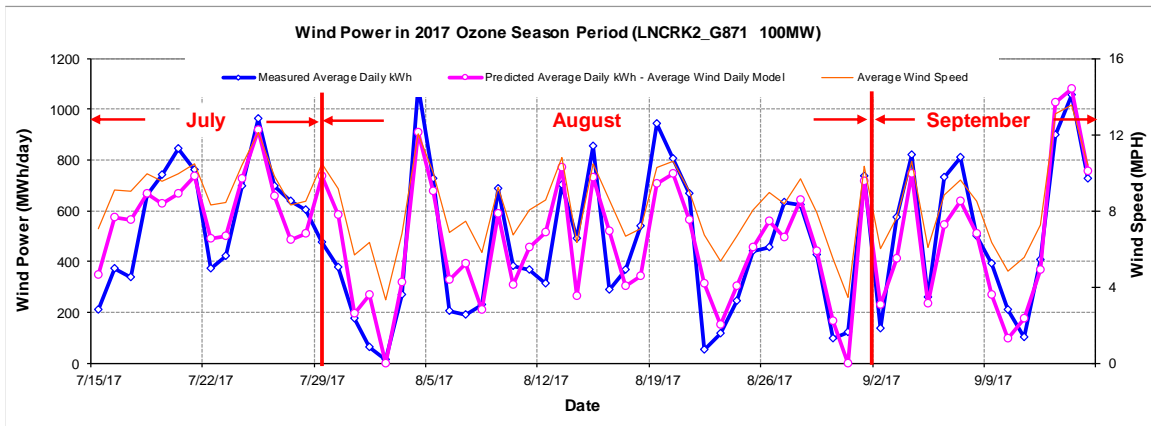


**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	25,983	23,528	9.45%	35%	32%
Feb-17	28	11.23	26,138	23,668	9.45%	39%	35%
Mar-17	31	12.96	32,927	32,056	2.65%	44%	43%
Apr-17	30	13.49	32,419	32,752	-1.03%	45%	45%
May-17	31	11.55	27,574	27,306	0.97%	37%	37%
Jun-17	30	10.72	20,341	23,702	-16.52%	28%	33%
Jul-17	31	9.17	17,558	18,648	-6.21%	24%	25%
Aug-17	31	7.87	13,452	13,639	-1.40%	18%	18%
Sep-17	30	9.51	17,689	19,183	-8.45%	25%	27%
Oct-17	31	11.07	26,819	25,671	4.28%	36%	35%
Nov-17	30	10.21	22,194	22,040	0.69%	31%	31%
Dec-17	31	8.98	16,981	18,013	-6.08%	23%	24%
<b>Total</b>	<b>365</b>	<b>10.59</b>	<b>280,074</b>	<b>280,206</b>	<b>-0.05%</b>	<b>32%</b>	<b>32%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>30,749</b>	<b>30,882</b>	<b>-0.43%</b>	<b>20%</b>	<b>20%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

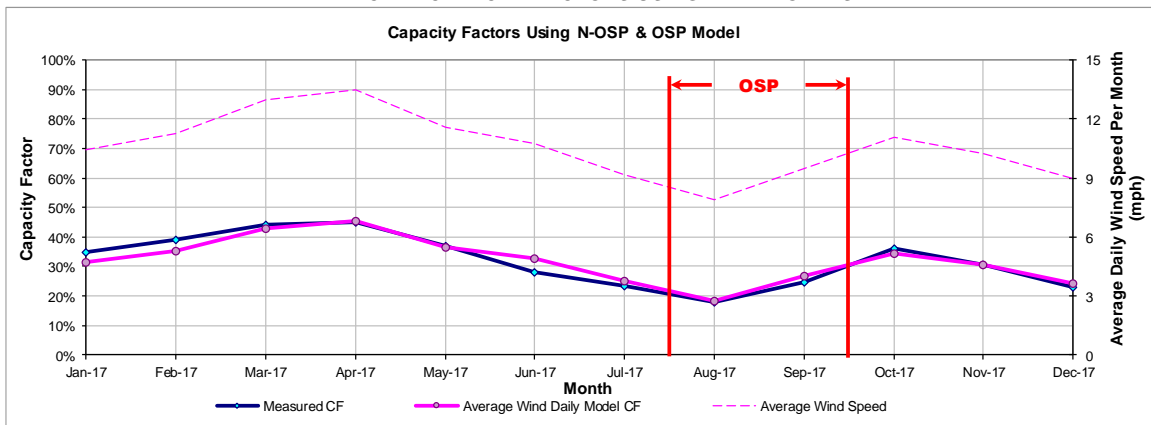


Figure 10-231: LNCRK2\_G871 - Predicted Wind Power and Capacity Factor Using Daily Models

10.53.2 Lone Star - Post Oak Wind - LNCRK2\_G872

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
LNCRK2_G872	Wind	-	SHACKELFORD	EDP Renovaveis	Lone Star - Post Oak Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
50 Gamesa 2 MW	ERCOT	W	May-08	West	ABI	100

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

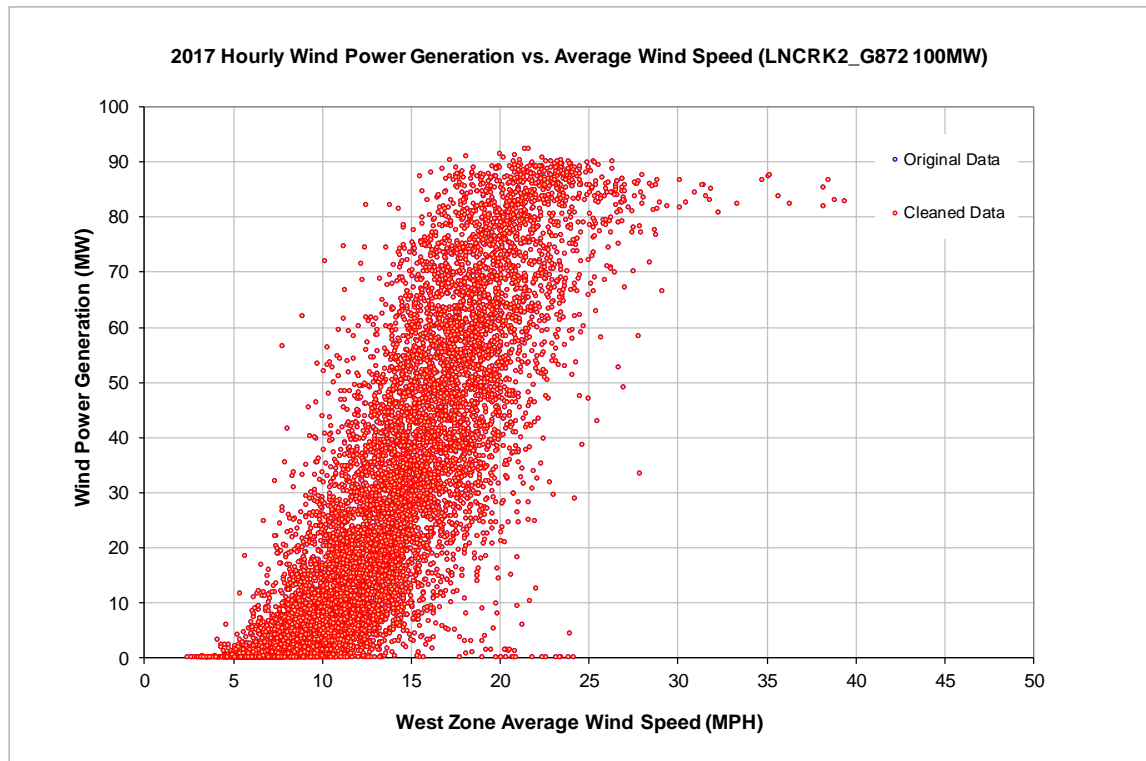


Figure 10-232: LNCRK2\_G872 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

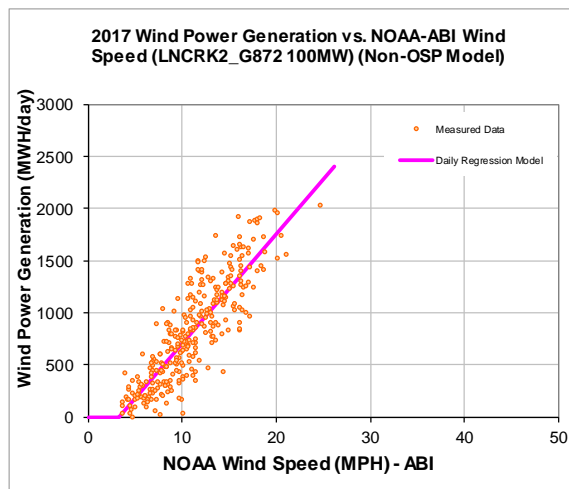
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-337.05
Left Slope (MWh/mph-day)	104.99
RMSE (MWh/day)	247.47
R2	0.74
CV-RMSE	30.0%
Daily Maximum (MWh/day)	2400

**OSP Model:**

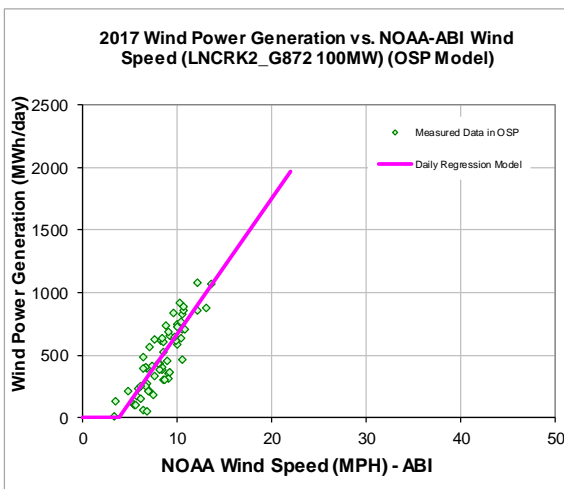
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-418.66
Left Slope (MWh/mph-day)	108.42
RMSE (MWh/day)	136.08
R2	0.75
CV-RMSE	28.2%
Daily Maximum (MWh/day)	2400

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
312,444	278,817

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
530	489

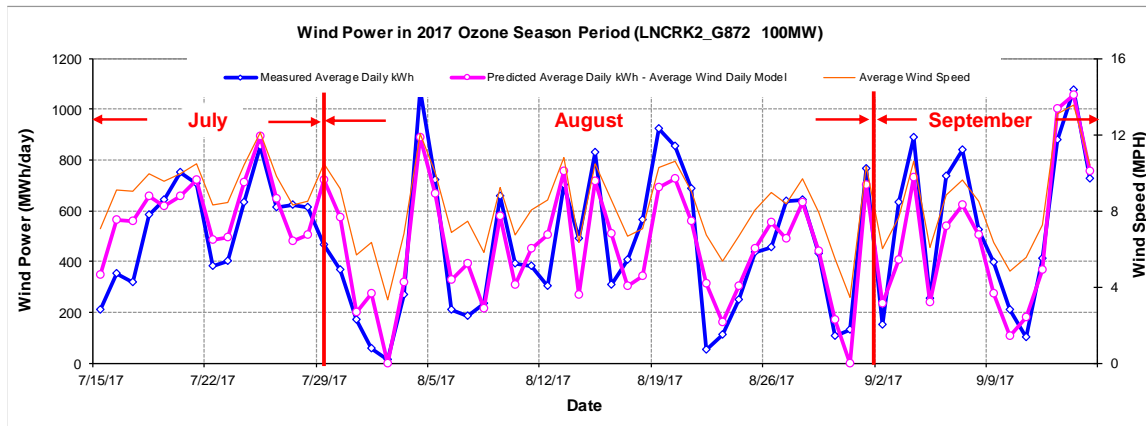
Figure 10-233: LNCRK2\_G872 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	25,992	23,512	9.54%	35%	32%
Feb-17	28	11.23	25,999	23,565	9.36%	39%	35%
Mar-17	31	12.96	32,563	31,727	2.57%	44%	43%
Apr-17	30	13.49	31,968	32,370	-1.26%	44%	45%
May-17	31	11.55	27,166	27,151	0.05%	37%	36%
Jun-17	30	10.72	19,693	23,652	-20.10%	27%	33%
Jul-17	31	9.17	16,484	18,559	-12.59%	22%	25%
Aug-17	31	7.87	13,575	13,520	0.41%	18%	18%
Sep-17	30	9.51	17,756	19,065	-7.37%	25%	26%
Oct-17	31	11.07	26,890	25,576	4.89%	36%	34%
Nov-17	30	10.21	22,594	22,051	2.41%	31%	31%
Dec-17	31	8.98	18,137	18,170	-0.19%	24%	24%
<b>Total</b>	<b>365</b>	<b>10.59</b>	<b>278,817</b>	<b>278,918</b>	<b>-0.04%</b>	<b>32%</b>	<b>32%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>30,418</b>	<b>30,519</b>	<b>-0.33%</b>	<b>20%</b>	<b>20%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

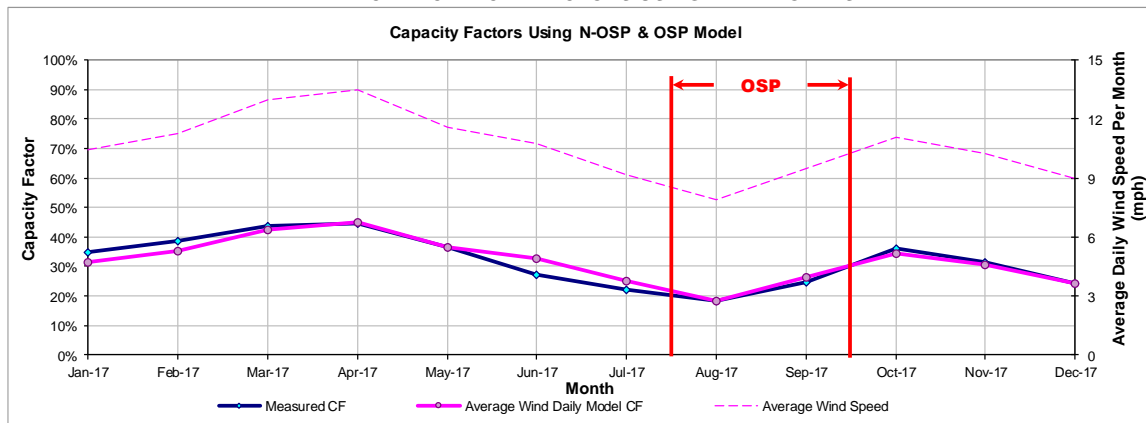


Figure 10-234: LNCRK2\_G872 - Predicted Wind Power and Capacity Factor Using Daily Models

10.54 Longhorn Energy Center North

10.54.1 Longhorn Energy Center North - LHORN\_N\_UNIT1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
LHORN_N_UNIT1	Wind	-	BRISCOE	EDF Renewable	Longhorn Energy Center North

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
50 Vestas 2 MW	ERCOT	W	Sep-15	Panhandle	LBB	100

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

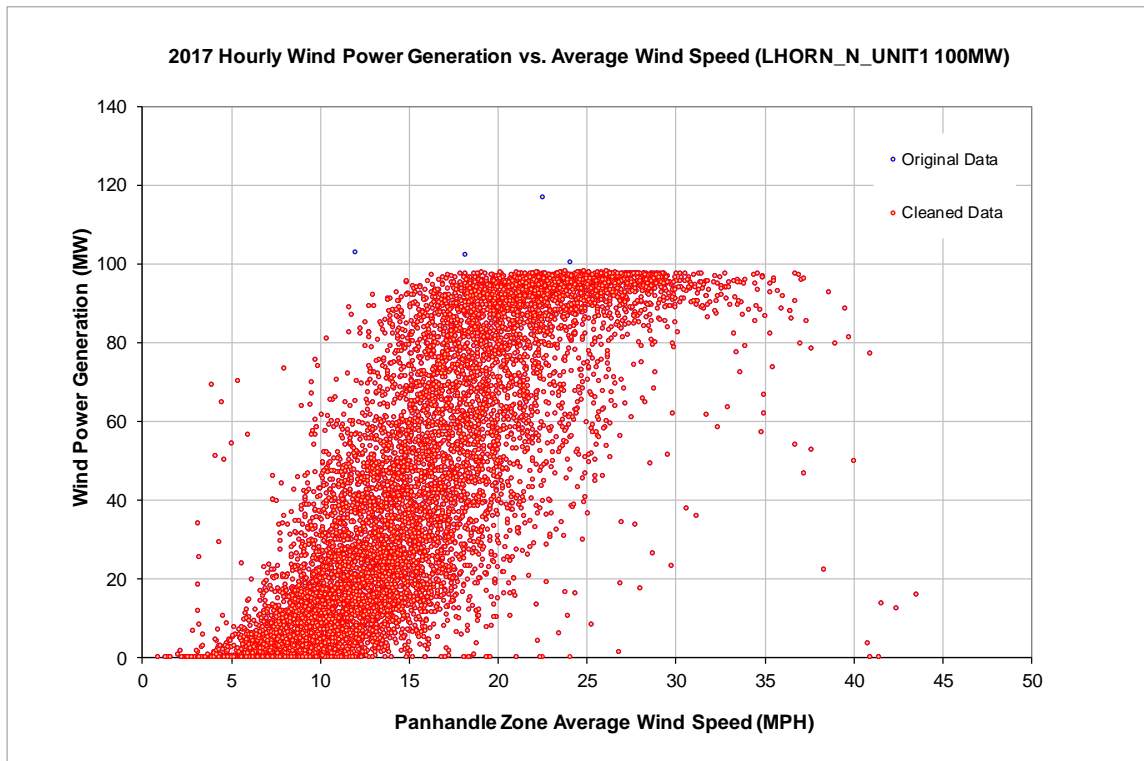


Figure 10-235: LHORN\_N\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

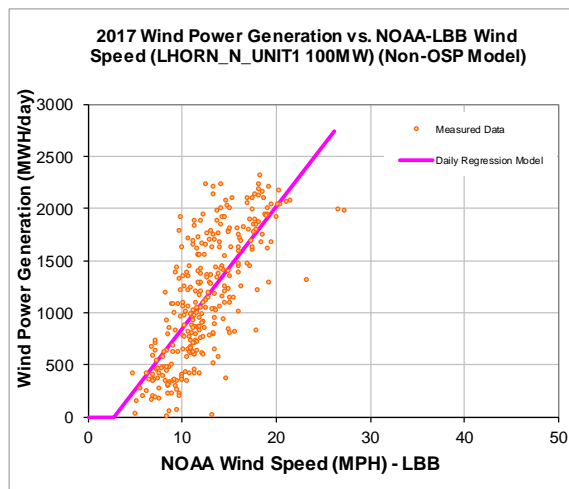
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-322.57
Left Slope (MWh/mph-day)	117.42
RMSE (MWh/day)	402.61
R2	0.54
CV-RMSE	35.3%
Daily Maximum (MWh/day)	2400

**OSP Model:**

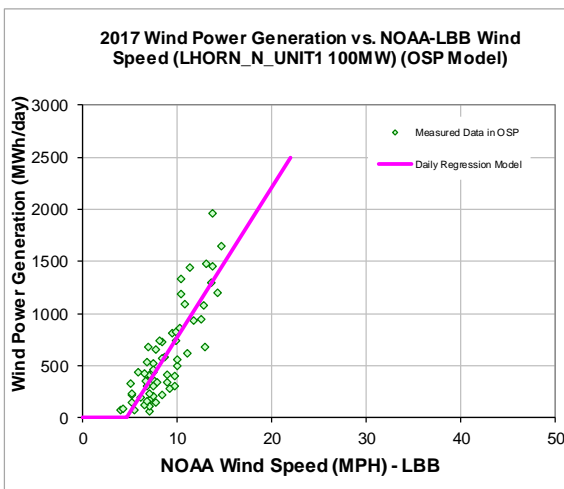
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-655.35
Left Slope (MWh/mph-day)	142.97
RMSE (MWh/day)	238.97
R2	0.71
CV-RMSE	41.1%
Daily Maximum (MWh/day)	2400

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
385,861	379,581

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
638	595

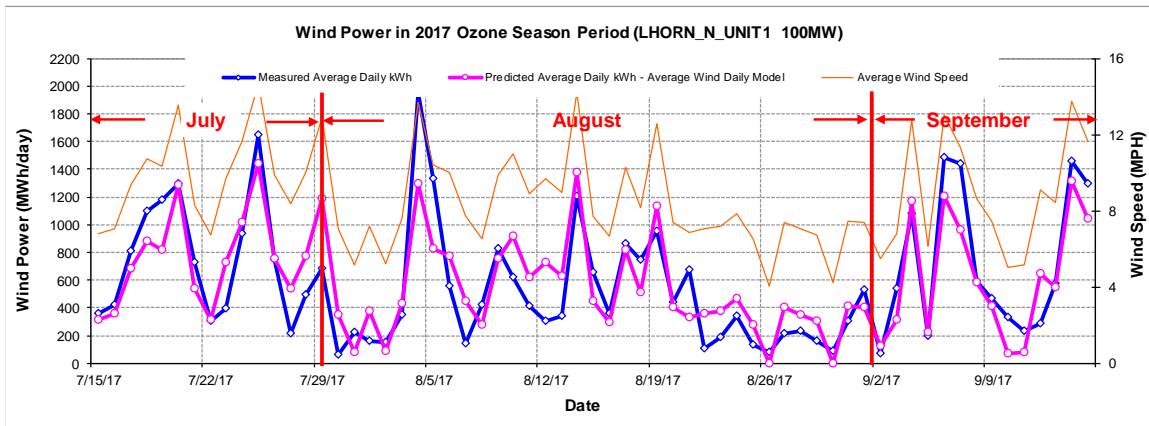
Figure 10-236: LHORN\_N\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	34,670	33,611	3.06%	47%	45%
Feb-17	28	12.91	36,159	33,414	7.59%	54%	50%
Mar-17	31	13.57	40,890	38,513	5.81%	55%	52%
Apr-17	30	14.59	37,368	41,725	-11.66%	52%	58%
May-17	31	13.77	33,777	40,113	-18.76%	45%	54%
Jun-17	30	12.33	28,952	33,743	-16.55%	40%	47%
Jul-17	31	10.03	22,716	25,015	-10.12%	31%	34%
Aug-17	31	8.19	15,241	16,117	-5.75%	20%	22%
Sep-17	30	10.41	23,592	25,270	-7.11%	33%	35%
Oct-17	31	11.80	39,806	32,955	17.21%	54%	44%
Nov-17	30	11.45	36,903	30,661	16.92%	51%	43%
Dec-17	31	10.61	29,507	27,696	6.14%	40%	37%
Total	365	11.79	379,581	378,833	0.20%	43%	43%
Total in OSP (07/15-09/15)	63	8.65	36,624	36,749	-0.34%	24%	24%

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

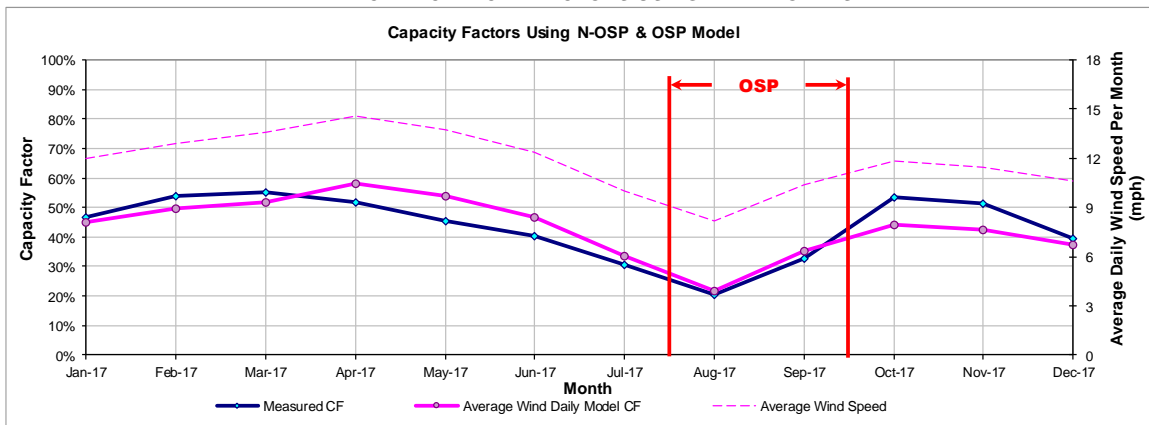


Figure 10-237: LHORN\_N\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.54.2 Longhorn Energy Center North - LHORN\_N\_UNIT2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
LHORN_N_UNIT2	Wind	-	BRISCOE	EDF Renewable	Longhorn Energy Center North

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
50 Vestas 2 MW	ERCOT	W	Sep-15	Panhandle	LBB	100

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

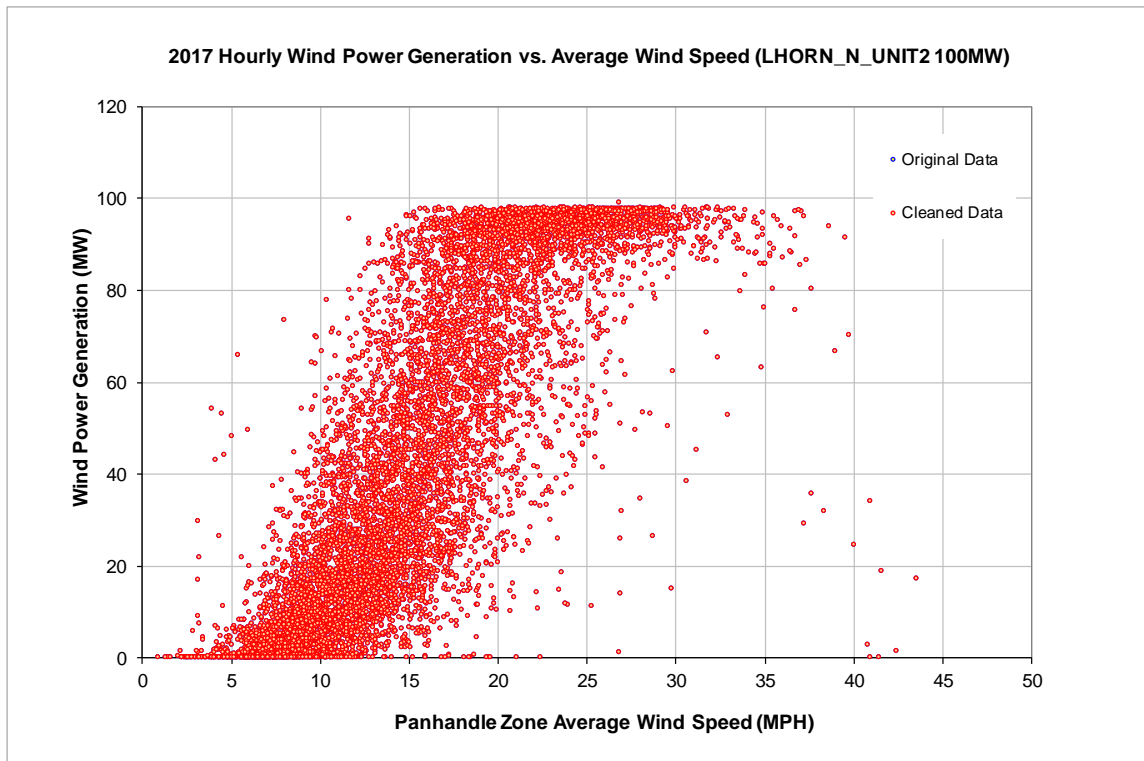


Figure 10-238: LHORN\_N\_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

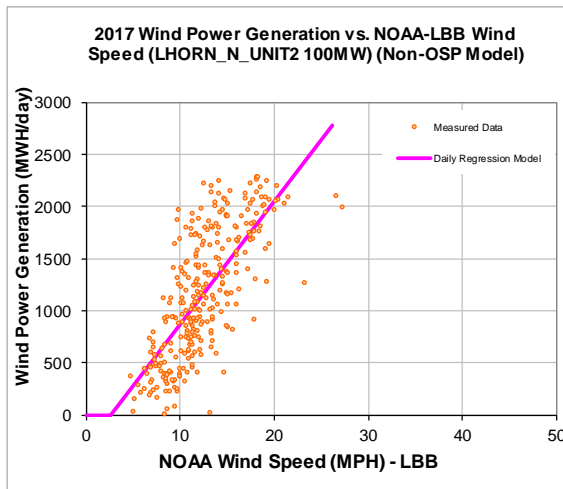
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-309.79
Left Slope (MWh/mph-day)	118.32
RMSE (MWh/day)	412.49
R2	0.54
CV-RMSE	35.5%
Daily Maximum (MWh/day)	2400

**OSP Model:**

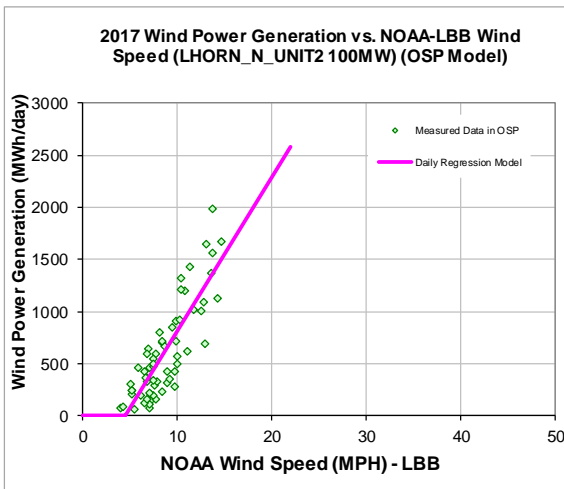
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-675.31
Left Slope (MWh/mph-day)	147.77
RMSE (MWh/day)	250.08
R2	0.71
CV-RMSE	41.5%
Daily Maximum (MWh/day)	2400

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
394,624	388,177

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
661	616

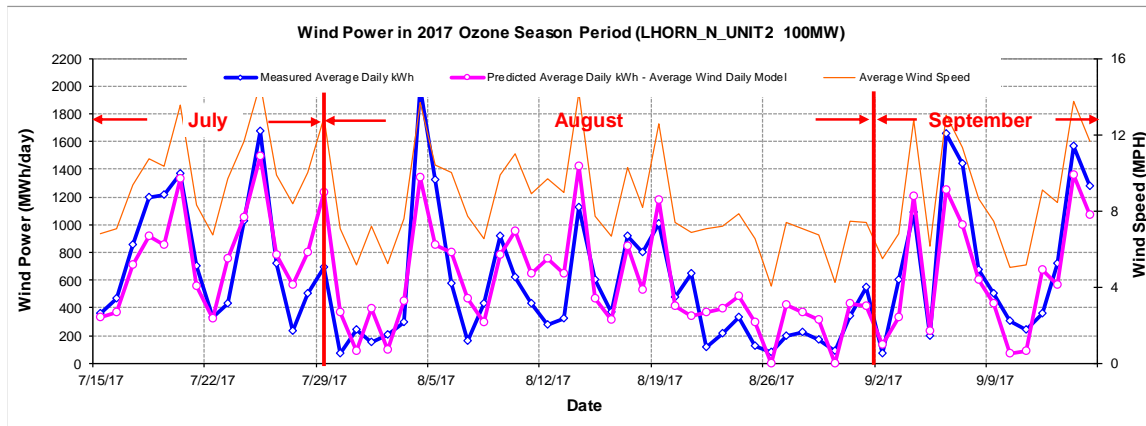
Figure 10-239: LHORN\_N\_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	34,804	34,343	1.32%	47%	46%
Feb-17	28	12.91	36,655	34,099	6.97%	55%	51%
Mar-17	31	13.57	41,862	39,216	6.32%	56%	53%
Apr-17	30	14.59	38,354	42,470	-10.73%	53%	59%
May-17	31	13.77	34,267	40,895	-19.34%	46%	55%
Jun-17	30	12.33	29,628	34,461	-16.31%	41%	48%
Jul-17	31	10.03	23,664	25,771	-8.90%	32%	35%
Aug-17	31	8.19	15,400	16,718	-8.56%	21%	22%
Sep-17	30	10.41	24,864	25,944	-4.34%	35%	36%
Oct-17	31	11.80	41,375	33,683	18.59%	56%	45%
Nov-17	30	11.45	37,481	31,355	16.35%	52%	44%
Dec-17	31	10.61	29,824	28,367	4.88%	40%	38%
<b>Total</b>	<b>365</b>	<b>11.79</b>	<b>388,177</b>	<b>387,321</b>	<b>0.22%</b>	<b>44%</b>	<b>44%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>37,984</b>	<b>38,109</b>	<b>-0.33%</b>	<b>25%</b>	<b>25%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

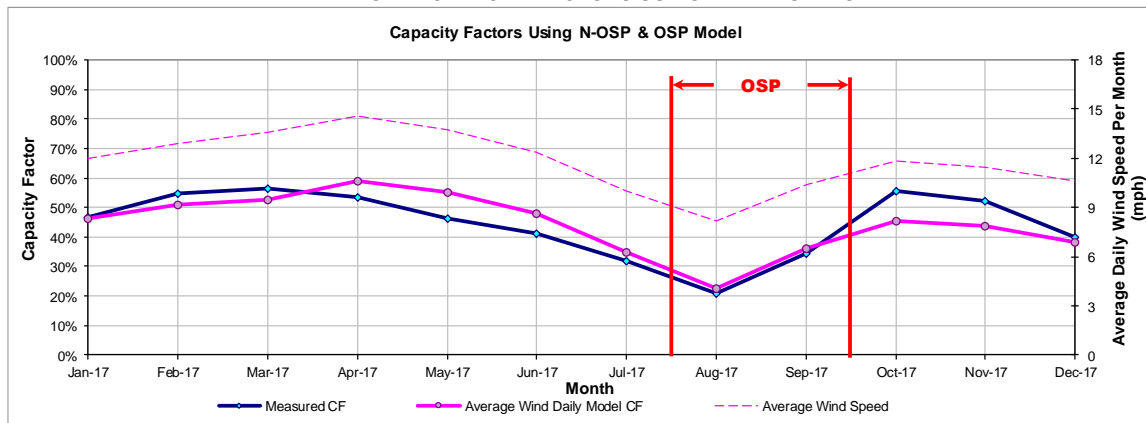


Figure 10-240: LHORN\_N\_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.55 Loraine WindparkFarm

10.55.1 Loraine Windpark - LONEWOLF\_G1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
LONEWOLF_G1	Wind	-	MITCHELL	Third Planet Windpower	Loraine Windpark

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
33 GE 1.5 MW	ERCOT	W	Oct-09	West	ABI	49.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

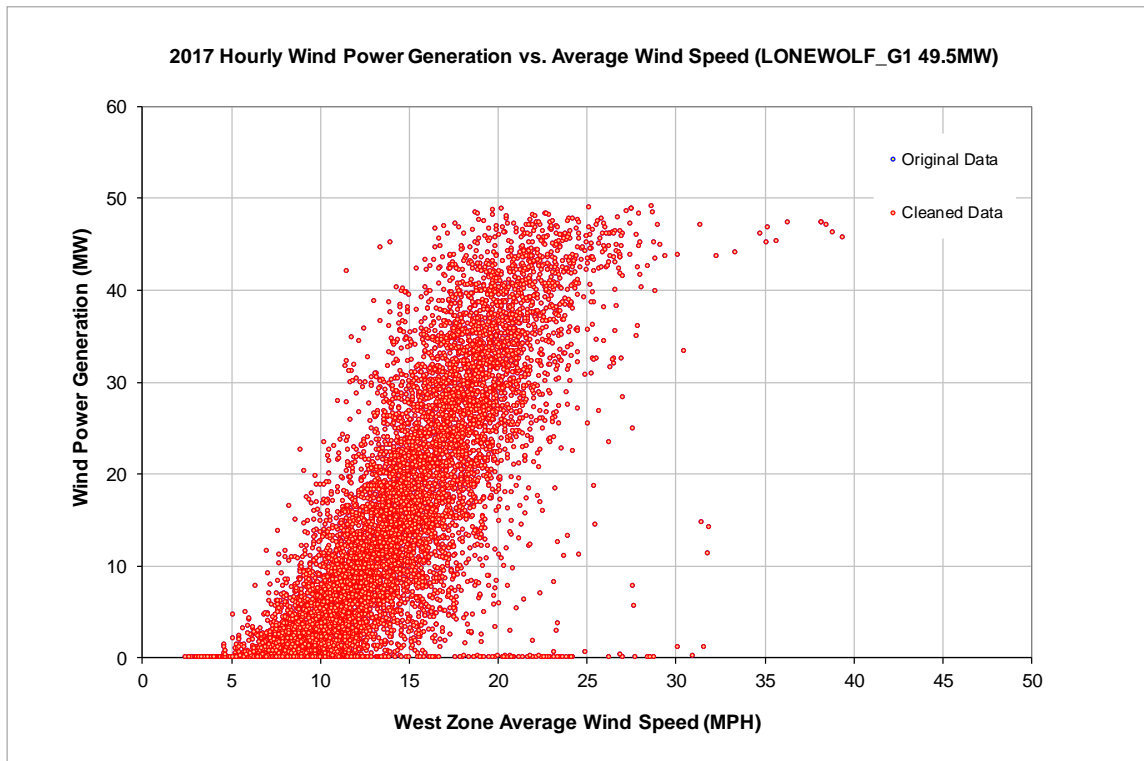


Figure 10-241: LONEWOLF\_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

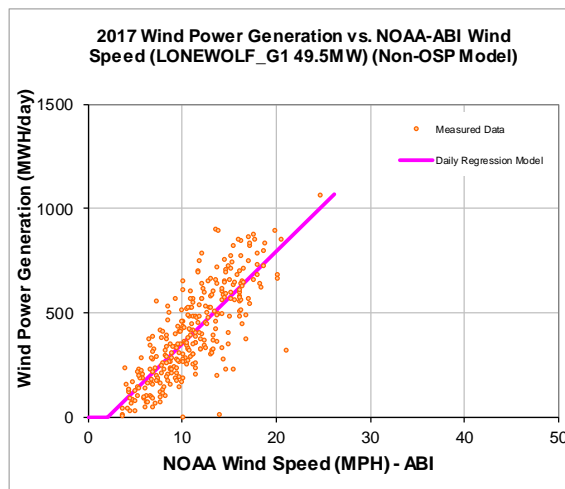
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-92.66
Left Slope (MWh/mph-day)	44.57
RMSE (MWh/day)	132.86
R2	0.64
CV-RMSE	33.0%
Daily Maximum (MWh/day)	1188

**OSP Model:**

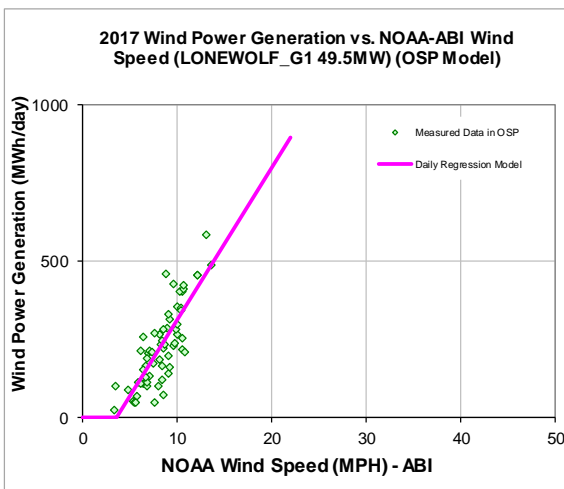
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-175.25
Left Slope (MWh/mph-day)	48.80
RMSE (MWh/day)	74.89
R2	0.66
CV-RMSE	32.5%
Daily Maximum (MWh/day)	1188

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
149,569	135,213

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
252	235

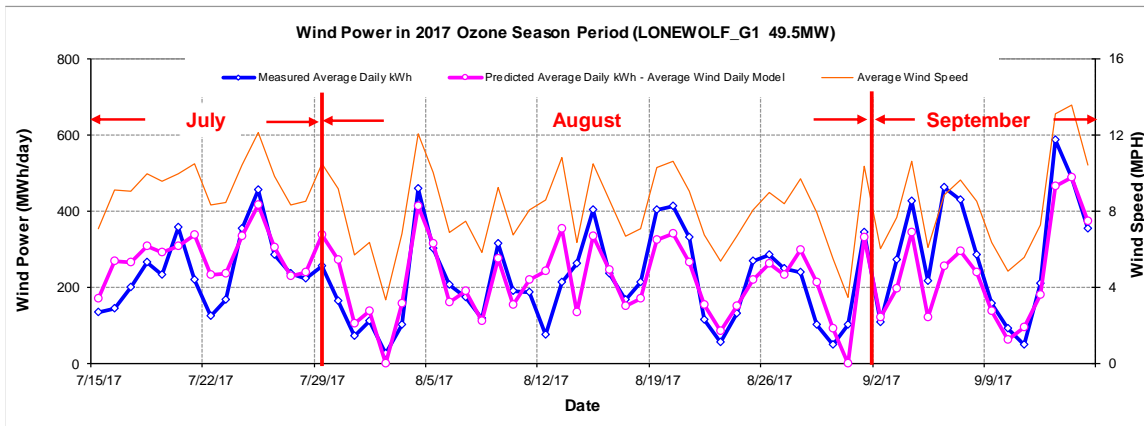
Figure 10-242: LONEWOLF\_G1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	11,452	11,543	-0.79%	31%	31%
Feb-17	28	11.23	10,850	11,414	-5.20%	33%	34%
Mar-17	31	12.96	15,491	15,030	2.98%	42%	41%
Apr-17	30	13.49	14,681	15,252	-3.89%	41%	43%
May-17	31	11.55	13,119	13,087	0.24%	36%	36%
Jun-17	30	10.72	11,381	11,552	-1.50%	32%	32%
Jul-17	31	9.17	7,934	9,064	-14.25%	22%	25%
Aug-17	31	7.87	6,446	6,481	-0.53%	18%	18%
Sep-17	30	9.51	10,944	9,212	15.82%	31%	26%
Oct-17	31	11.12	12,722	12,088	4.98%	35%	33%
Nov-17	30	10.21	11,272	10,872	3.54%	32%	31%
Dec-17	31	9.29	8,921	9,637	-8.02%	24%	26%
<b>Total</b>	<b>365</b>	<b>10.62</b>	<b>135,213</b>	<b>135,232</b>	<b>-0.01%</b>	<b>31%</b>	<b>31%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>14,521</b>	<b>14,541</b>	<b>-0.13%</b>	<b>19%</b>	<b>19%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

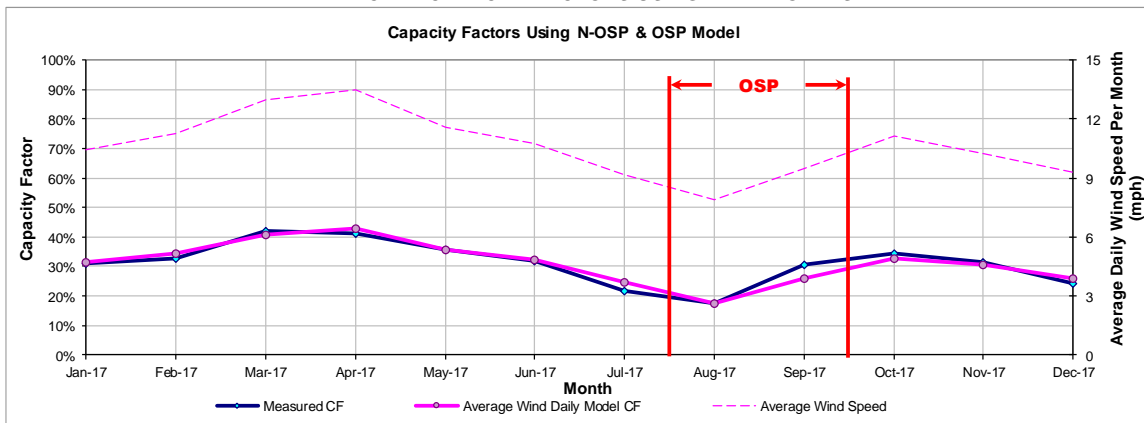


Figure 10-243: LONEWOLF\_G1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.55.2 Loraine Windpark - LONEWOLF\_G2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
LONEWOLF_G2	Wind	-	MITCHELL	Third Planet Windpower	Loraine Windpark

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
34 GE 1.5 MW	ERCOT	W	Oct-09	West	ABI	51

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

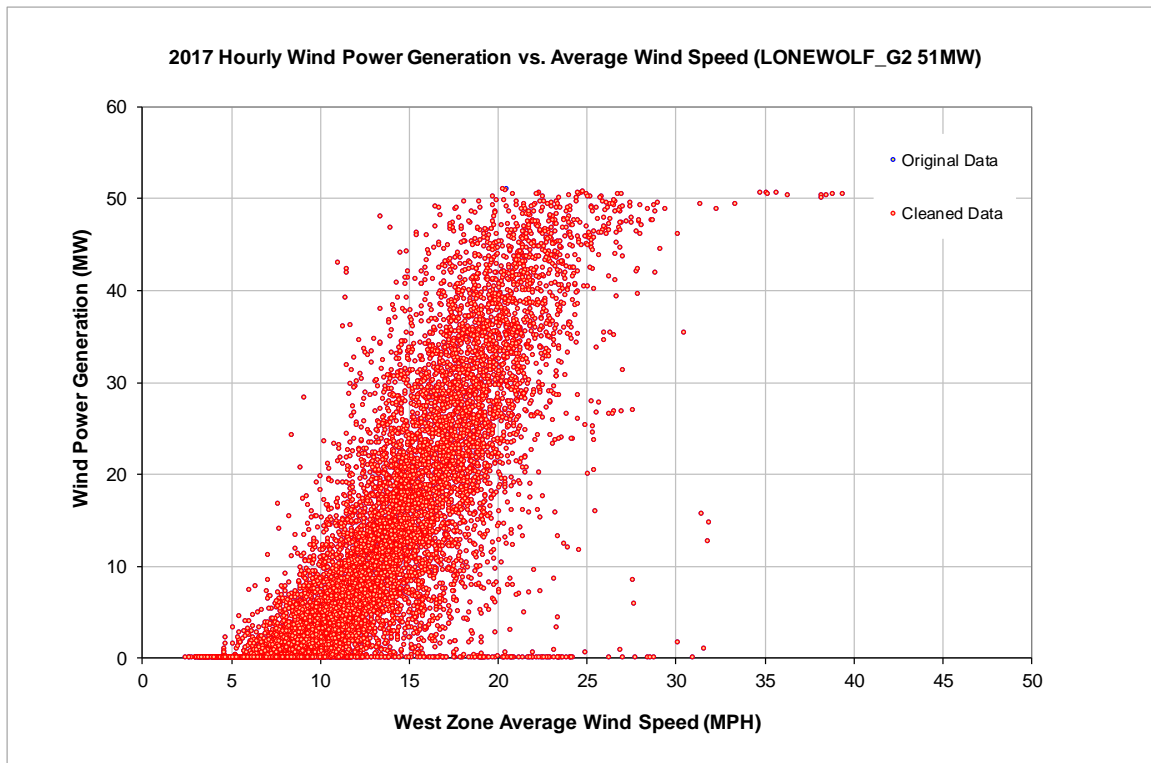


Figure 10-244: LONEWOLF\_G2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

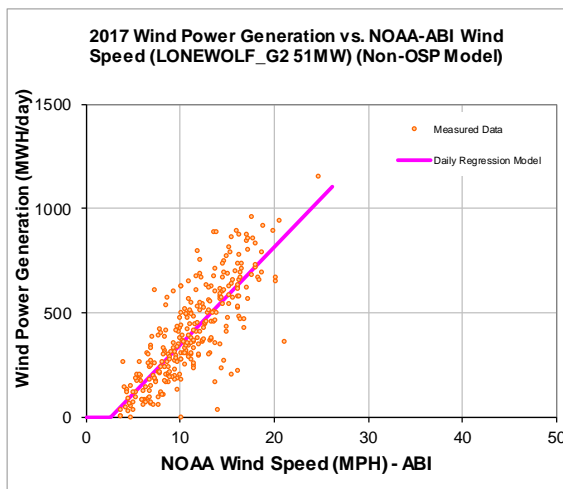
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-118.80
Left Slope (MWh/mph-day)	46.90
RMSE (MWh/day)	135.51
R2	0.65
CV-RMSE	33.7%
Daily Maximum (MWh/day)	1224

**OSP Model:**

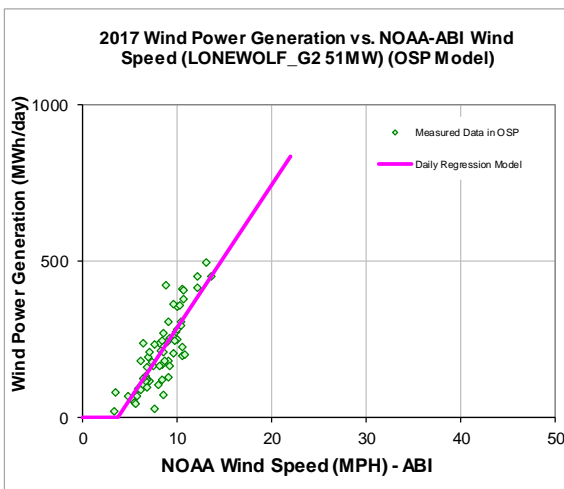
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-167.45
Left Slope (MWh/mph-day)	45.54
RMSE (MWh/day)	67.03
R2	0.68
CV-RMSE	31.7%
Daily Maximum (MWh/day)	1224

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
148,844	133,815

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
231	216

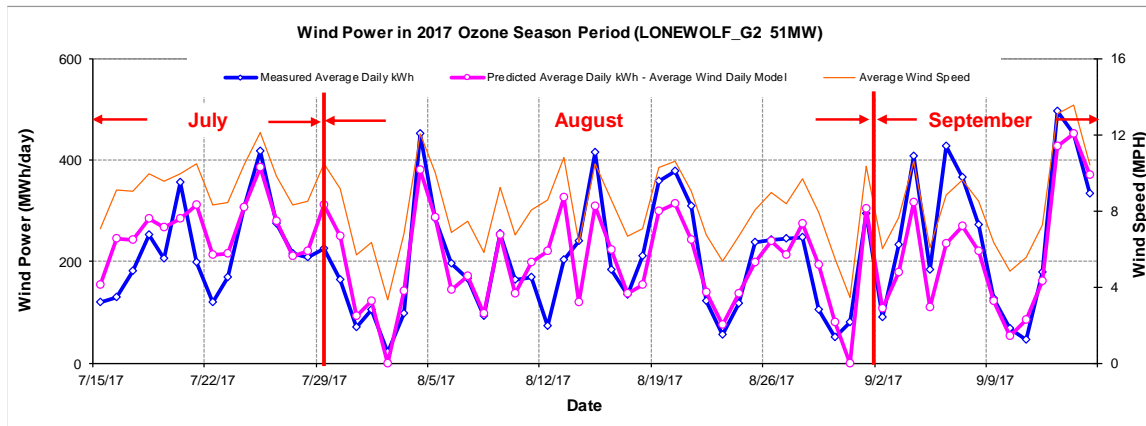
Figure 10-245: LONEWOLF\_G2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	11,069	11,489	-3.80%	29%	30%
Feb-17	28	11.23	10,828	11,417	-5.44%	32%	33%
Mar-17	31	12.96	15,827	15,159	4.22%	42%	40%
Apr-17	30	13.49	15,415	15,415	0.00%	42%	42%
May-17	31	11.55	14,137	13,115	7.23%	37%	35%
Jun-17	30	10.72	11,188	11,520	-2.97%	30%	31%
Jul-17	31	9.17	7,466	8,611	-15.34%	20%	23%
Aug-17	31	7.87	6,008	5,931	1.29%	16%	16%
Sep-17	30	9.51	10,343	8,926	13.70%	28%	24%
Oct-17	31	11.24	11,846	11,846	0.00%	31%	31%
Nov-17	30	10.21	10,833	10,805	0.26%	30%	29%
Dec-17	31	9.14	8,856	9,607	-8.48%	23%	25%
<b>Total</b>	<b>365</b>	<b>10.61</b>	<b>133,815</b>	<b>133,841</b>	<b>-0.02%</b>	<b>30%</b>	<b>30%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>13,306</b>	<b>13,332</b>	<b>-0.19%</b>	<b>17%</b>	<b>17%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

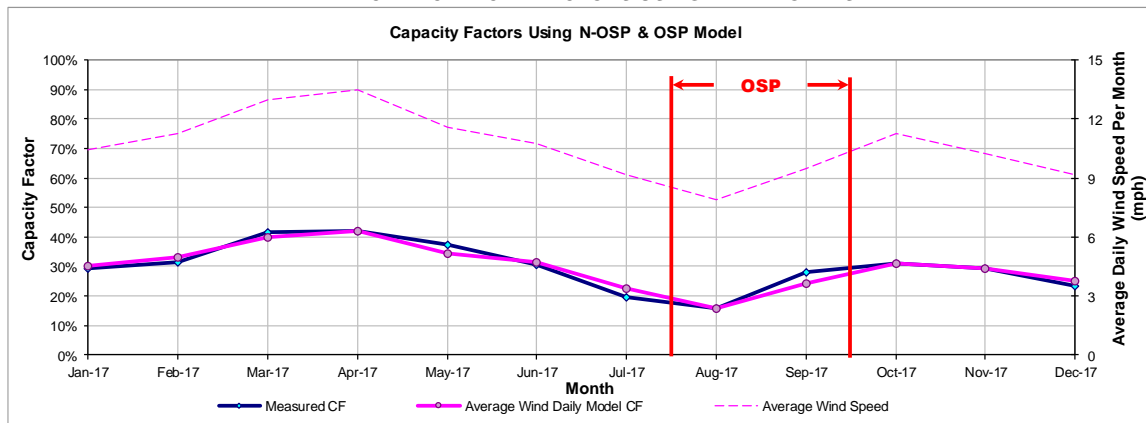


Figure 10-246: LONEWOLF\_G2 - Predicted Wind Power and Capacity Factor Using Daily Models



10.55.3 Loraine Windpark - LONEWOLF\_G3

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
LONEWOLF_G3	Wind	-	MITCHELL	Third Planet Windpower	Loraine Windpark

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
17 GE 1.5 MW	ERCOT	W	Jan-11	West	ABI	26

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

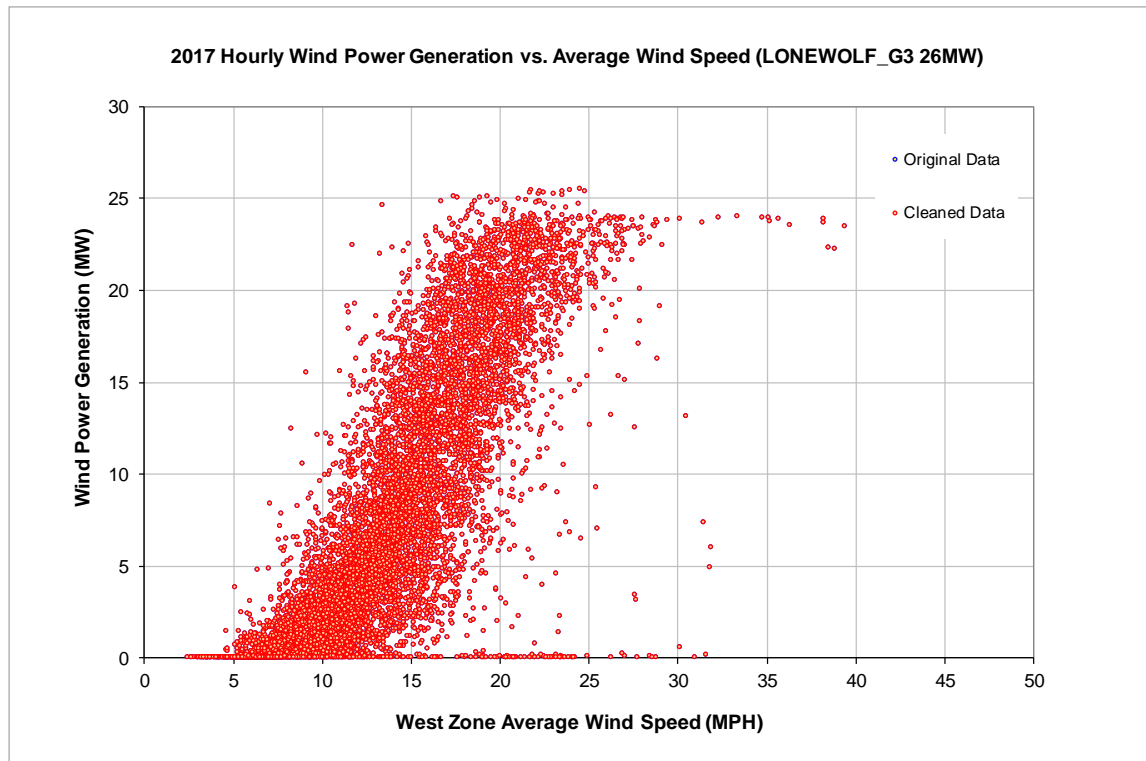


Figure 10-247: LONEWOLF\_G3 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

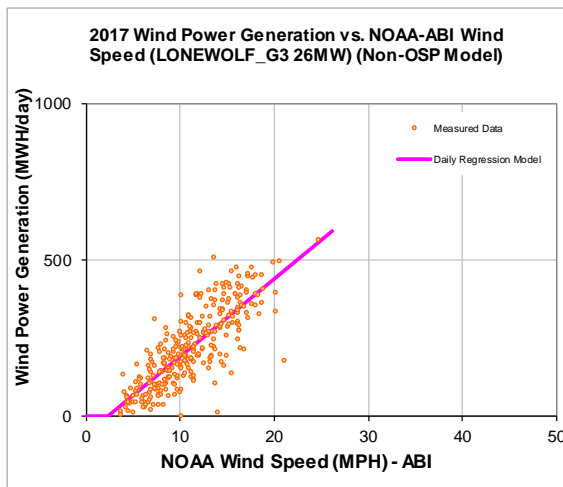
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-56.47
Left Slope (MWh/mph-day)	24.85
RMSE (MWh/day)	73.20
R2	0.64
CV-RMSE	33.3%
Daily Maximum (MWh/day)	624

**OSP Model:**

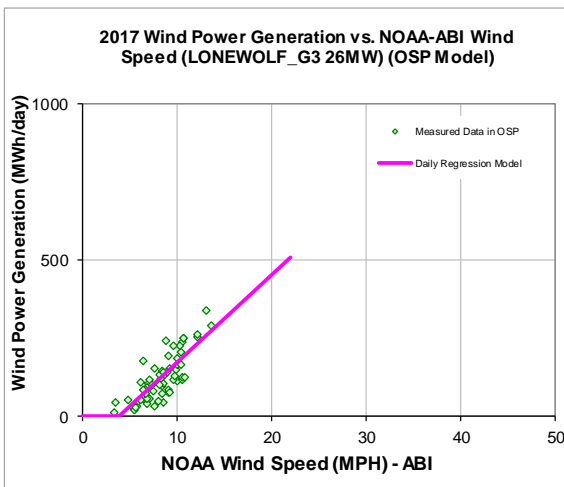
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-109.15
Left Slope (MWh/mph-day)	28.09
RMSE (MWh/day)	44.71
R2	0.65
CV-RMSE	35.9%
Daily Maximum (MWh/day)	624

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
81,728	73,704

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
137	127

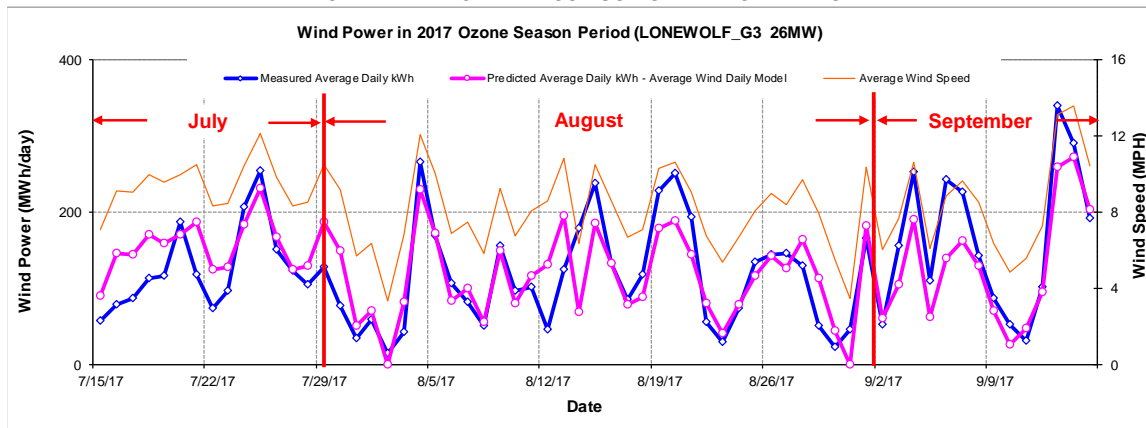
Figure 10-248: LONEWOLF\_G3 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	6,350	6,288	0.97%	33%	33%
Feb-17	28	11.23	5,804	6,231	-7.36%	33%	36%
Mar-17	31	12.96	8,604	8,233	4.31%	44%	43%
Apr-17	30	13.49	7,996	8,362	-4.58%	43%	45%
May-17	31	11.55	7,371	7,150	3.00%	38%	37%
Jun-17	30	10.72	5,658	6,298	-11.32%	30%	34%
Jul-17	31	9.17	4,040	4,932	-22.07%	21%	25%
Aug-17	31	7.87	3,546	3,481	1.83%	18%	18%
Sep-17	30	9.51	6,002	5,009	16.55%	32%	27%
Oct-17	31	11.12	7,151	6,598	7.74%	37%	34%
Nov-17	30	10.21	6,165	5,919	3.98%	33%	32%
Dec-17	31	9.29	5,018	5,231	-4.24%	26%	27%
<b>Total</b>	<b>365</b>	<b>10.62</b>	<b>73,704</b>	<b>73,732</b>	<b>-0.04%</b>	<b>32%</b>	<b>32%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>7,836</b>	<b>7,863</b>	<b>-0.35%</b>	<b>20%</b>	<b>20%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

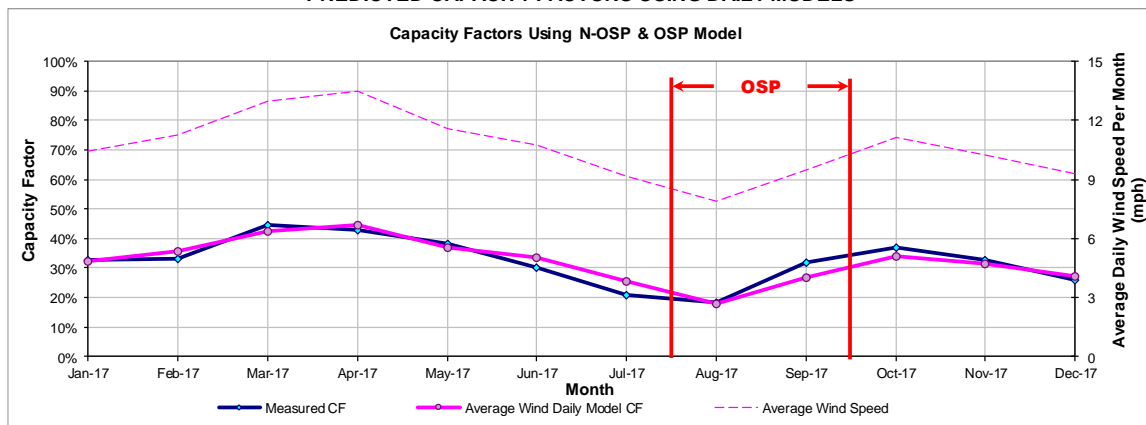


Figure 10-249: LONEWOLF\_G3 - Predicted Wind Power and Capacity Factor Using Daily Models

10.55.4 Loraine Windpark - LONEWOLF\_G4

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
LONEWOLF_G4	Wind	-	MITCHELL	Third Planet Windpower	Loraine Windpark

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
16 GE 1.5 MW	ERCOT	W	Jan-12	West	ABI	24

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

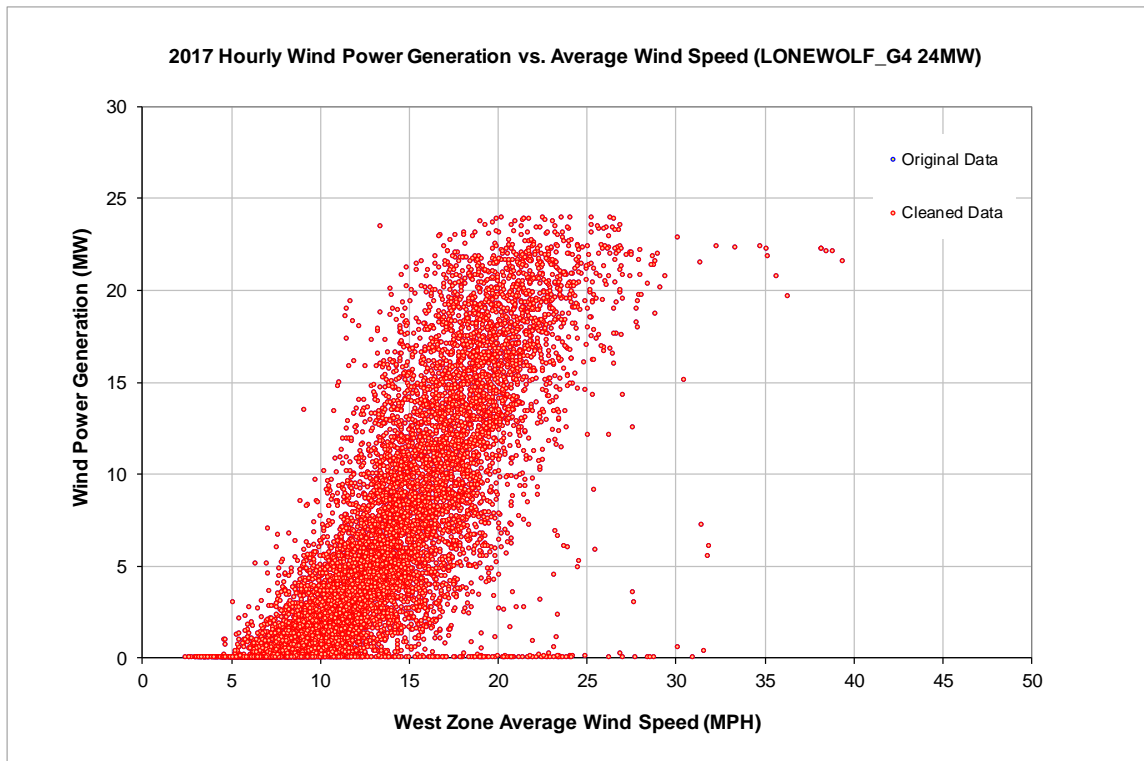


Figure 10-250: LONEWOLF\_G4 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

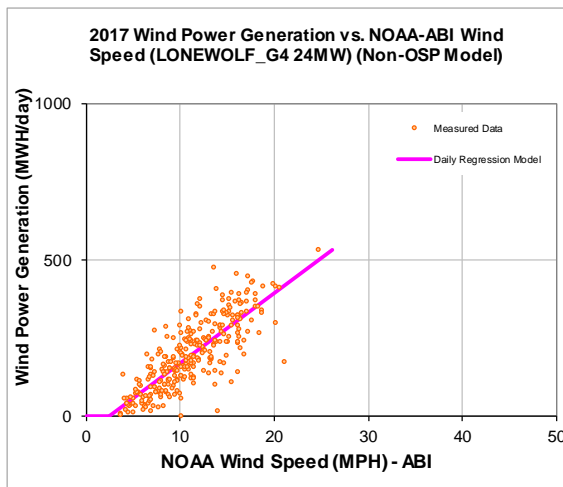
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-55.71
Left Slope (MWh/mph-day)	22.55
RMSE (MWh/day)	65.59
R2	0.65
CV-RMSE	33.6%
Daily Maximum (MWh/day)	576

**OSP Model:**

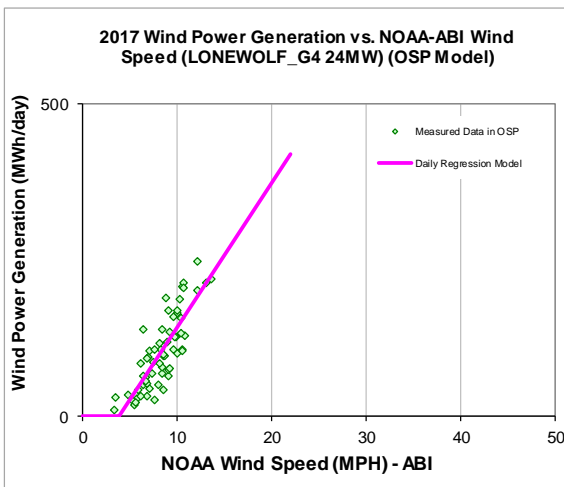
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-88.69
Left Slope (MWh/mph-day)	23.15
RMSE (MWh/day)	33.97
R2	0.68
CV-RMSE	32.7%
Daily Maximum (MWh/day)	576

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
72,147	64,831

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
114	106

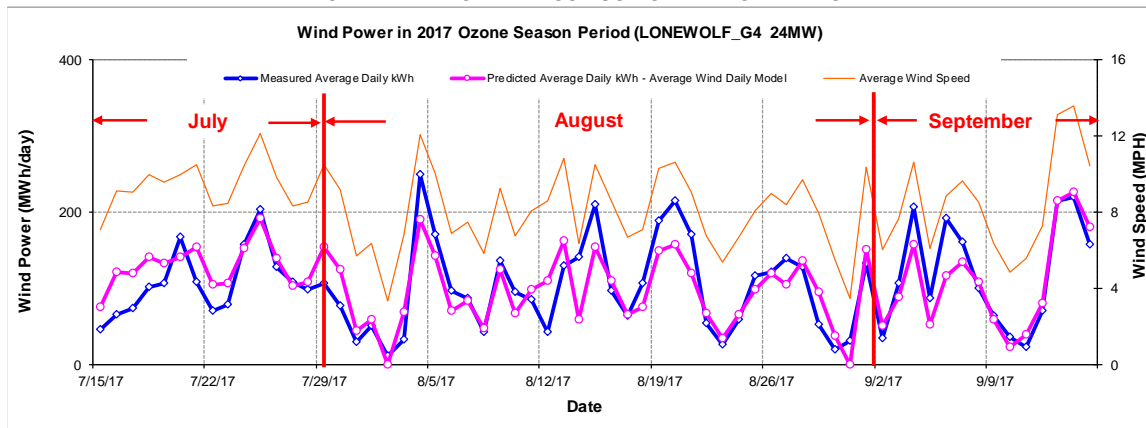
Figure 10-251: LONEWOLF\_G4 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	6,007	5,566	7.35%	34%	31%
Feb-17	28	11.23	5,284	5,527	-4.60%	33%	34%
Mar-17	31	12.96	7,522	7,330	2.55%	42%	41%
Apr-17	30	13.49	7,065	7,451	-5.47%	41%	43%
May-17	31	11.55	6,480	6,347	2.04%	36%	36%
Jun-17	30	10.72	5,375	5,579	-3.80%	31%	32%
Jul-17	31	9.17	3,642	4,218	-15.83%	20%	24%
Aug-17	31	7.87	3,150	2,907	7.71%	18%	16%
Sep-17	30	9.51	4,875	4,345	10.86%	28%	25%
Oct-17	31	11.24	5,687	5,734	-0.84%	32%	32%
Nov-17	30	10.21	5,444	5,235	3.83%	32%	30%
Dec-17	31	9.29	4,302	4,611	-7.18%	24%	26%
<b>Total</b>	<b>365</b>	<b>10.63</b>	<b>64,831</b>	<b>64,851</b>	<b>-0.03%</b>	<b>31%</b>	<b>31%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>6,538</b>	<b>6,558</b>	<b>-0.31%</b>	<b>18%</b>	<b>18%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

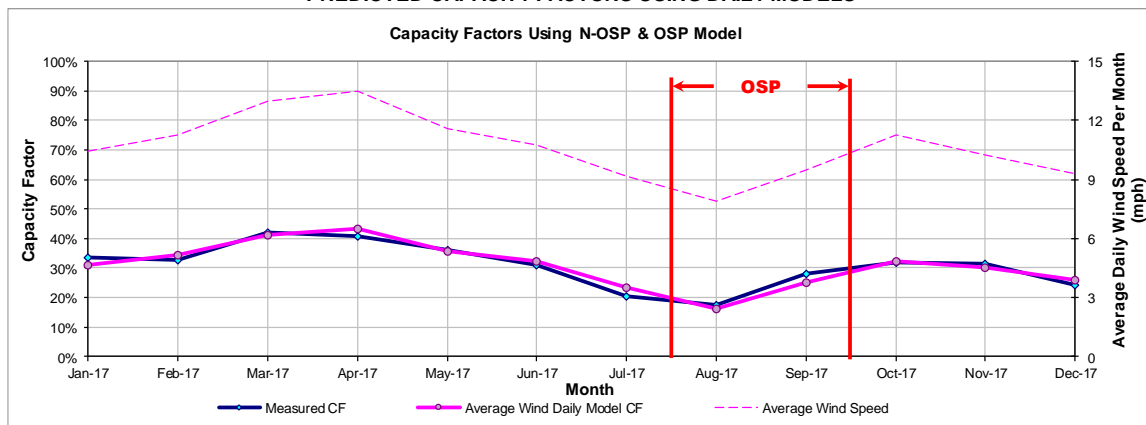


Figure 10-252: LONEWOLF\_G4 - Predicted Wind Power and Capacity Factor Using Daily Models

10.56 Los Vientos I

10.56.1 Los Vientos I - LV1\_LV1A

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
LV1_LV1A	Wind	-	WILLACY	Duke Energy	Los Vientos I

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
87 Siemens 2.3 MW	ERCOT	S	Jan-13	Coastal	CRP	200.1

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

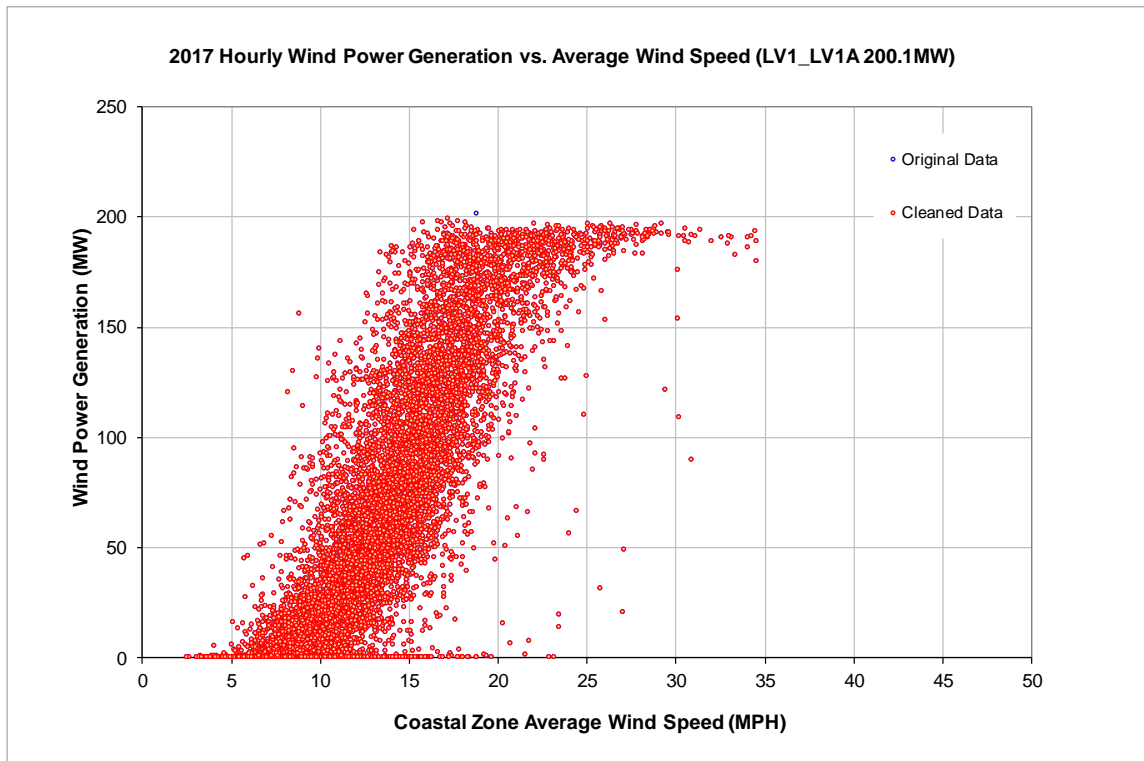


Figure 10-253: LV1\_LV1A - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

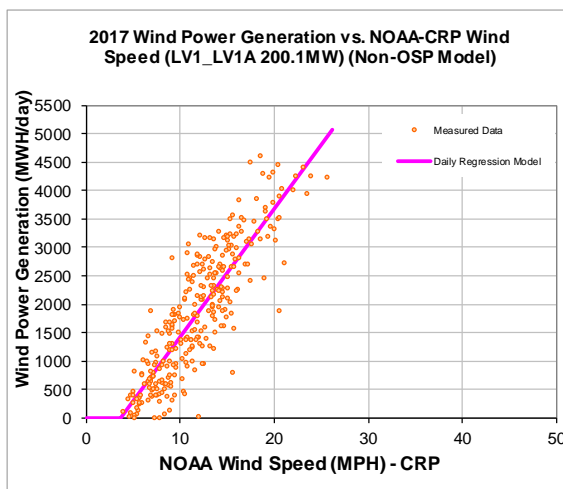
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-830.32
Left Slope (MWh/mph-day)	225.98
RMSE (MWh/day)	569.04
R2	0.75
CV-RMSE	30.7%
Daily Maximum (MWh/day)	4802

**OSP Model:**

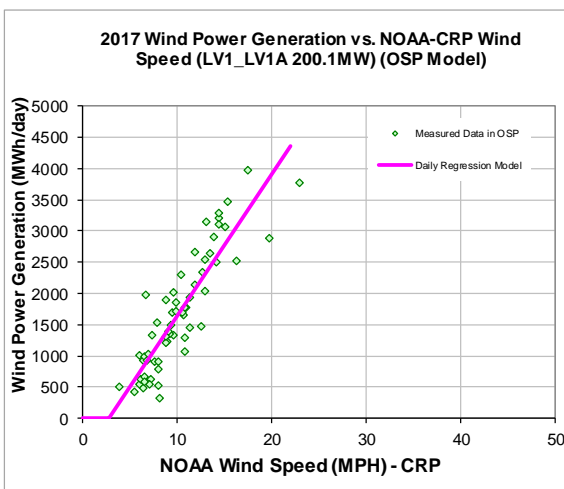
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-623.26
Left Slope (MWh/mph-day)	226.67
RMSE (MWh/day)	434.70
R2	0.79
CV-RMSE	25.8%
Daily Maximum (MWh/day)	4802

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
649,359	661,828	1,425	1,703

Figure 10-254: LV1\_LV1A - Model Coefficients (Using Non-OSP and OSP Data)

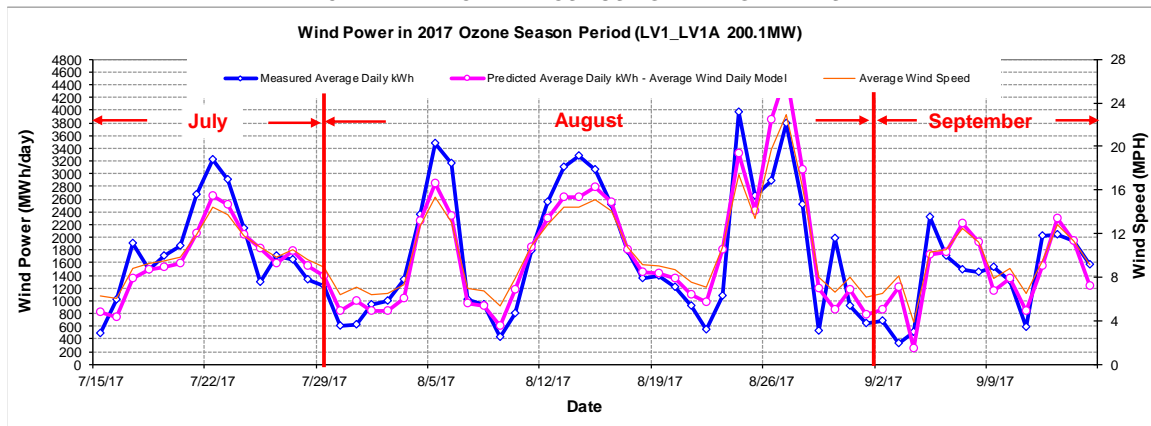


**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	69,959	66,863	4.43%	47%	45%
Feb-17	28	13.29	65,116	60,824	6.59%	48%	45%
Mar-17	31	14.29	71,919	74,387	-3.43%	48%	50%
Apr-17	30	14.70	65,843	74,588	-13.28%	46%	52%
May-17	31	12.81	62,090	63,982	-3.05%	42%	43%
Jun-17	30	9.21	44,420	37,498	15.58%	31%	26%
Jul-17	31	9.39	48,949	43,700	10.72%	33%	29%
Aug-17	31	11.11	59,002	58,739	0.45%	40%	39%
Sep-17	30	10.25	44,845	47,749	-6.48%	31%	33%
Oct-17	31	9.54	30,676	38,432	-25.28%	21%	26%
Nov-17	30	10.64	47,179	47,224	-0.09%	33%	33%
Dec-17	31	10.48	51,829	47,693	7.98%	35%	32%
<b>Total</b>	<b>365</b>	<b>11.58</b>	<b>661,828</b>	<b>661,680</b>	<b>0.02%</b>	<b>38%</b>	<b>38%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>106,240</b>	<b>106,240</b>	<b>0.00%</b>	<b>35%</b>	<b>35%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

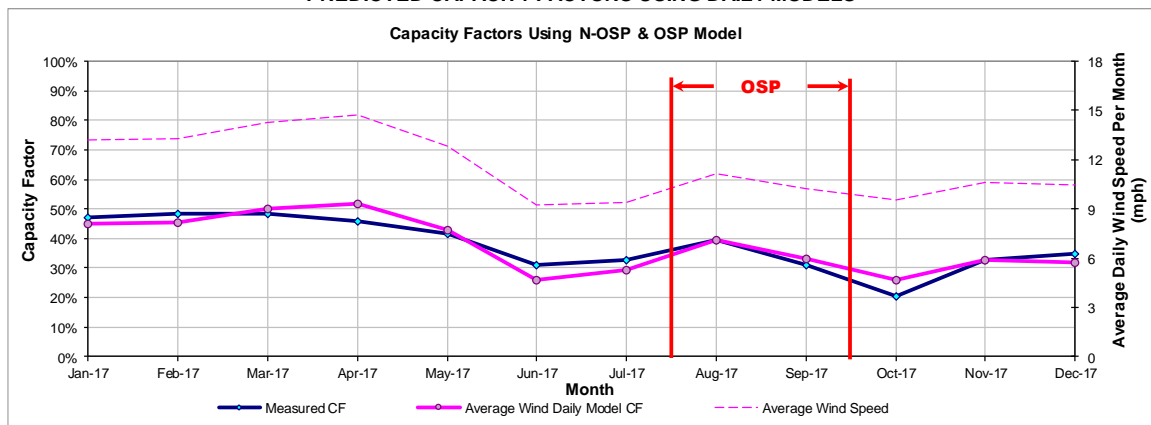


Figure 10-255: LV1\_LV1A - Predicted Wind Power and Capacity Factor Using Daily Models

10.57 Los Vientos II

10.57.1 Los Vientos II - LV1\_LV1B

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
LV1_LV1B	Wind	-	WILLACY	Duke Energy	Los Vientos II

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
87 Mitsubishi 2.4 MW	ERCOT	S	Jan-13	Coastal	CRP	201.6

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

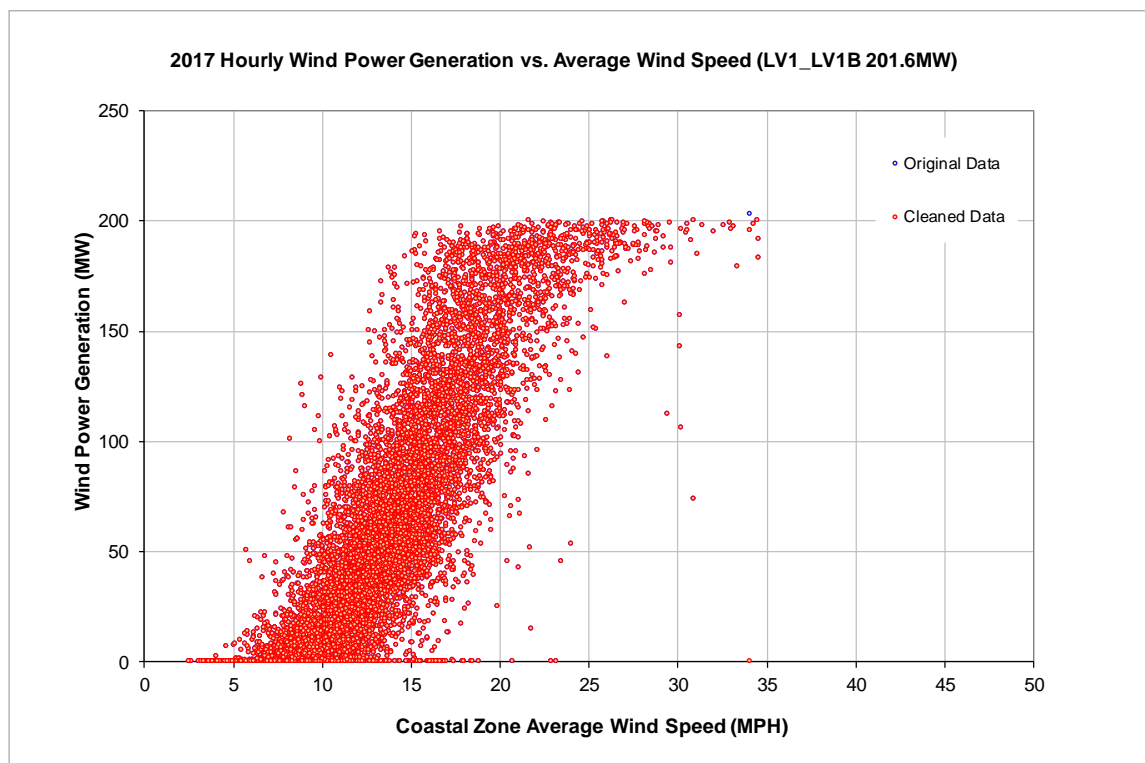


Figure 10-256: LV1\_LV1B - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

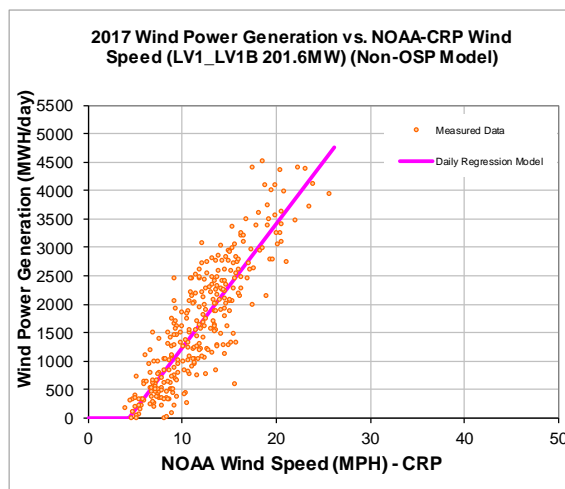
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-925.06
Left Slope (MWh/mph-day)	217.99
RMSE (MWh/day)	529.92
R2	0.76
CV-RMSE	31.8%
Daily Maximum (MWh/day)	4838

**OSP Model:**

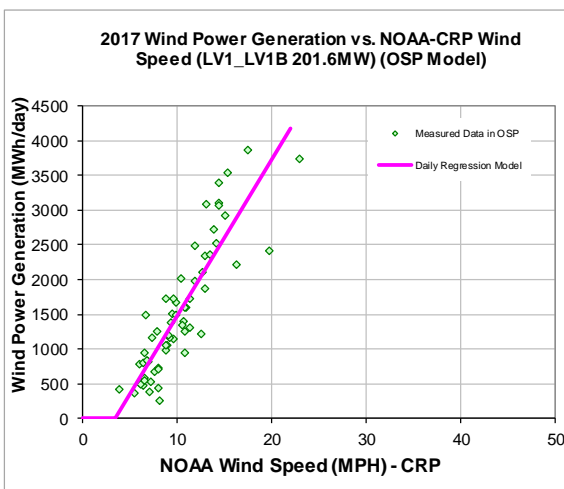
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-769.12
Left Slope (MWh/mph-day)	225.31
RMSE (MWh/day)	444.67
R2	0.78
CV-RMSE	29.1%
Daily Maximum (MWh/day)	4838

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
582,136	596,575

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
1,267	1,539

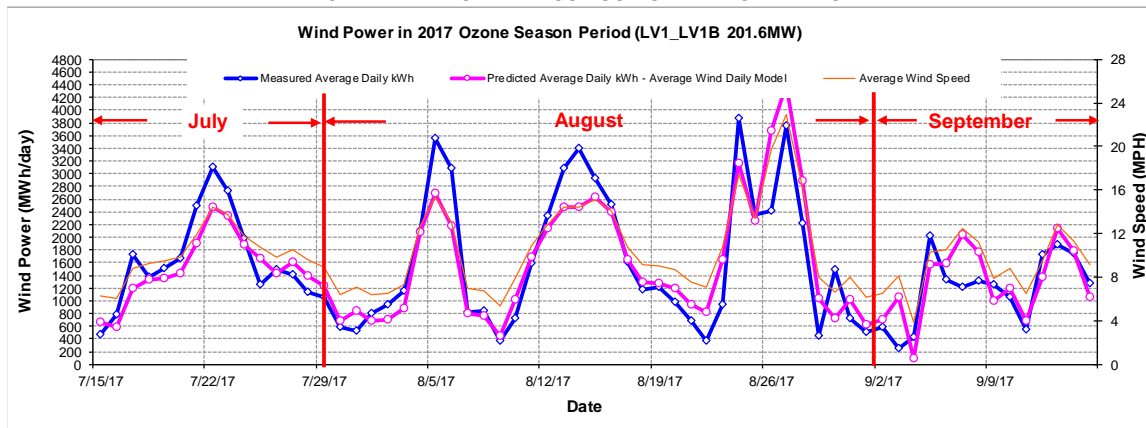
Figure 10-257: LV1\_LV1B - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	66,367	60,655	8.61%	44%	40%
Feb-17	28	13.29	58,827	55,201	6.16%	43%	41%
Mar-17	31	14.29	65,230	67,912	-4.11%	43%	45%
Apr-17	30	14.70	57,104	68,374	-19.74%	39%	47%
May-17	31	12.81	56,092	57,876	-3.18%	37%	39%
Jun-17	30	9.21	38,382	32,451	15.45%	26%	22%
Jul-17	31	9.39	44,206	38,652	12.56%	29%	26%
Aug-17	31	11.11	54,310	53,748	1.03%	36%	36%
Sep-17	30	10.25	37,985	42,573	-12.08%	26%	29%
Oct-17	31	9.80	30,405	35,138	-15.56%	20%	23%
Nov-17	30	10.64	40,729	41,833	-2.71%	28%	29%
Dec-17	31	10.48	46,938	42,242	10.01%	31%	28%
<b>Total</b>	<b>365</b>	<b>11.60</b>	<b>596,575</b>	<b>596,656</b>	<b>-0.01%</b>	<b>34%</b>	<b>34%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>96,175</b>	<b>96,175</b>	<b>0.00%</b>	<b>32%</b>	<b>32%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

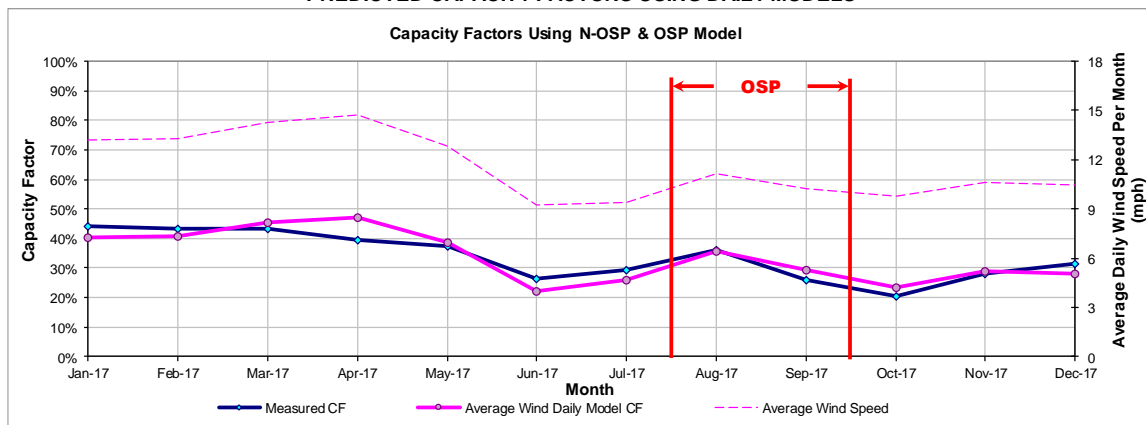


Figure 10-258: LV1\_LV1B - Predicted Wind Power and Capacity Factor Using Daily Models

10.58 Los Vientos III

10.58.1 Los Vientos III - LV3\_UNIT\_1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
LV3_UNIT_1	Wind	-	STARR	Duke Energy	Los Vientos III

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
100 Vestas 2 MW	ERCOT	S	Dec-15	South	CRP	200

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

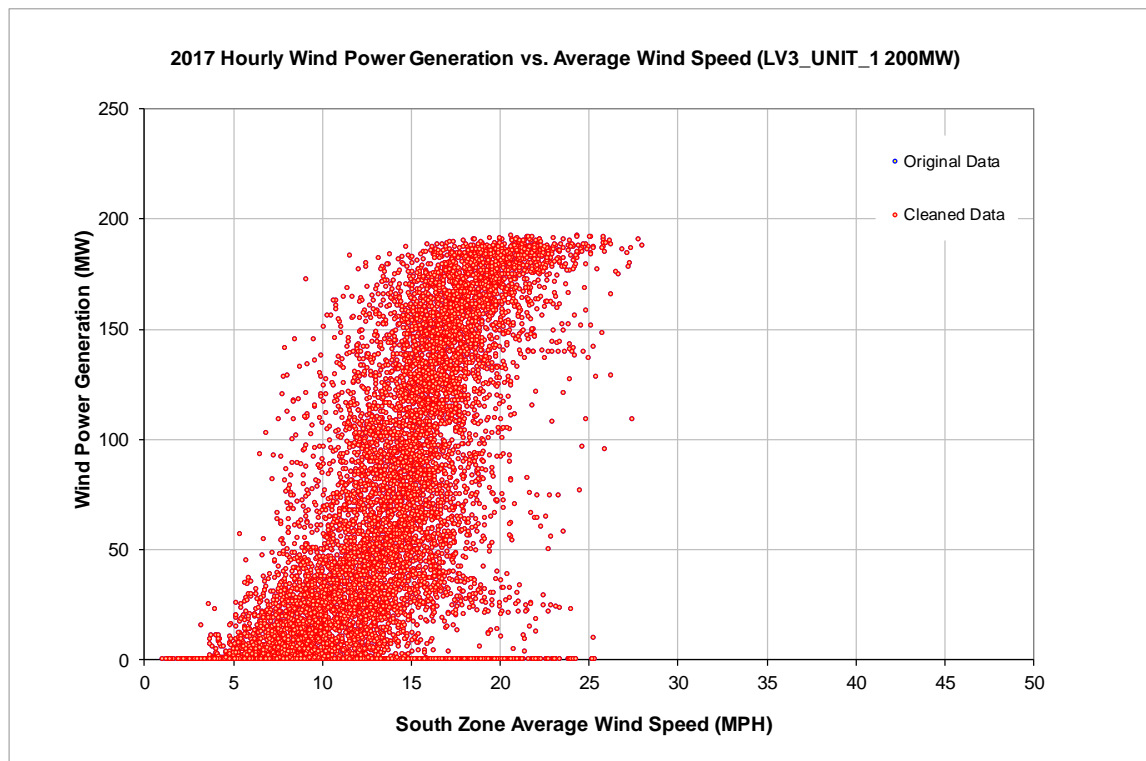


Figure 10-259: LV3\_UNIT\_1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

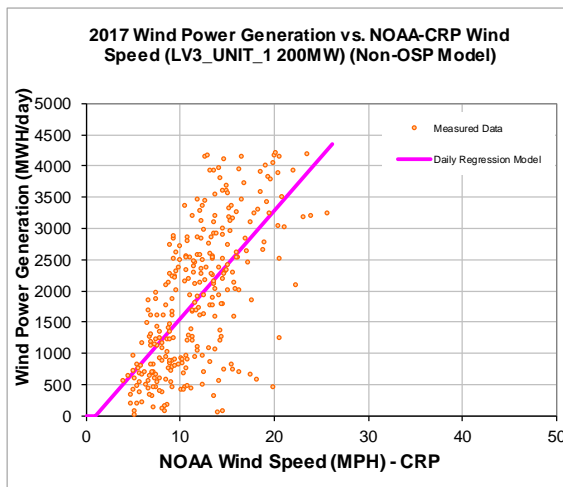
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-170.89
Left Slope (MWh/mph-day)	172.87
RMSE (MWh/day)	858.03
R2	0.43
CV-RMSE	45.8%
Daily Maximum (MWh/day)	4800

**OSP Model:**

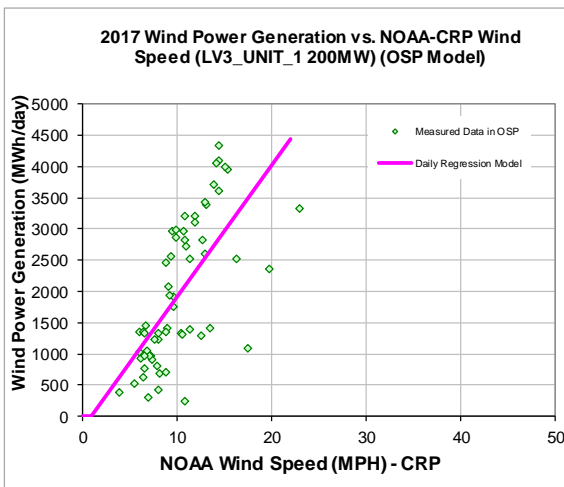
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-179.72
Left Slope (MWh/mph-day)	210.35
RMSE (MWh/day)	852.17
R2	0.45
CV-RMSE	43.4%
Daily Maximum (MWh/day)	4800

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
677,176	657,861

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
1,721	1,977

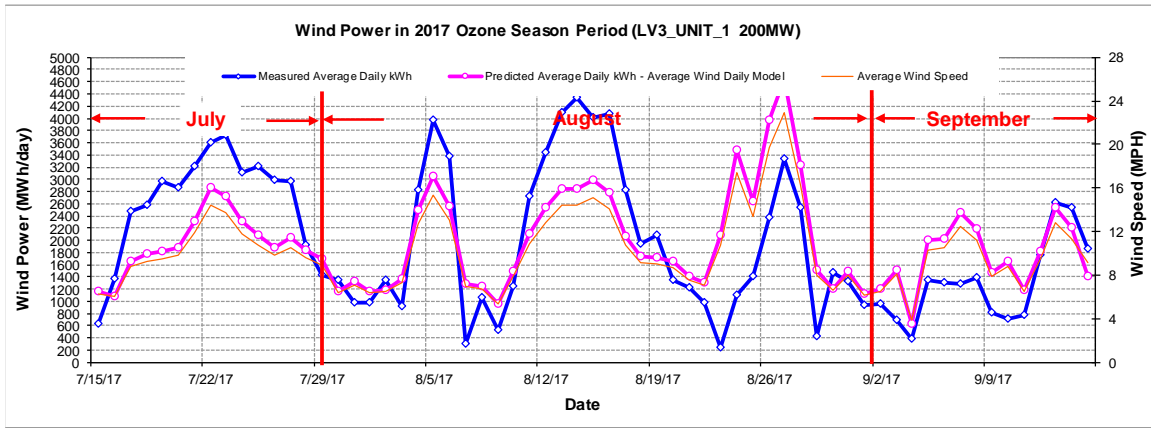
Figure 10-260: LV3\_UNIT\_1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.54	42,643	62,924	-47.56%	29%	42%
Feb-17	28	13.21	27,186	29,574	-8.78%	20%	22%
Mar-17	31	14.29	67,217	71,297	-6.07%	45%	48%
Apr-17	30	14.70	73,469	71,101	3.22%	51%	49%
May-17	31	12.81	73,296	63,338	13.59%	49%	43%
Jun-17	30	9.21	55,843	42,614	23.69%	39%	30%
Jul-17	31	9.39	75,959	51,022	32.83%	51%	34%
Aug-17	31	11.11	63,483	66,867	-5.33%	43%	45%
Sep-17	30	10.25	50,372	52,898	-5.01%	35%	37%
Oct-17	31	9.56	42,776	45,922	-7.35%	29%	31%
Nov-17	30	10.64	45,306	50,054	-10.48%	31%	35%
Dec-17	31	10.68	40,309	50,249	-24.66%	27%	34%
<b>Total</b>	<b>365</b>	<b>11.53</b>	<b>657,861</b>	<b>657,861</b>	<b>0.00%</b>	<b>38%</b>	<b>38%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>123,704</b>	<b>123,704</b>	<b>0.00%</b>	<b>41%</b>	<b>41%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

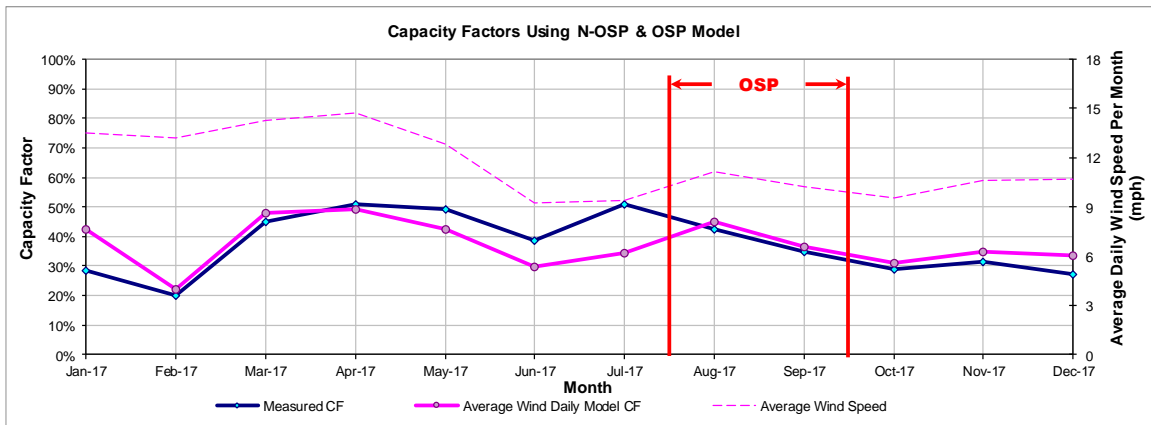


Figure 10-261: LV3\_UNIT\_1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.59 Los Vientos IV

10.59.1 Los Vientos IV - LV4\_UNIT\_1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
LV4_UNIT_1	Wind	-	STARR	Duke Energy	Los Vientos IV

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
100 Vestas 2 MW	ERCOT	S	Jun-16	South	CRP	200

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

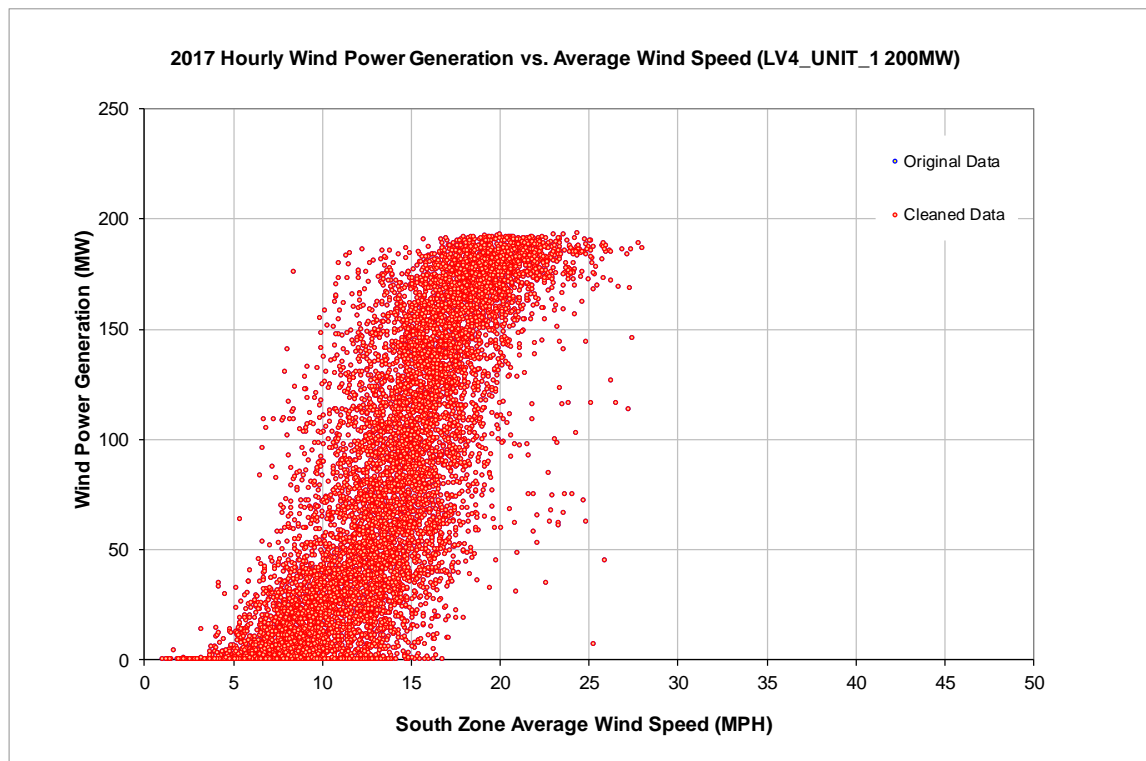


Figure 10-262: LV4\_UNIT\_1 - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

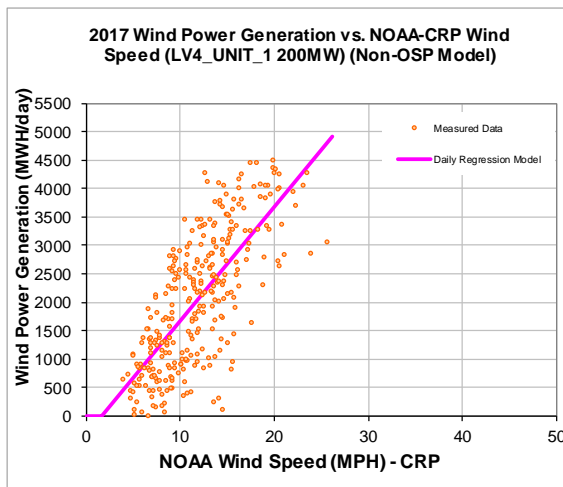
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-338.65
Left Slope (MWh/mph-day)	201.66
RMSE (MWh/day)	807.01
R2	0.54
CV-RMSE	39.3%
Daily Maximum (MWh/day)	4800

**OSP Model:**

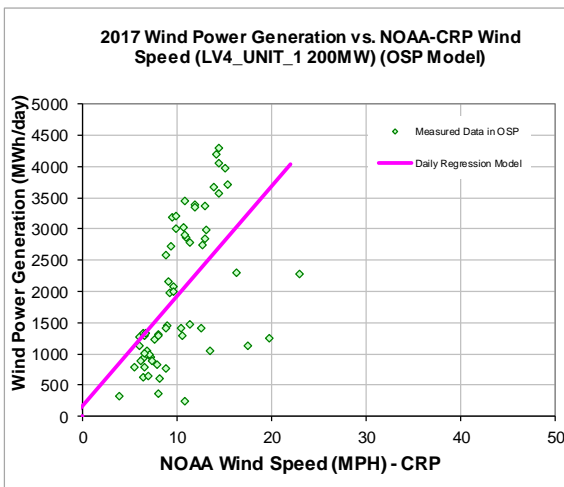
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	177.25
Left Slope (MWh/mph-day)	175.23
RMSE (MWh/day)	950.86
R2	0.32
CV-RMSE	48.4%
Daily Maximum (MWh/day)	4800

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
732,208	738,176

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
1,761	1,976

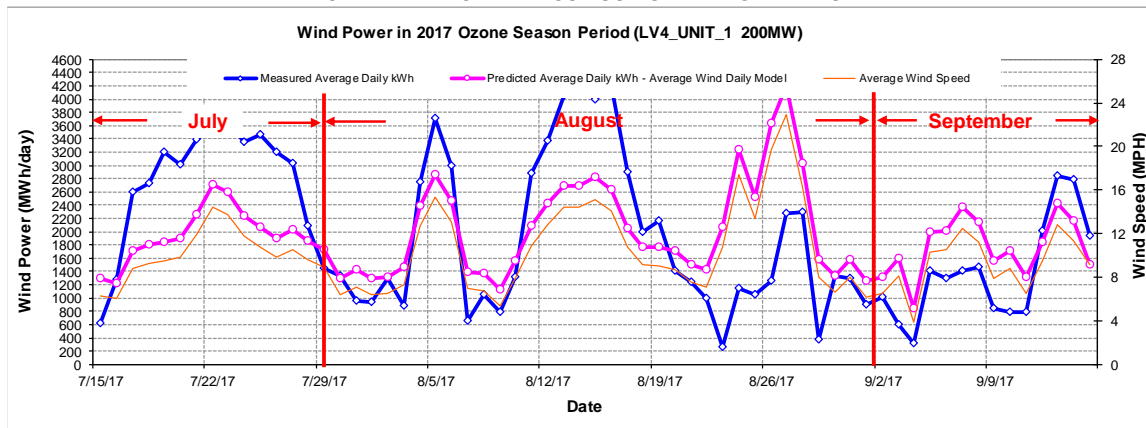
Figure 10-263: LV4\_UNIT\_1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.21	67,543	67,458	0.13%	45%	45%
Feb-17	28	13.29	61,884	65,545	-5.92%	46%	49%
Mar-17	31	14.29	76,606	78,856	-2.94%	51%	53%
Apr-17	30	14.70	76,180	78,745	-3.37%	53%	55%
May-17	31	12.81	76,770	69,571	9.38%	52%	47%
Jun-17	30	9.21	55,717	45,533	18.28%	39%	32%
Jul-17	31	9.39	79,740	52,676	33.94%	54%	35%
Aug-17	31	11.11	60,770	65,841	-8.35%	41%	44%
Sep-17	30	10.25	52,358	56,024	-7.00%	36%	39%
Oct-17	31	9.56	44,597	49,253	-10.44%	30%	33%
Nov-17	30	10.64	46,914	54,213	-15.56%	33%	38%
Dec-17	31	10.68	39,098	54,440	-39.24%	26%	37%
<b>Total</b>	<b>365</b>	<b>11.58</b>	<b>738,176</b>	<b>738,155</b>	<b>0.00%</b>	<b>42%</b>	<b>42%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>123,653</b>	<b>123,653</b>	<b>0.00%</b>	<b>41%</b>	<b>41%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

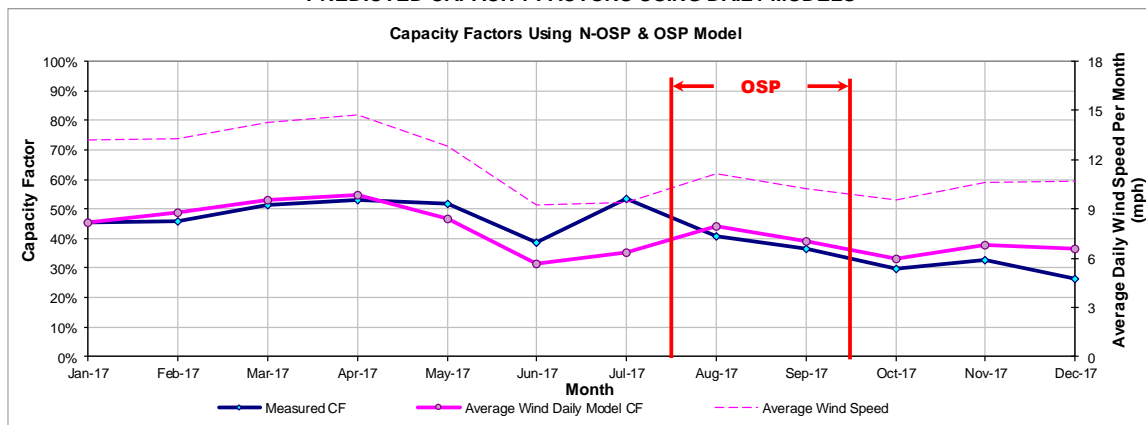


Figure 10-264: LV4\_UNIT\_1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.60 Los Vientos V

10.60.1 Los Vientos V - LV5\_UNIT\_1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
LV5_UNIT_1	Wind	-	STARR	Duke Energy	Los Vientos V

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
55 Vestas 2 MW	ERCOT	S	Sep-16	South	CRP	110

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

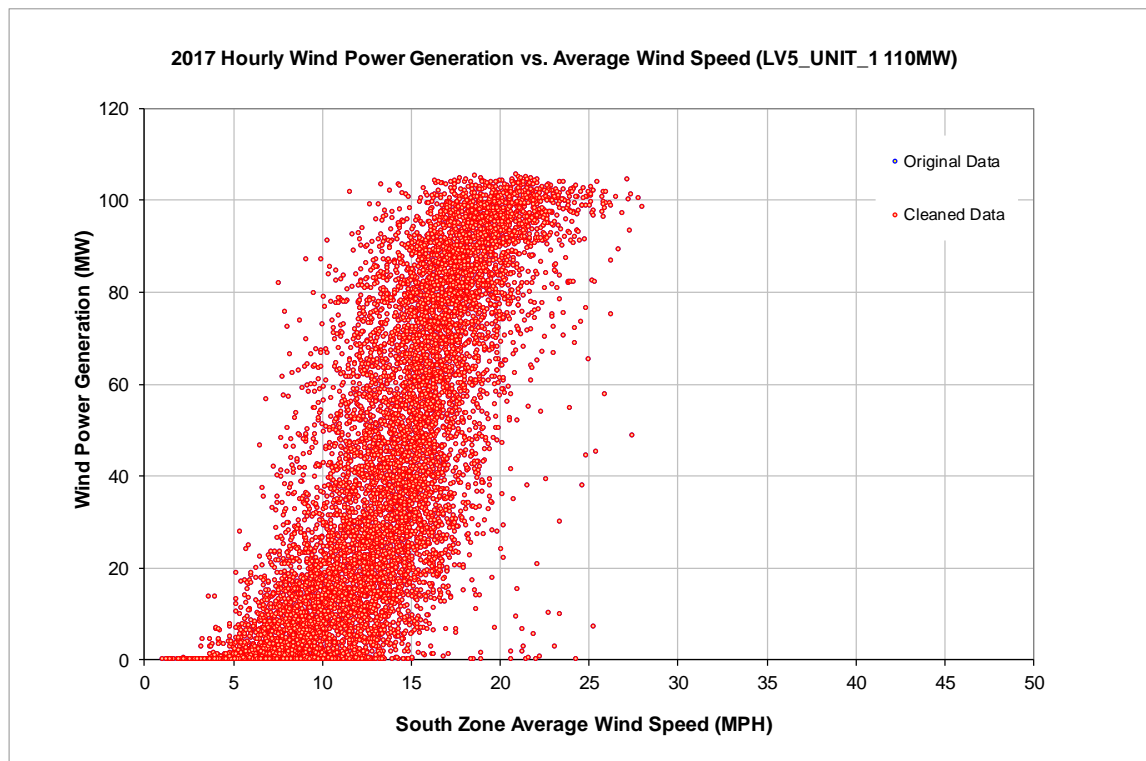


Figure 10-265: LV5\_UNIT\_1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

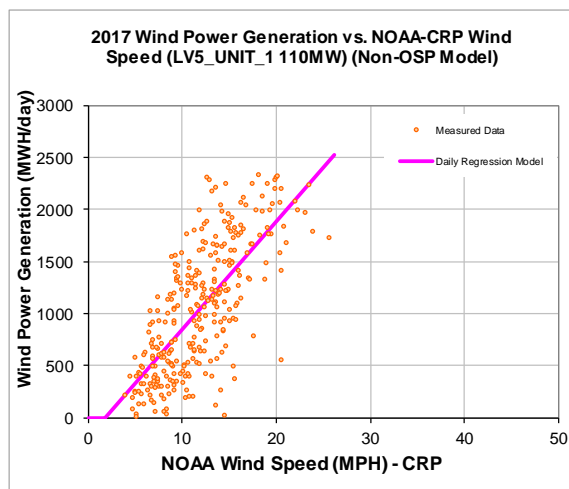
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-179.18
Left Slope (MWh/mph-day)	103.70
RMSE (MWh/day)	427.01
R2	0.52
CV-RMSE	40.6%
Daily Maximum (MWh/day)	2640

**OSP Model:**

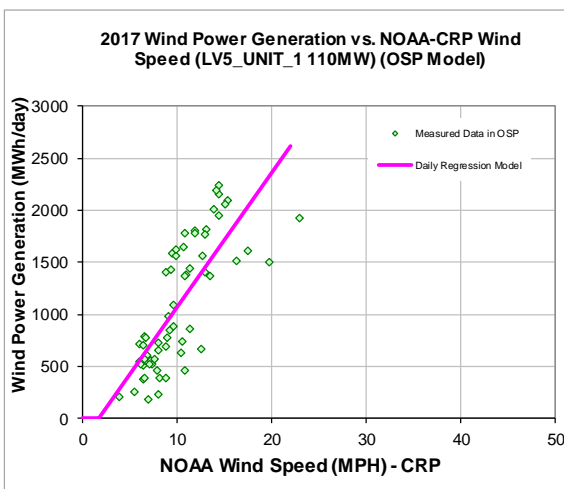
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-224.00
Left Slope (MWh/mph-day)	129.25
RMSE (MWh/day)	390.19
R2	0.60
CV-RMSE	35.7%
Daily Maximum (MWh/day)	2640

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
377,427	385,757	944	1,101

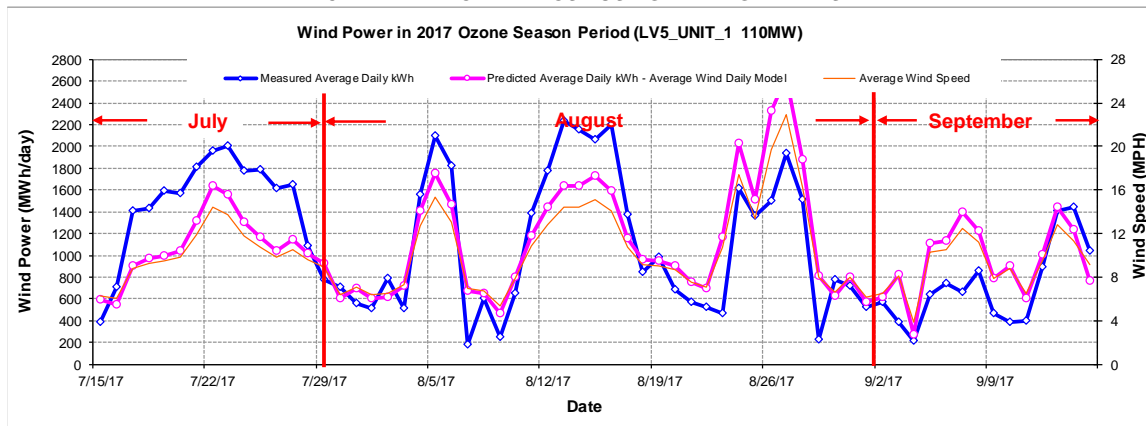
Figure 10-266: LV5\_UNIT\_1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	35,395	36,942	-4.37%	43%	45%
Feb-17	28	13.29	31,845	33,565	-5.40%	43%	45%
Mar-17	31	14.29	36,408	40,394	-10.95%	44%	49%
Apr-17	30	14.70	39,412	40,353	-2.39%	50%	51%
May-17	31	12.81	39,596	35,620	10.04%	48%	44%
Jun-17	30	9.21	30,929	23,264	24.78%	39%	29%
Jul-17	31	9.39	42,302	28,060	33.67%	52%	34%
Aug-17	31	11.11	35,746	37,468	-4.82%	44%	46%
Sep-17	30	10.25	27,970	29,251	-4.58%	35%	37%
Oct-17	31	9.56	22,473	25,172	-12.01%	27%	31%
Nov-17	30	10.64	23,463	27,727	-18.18%	30%	35%
Dec-17	31	10.68	20,217	27,844	-37.72%	25%	34%
<b>Total</b>	<b>365</b>	<b>11.59</b>	<b>385,757</b>	<b>385,659</b>	<b>0.03%</b>	<b>40%</b>	<b>40%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>68,855</b>	<b>68,757</b>	<b>0.14%</b>	<b>41%</b>	<b>41%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

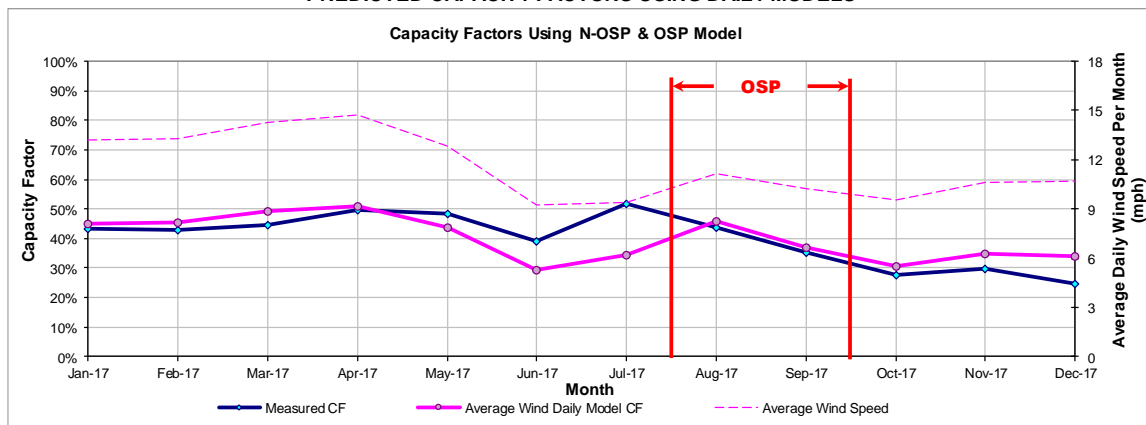


Figure 10-267: LV5\_UNIT\_1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.61 Magic Valley Wind Farm

10.61.1 Magic Valley Wind Farm - REDFISH\_MV1A

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
REDFISH_MV1A	Wind	-	WILLACY	E.ON Climate & Renewables	Magic Valley Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
56 Vestas 1.8 MW	ERCOT	S	Apr-12	Coastal	CRP	100.8

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

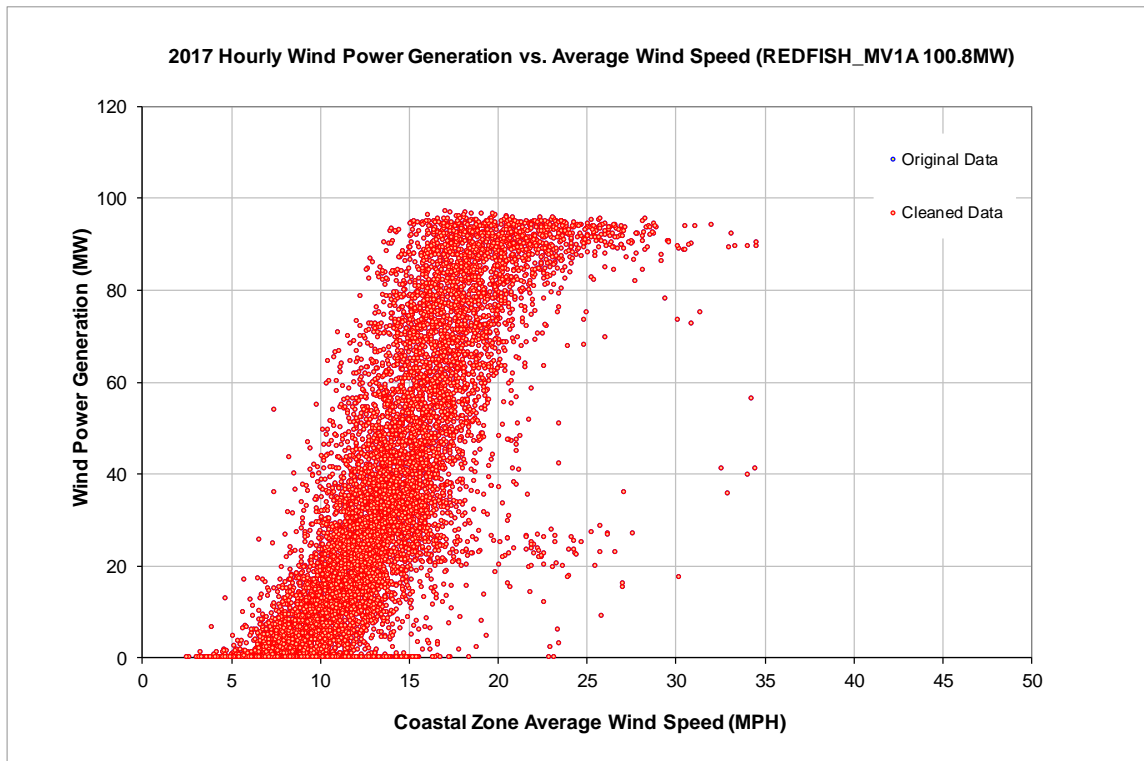


Figure 10-268: REDFISH\_MV1A - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

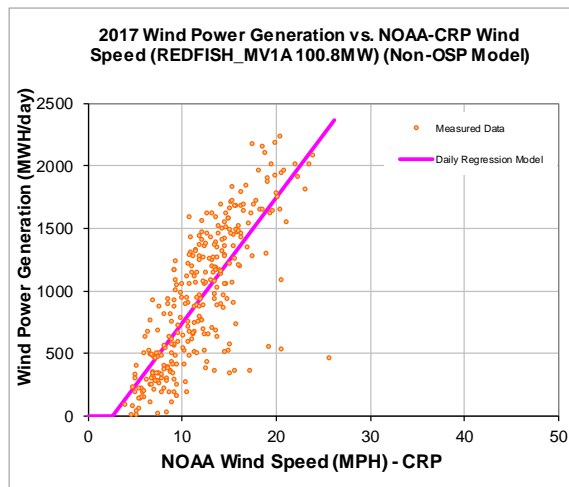
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-260.31
Left Slope (MWh/mph-day)	100.61
RMSE (MWh/day)	344.28
R2	0.61
CV-RMSE	36.6%
Daily Maximum (MWh/day)	2419

**OSP Model:**

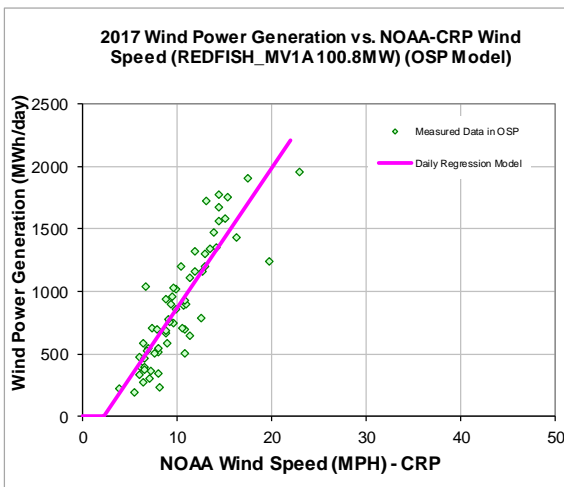
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-256.36
Left Slope (MWh/mph-day)	111.96
RMSE (MWh/day)	228.70
R2	0.77
CV-RMSE	25.9%
Daily Maximum (MWh/day)	2419

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
329,879	333,567	755	894

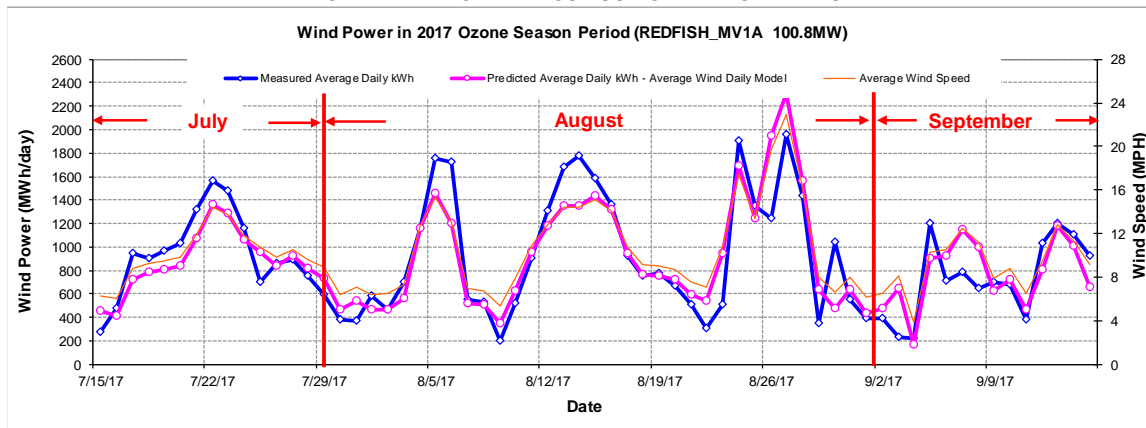
Figure 10-269: REDFISH\_MV1A - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	35,123	33,161	5.58%	47%	44%
Feb-17	28	13.29	32,696	30,144	7.81%	48%	45%
Mar-17	31	14.29	36,811	36,511	0.82%	49%	49%
Apr-17	30	15.22	22,808	34,315	-50.46%	31%	47%
May-17	31	12.81	30,915	31,878	-3.12%	41%	43%
Jun-17	30	9.21	23,211	19,977	13.93%	32%	28%
Jul-17	31	9.39	26,527	23,153	12.72%	35%	31%
Aug-17	31	11.11	30,869	30,610	0.84%	41%	41%
Sep-17	30	10.25	24,344	24,697	-1.45%	34%	34%
Oct-17	31	9.56	20,692	21,741	-5.07%	28%	29%
Nov-17	30	11.12	23,579	23,177	1.70%	32%	32%
Dec-17	31	10.61	25,993	24,203	6.89%	35%	32%
<b>Total</b>	<b>365</b>	<b>11.64</b>	<b>333,567</b>	<b>333,567</b>	<b>0.00%</b>	<b>38%</b>	<b>38%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>55,720</b>	<b>55,720</b>	<b>0.00%</b>	<b>37%</b>	<b>37%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

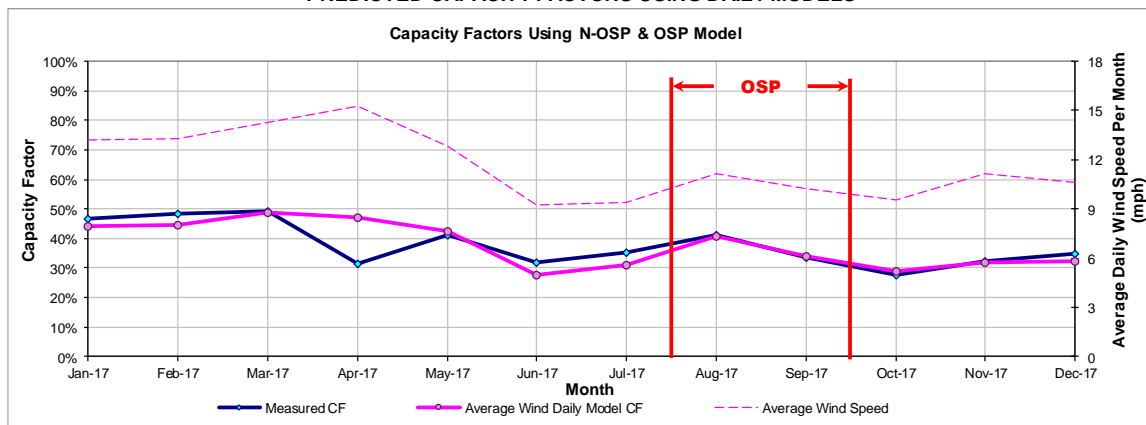


Figure 10-270: REDFISH\_MV1A - Predicted Wind Power and Capacity Factor Using Daily Models



10.61.2 Magic Valley Wind Farm - REDFISH\_MV1B

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
REDFISH_MV1B	Wind	-	WILLACY	E.ON Climate & Renewables	Magic Valley Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
56 Vestas 1.8 MW	ERCOT	S	Apr-12	Coastal	CRP	100.8

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

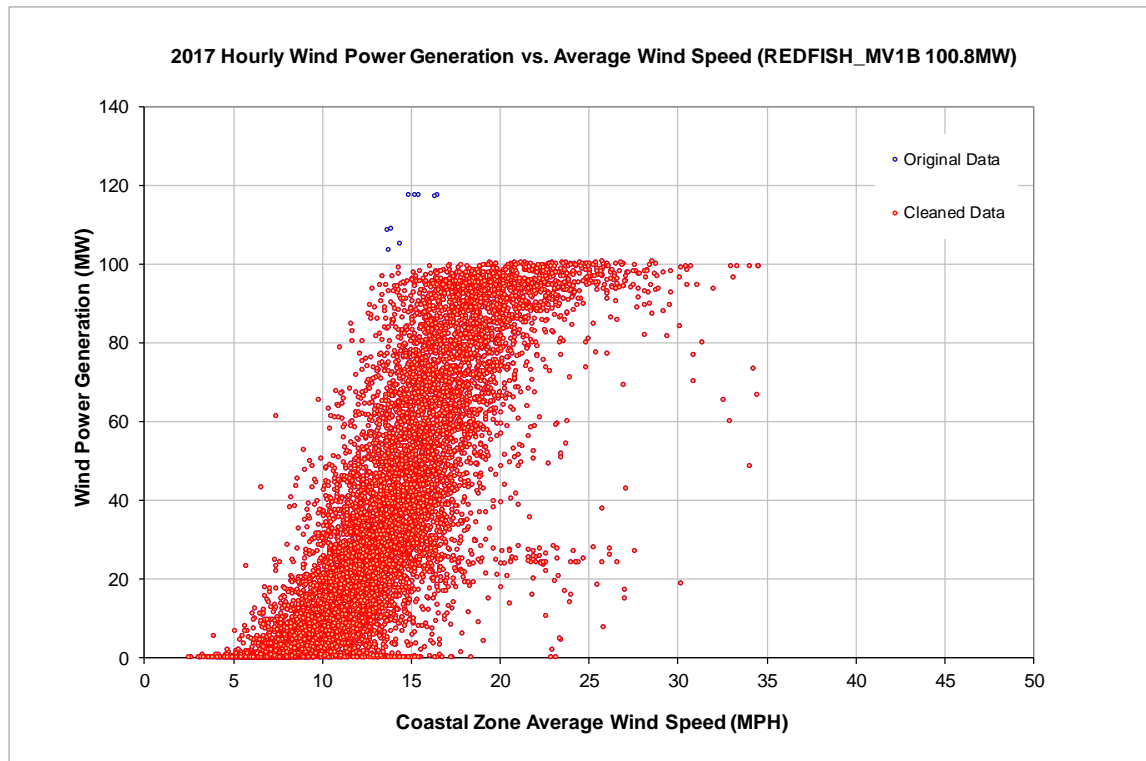


Figure 10-271: REDFISH\_MV1B - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

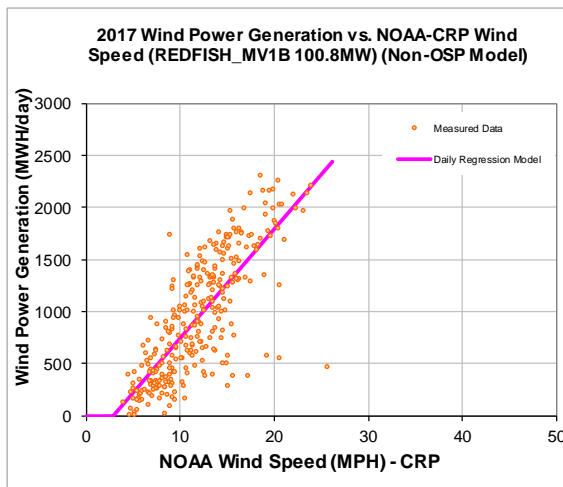
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-296.85
Left Slope (MWh/mph-day)	105.10
RMSE (MWh/day)	361.56
R2	0.61
CV-RMSE	38.0%
Daily Maximum (MWh/day)	2419

**OSP Model:**

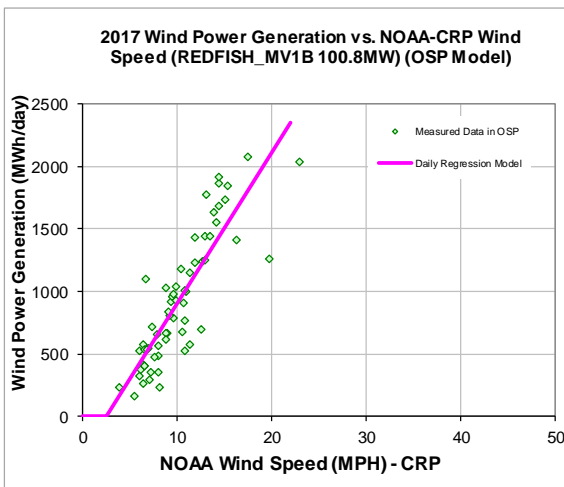
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-308.20
Left Slope (MWh/mph-day)	120.94
RMSE (MWh/day)	261.96
R2	0.74
CV-RMSE	28.3%
Daily Maximum (MWh/day)	2419

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
336,753	342,618	785	932

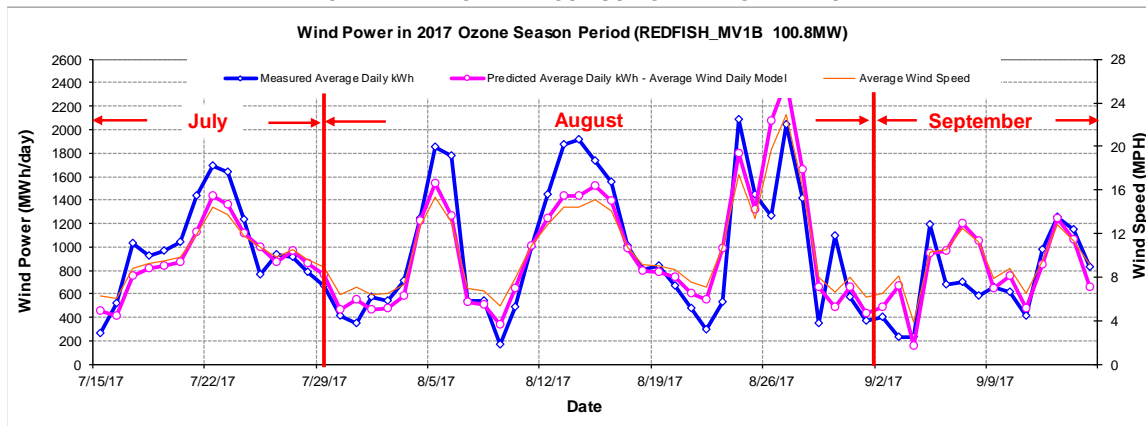
Figure 10-272: REDFISH\_MV1B - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	35,090	33,867	3.49%	47%	45%
Feb-17	28	13.29	34,503	30,790	10.76%	51%	45%
Mar-17	31	14.29	38,301	37,366	2.44%	51%	50%
Apr-17	30	15.22	23,216	35,172	-51.50%	32%	48%
May-17	31	12.81	31,274	32,527	-4.01%	42%	43%
Jun-17	30	9.21	22,959	20,120	12.37%	32%	28%
Jul-17	31	9.39	27,275	23,801	12.74%	36%	32%
Aug-17	31	11.11	32,639	32,050	1.81%	44%	43%
Sep-17	30	10.25	24,150	25,352	-4.97%	33%	35%
Oct-17	31	9.56	19,872	21,938	-10.40%	26%	29%
Nov-17	30	10.64	26,105	24,643	5.60%	36%	34%
Dec-17	31	10.48	27,233	24,951	8.38%	36%	33%
<b>Total</b>	<b>365</b>	<b>11.58</b>	<b>342,618</b>	<b>342,574</b>	<b>0.01%</b>	<b>39%</b>	<b>39%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>58,215</b>	<b>58,171</b>	<b>0.08%</b>	<b>38%</b>	<b>38%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

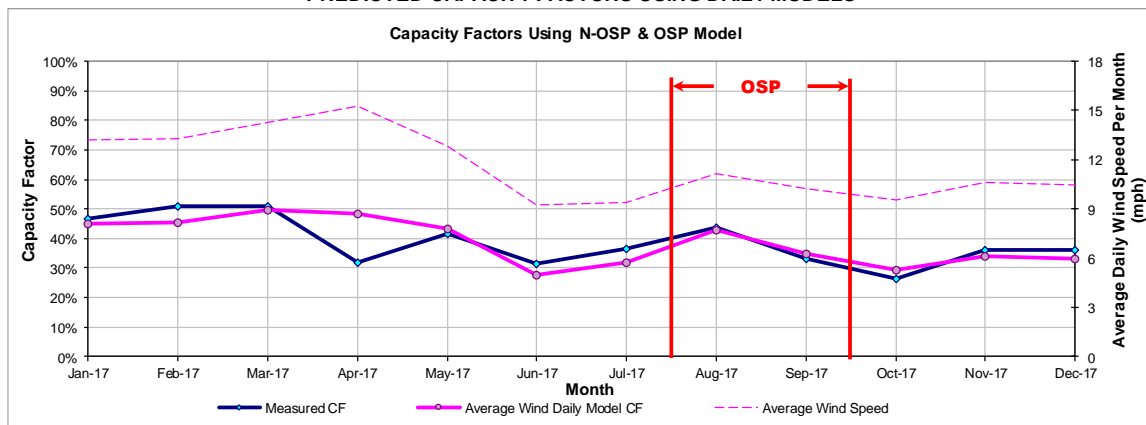


Figure 10-273: REDFISH\_MV1B - Predicted Wind Power and Capacity Factor Using Daily Models

10.62 Mariah Del Notre

10.62.1 Mariah Del Notre - MARIAH\_NORTE1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
MARIAH_NORTE1	Wind	-	PARMER	First Reserve	Mariah Del Notre

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
48 GE 2.4 MW	ERCOT	W	Mar-17	Panhandle	AMA	115.2

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

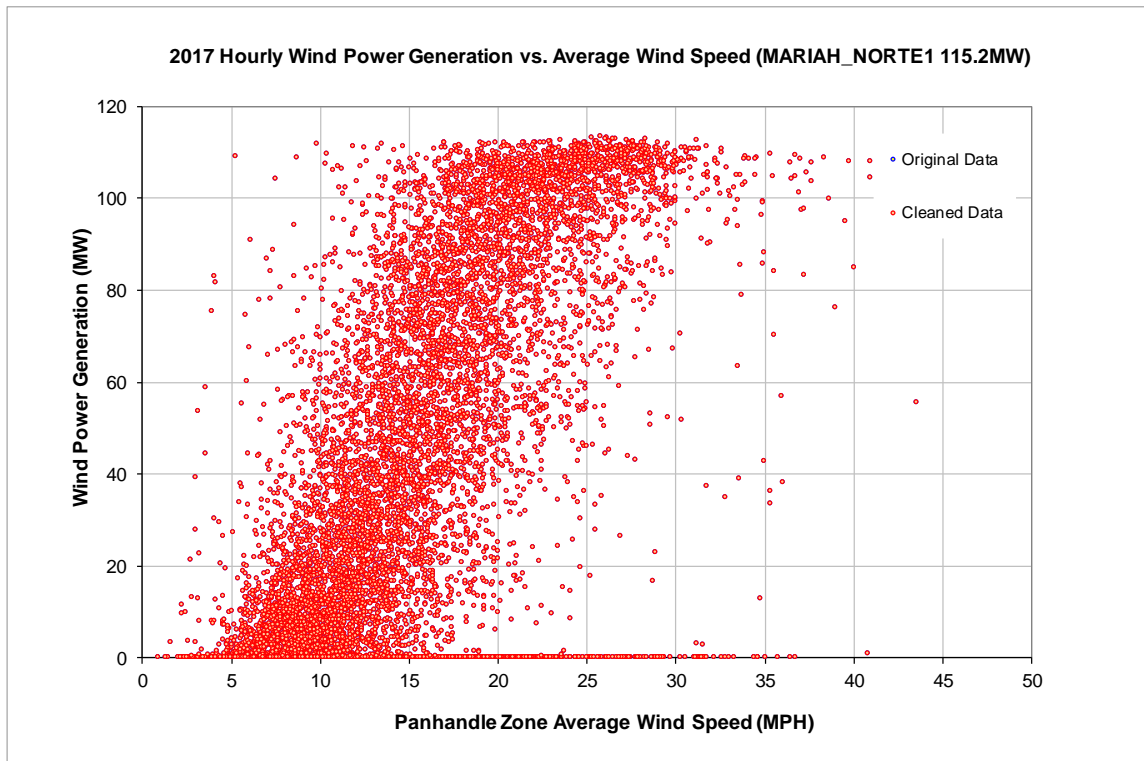


Figure 10-274: MARIAH\_NORTE1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

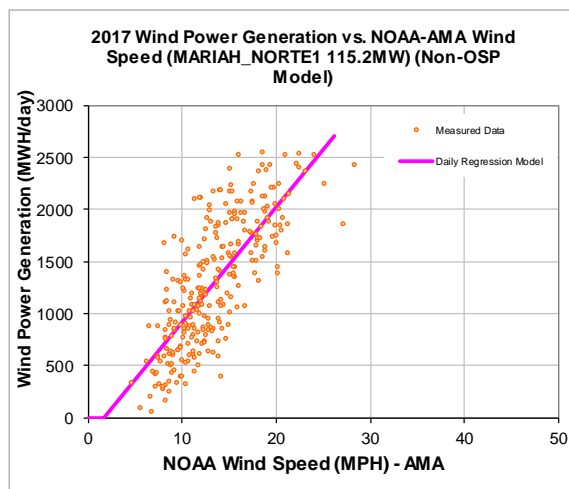
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-173.79
Left Slope (MWh/mph-day)	110.46
RMSE (MWh/day)	392.55
R2	0.58
CV-RMSE	30.2%
Daily Maximum (MWh/day)	2765

**OSP Model:**

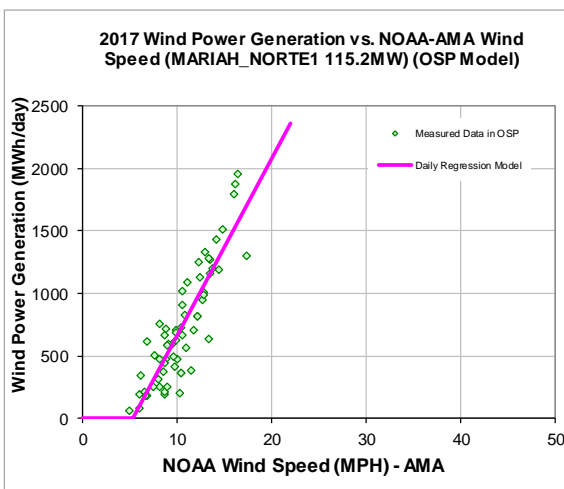
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-748.83
Left Slope (MWh/mph-day)	141.51
RMSE (MWh/day)	220.04
R2	0.77
CV-RMSE	30.3%
Daily Maximum (MWh/day)	2765

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
474,563	411,554

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
826	736

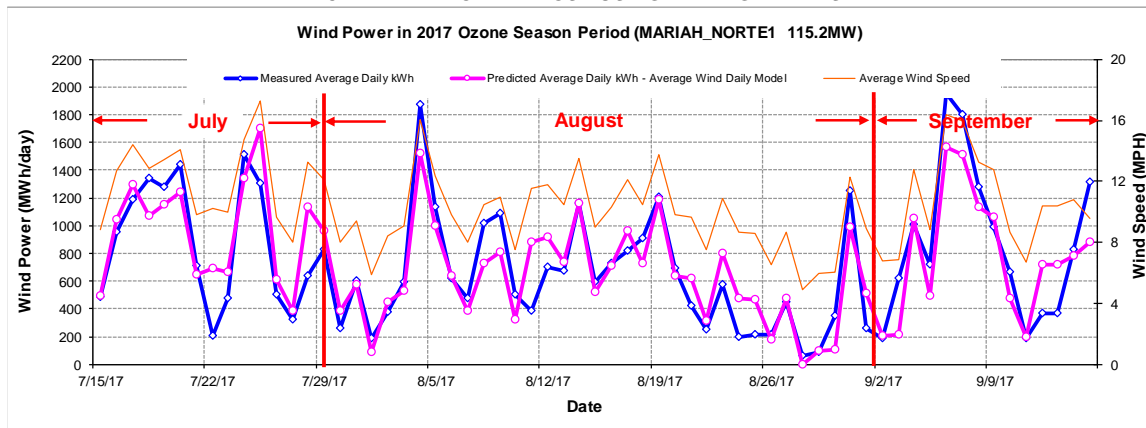
Figure 10-275: MARIAH\_NORTE1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.87	9,384	14,788	-57.60%	11%	17%
Feb-17	28	13.23	39,012	32,185	17.50%	50%	42%
Mar-17	31	14.31	42,855	43,429	-1.34%	50%	51%
Apr-17	30	15.90	46,237	47,414	-2.55%	56%	57%
May-17	31	13.42	39,701	40,559	-2.16%	46%	47%
Jun-17	30	13.20	29,688	38,524	-29.76%	36%	46%
Jul-17	31	11.35	27,321	29,844	-9.24%	32%	35%
Aug-17	31	9.62	19,156	19,022	0.70%	22%	22%
Sep-17	30	11.96	29,902	30,805	-3.02%	36%	37%
Oct-17	31	14.04	45,257	42,690	5.67%	53%	50%
Nov-17	30	12.81	43,325	37,235	14.06%	52%	45%
Dec-17	31	11.76	39,715	34,866	12.21%	46%	41%
<b>Total</b>	<b>365</b>	<b>12.82</b>	<b>411,554</b>	<b>411,362</b>	<b>0.05%</b>	<b>41%</b>	<b>41%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>45,822</b>	<b>45,875</b>	<b>-0.12%</b>	<b>26%</b>	<b>26%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

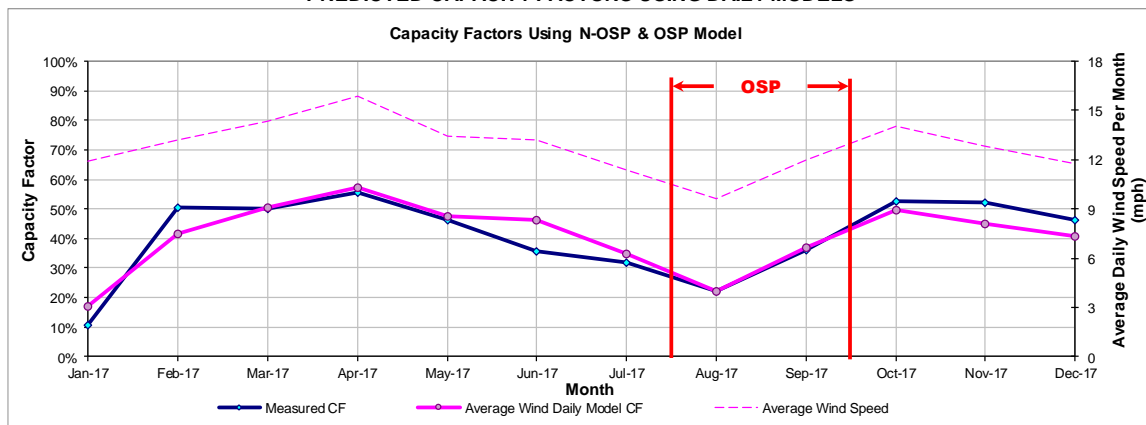


Figure 10-276: MARIAH\_NORTE1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.62.2 Mariah Del Notre - MARIAH\_NORTE2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
MARIAH_NORTE2	Wind	-	PARMER	First Reserve	Mariah Del Notre

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
48 GE 2.4 MW	ERCOT	W	Mar-17	Panhandle	AMA	115.2

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

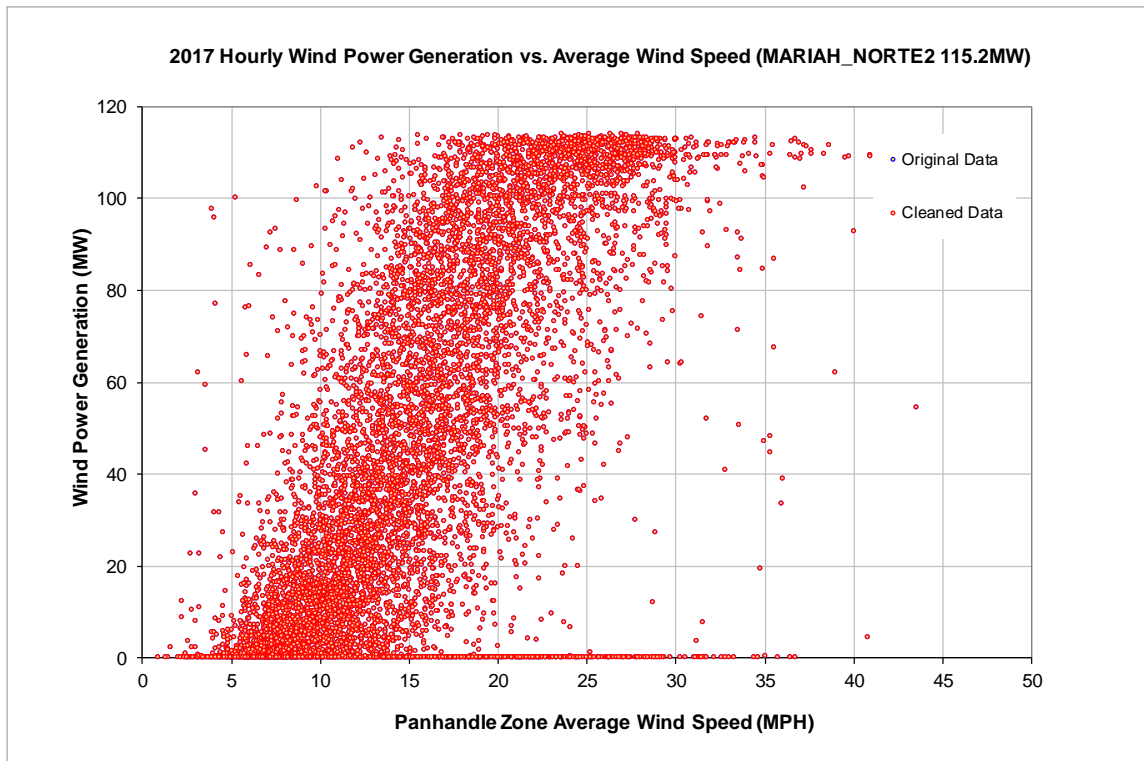


Figure 10-277: MARIAH\_NORTE2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

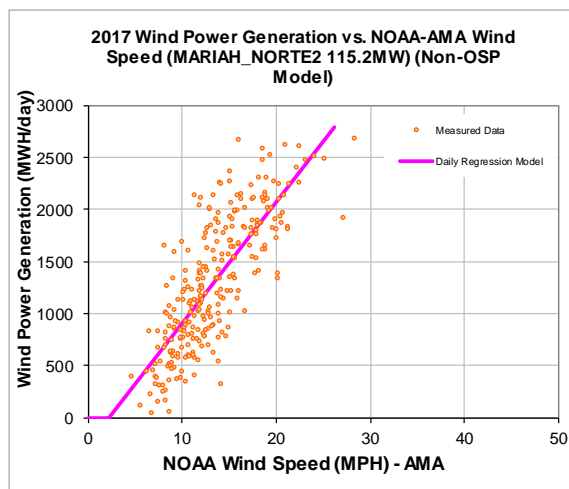
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-259.93
Left Slope (MWh/mph-day)	117.14
RMSE (MWh/day)	383.14
R2	0.63
CV-RMSE	29.2%
Daily Maximum (MWh/day)	2765

**OSP Model:**

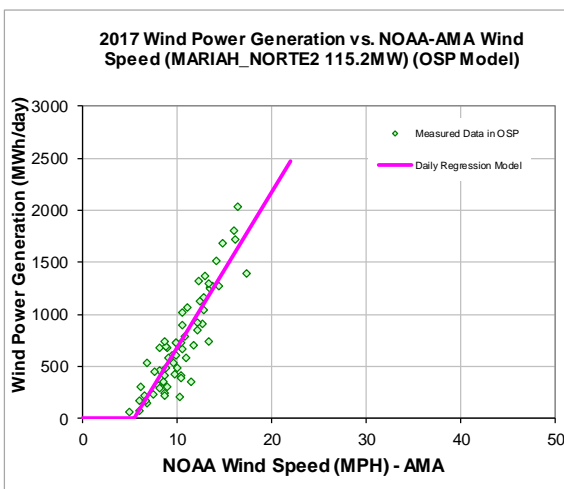
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-817.44
Left Slope (MWh/mph-day)	149.59
RMSE (MWh/day)	210.98
R2	0.80
CV-RMSE	28.4%
Daily Maximum (MWh/day)	2765

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
478,592	403,179

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
849	750

Figure 10-278: MARIAH\_NORTE2 - Model Coefficients (Using Non-OSP and OSP Data)

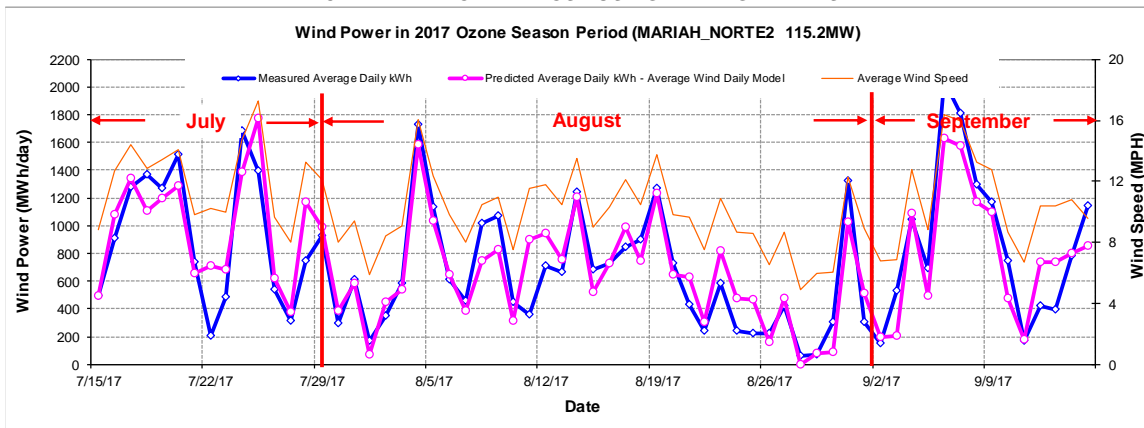


**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.87	9,195	14,699	-59.85%	11%	17%
Feb-17	28	13.23	39,280	32,239	17.92%	51%	42%
Mar-17	31	14.31	44,543	43,617	2.08%	52%	51%
Apr-17	30	15.90	47,315	47,918	-1.27%	57%	58%
May-17	31	13.42	39,504	40,665	-2.94%	46%	47%
Jun-17	30	13.20	30,532	38,583	-26.37%	37%	47%
Jul-17	31	11.35	27,864	30,097	-8.02%	33%	35%
Aug-17	31	9.62	19,118	19,331	-1.12%	22%	23%
Sep-17	30	11.96	30,381	31,104	-2.38%	37%	38%
Oct-17	31	14.04	45,988	42,925	6.66%	54%	50%
Nov-17	30	13.26	33,328	28,461	14.60%	40%	34%
Dec-17	31	11.66	36,132	33,180	8.17%	42%	39%
<b>Total</b>	<b>365</b>	<b>12.85</b>	<b>403,179</b>	<b>402,819</b>	<b>0.09%</b>	<b>40%</b>	<b>40%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>46,806</b>	<b>46,888</b>	<b>-0.18%</b>	<b>27%</b>	<b>27%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

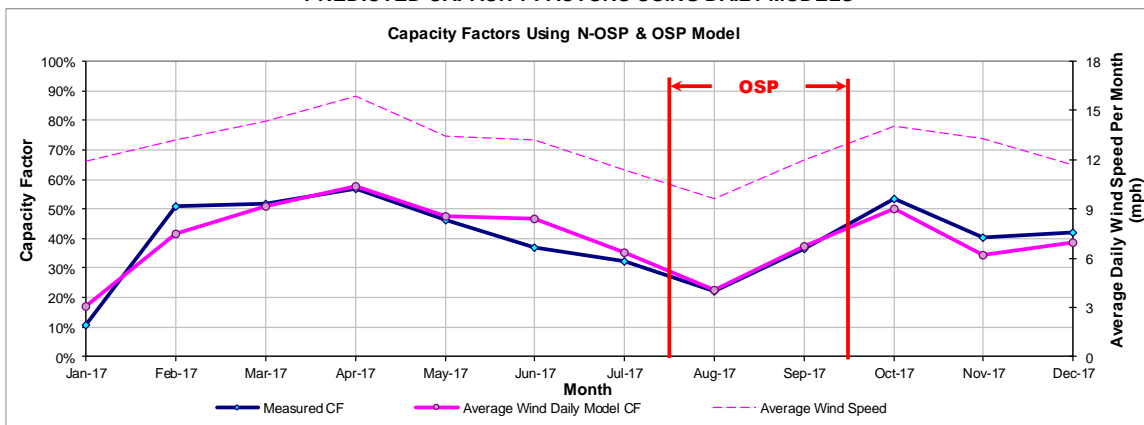


Figure 10-279: MARIAH\_NORTE2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.63 McAdoo Wind Energy

10.63.1 McAdoo Wind Energy - MWEC\_G1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
MWEC_G1	Wind	-	DICKENS	Invenergy	McAdoo Wind Energy

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
100 GE 1.5 MW	ERCOT	W	May-08	Panhandle	LBB	150

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

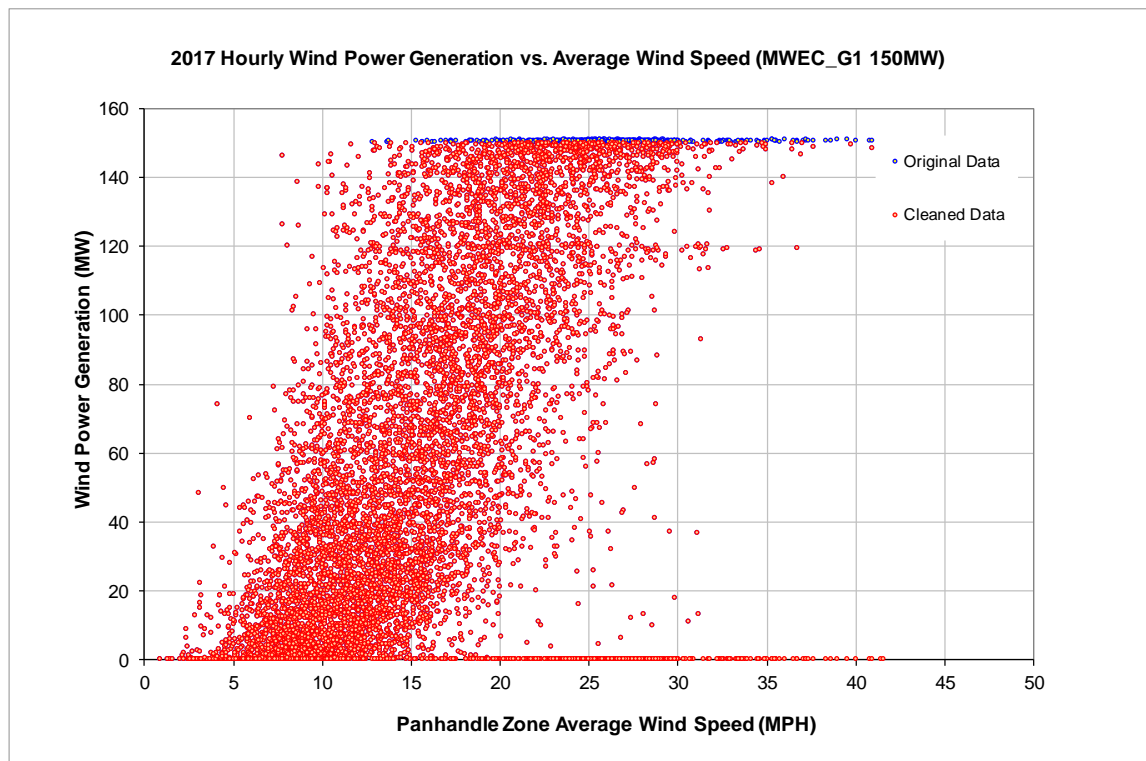


Figure 10-280: MWEC\_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

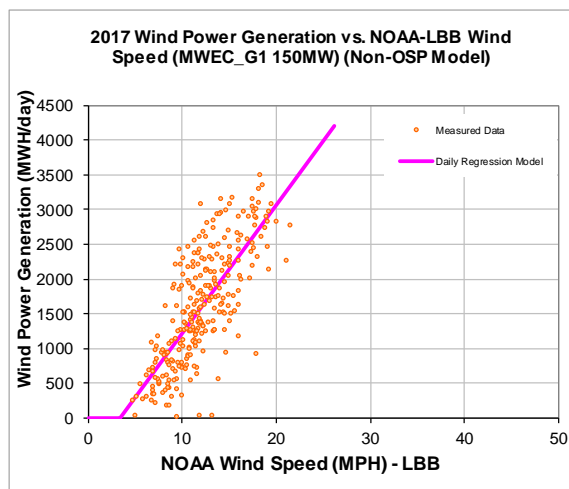
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-624.53
Left Slope (MWh/mph-day)	184.95
RMSE (MWh/day)	540.17
R2	0.57
CV-RMSE	33.8%
Daily Maximum (MWh/day)	3600

**OSP Model:**

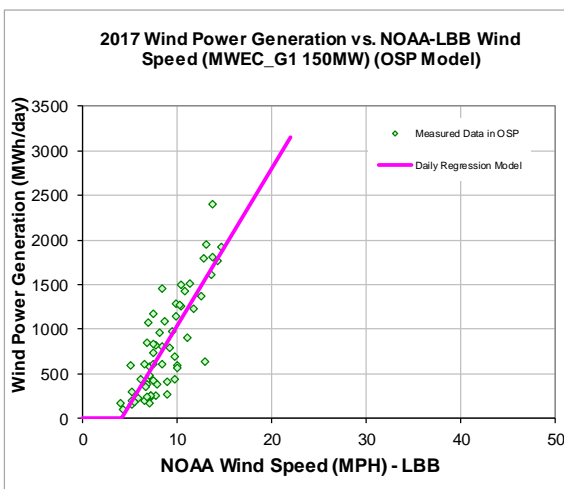
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-714.76
Left Slope (MWh/mph-day)	175.63
RMSE (MWh/day)	318.10
R2	0.68
CV-RMSE	39.5%
Daily Maximum (MWh/day)	3600

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
564,208	500,195

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
872	829

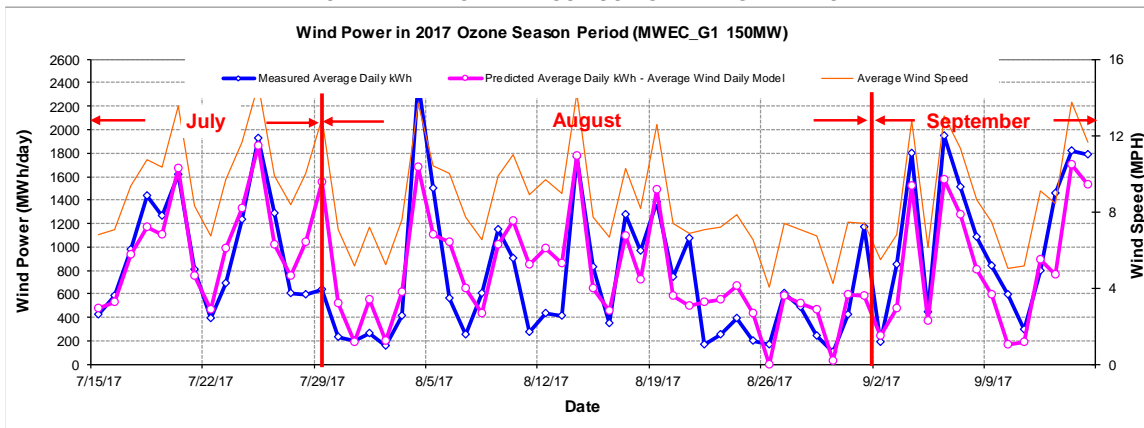
Figure 10-281: MWEC\_G1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.21	43,499	40,566	6.74%	39%	36%
Feb-17	28	12.26	43,289	39,411	8.96%	43%	39%
Mar-17	31	12.12	40,361	40,405	-0.11%	36%	36%
Apr-17	30	13.87	44,972	50,469	-12.22%	42%	47%
May-17	31	13.77	52,067	59,576	-14.42%	47%	53%
Jun-17	30	12.11	39,131	46,854	-19.74%	36%	43%
Jul-17	31	10.03	29,850	35,092	-17.56%	27%	31%
Aug-17	31	8.19	20,536	22,451	-9.32%	18%	20%
Sep-17	30	10.41	38,197	36,477	4.50%	35%	34%
Oct-17	31	11.63	57,189	45,790	19.93%	51%	41%
Nov-17	30	11.39	48,570	42,977	11.51%	45%	40%
Dec-17	31	10.61	42,534	40,133	5.64%	38%	36%
<b>Total</b>	<b>365</b>	<b>11.41</b>	<b>500,195</b>	<b>500,200</b>	<b>0.00%</b>	<b>38%</b>	<b>38%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>50,683</b>	<b>50,688</b>	<b>-0.01%</b>	<b>22%</b>	<b>22%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

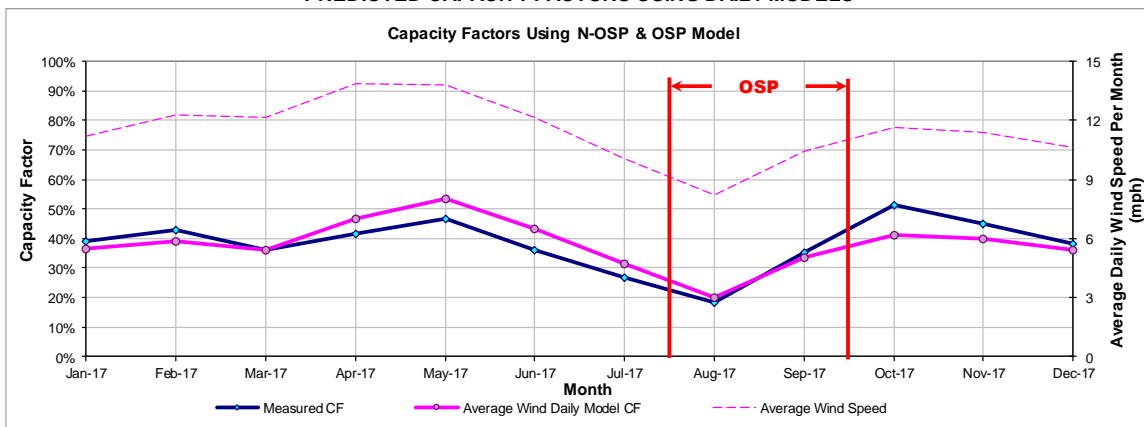


Figure 10-282: MWEC\_G1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.64 Mesquite Creek W

10.64.1 Mesquite Creek W - MESQCRK\_WND1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
MESQCRK_WND1	Wind	-	BORDEN	Sumitomo/Duke Energy	Mesquite Creek W

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
59 GE 1.7 MW	ERCOT	W	Apr-15	West	LBB	105.6

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

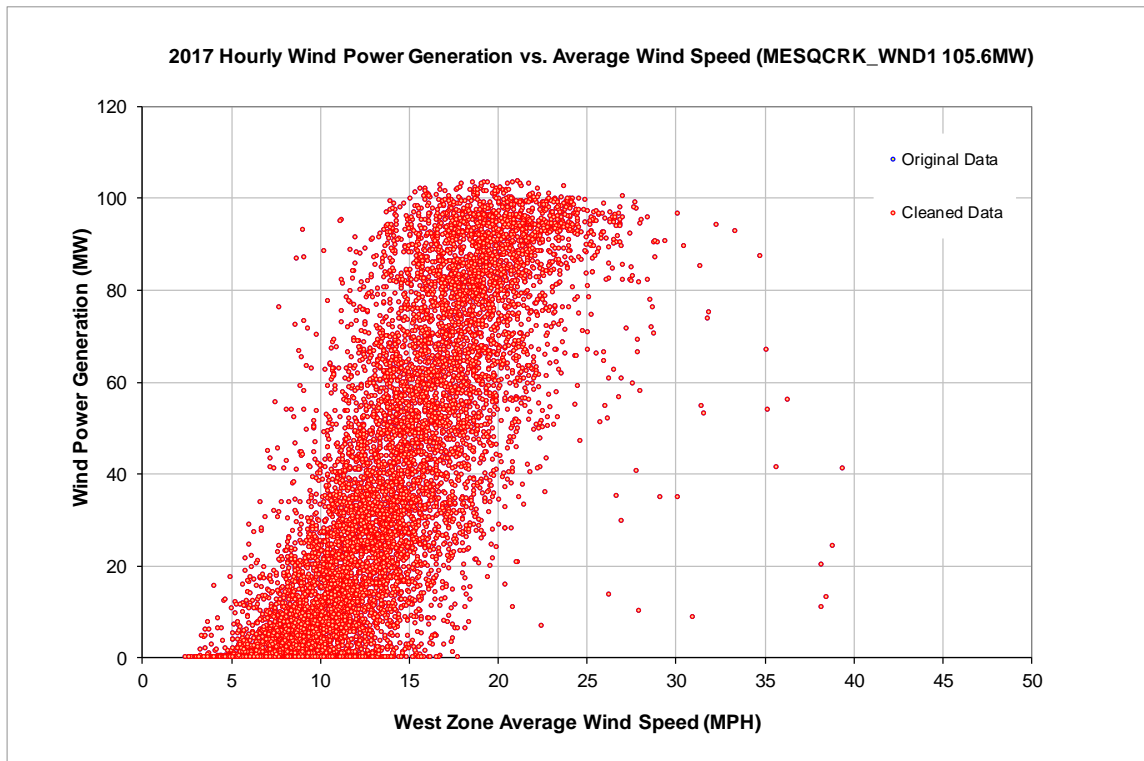


Figure 10-283: MESQCRK\_WND1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

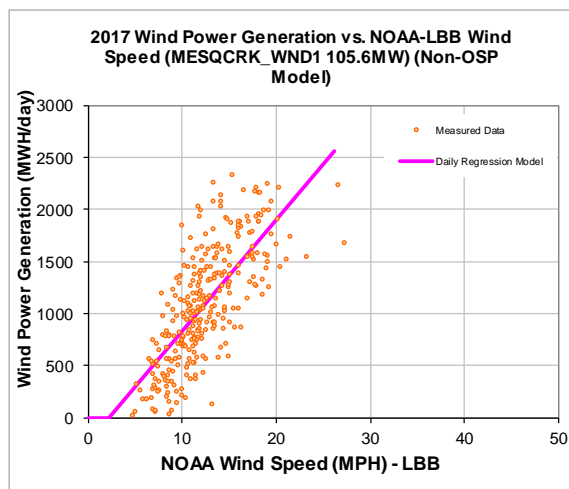
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-236.79
Left Slope (MWh/mph-day)	107.19
RMSE (MWh/day)	380.49
R2	0.53
CV-RMSE	34.7%
Daily Maximum (MWh/day)	2534

**OSP Model:**

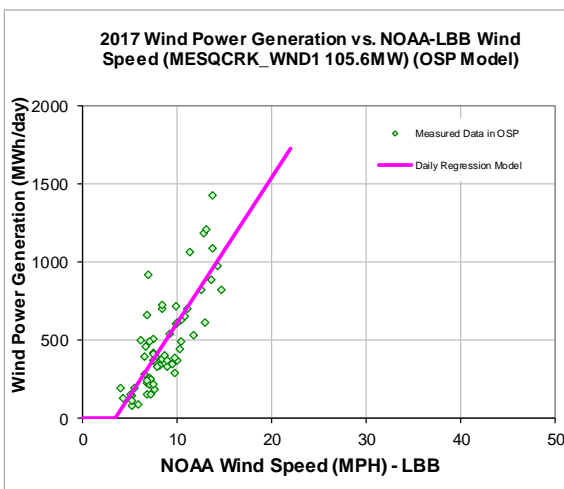
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-320.77
Left Slope (MWh/mph-day)	93.04
RMSE (MWh/day)	185.36
R2	0.64
CV-RMSE	38.3%
Daily Maximum (MWh/day)	2534

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
365,877	358,153	519	503

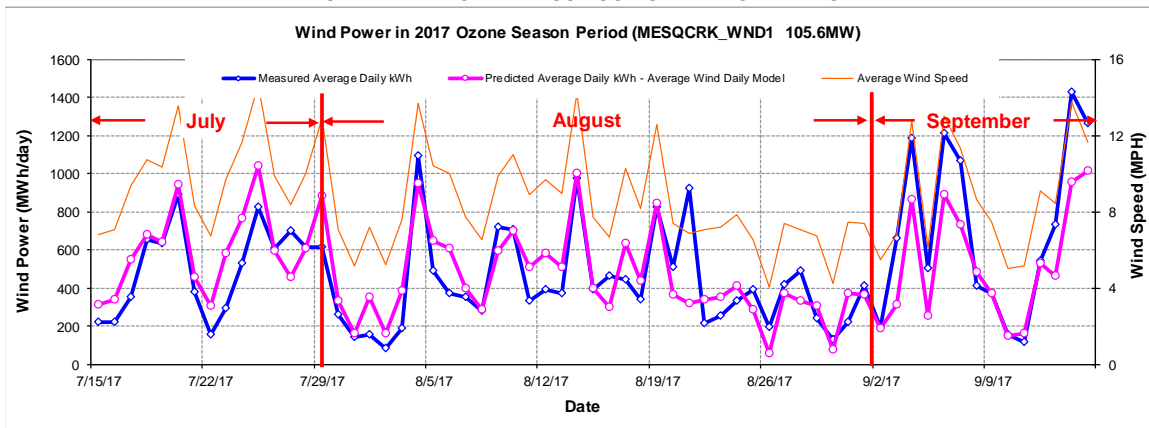
Figure 10-284: MESQCRK\_WND1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

**Average Wind Speed (LBB) Zone**

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	36,752	32,472	11.65%	47%	41%
Feb-17	28	12.91	36,946	32,119	13.07%	52%	45%
Mar-17	31	13.57	40,406	37,518	7.15%	51%	48%
Apr-17	30	14.59	40,411	39,823	1.45%	53%	52%
May-17	31	13.77	34,308	38,407	-11.95%	44%	49%
Jun-17	30	12.33	20,360	32,534	-59.79%	27%	43%
Jul-17	31	10.03	17,508	22,253	-27.10%	22%	28%
Aug-17	31	8.19	13,247	13,685	-3.31%	17%	17%
Sep-17	30	10.12	20,945	19,830	5.32%	28%	26%
Oct-17	31	11.80	32,491	31,873	1.90%	41%	41%
Nov-17	30	11.45	34,362	29,721	13.51%	45%	39%
Dec-17	31	10.54	30,416	27,693	8.95%	39%	35%
<b>Total</b>	<b>365</b>	<b>11.77</b>	<b>358,153</b>	<b>357,930</b>	<b>0.06%</b>	<b>39%</b>	<b>39%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>30,496</b>	<b>30,496</b>	<b>0.00%</b>	<b>19%</b>	<b>19%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

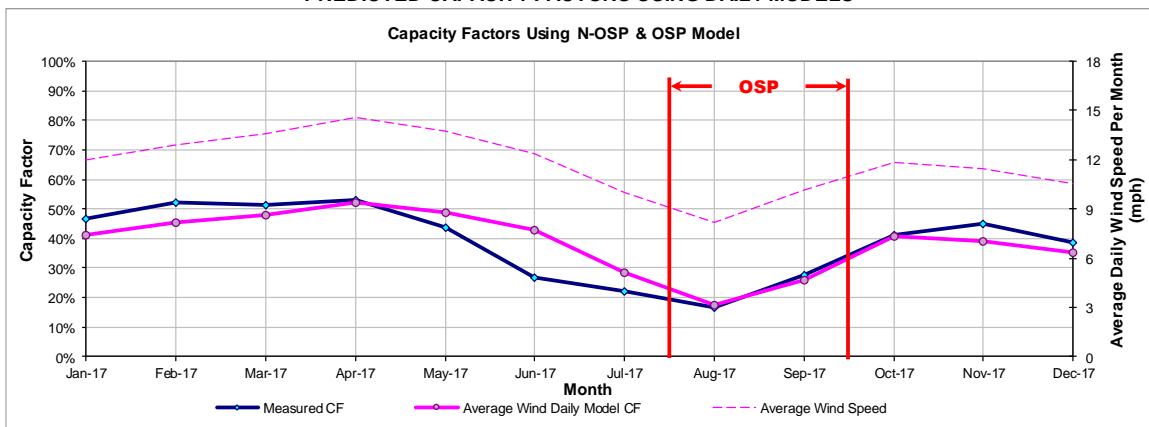


Figure 10-285: MESQCRK\_WND1 - Predicted Wind Power and Capacity Factor Using Daily Models

## 10.64.2 Mesquite Creek W - MESQCRK\_WND2

## SITE INFORMATION

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
MESQCRK_WND2	Wind	-	BORDEN	Sumitomo/Duke Energy	Mesquite Creek W

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
59 GE 1.7 MW	ERCOT	W	Apr-15	West	LBB	105.6

## HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED

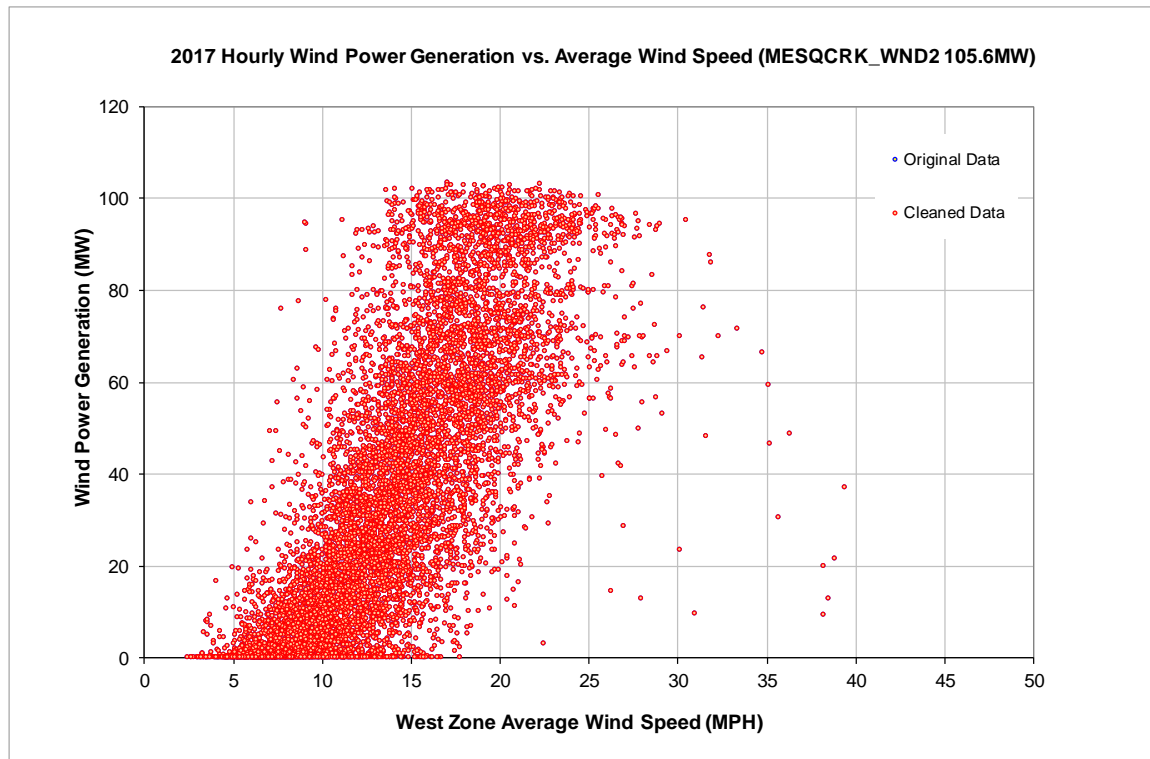


Figure 10-286: MESQCRK\_WND2 - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

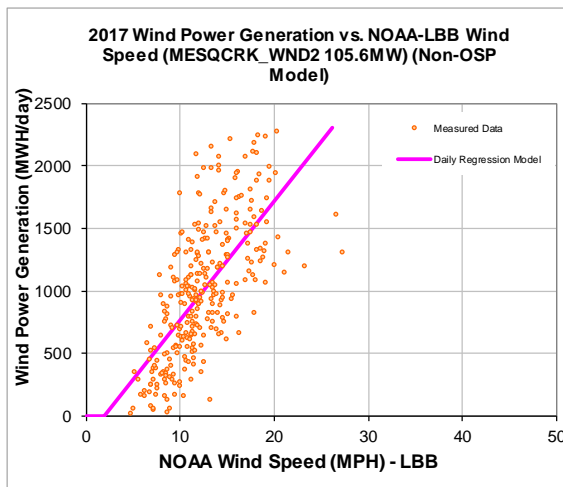
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-178.35
Left Slope (MWh/mph-day)	95.40
RMSE (MWh/day)	392.15
R2	0.46
CV-RMSE	38.9%
Daily Maximum (MWh/day)	2534

**OSP Model:**

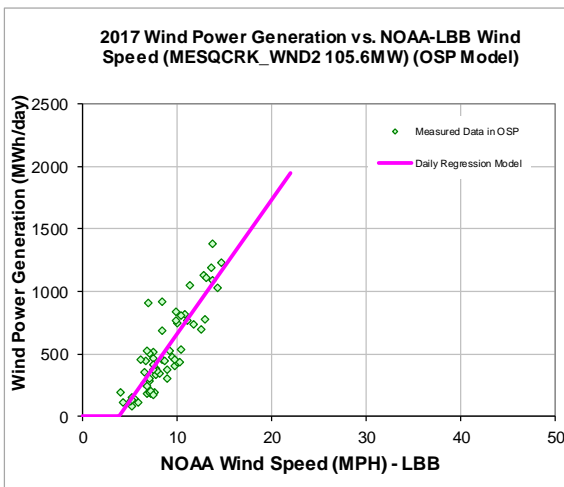
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-411.64
Left Slope (MWh/mph-day)	107.46
RMSE (MWh/day)	169.71
R2	0.74
CV-RMSE	32.8%
Daily Maximum (MWh/day)	2534

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
341,475	333,919

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
559	536

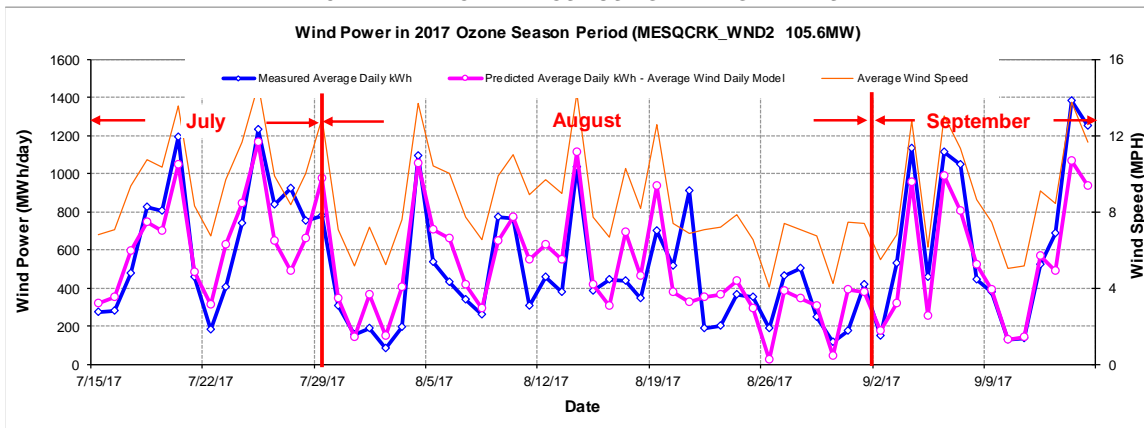
Figure 10-287: MESQCRK\_WND2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	35,325	29,903	15.35%	45%	38%
Feb-17	28	12.91	36,368	29,492	18.91%	51%	42%
Mar-17	31	13.57	36,066	34,593	4.08%	46%	44%
Apr-17	30	14.59	31,620	36,413	-15.16%	42%	48%
May-17	31	13.77	25,451	35,186	-38.25%	32%	45%
Jun-17	30	12.33	20,489	29,926	-46.06%	27%	39%
Jul-17	31	10.03	20,906	22,132	-5.87%	27%	28%
Aug-17	31	8.19	13,357	14,530	-8.78%	17%	18%
Sep-17	30	10.12	20,394	19,300	5.36%	27%	25%
Oct-17	31	11.80	31,251	29,370	6.02%	40%	37%
Nov-17	30	11.45	33,063	27,422	17.06%	43%	36%
Dec-17	31	10.54	29,631	25,650	13.43%	38%	33%
<b>Total</b>	<b>365</b>	<b>11.77</b>	<b>333,919</b>	<b>333,919</b>	<b>0.00%</b>	<b>36%</b>	<b>36%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>32,628</b>	<b>32,628</b>	<b>0.00%</b>	<b>20%</b>	<b>20%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

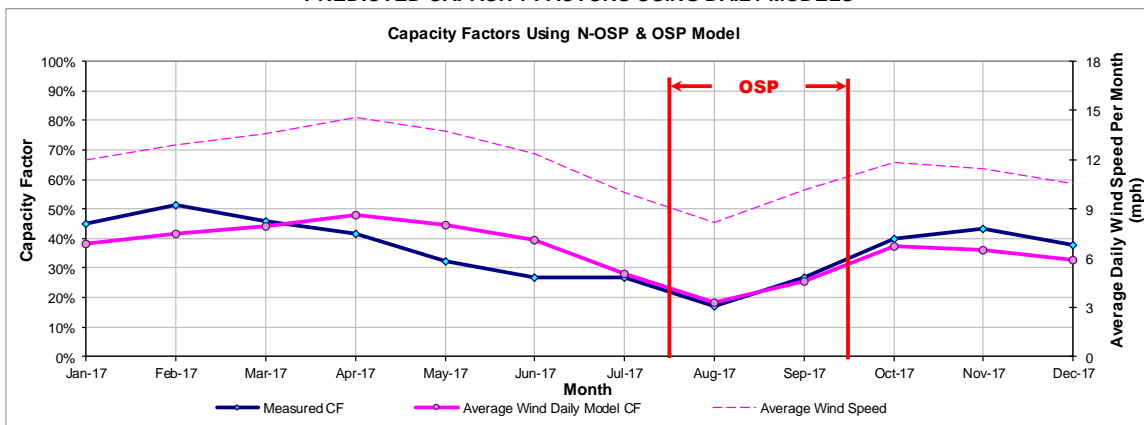


Figure 10-288: MESQCRK\_WND2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.65 Miami Wind 1 Project

10.65.1 Miami Wind 1 Project - MIAM1\_G1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
MIAM1_G1	Wind	-	GRAY	Invenergy	Miami Wind 1 Project

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
78 GE 1.85 MW	ERCOT	W	Dec-14	Panhandle	AMA	144.3

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

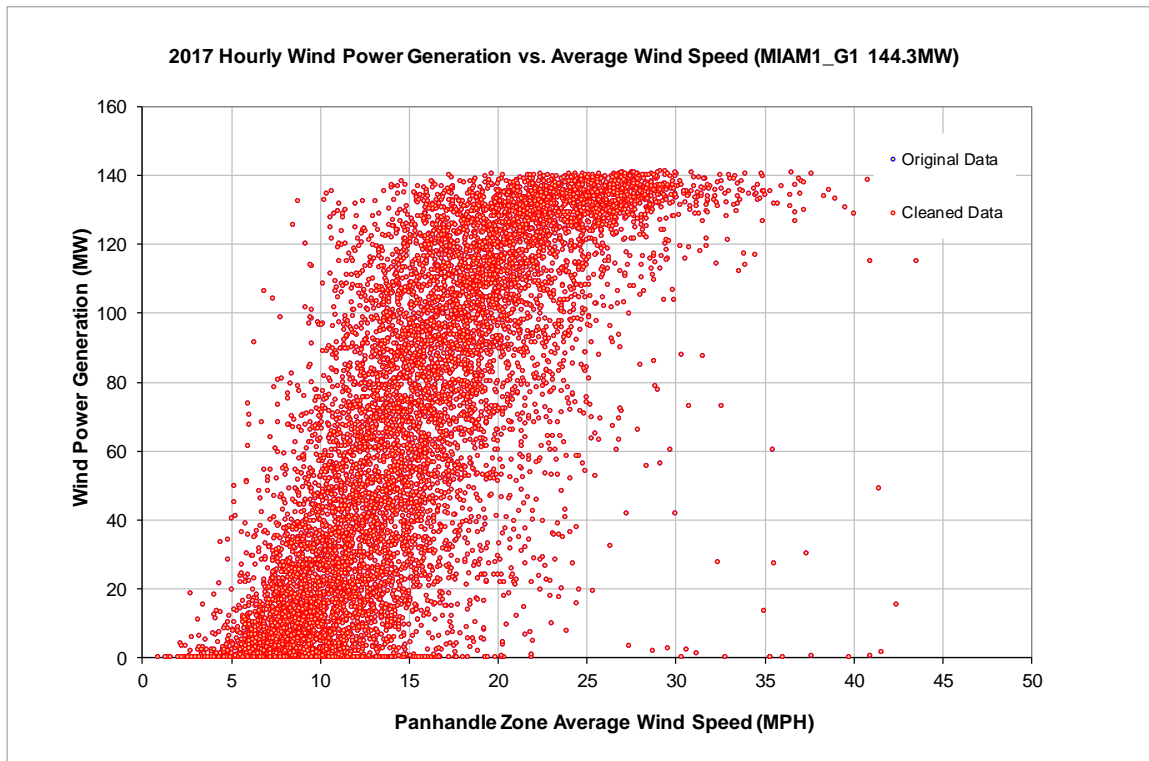


Figure 10-289: MIAM1\_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

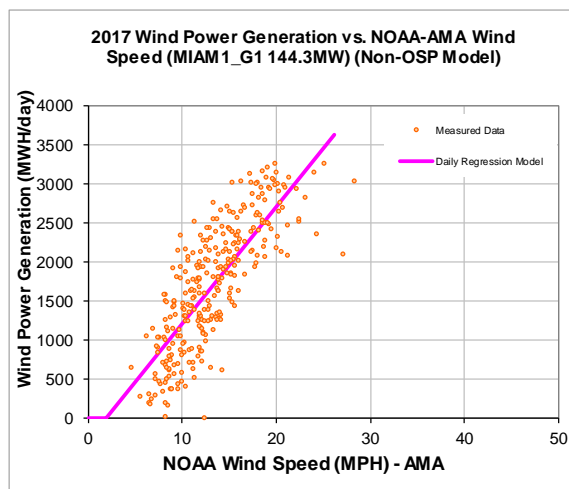
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-283.31
Left Slope (MWh/mph-day)	149.94
RMSE (MWh/day)	480.74
R2	0.63
CV-RMSE	28.1%
Daily Maximum (MWh/day)	3463

**OSP Model:**

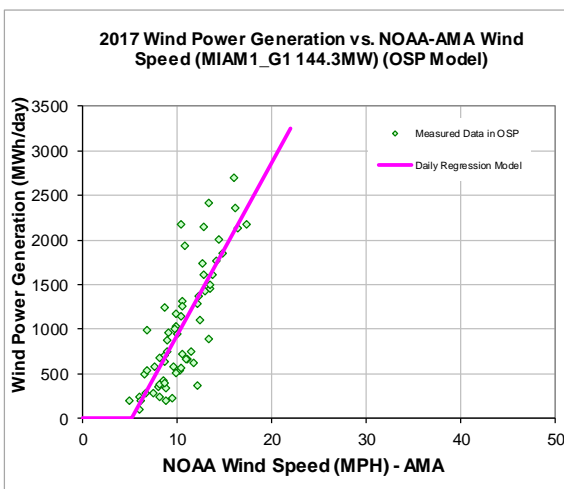
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-1002.66
Left Slope (MWh/mph-day)	193.43
RMSE (MWh/day)	394.05
R2	0.66
CV-RMSE	38.8%
Daily Maximum (MWh/day)	3463

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
631,539	580,743	1,149	1,038

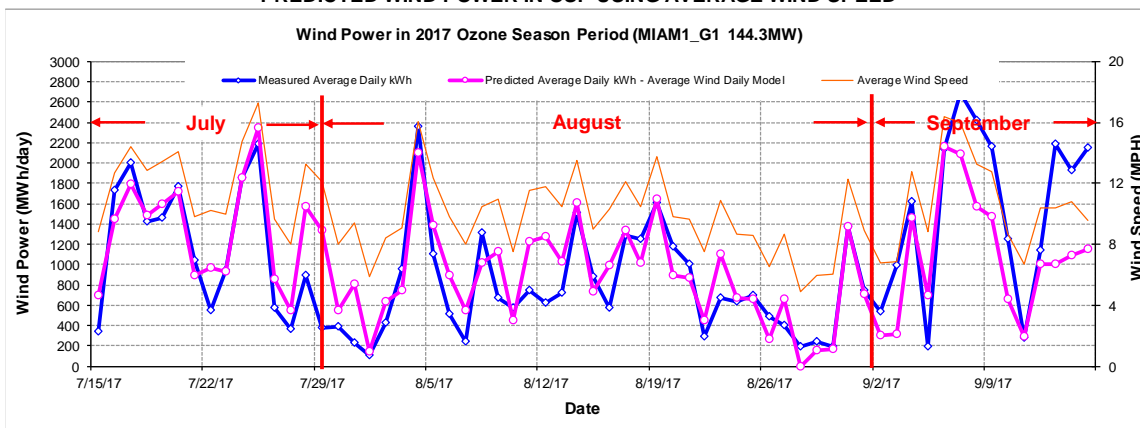
Figure 10-290: MIAM1\_G1 - Model Coefficients (Using Non-OSP and OSP Data)

COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.28	48,504	48,299	0.42%	45%	45%
Feb-17	28	13.17	50,438	47,344	6.13%	52%	49%
Mar-17	31	14.31	61,666	57,223	7.21%	57%	53%
Apr-17	30	15.90	60,543	62,693	-3.55%	58%	60%
May-17	31	13.42	48,760	53,584	-9.89%	45%	50%
Jun-17	30	13.20	46,117	50,869	-10.30%	44%	49%
Jul-17	31	11.35	33,561	40,345	-20.21%	31%	38%
Aug-17	31	9.62	23,720	26,628	-12.26%	22%	25%
Sep-17	30	11.96	45,068	41,526	7.86%	43%	40%
Oct-17	31	14.04	61,037	56,477	7.47%	57%	53%
Nov-17	30	12.81	50,630	49,120	2.98%	49%	47%
Dec-17	31	11.76	50,699	45,856	9.55%	47%	43%
<b>Total</b>	<b>365</b>	<b>12.81</b>	<b>580,743</b>	<b>579,964</b>	<b>0.13%</b>	<b>46%</b>	<b>46%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>63,949</b>	<b>64,000</b>	<b>-0.08%</b>	<b>29%</b>	<b>29%</b>

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

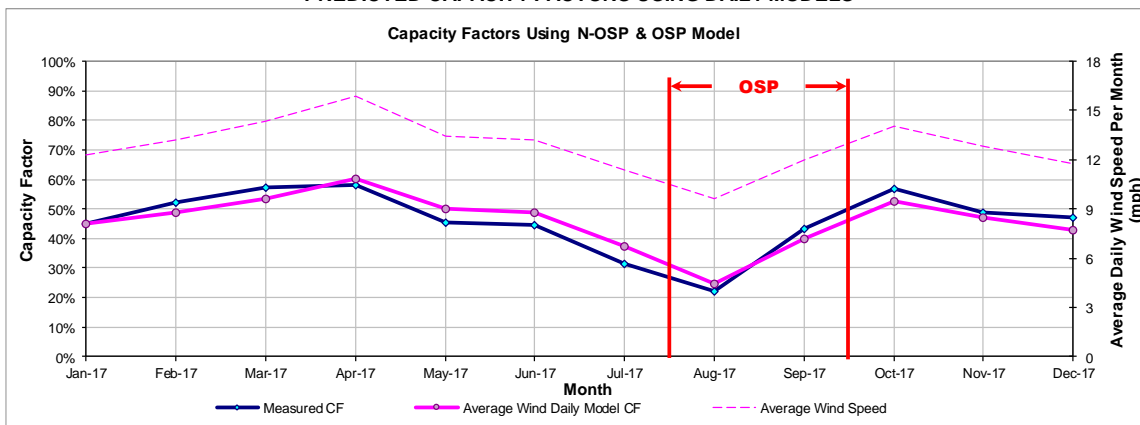


Figure 10-291: MIAM1\_G1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.65.2 Miami Wind 1 Project - MIAM1\_G2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
MIAM1_G2	Wind	-	GRAY	Invenergy	Miami Wind 1 Project

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
78 GE 1.85 MW	ERCOT	W	Dec-14	Panhandle	AMA	144.3

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

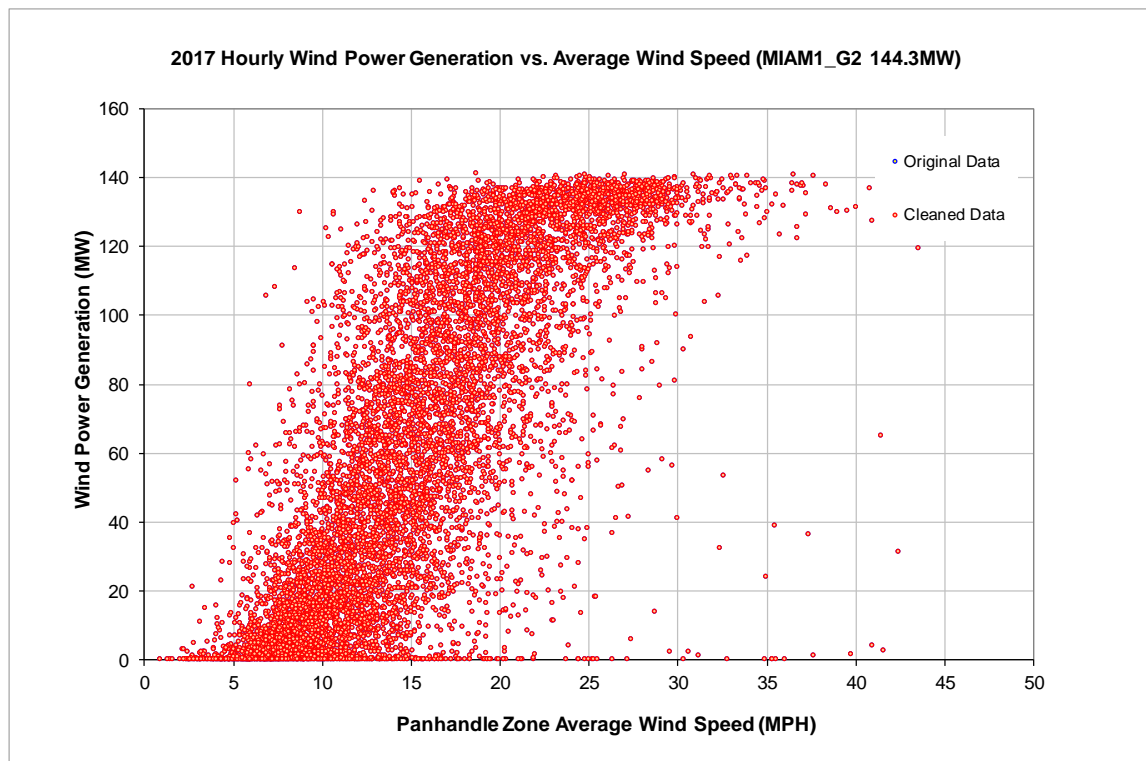


Figure 10-292: MIAM1\_G2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

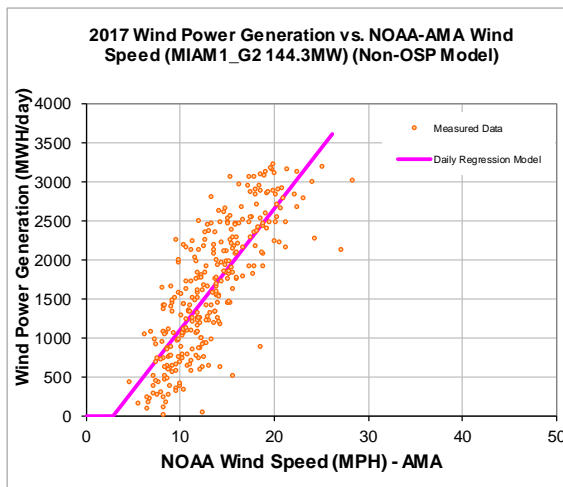
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-435.71
Left Slope (MWh/mph-day)	154.81
RMSE (MWh/day)	493.39
R2	0.64
CV-RMSE	30.4%
Daily Maximum (MWh/day)	3463

**OSP Model:**

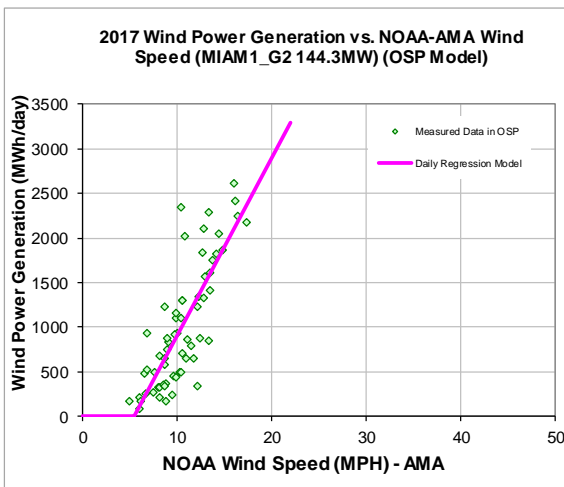
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-1068.46
Left Slope (MWh/mph-day)	198.52
RMSE (MWh/day)	409.53
R2	0.66
CV-RMSE	40.9%
Daily Maximum (MWh/day)	3463

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
605,857	553,487	1,142	1,027

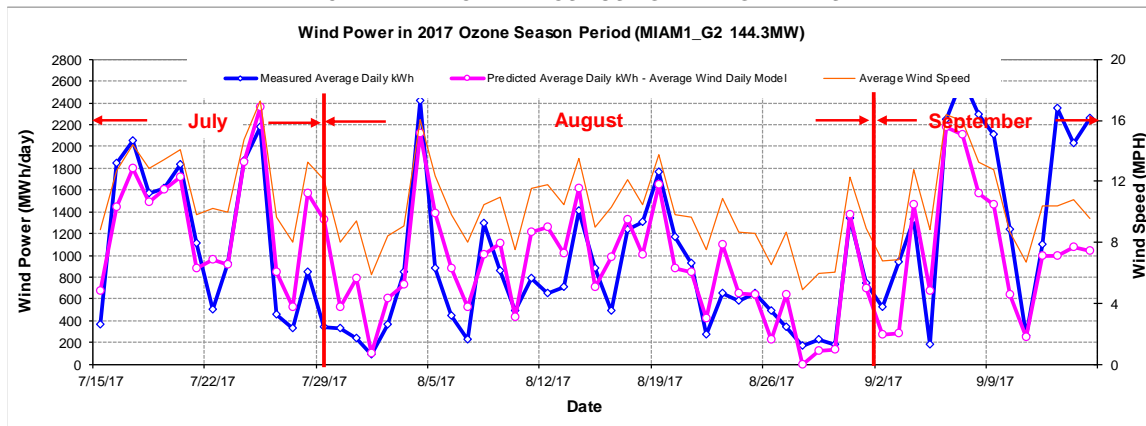
Figure 10-293: MIAM1\_G2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.28	44,158	45,429	-2.88%	41%	42%
Feb-17	28	13.17	44,257	44,872	-1.39%	46%	46%
Mar-17	31	14.31	58,315	54,689	6.22%	54%	51%
Apr-17	30	15.90	58,237	60,465	-3.83%	56%	58%
May-17	31	13.42	46,875	50,886	-8.56%	44%	47%
Jun-17	30	13.20	46,213	48,226	-4.36%	44%	46%
Jul-17	31	11.35	33,885	38,850	-14.65%	32%	36%
Aug-17	31	9.62	23,024	26,145	-13.56%	21%	24%
Sep-17	30	11.96	44,048	40,036	9.11%	42%	39%
Oct-17	31	14.04	60,769	53,873	11.35%	57%	50%
Nov-17	30	12.81	47,808	46,420	2.90%	46%	45%
Dec-17	31	11.76	45,897	42,907	6.51%	43%	40%
<b>Total</b>	<b>365</b>	<b>12.81</b>	<b>553,487</b>	<b>552,799</b>	<b>0.12%</b>	<b>44%</b>	<b>44%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>63,146</b>	<b>63,238</b>	<b>-0.15%</b>	<b>29%</b>	<b>29%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

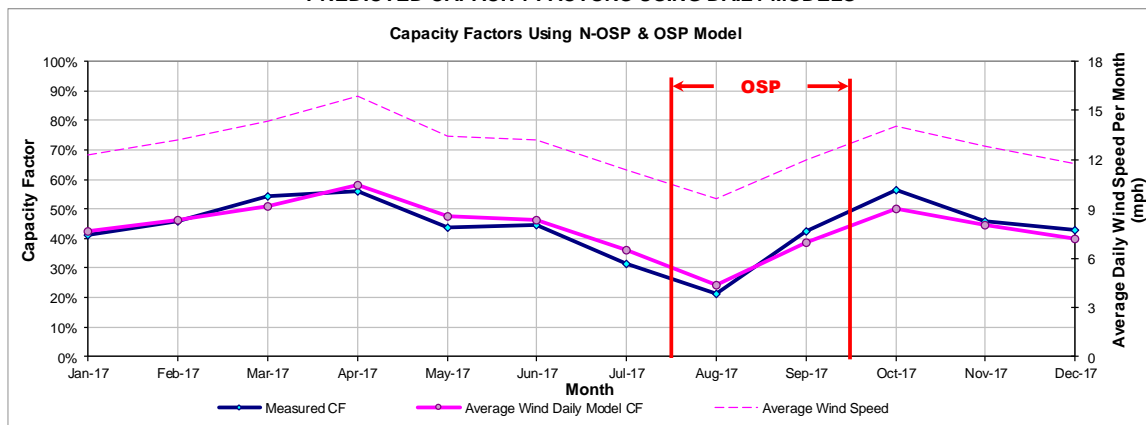


Figure 10-294: MIAM1\_G2 - Predicted Wind Power and Capacity Factor Using Daily Models



10.66 Mozart Wind Farm

10.66.1 Mozart Wind Farm - MOZART\_WIND\_1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
MOZART_WIND_1	Wind	-	KENT	WKN AG	Mozart

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
12 Nordex 2.5 MW	ERCOT	W	Dec-12	West	LBB	30

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

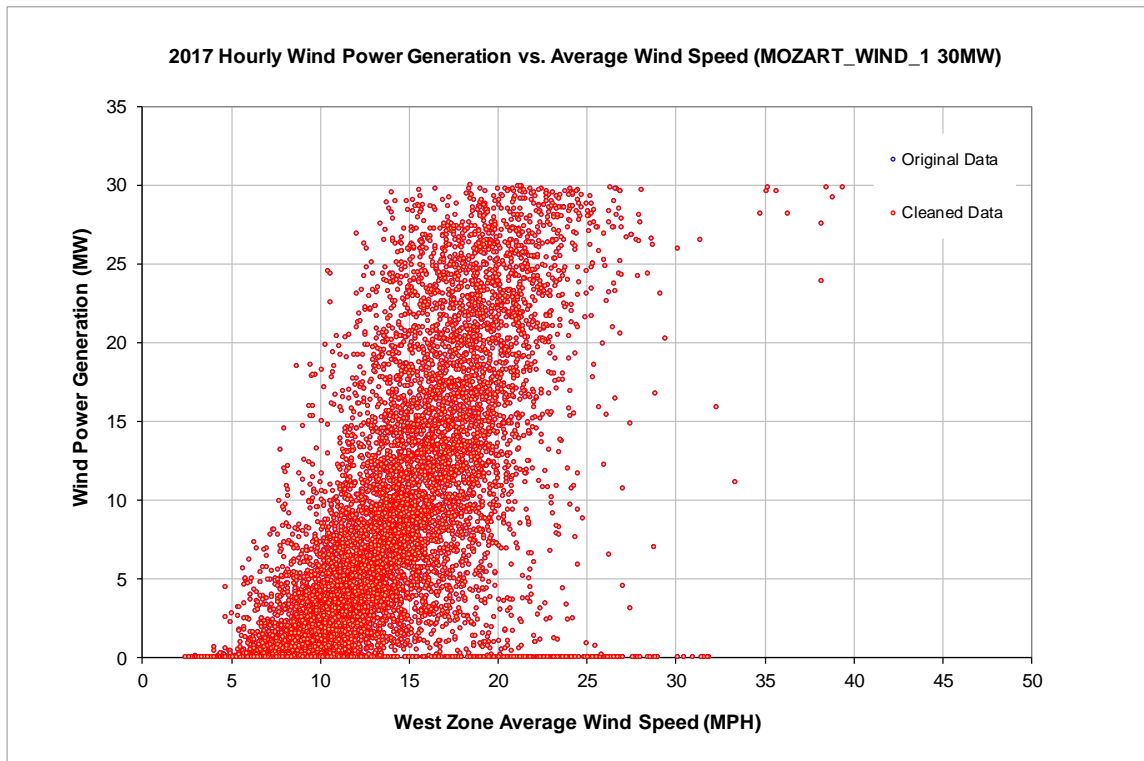


Figure 10-295: MOZART\_WIND\_1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

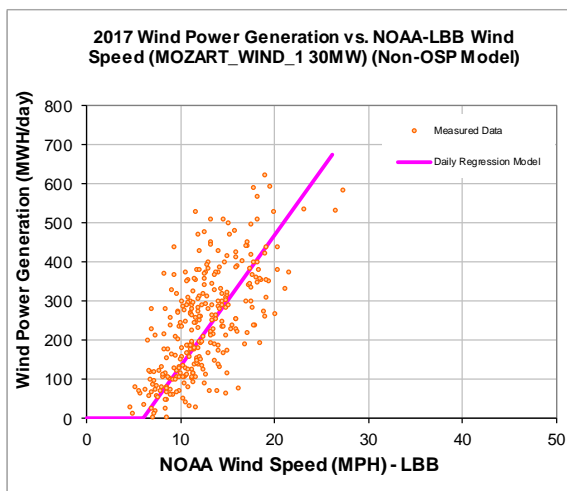
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-60.48
Left Slope (MWh/mph-day)	23.91
RMSE (MWh/day)	99.49
R2	0.45
CV-RMSE	42.0%
Daily Maximum (MWh/day)	720

**OSP Model:**

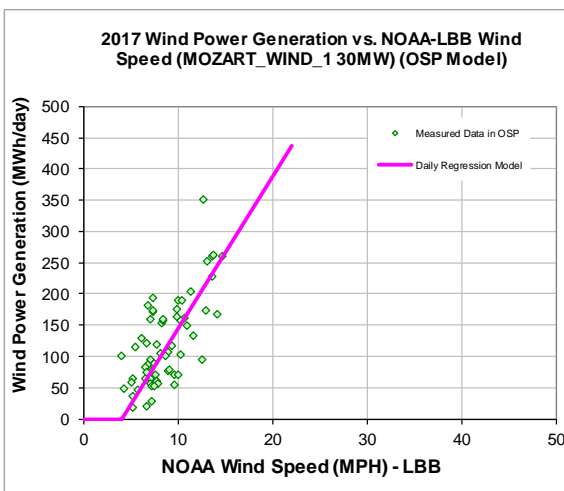
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-38.18
Left Slope (MWh/mph-day)	18.45
RMSE (MWh/day)	50.01
R2	0.49
CV-RMSE	41.2%
Daily Maximum (MWh/day)	720

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
80,067	78,709

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
128	124

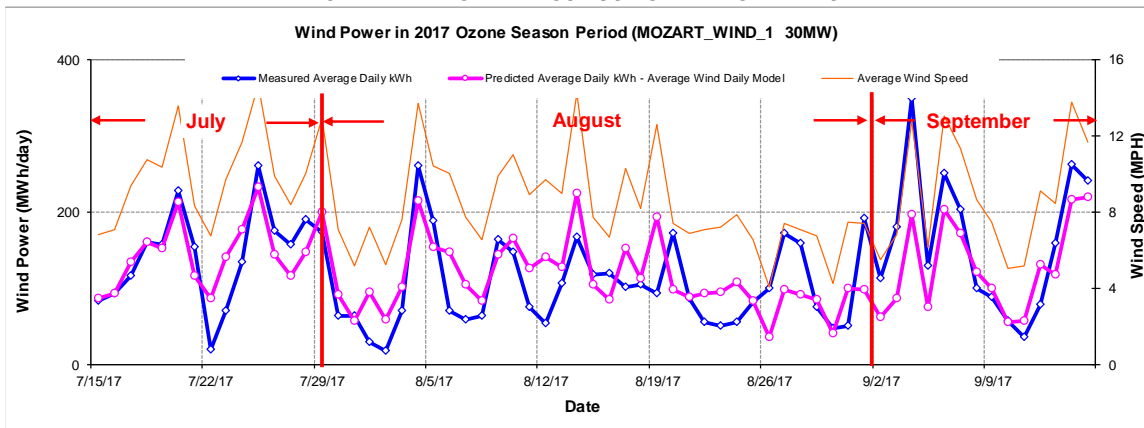
Figure 10-296: MOZART\_WIND\_1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.84	7,207	6,679	7.32%	32%	30%
Feb-17	28	12.91	7,384	6,950	5.87%	37%	34%
Mar-17	31	13.57	8,186	8,182	0.05%	37%	37%
Apr-17	30	14.59	8,228	8,654	-5.18%	38%	40%
May-17	31	13.77	7,414	8,330	-12.35%	33%	37%
Jun-17	30	12.33	5,274	7,028	-33.25%	24%	33%
Jul-17	31	10.03	4,642	5,048	-8.73%	21%	23%
Aug-17	31	8.19	3,123	3,501	-12.09%	14%	16%
Sep-17	30	10.41	5,245	5,288	-0.81%	24%	24%
Oct-17	31	11.80	7,841	6,873	12.35%	35%	31%
Nov-17	30	11.45	7,748	6,400	17.39%	36%	30%
Dec-17	31	10.58	6,417	5,777	9.97%	29%	26%
<b>Total</b>	<b>365</b>	<b>11.78</b>	<b>78,709</b>	<b>78,709</b>	<b>0.00%</b>	<b>30%</b>	<b>30%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>7,647</b>	<b>7,647</b>	<b>0.00%</b>	<b>17%</b>	<b>17%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

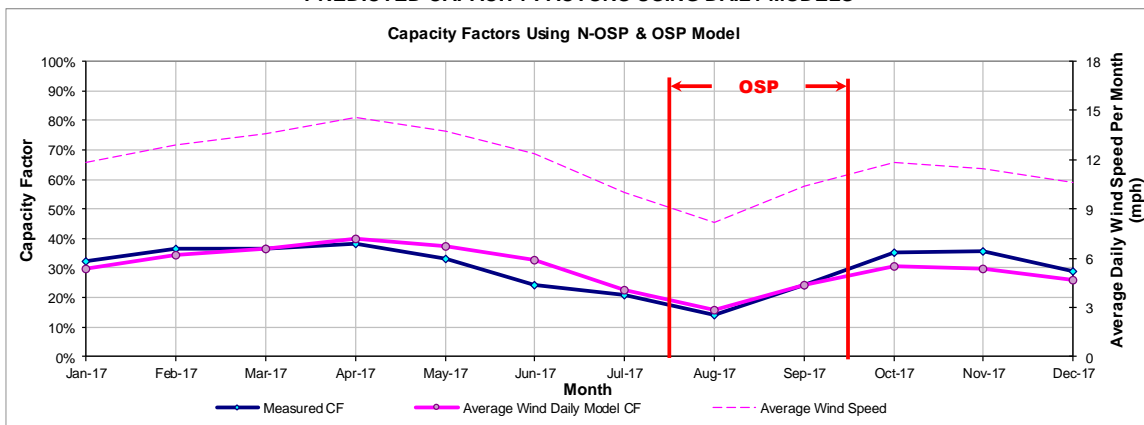


Figure 10-297: MOZART\_WIND\_1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.67 Notrees Windpower

10.67.1 Notrees Windpower - NWF\_NWF1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
NWF_NWF1	Wind	-	ECTOR	Duke Energy	Notrees Windpower

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
55 Vestas 1.65 MW 1 Vestas 1.8 MW 40 GE 1.5 MW	ERCOT	W	Jan-09	West	MAF	153

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

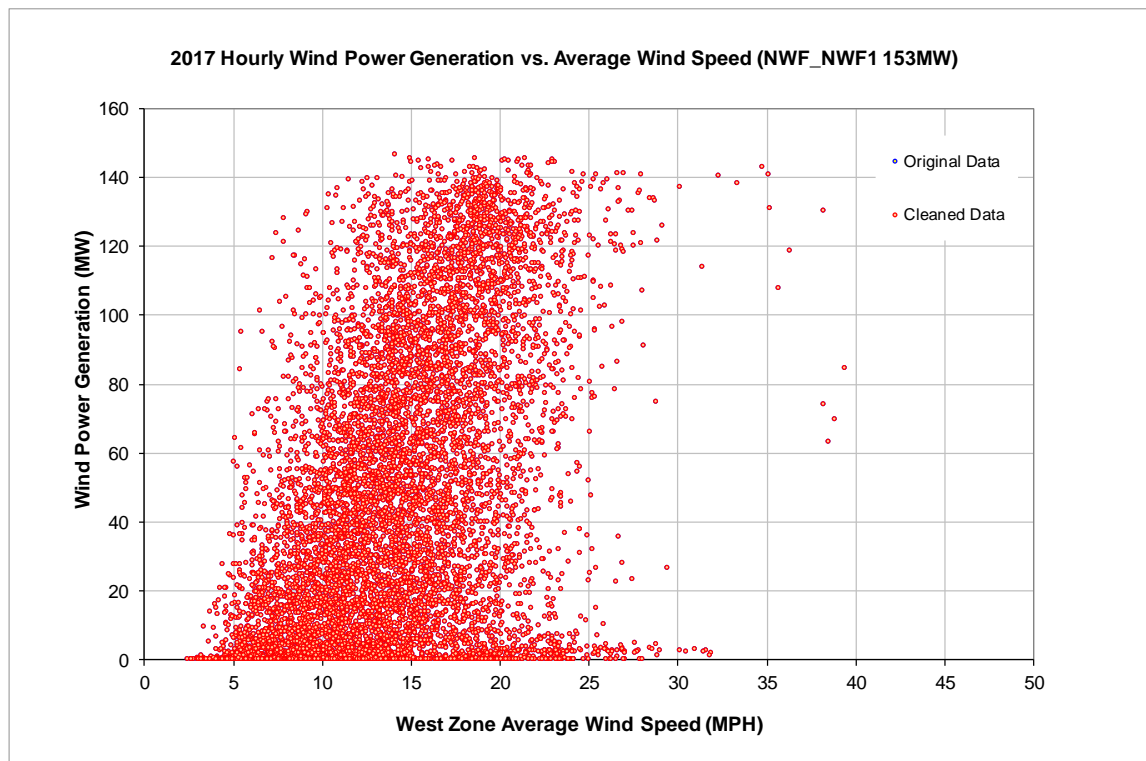


Figure 10-298: NWF\_NWF1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

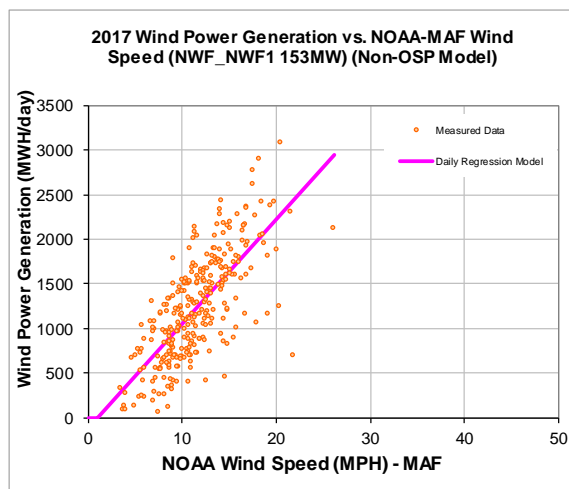
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-106.15
Left Slope (MWh/mph-day)	117.04
RMSE (MWh/day)	400.39
R2	0.53
CV-RMSE	32.4%
Daily Maximum (MWh/day)	3672

**OSP Model:**

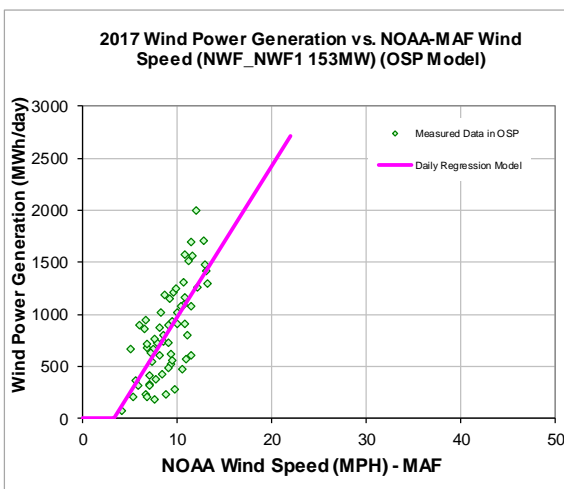
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-469.97
Left Slope (MWh/mph-day)	144.88
RMSE (MWh/day)	312.54
R2	0.50
CV-RMSE	37.7%
Daily Maximum (MWh/day)	3672

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
398,435	422,132	787	836

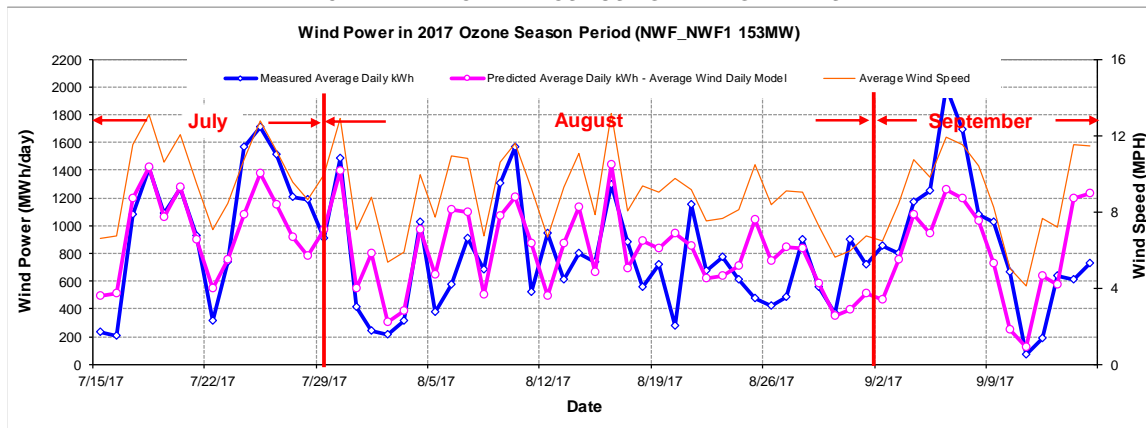
Figure 10-299: NWF\_NWF1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (MAF) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.88	35,430	36,178	-2.11%	31%	32%
Feb-17	28	11.12	33,882	33,468	1.22%	33%	33%
Mar-17	31	12.31	42,479	41,362	2.63%	37%	36%
Apr-17	30	13.76	36,115	40,626	-12.49%	33%	37%
May-17	31	13.06	43,648	44,093	-1.02%	38%	39%
Jun-17	30	11.49	34,633	37,176	-7.34%	31%	34%
Jul-17	31	10.79	35,794	34,370	3.98%	31%	30%
Aug-17	31	8.74	21,393	24,699	-15.45%	19%	22%
Sep-17	30	10.72	36,392	32,504	10.68%	33%	30%
Oct-17	31	10.78	39,453	35,807	9.24%	35%	31%
Nov-17	30	9.84	33,987	31,353	7.75%	31%	28%
Dec-17	31	9.31	28,927	30,496	-5.43%	25%	27%
<b>Total</b>	<b>365</b>	<b>11.04</b>	<b>422,132</b>	<b>422,132</b>	<b>0.00%</b>	<b>31%</b>	<b>31%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.97</b>	<b>52,242</b>	<b>52,242</b>	<b>0.00%</b>	<b>23%</b>	<b>23%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

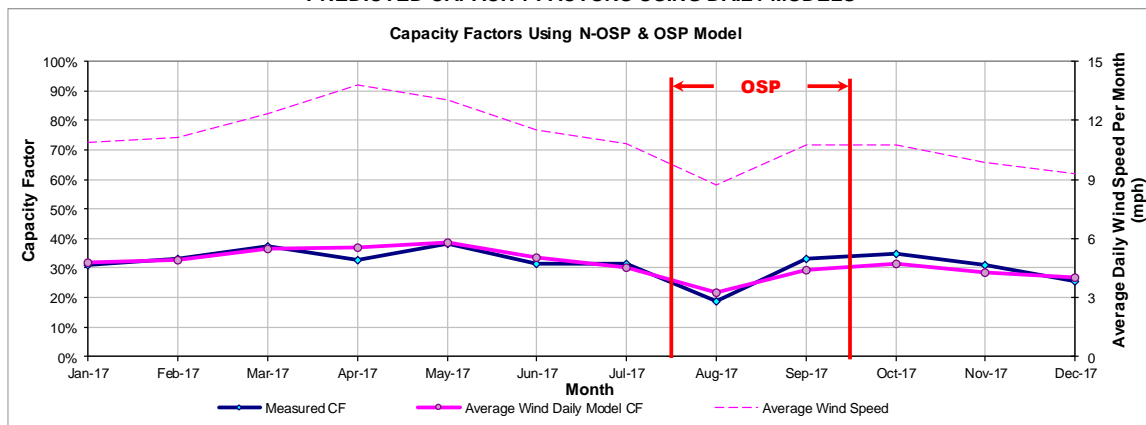


Figure 10-300: NWF\_NWF1 - Predicted Wind Power and Capacity Factor Using Daily Models

## 10.68 Ocotillo Windpower 1

## 10.68.1 Ocotillo Windpower 1 - OWF\_OWF

## SITE INFORMATION

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
OWF_OWF	Wind	-	HOWARD	Duke Energy	Ocotillo Windpower 1

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
28 Suzion 2.1 MW	ERCOT	W	Aug-08	West	ABI	58.8

## HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED

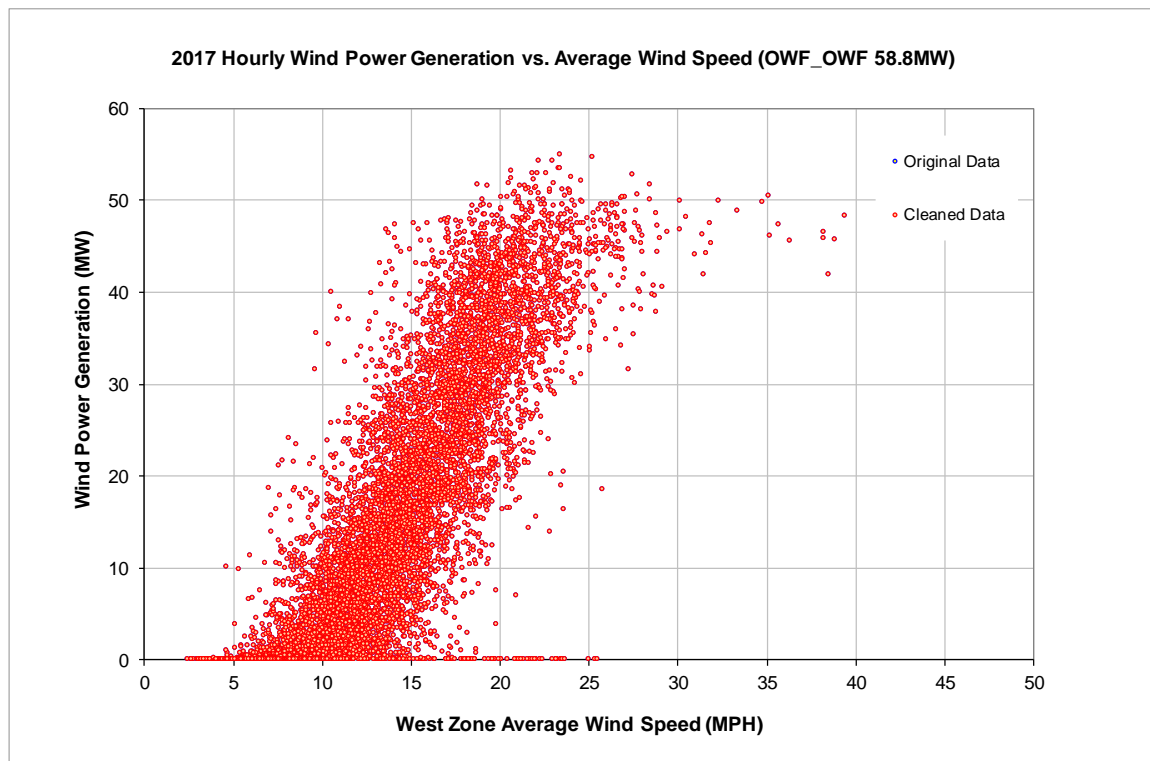


Figure 10-301: OWF\_OWF - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

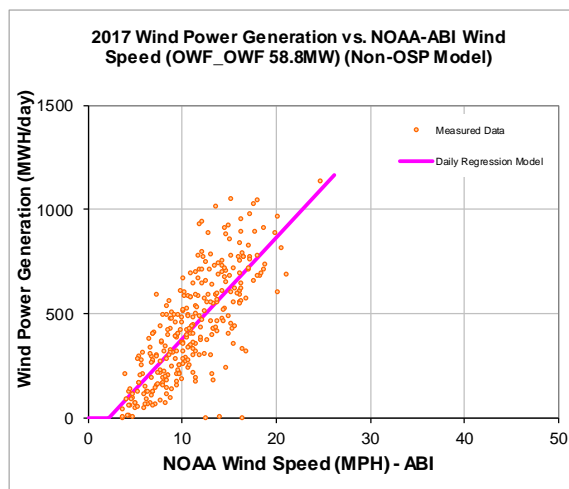
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-102.62
Left Slope (MWh/mph-day)	48.53
RMSE (MWh/day)	162.24
R2	0.59
CV-RMSE	37.3%
Daily Maximum (MWh/day)	1411

**OSP Model:**

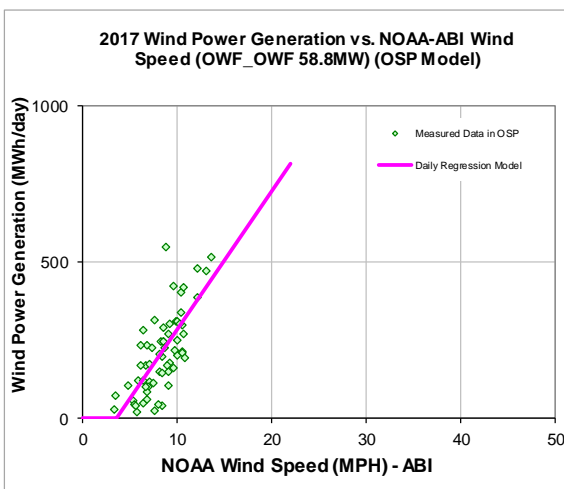
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-158.57
Left Slope (MWh/mph-day)	44.36
RMSE (MWh/day)	88.40
R2	0.54
CV-RMSE	42.0%
Daily Maximum (MWh/day)	1411

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
159,539	144,250	229	216

Figure 10-302: OWF\_OWF - Model Coefficients (Using Non-OSP and OSP Data)

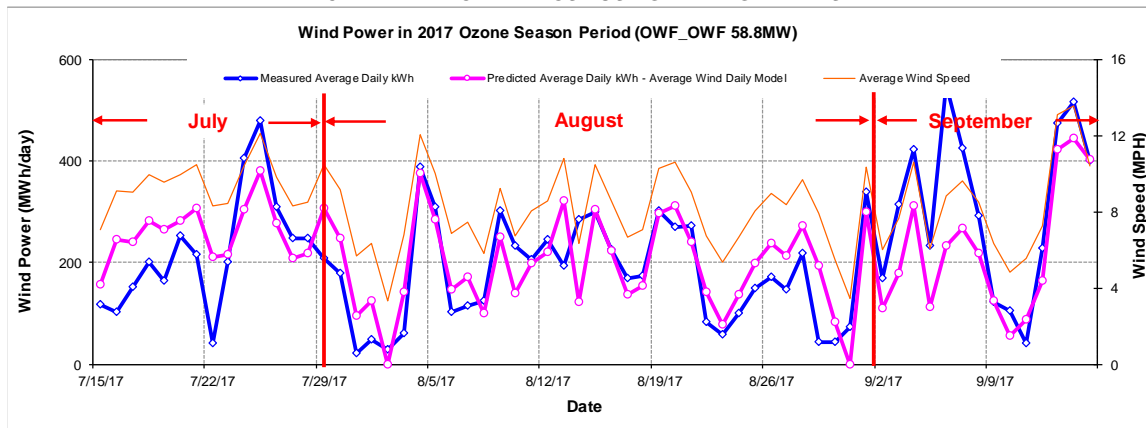


**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	15,299	12,515	18.20%	35%	29%
Feb-17	28	11.23	13,612	12,380	9.05%	34%	31%
Mar-17	31	12.96	17,551	16,312	7.06%	40%	37%
Apr-17	30	13.49	14,797	16,556	-11.89%	35%	39%
May-17	31	11.55	14,160	14,197	-0.26%	32%	32%
Jun-17	30	10.72	10,016	12,527	-25.07%	24%	30%
Jul-17	31	9.17	8,086	9,007	-11.38%	18%	21%
Aug-17	31	7.87	5,393	5,914	-9.66%	12%	14%
Sep-17	30	9.51	10,409	9,418	9.52%	25%	22%
Oct-17	31	11.07	12,765	13,469	-5.52%	29%	31%
Nov-17	30	10.21	11,485	11,787	-2.62%	27%	28%
Dec-17	31	9.11	10,677	10,183	4.62%	24%	23%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>144,250</b>	<b>144,266</b>	<b>-0.01%</b>	<b>28%</b>	<b>28%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>13,248</b>	<b>13,264</b>	<b>-0.12%</b>	<b>15%</b>	<b>15%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

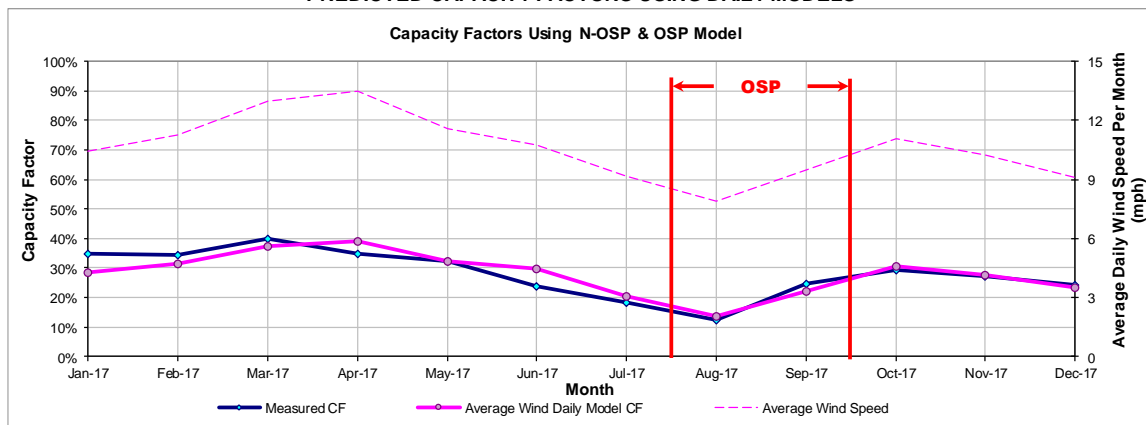


Figure 10-303: OWF\_OWF - Predicted Wind Power and Capacity Factor Using Daily Models

10.69 Old Settler Wind

10.69.1 Old Settler Wind - COTPLNS\_OLDSETLR

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
COTPLNS_OLDSETLR	Wind	-	FLOYD	Apex Clean Energy	Old Settler Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
63 GE 2.4 MW	ERCOT	W	Apr-17	Panhandle	LBB	151.2

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

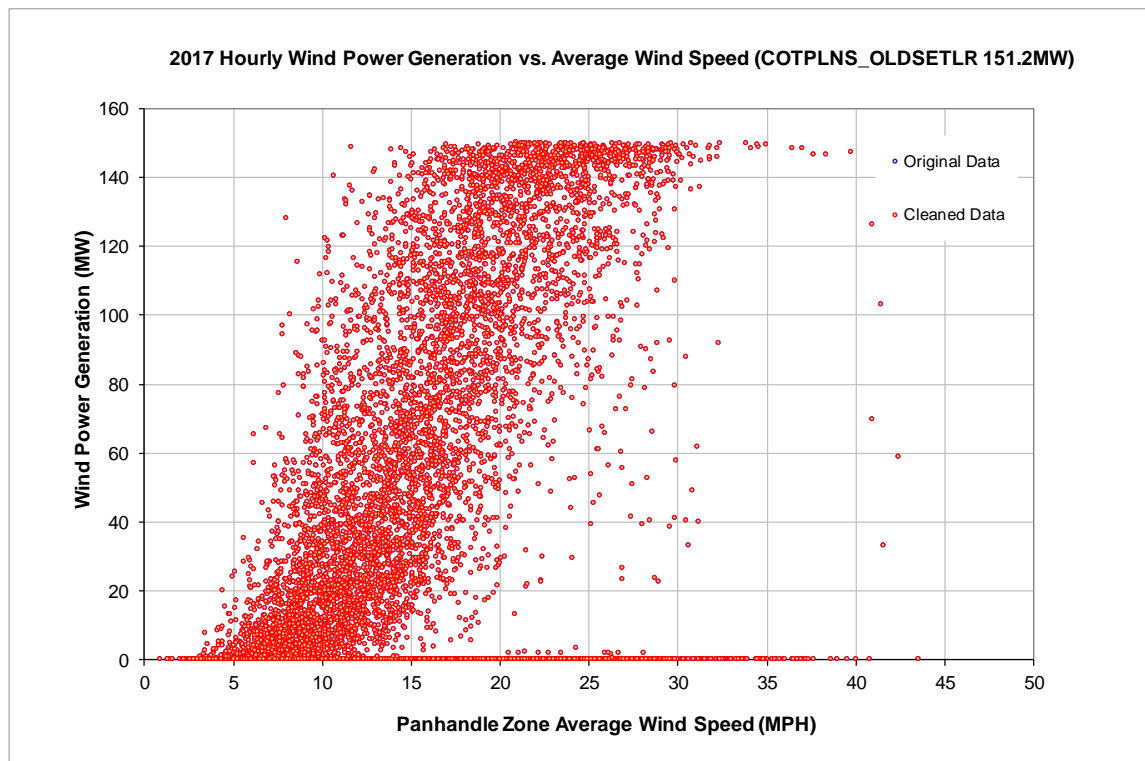


Figure 10-304: COTPLNS\_OLDSETLR - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

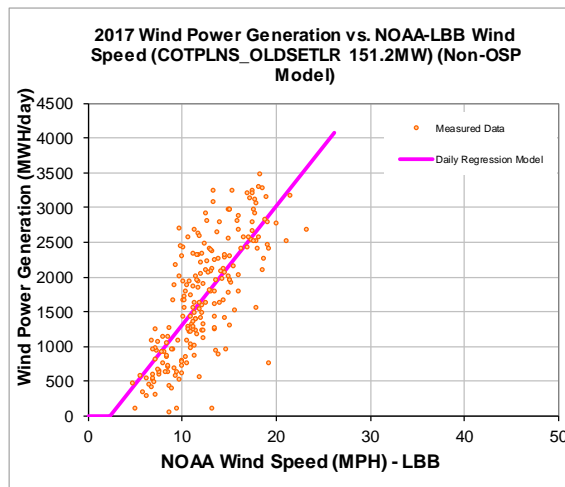
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-396.93
Left Slope (MWh/mph-day)	171.76
RMSE (MWh/day)	562.33
R2	0.56
CV-RMSE	32.9%
Daily Maximum (MWh/day)	3629

**OSP Model:**

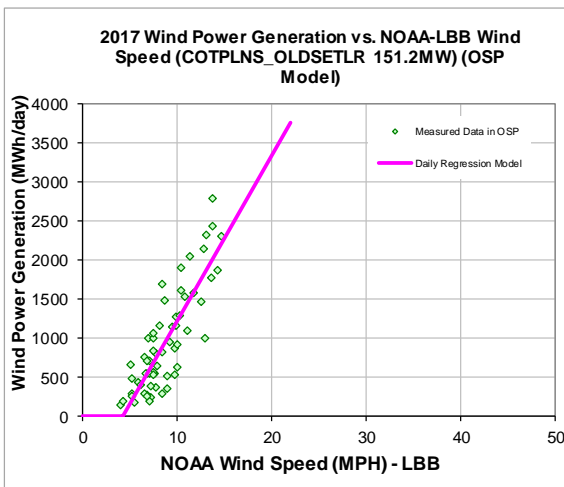
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-883.68
Left Slope (MWh/mph-day)	210.99
RMSE (MWh/day)	357.61
R2	0.71
CV-RMSE	38.0%
Daily Maximum (MWh/day)	3629

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
592,812	422,202

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
1,023	965

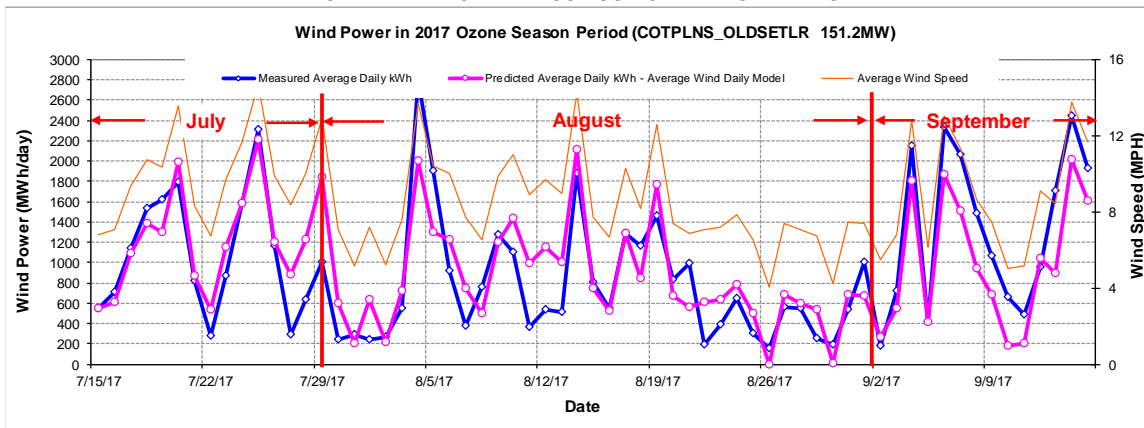
Figure 10-305: COTPLNS\_OLDSETLR - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	#DIV/0!	0	0	#DIV/0!	0%	0%
Feb-17	28	#DIV/0!	0	0	#DIV/0!	0%	0%
Mar-17	31	#DIV/0!	0	0	#DIV/0!	0%	0%
Apr-17	30	14.59	53,990	63,285	-17.22%	50%	58%
May-17	31	13.77	53,361	60,999	-14.31%	47%	54%
Jun-17	30	12.33	45,314	51,606	-13.89%	42%	47%
Jul-17	31	10.03	33,186	39,217	-18.17%	30%	35%
Aug-17	31	8.19	24,144	26,219	-8.60%	21%	23%
Sep-17	30	10.41	44,195	39,450	10.74%	41%	36%
Oct-17	31	11.80	62,724	50,529	19.44%	56%	45%
Nov-17	30	11.45	58,627	47,097	19.67%	54%	43%
Dec-17	31	10.54	46,661	43,831	6.07%	41%	39%
<b>Total</b>	<b>365</b>	<b>11.45</b>	<b>422,202</b>	<b>422,233</b>	<b>-0.01%</b>	<b>32%</b>	<b>32%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>59,308</b>	<b>59,339</b>	<b>-0.05%</b>	<b>26%</b>	<b>26%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

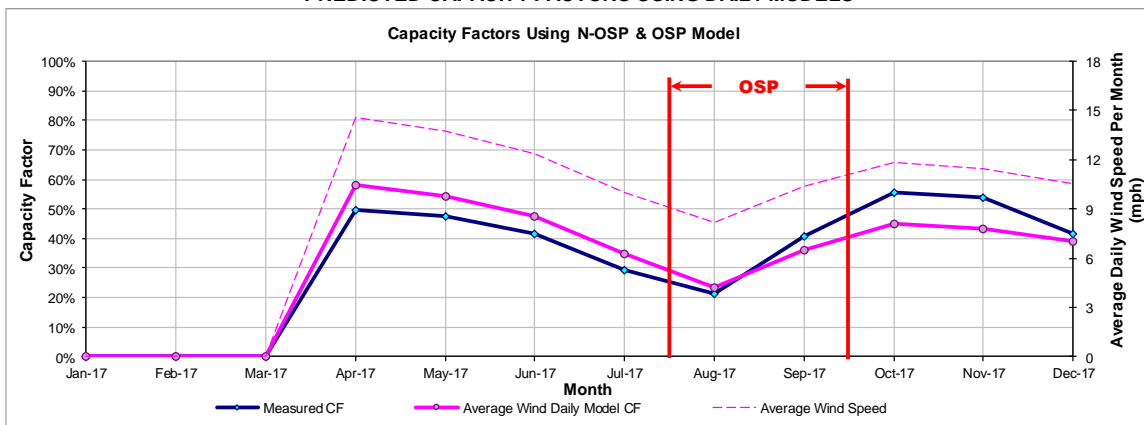


Figure 10-306: COTPLNS\_OLDSETLR - Predicted Wind Power and Capacity Factor Using Daily Models

10.70 Panhandle Wind 1

10.70.1 Panhandle Wind 1 - PH1\_UNIT1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
PH1_UNIT1	Wind	Amarilo	CARSON	Pattern Energy	Panhandle Wind 1

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
59 GE 1.85 MW	ERCOT	W	Jul-14	Panhandle	AMA	109.2

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

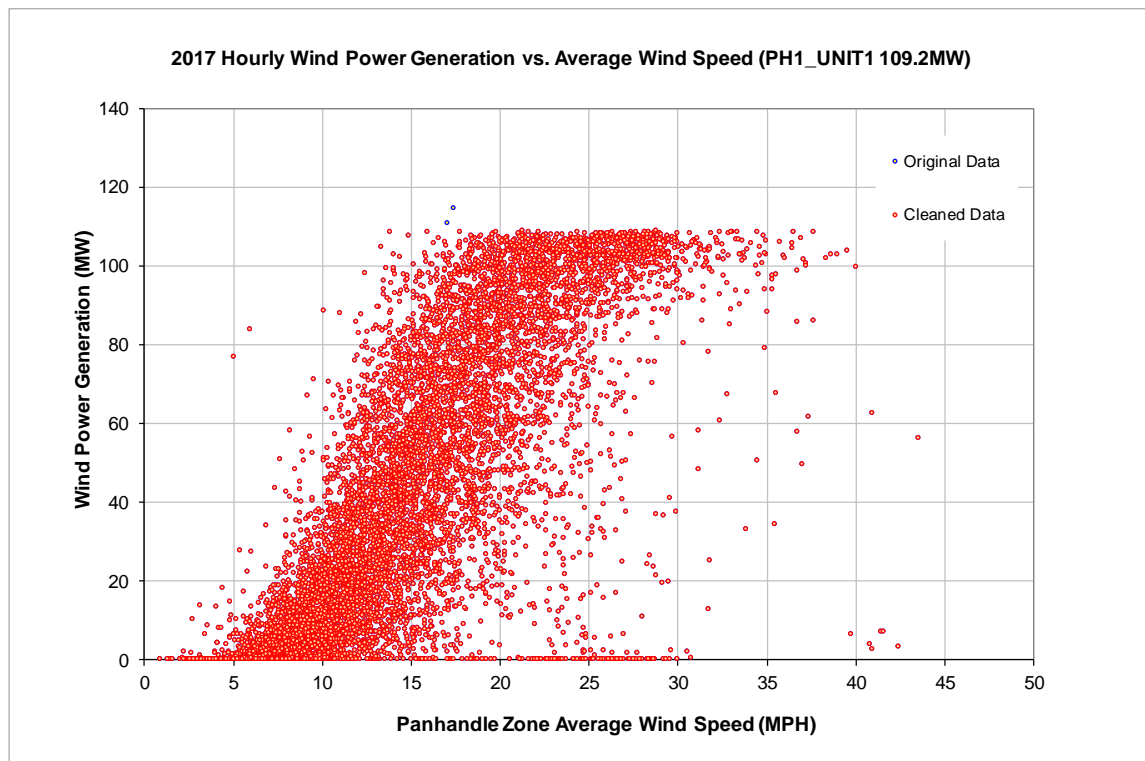


Figure 10-307: PH1\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

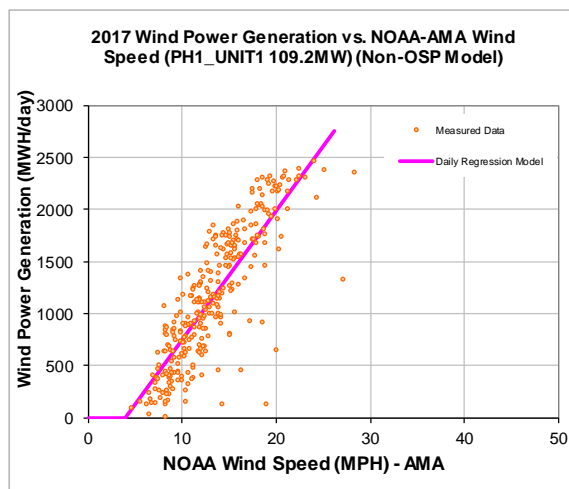
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-486.30
Left Slope (MWh/mph-day)	124.38
RMSE (MWh/day)	337.49
R2	0.71
CV-RMSE	28.9%
Daily Maximum (MWh/day)	2621

**OSP Model:**

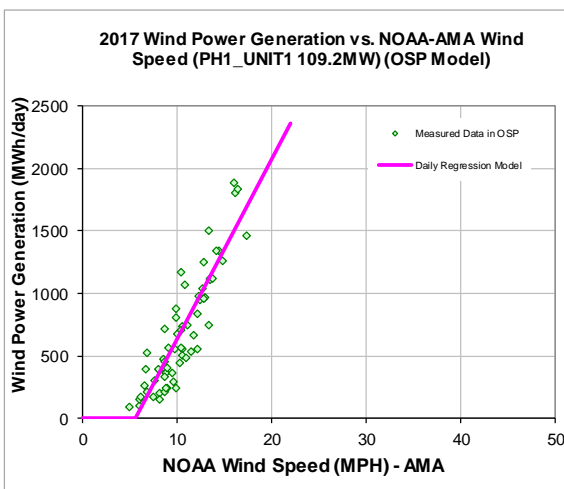
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-811.73
Left Slope (MWh/mph-day)	144.33
RMSE (MWh/day)	203.68
R2	0.80
CV-RMSE	29.4%
Daily Maximum (MWh/day)	2621

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
437,886	396,514

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
797	706

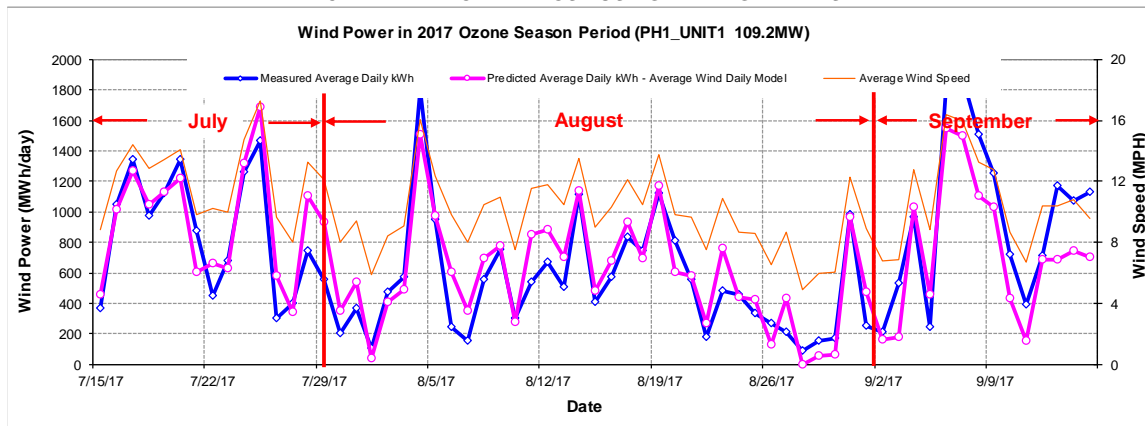
Figure 10-308: PH1\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.28	33,211	32,275	2.82%	41%	40%
Feb-17	28	13.17	36,540	32,237	11.78%	50%	44%
Mar-17	31	14.31	43,834	39,676	9.49%	54%	49%
Apr-17	30	15.90	43,907	44,466	-1.27%	56%	57%
May-17	31	13.42	37,670	36,660	2.68%	46%	45%
Jun-17	30	13.20	34,600	34,658	-0.17%	44%	44%
Jul-17	31	11.35	23,829	27,104	-13.74%	29%	33%
Aug-17	31	9.62	16,482	17,960	-8.97%	20%	22%
Sep-17	30	11.96	30,561	28,372	7.16%	39%	36%
Oct-17	31	14.04	44,589	39,059	12.40%	55%	48%
Nov-17	30	12.81	28,947	33,207	-14.72%	37%	42%
Dec-17	31	11.76	22,343	30,249	-35.39%	28%	37%
<b>Total</b>	<b>365</b>	<b>12.81</b>	<b>396,514</b>	<b>395,925</b>	<b>0.15%</b>	<b>41%</b>	<b>41%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>43,709</b>	<b>43,811</b>	<b>-0.23%</b>	<b>26%</b>	<b>27%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

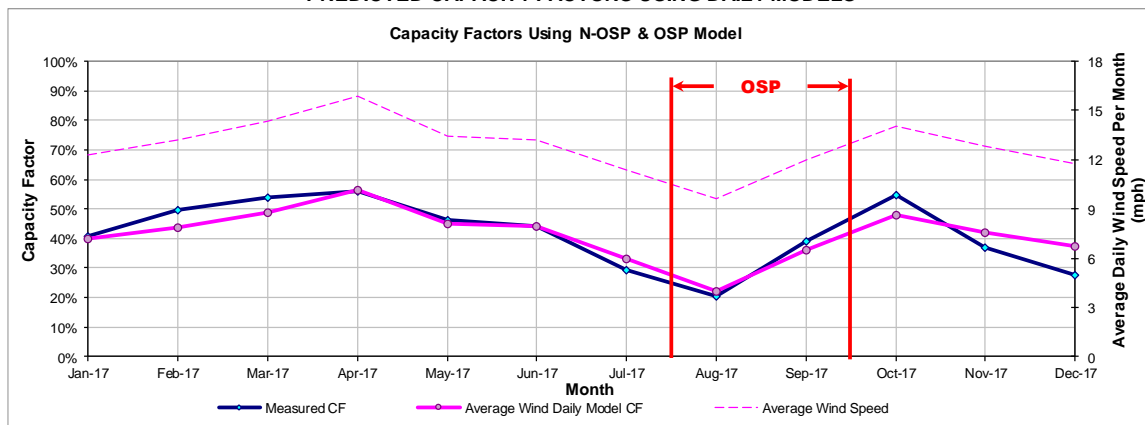


Figure 10-309: PH1\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.70.2 Panhandle Wind 1 - PH1\_UNIT2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
PH1_UNIT2	Wind	Amarilo	CARSON	Pattern Energy	Panhandle Wind 1

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
59 GE 1.85 MW	ERCOT	W	Jul-14	Panhandle	AMA	109.2

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

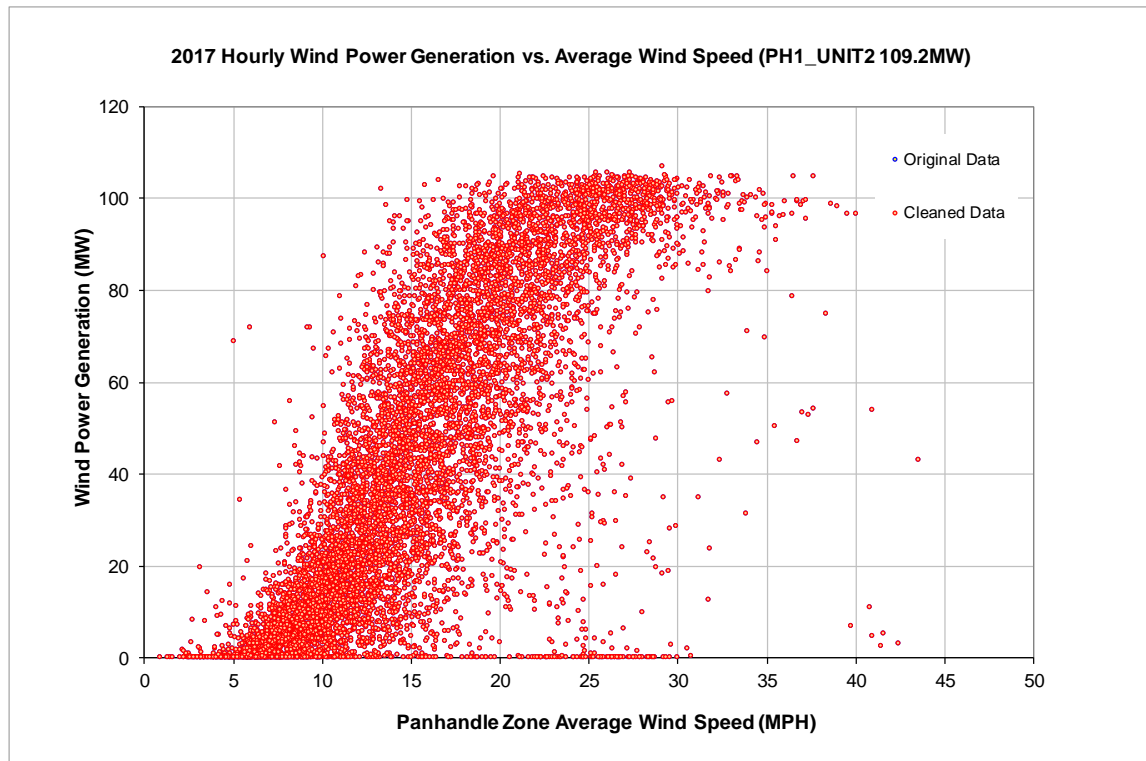


Figure 10-310: PH1\_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

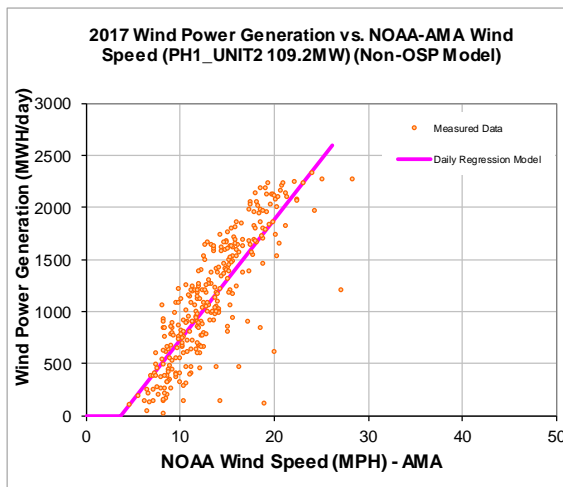
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-415.19
Left Slope (MWh/mph-day)	115.54
RMSE (MWh/day)	317.72
R2	0.70
CV-RMSE	28.3%
Daily Maximum (MWh/day)	2621

**OSP Model:**

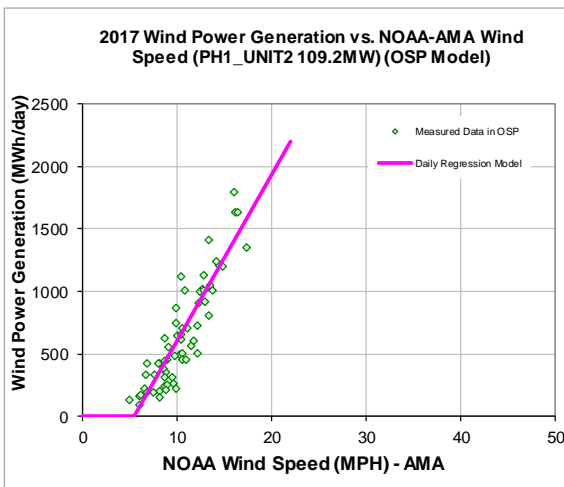
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-731.86
Left Slope (MWh/mph-day)	133.22
RMSE (MWh/day)	184.80
R2	0.81
CV-RMSE	28.1%
Daily Maximum (MWh/day)	2621

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
418,601	380,222	752	668

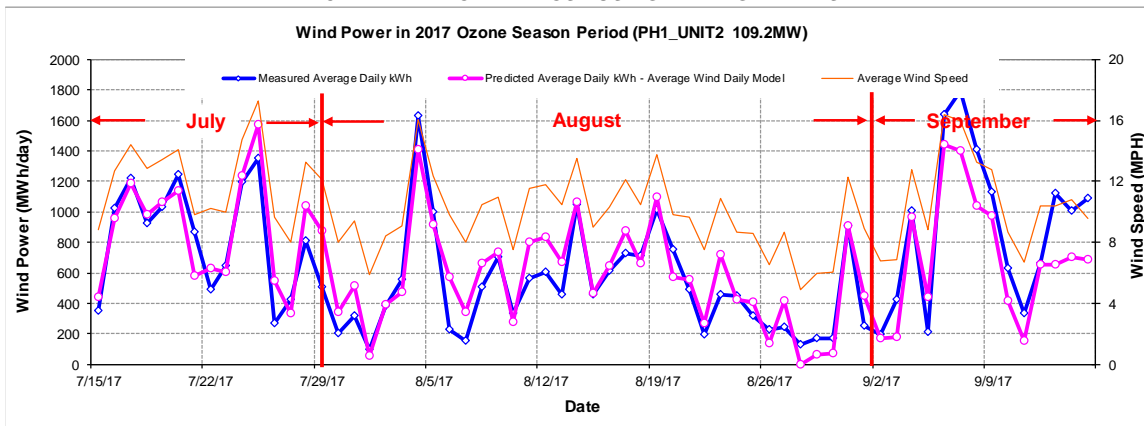
Figure 10-311: PH1\_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.28	31,806	31,116	2.17%	39%	38%
Feb-17	28	13.17	35,646	30,970	13.12%	49%	42%
Mar-17	31	14.31	43,136	38,153	11.55%	53%	47%
Apr-17	30	15.90	42,488	42,554	-0.16%	54%	54%
May-17	31	13.42	36,119	35,189	2.58%	44%	43%
Jun-17	30	13.20	33,210	33,293	-0.25%	42%	42%
Jul-17	31	11.35	22,746	25,898	-13.86%	28%	32%
Aug-17	31	9.62	15,724	17,099	-8.74%	19%	21%
Sep-17	30	11.96	28,472	27,100	4.82%	36%	34%
Oct-17	31	14.04	41,271	37,418	9.34%	51%	46%
Nov-17	30	12.81	27,672	31,945	-15.44%	35%	41%
Dec-17	31	11.76	21,932	29,234	-33.30%	27%	36%
<b>Total</b>	<b>365</b>	<b>12.81</b>	<b>380,222</b>	<b>379,968</b>	<b>0.07%</b>	<b>40%</b>	<b>40%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>41,438</b>	<b>41,514</b>	<b>-0.19%</b>	<b>25%</b>	<b>25%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

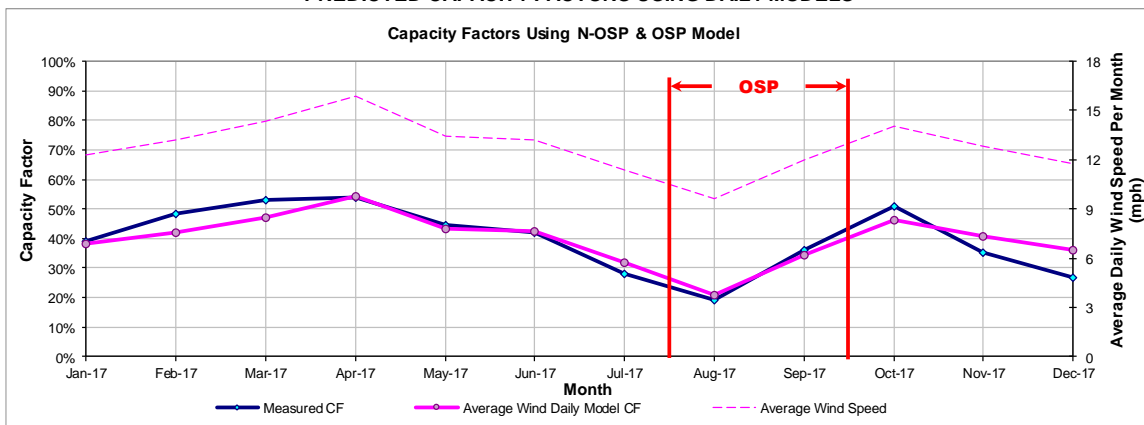


Figure 10-312: PH1\_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.71 Panhandle Wind 2

10.71.1 Panhandle Wind 2 - PH2\_UNIT1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
PH2_UNIT1	Wind	Amarilo	CARSON	Pattern Energy	Panhandle Wind 2

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
39 Siemens 2.3 MW	ERCOT	W	Nov-14	Panhandle	AMA	94.2

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

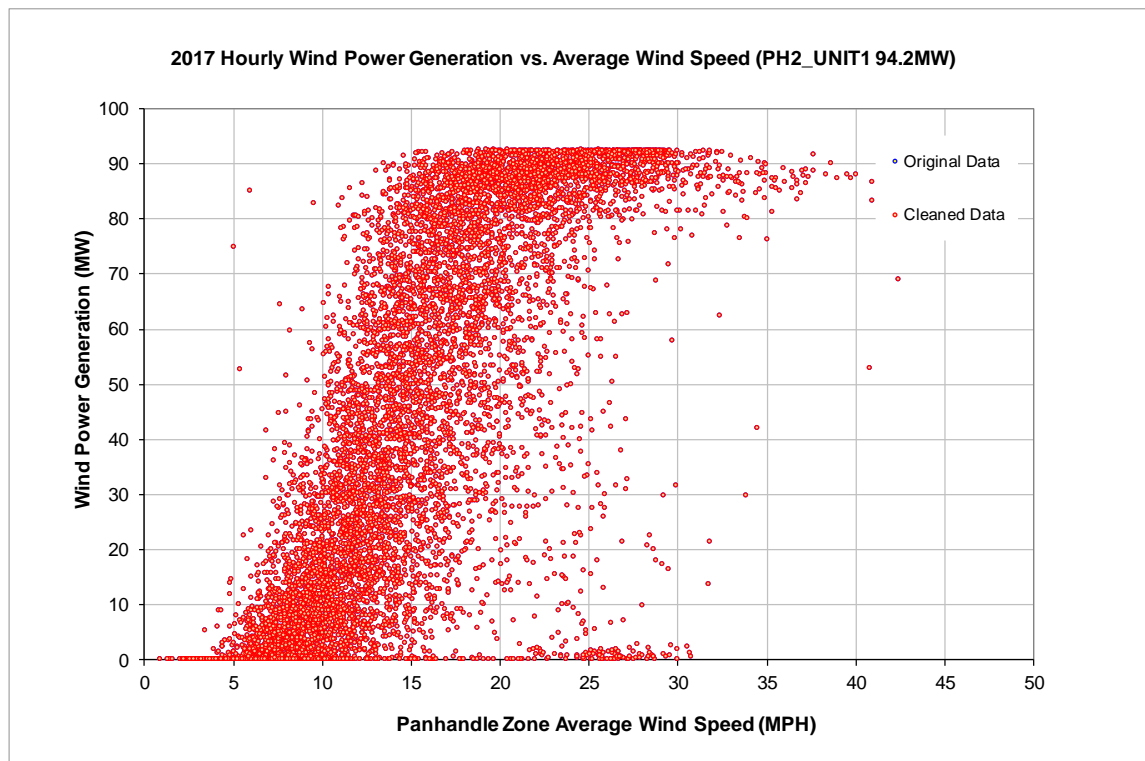


Figure 10-313: PH2\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

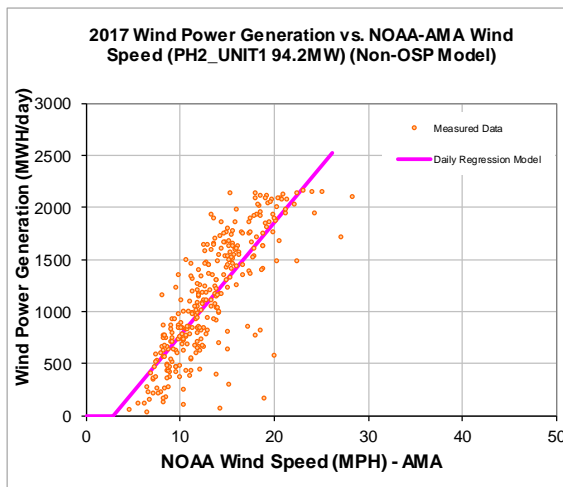
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-299.93
Left Slope (MWh/mph-day)	108.06
RMSE (MWh/day)	330.16
R2	0.66
CV-RMSE	29.0%
Daily Maximum (MWh/day)	2261

**OSP Model:**

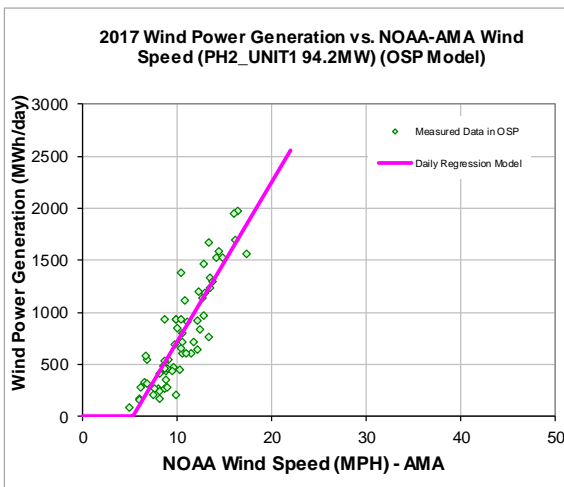
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-812.52
Left Slope (MWh/mph-day)	153.11
RMSE (MWh/day)	231.65
R2	0.78
CV-RMSE	29.5%
Daily Maximum (MWh/day)	2261

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
430,122	392,363

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
892	798

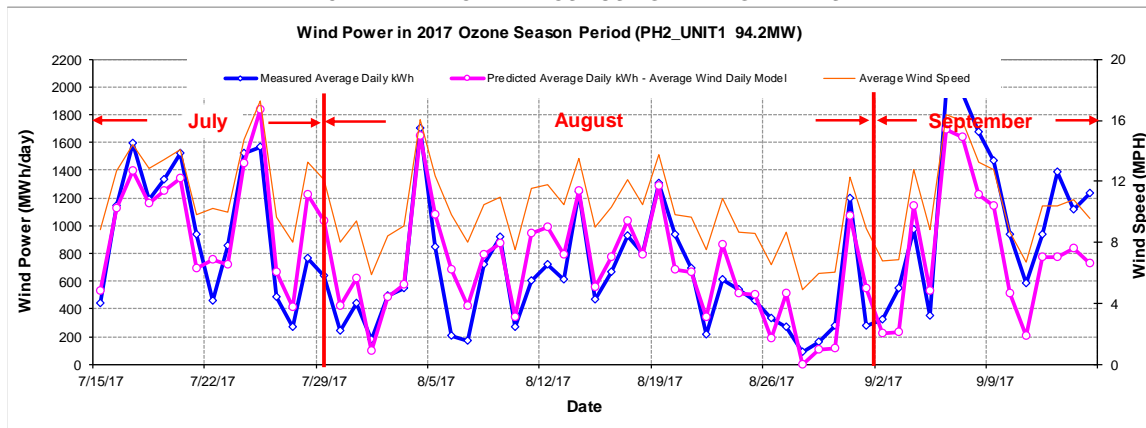
Figure 10-314: PH2\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

### COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.42	32,433	31,184	3.85%	46%	44%
Feb-17	28	13.17	35,416	31,438	11.23%	56%	50%
Mar-17	31	14.31	40,592	37,992	6.41%	58%	54%
Apr-17	30	15.90	41,953	42,133	-0.43%	62%	62%
May-17	31	13.42	36,652	35,649	2.74%	52%	51%
Jun-17	30	13.20	34,879	33,788	3.13%	51%	50%
Jul-17	31	11.35	26,139	28,915	-10.62%	37%	41%
Aug-17	31	9.62	18,365	20,511	-11.68%	26%	29%
Sep-17	30	11.96	32,718	29,356	10.28%	48%	43%
Oct-17	31	14.04	41,485	37,733	9.04%	59%	54%
Nov-17	30	12.81	28,836	32,527	-12.80%	43%	48%
Dec-17	31	11.76	22,893	30,079	-31.39%	33%	43%
<b>Total</b>	<b>365</b>	<b>12.82</b>	<b>392,363</b>	<b>391,306</b>	<b>0.27%</b>	<b>48%</b>	<b>47%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>49,429</b>	<b>49,489</b>	<b>-0.12%</b>	<b>35%</b>	<b>35%</b>

### PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



### PREDICTED CAPACITY FACTORS USING DAILY MODELS

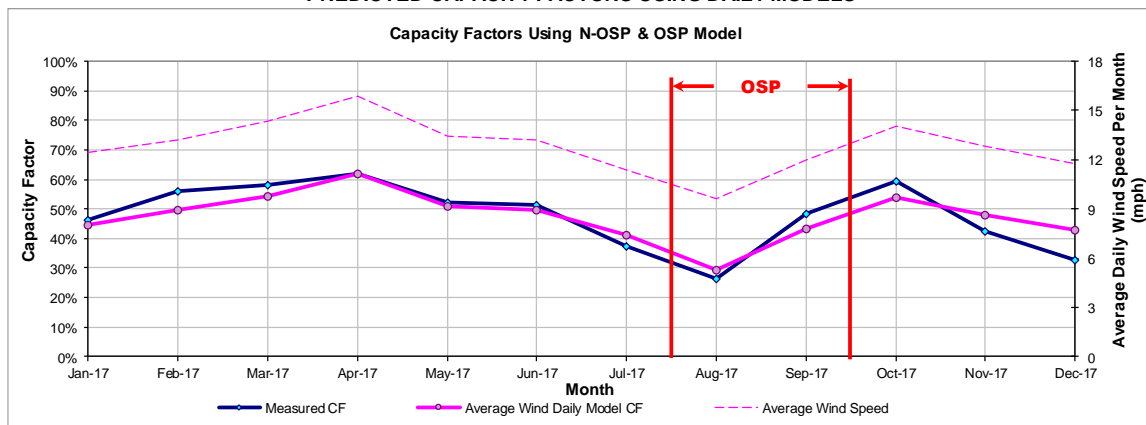


Figure 10-315: PH2\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.71.2 Panhandle Wind 2 - PH2\_UNIT2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
PH2_UNIT2	Wind	Amarilo	CARSON	Pattern Energy	Panhandle Wind 2

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
40 Siemens 2.3 MW	ERCOT	W	Nov-14	Panhandle	AMA	96.6

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

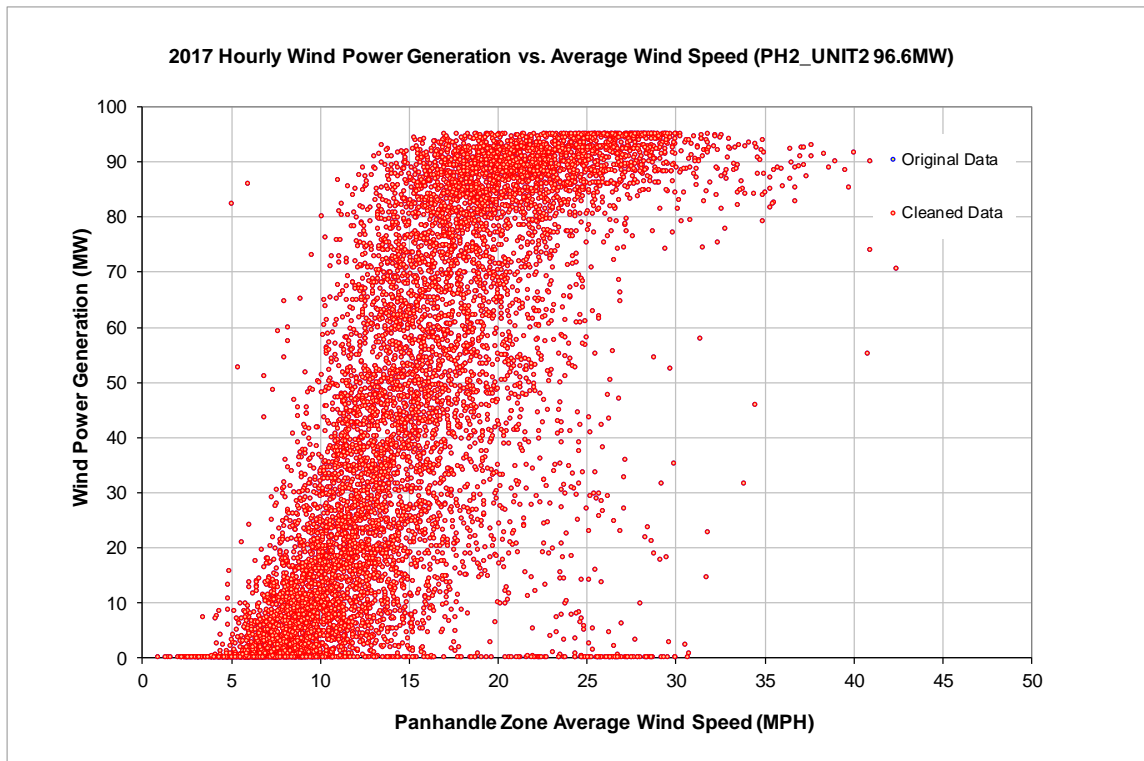


Figure 10-316: PH2\_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

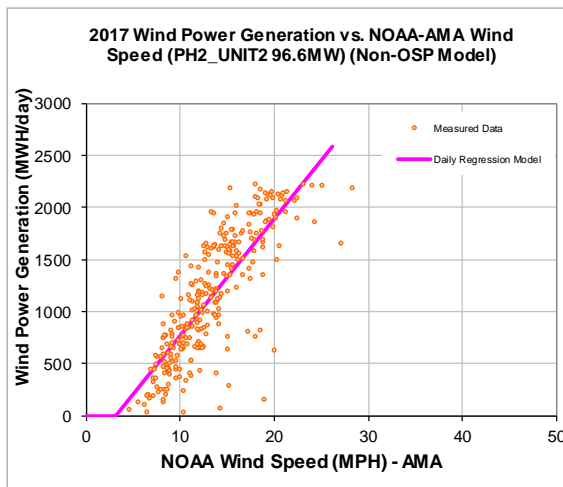
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-353.37
Left Slope (MWh/mph-day)	112.70
RMSE (MWh/day)	338.87
R2	0.66
CV-RMSE	29.5%
Daily Maximum (MWh/day)	2318

**OSP Model:**

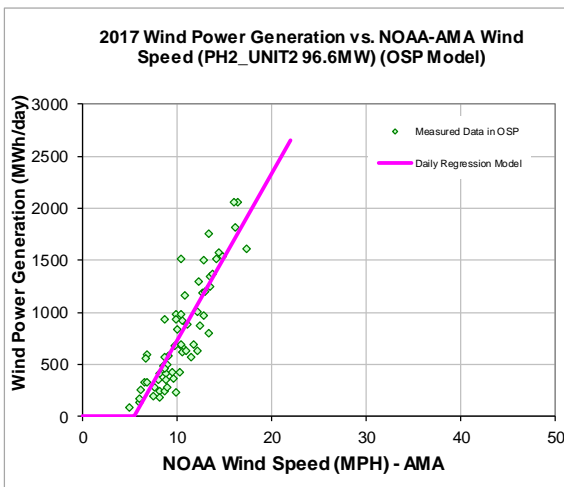
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-859.70
Left Slope (MWh/mph-day)	159.43
RMSE (MWh/day)	249.68
R2	0.77
CV-RMSE	31.1%
Daily Maximum (MWh/day)	2318

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
435,422	396,091

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
915	818

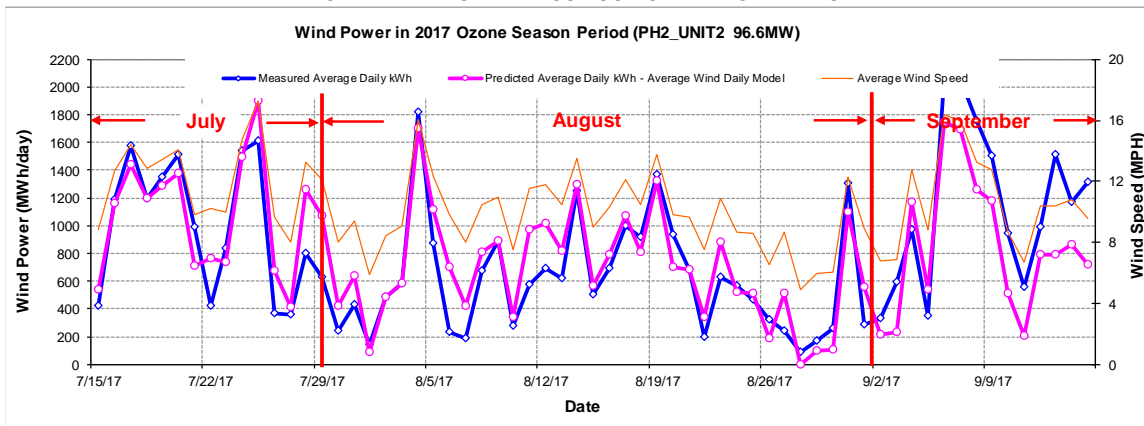
Figure 10-317: PH2\_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.42	32,160	31,310	2.64%	45%	44%
Feb-17	28	13.17	35,326	31,655	10.39%	54%	49%
Mar-17	31	14.31	41,777	38,371	8.15%	58%	53%
Apr-17	30	15.90	42,612	42,730	-0.28%	61%	61%
May-17	31	13.42	37,055	35,925	3.05%	52%	50%
Jun-17	30	13.20	35,172	34,024	3.26%	51%	49%
Jul-17	31	11.35	26,143	29,331	-12.20%	36%	41%
Aug-17	31	9.62	18,774	20,950	-11.59%	26%	29%
Sep-17	30	11.96	33,902	29,785	12.14%	49%	43%
Oct-17	31	14.04	43,033	38,099	11.46%	60%	53%
Nov-17	30	12.81	28,473	32,709	-14.88%	41%	47%
Dec-17	31	11.76	21,666	30,116	-39.00%	30%	42%
<b>Total</b>	<b>365</b>	<b>12.82</b>	<b>396,091</b>	<b>395,006</b>	<b>0.27%</b>	<b>47%</b>	<b>47%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>50,613</b>	<b>50,689</b>	<b>-0.15%</b>	<b>35%</b>	<b>35%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

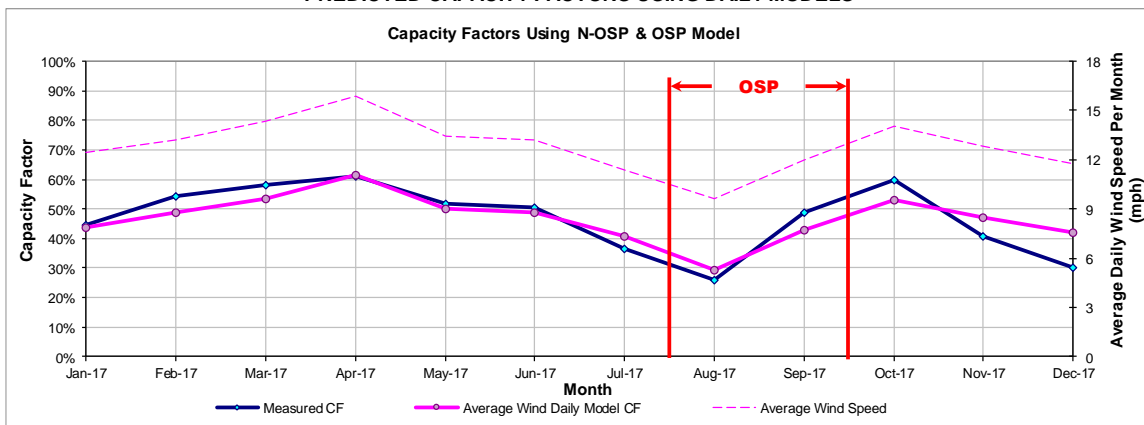


Figure 10-318: PH2\_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models



10.72 Panther Creek 1

10.72.1 Panther Creek 1 - PC\_NORTH\_PANTHER1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
PC_NORTH_PANTHER1	Wind	-	HOWARD	E.On Climate & Renewables	Panther Creek

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
95 GE 1.5 MW	ERCOT	W	Jun-08	West	ABI	142.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

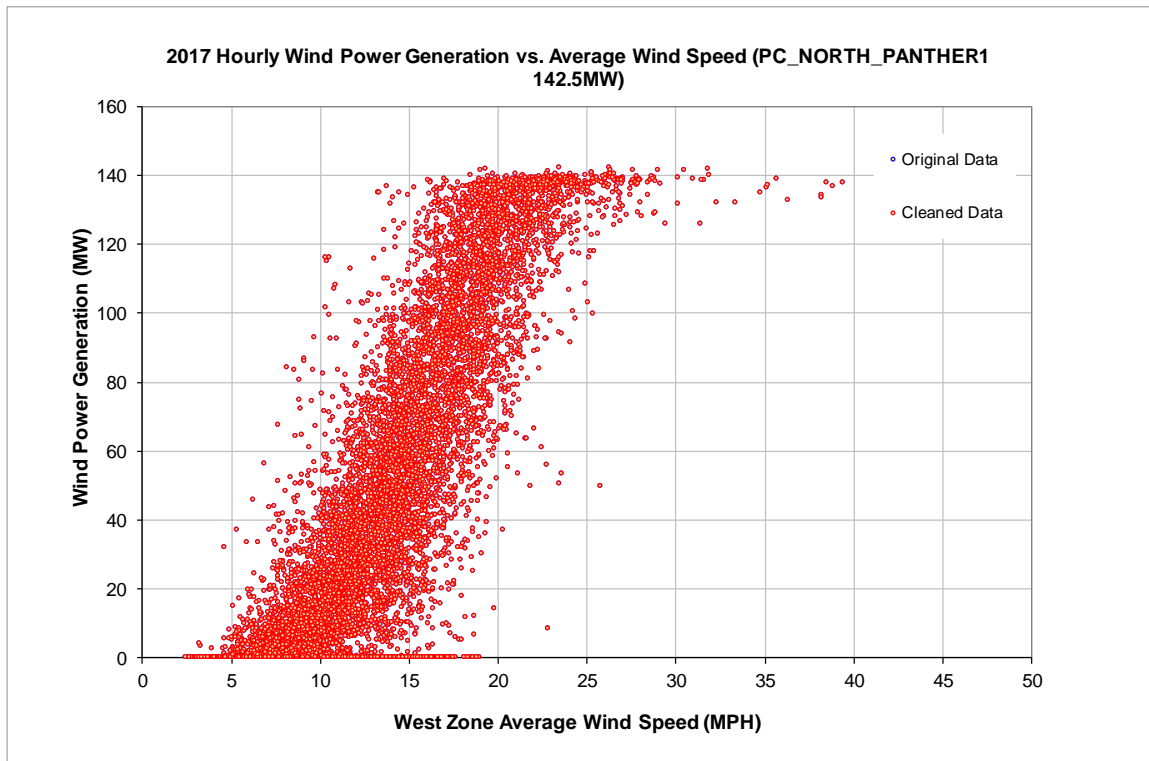


Figure 10-319: PC\_NORTH\_PANTHER1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

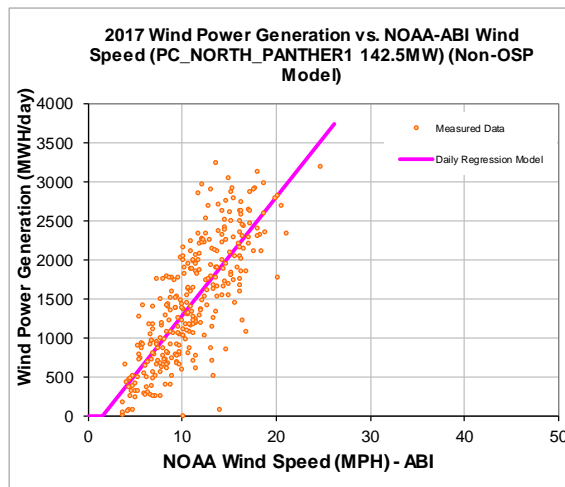
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-219.42
Left Slope (MWh/mph-day)	151.93
RMSE (MWh/day)	473.37
R2	0.62
CV-RMSE	32.3%
Daily Maximum (MWh/day)	3420

**OSP Model:**

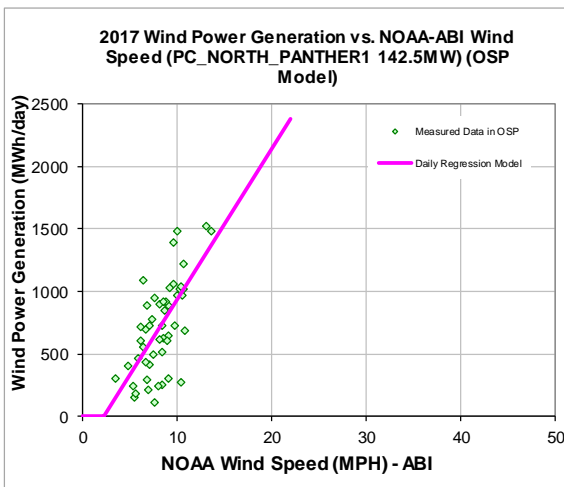
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-277.13
Left Slope (MWh/mph-day)	120.72
RMSE (MWh/day)	277.05
R2	0.44
CV-RMSE	38.5%
Daily Maximum (MWh/day)	3420

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
534,110	478,839	778	739

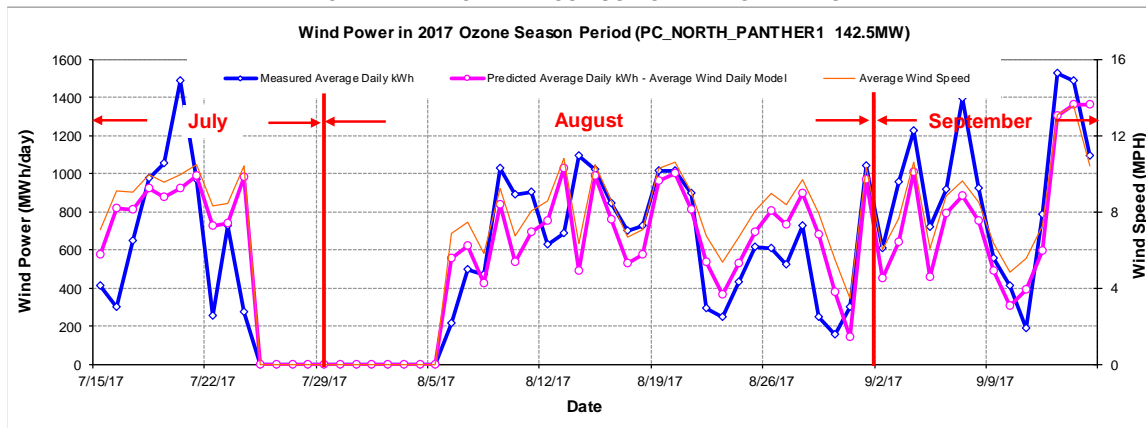
Figure 10-320: PC\_NORTH\_PANTHER1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	47,466	42,342	10.79%	45%	40%
Feb-17	28	11.23	44,650	41,614	6.80%	47%	43%
Mar-17	31	12.96	56,135	54,116	3.60%	53%	51%
Apr-17	30	13.49	52,797	54,893	-3.97%	51%	54%
May-17	31	11.55	46,235	47,609	-2.97%	44%	45%
Jun-17	30	10.72	35,856	42,277	-17.91%	35%	41%
Jul-17	31	9.04	23,808	25,091	-5.39%	22%	24%
Aug-17	31	7.99	16,476	17,171	-4.22%	16%	16%
Sep-17	30	9.51	34,092	32,077	5.91%	33%	31%
Oct-17	31	11.07	44,840	45,330	-1.09%	42%	43%
Nov-17	30	10.21	41,588	39,960	3.91%	41%	39%
Dec-17	31	9.14	34,896	36,246	-3.87%	33%	34%
<b>Total</b>	<b>365</b>	<b>10.67</b>	<b>478,839</b>	<b>478,724</b>	<b>0.02%</b>	<b>38%</b>	<b>38%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>51</b>	<b>8.26</b>	<b>36,711</b>	<b>36,711</b>	<b>0.00%</b>	<b>21%</b>	<b>21%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

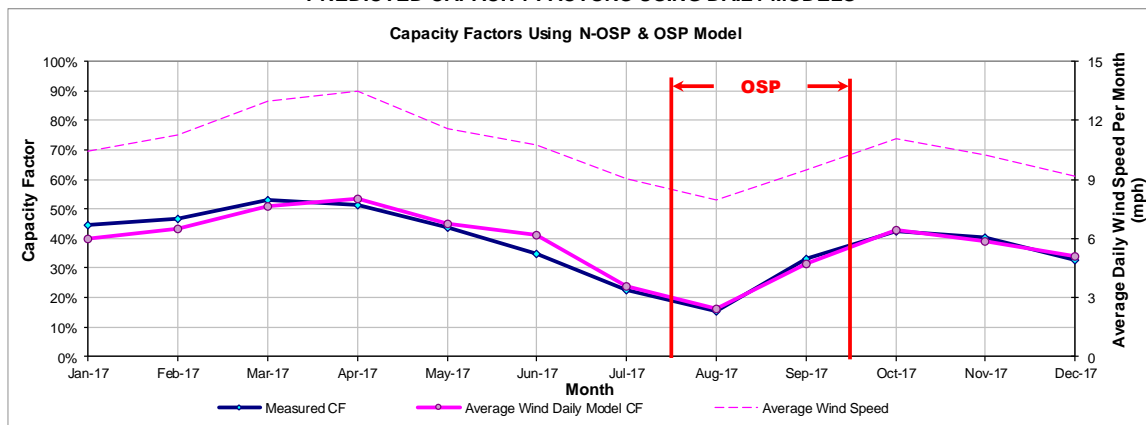


Figure 10-321: PC\_NORTH\_PANTHER1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.73 Panther Creek 2

10.73.1 Panther Creek 2 - PC\_SOUTH\_PANTHER2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
PC_SOUTH_PANTHER2	Wind	-	HOWARD	E.On Climate & Renewables	Panther Creek 2

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
77 GE 1.5 MW	ERCOT	W	Nov-08	West	ABI	115.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

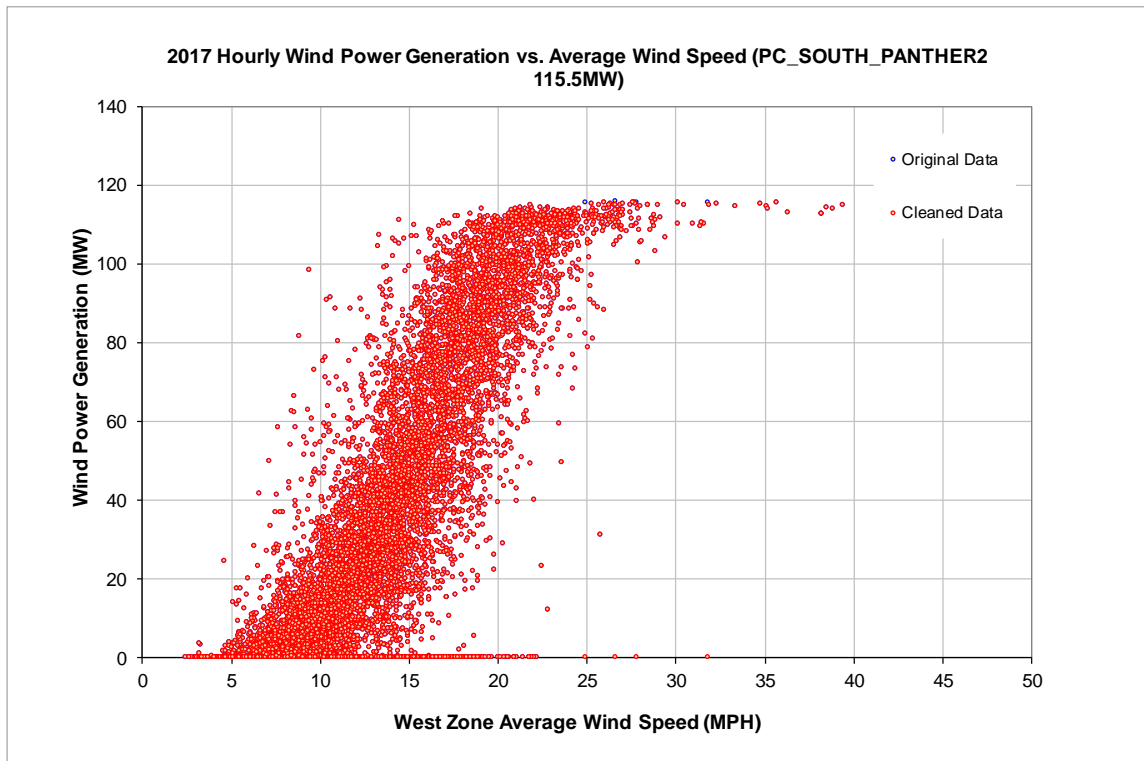


Figure 10-322: PC\_SOUTH\_PANTHER2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

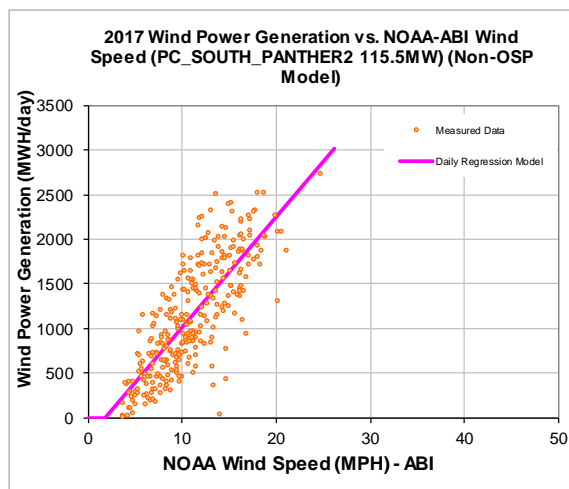
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-226.89
Left Slope (MWh/mph-day)	124.20
RMSE (MWh/day)	388.32
R2	0.62
CV-RMSE	33.9%
Daily Maximum (MWh/day)	2772

**OSP Model:**

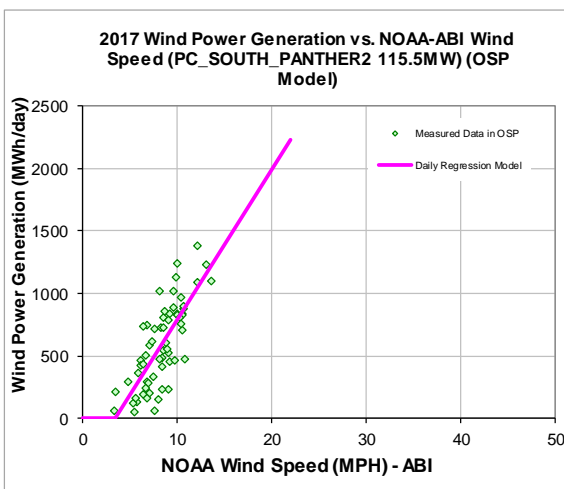
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-405.31
Left Slope (MWh/mph-day)	119.97
RMSE (MWh/day)	216.64
R2	0.59
CV-RMSE	36.6%
Daily Maximum (MWh/day)	2772

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
422,715	374,845	644	605

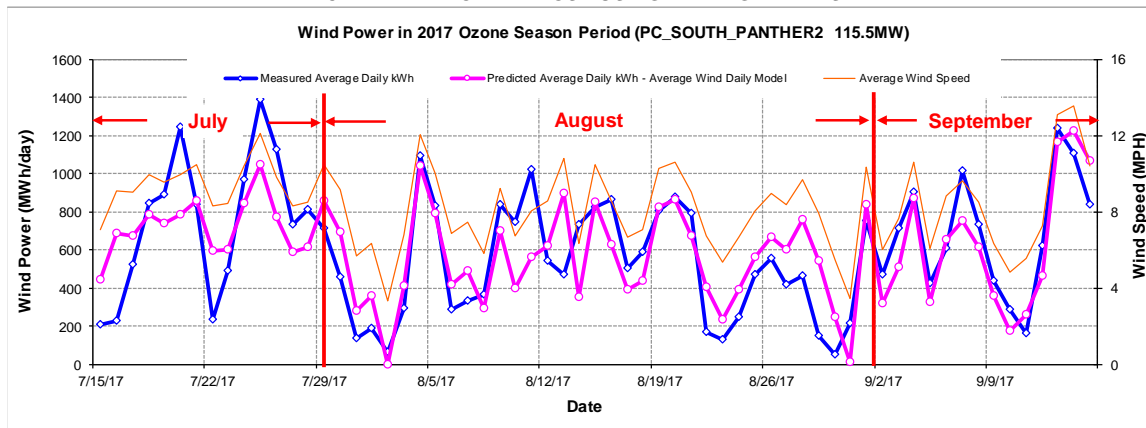
Figure 10-323: PC\_SOUTH\_PANTHER2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	36,567	33,140	9.37%	43%	39%
Feb-17	28	11.23	34,672	32,687	5.73%	45%	42%
Mar-17	31	12.96	44,699	42,789	4.27%	52%	50%
Apr-17	30	13.49	42,017	43,448	-3.40%	51%	52%
May-17	31	11.55	37,095	37,445	-0.94%	43%	44%
Jun-17	30	10.72	28,782	33,134	-15.12%	35%	40%
Jul-17	31	9.17	24,982	24,579	1.61%	29%	29%
Aug-17	31	7.87	15,852	16,699	-5.34%	18%	19%
Sep-17	30	8.57	15,150	16,902	-11.57%	18%	20%
Oct-17	31	11.07	35,681	35,582	0.28%	42%	41%
Nov-17	30	10.21	32,267	31,240	3.18%	39%	38%
Dec-17	31	9.11	27,081	27,136	-0.20%	32%	32%
<b>Total</b>	<b>365</b>	<b>10.56</b>	<b>374,845</b>	<b>374,781</b>	<b>0.02%</b>	<b>37%</b>	<b>37%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>37,311</b>	<b>37,316</b>	<b>-0.01%</b>	<b>21%</b>	<b>21%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

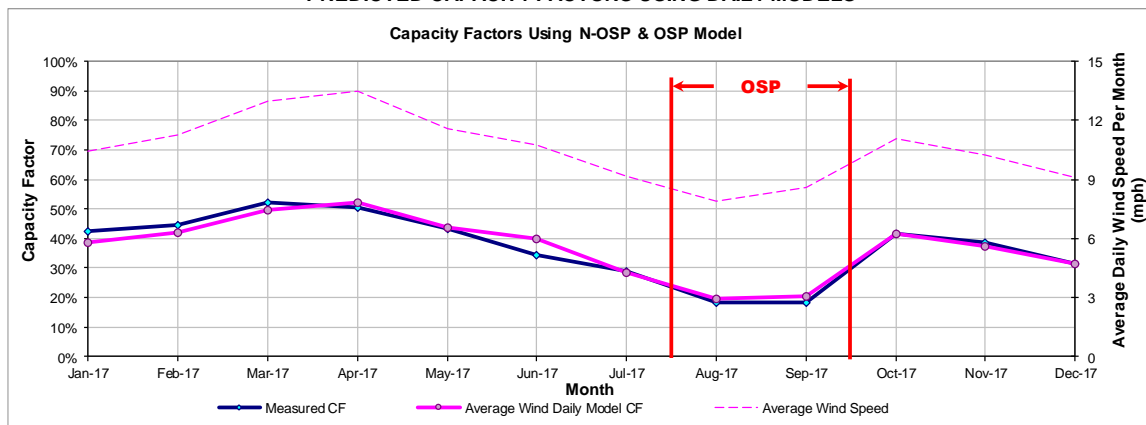


Figure 10-324: PC\_SOUTH\_PANTHER2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.74 Panther Creek 3

10.74.1 Panther Creek 3 - PC\_SOUTH\_PANTHER3

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
PC_SOUTH_PANTHER3	Wind	-	HOWARD	E.On Climate & Renewables	Panther Creek 3

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
133 GE 1.5 MW	ERCOT	W	Aug-09	West	ABI	199.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

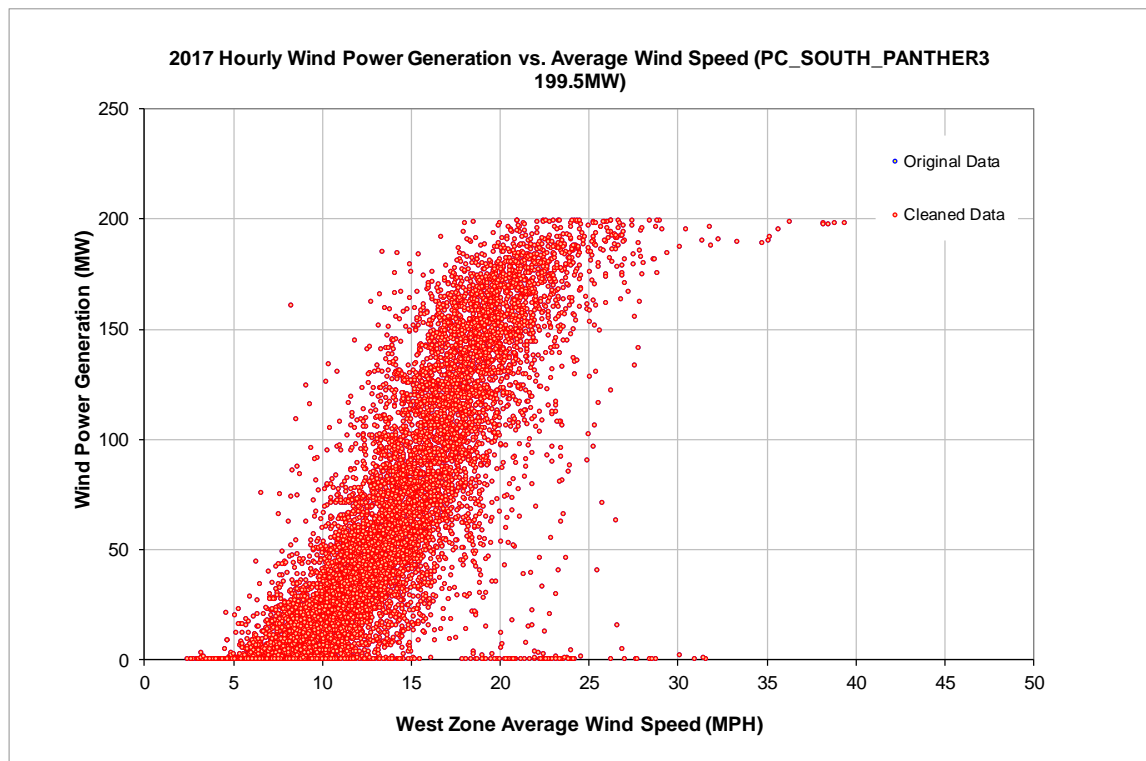


Figure 10-325: PC\_SOUTH\_PANTHER3 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

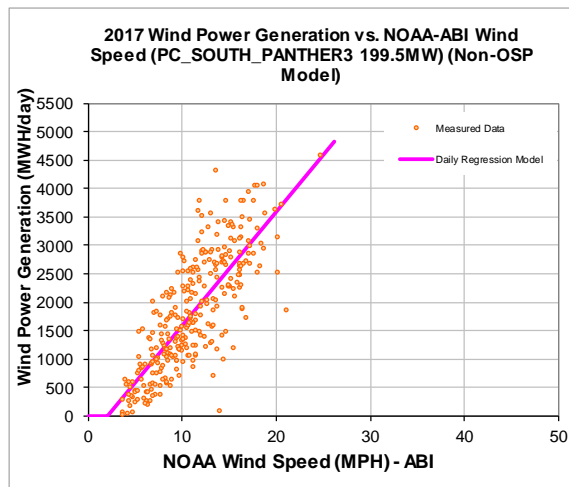
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-397.68
Left Slope (MWh/mph-day)	200.65
RMSE (MWh/day)	617.01
R2	0.63
CV-RMSE	33.8%
Daily Maximum (MWh/day)	4788

**OSP Model:**

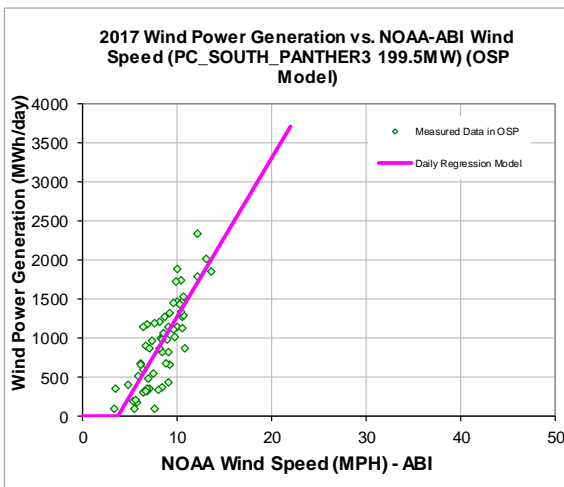
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-747.10
Left Slope (MWh/mph-day)	202.85
RMSE (MWh/day)	313.20
R2	0.66
CV-RMSE	33.3%
Daily Maximum (MWh/day)	4788

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
672,692	608,874	1,027	957

Figure 10-326: PC\_SOUTH\_PANTHER3 - Model Coefficients (Using Non-OSP and OSP Data)

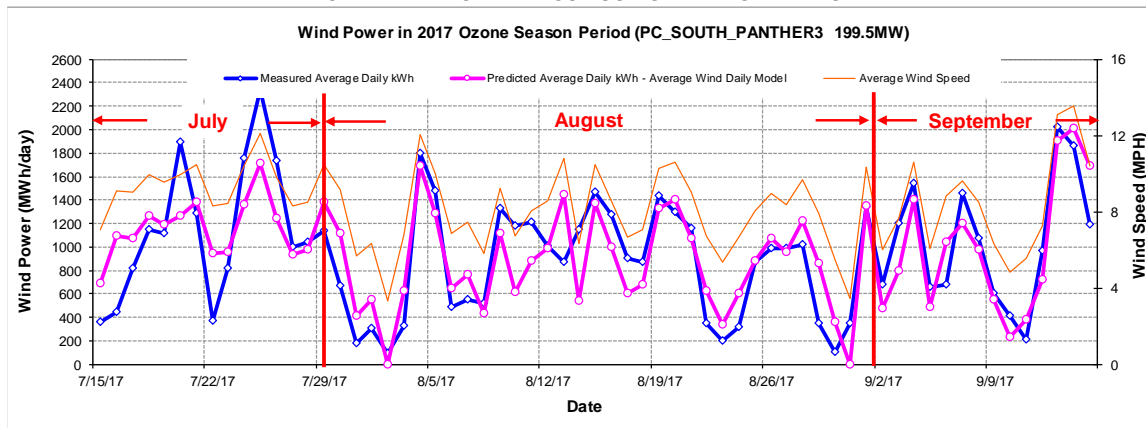


**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	55,798	52,573	5.78%	38%	35%
Feb-17	28	11.23	53,784	51,935	3.44%	40%	39%
Mar-17	31	12.96	73,533	68,274	7.15%	50%	46%
Apr-17	30	13.49	64,132	69,257	-7.99%	45%	48%
May-17	31	11.55	58,816	59,529	-1.21%	40%	40%
Jun-17	30	10.72	48,678	52,595	-8.05%	34%	37%
Jul-17	31	9.17	38,257	39,130	-2.28%	26%	26%
Aug-17	31	7.87	26,081	26,380	-1.15%	18%	18%
Sep-17	30	9.51	40,695	40,360	0.82%	28%	28%
Oct-17	31	11.07	58,600	56,519	3.55%	39%	38%
Nov-17	30	10.21	48,948	49,535	-1.20%	34%	34%
Dec-17	31	9.11	41,552	42,905	-3.26%	28%	29%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>608,874</b>	<b>608,991</b>	<b>-0.02%</b>	<b>35%</b>	<b>35%</b>
Total in OSP (07/15-09/15)	63	8.31	59,190	59,307	-0.20%	20%	20%

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

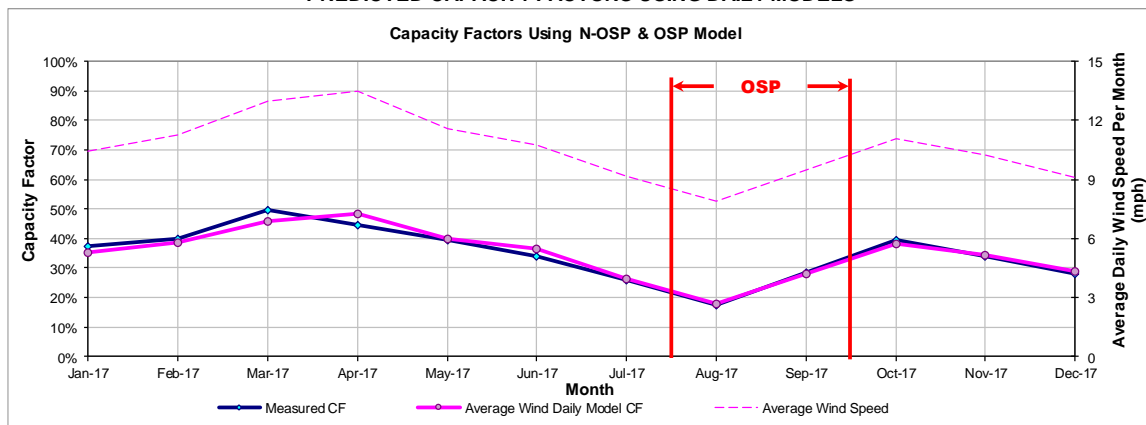


Figure 10-327: PC\_SOUTH\_PANTHER3 - Predicted Wind Power and Capacity Factor Using Daily Models

10.75 Papalote Creek Phase II

10.75.1 Papalote Creek Phase II - COTTON\_PAP2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
COTTON_PAP2	Wind	Taft	SAN PATRICIO	E.On Climate & Renewables	Papalote Creek Phase II

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
87 GE 2.3 MW	ERCOT	S	Jun-10	Coastal	CRP	200.1

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

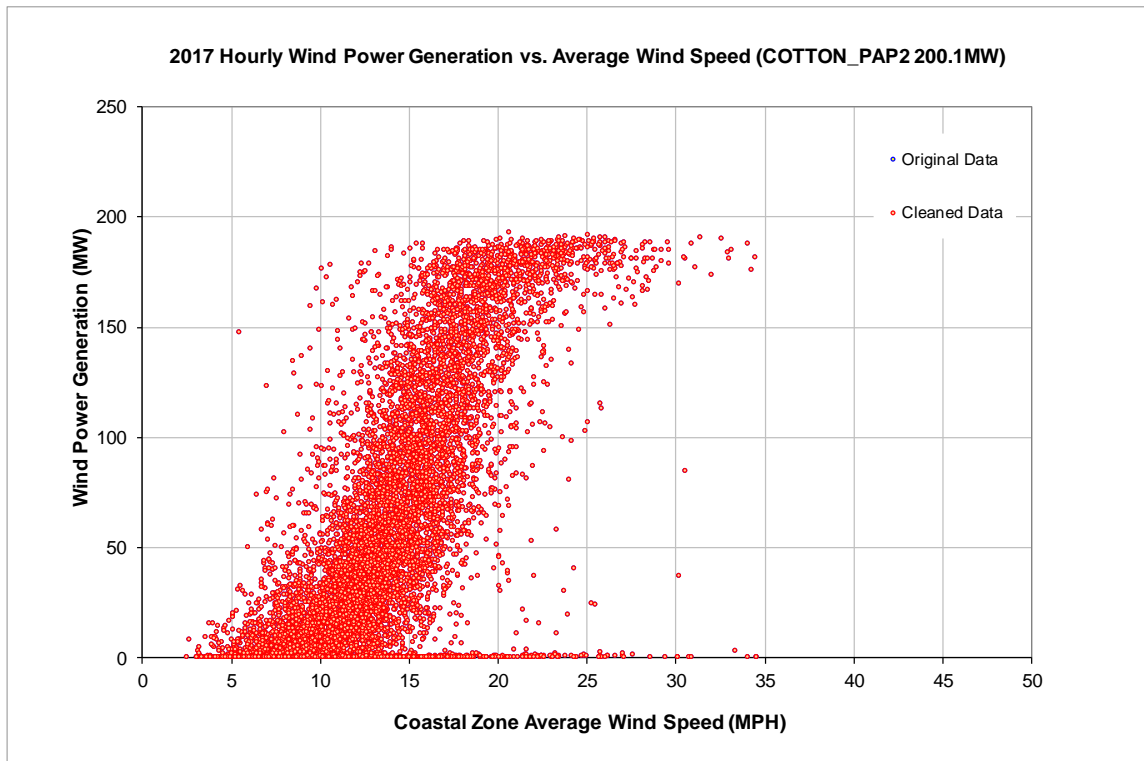


Figure 10-328: COTTON\_PAP2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

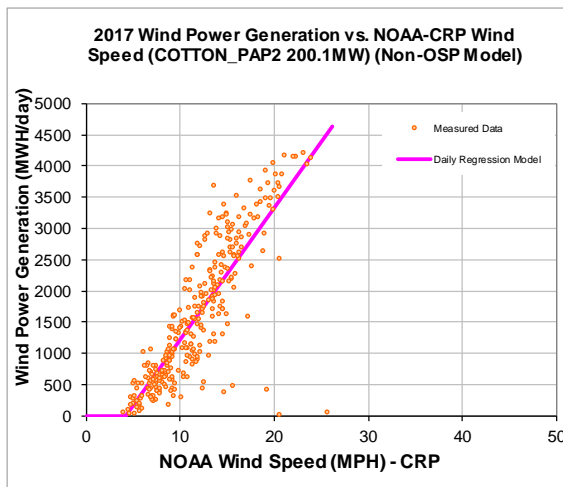
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-886.62
Left Slope (MWh/mph-day)	211.25
RMSE (MWh/day)	607.62
R2	0.69
CV-RMSE	37.6%
Daily Maximum (MWh/day)	4802

**OSP Model:**

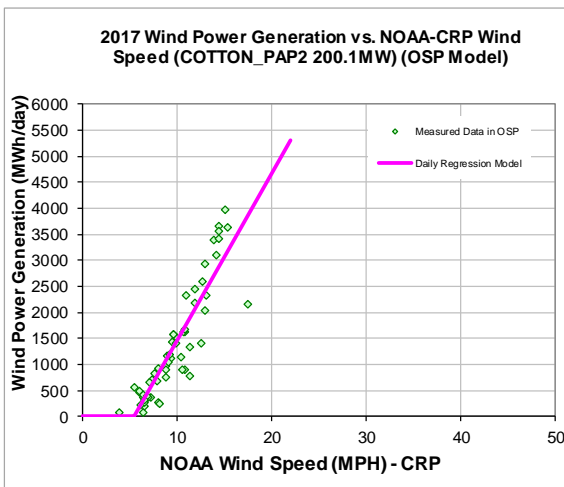
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-1731.84
Left Slope (MWh/mph-day)	319.71
RMSE (MWh/day)	476.47
R2	0.80
CV-RMSE	34.5%
Daily Maximum (MWh/day)	4802

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
563,032	567,363

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
1,164	1,384

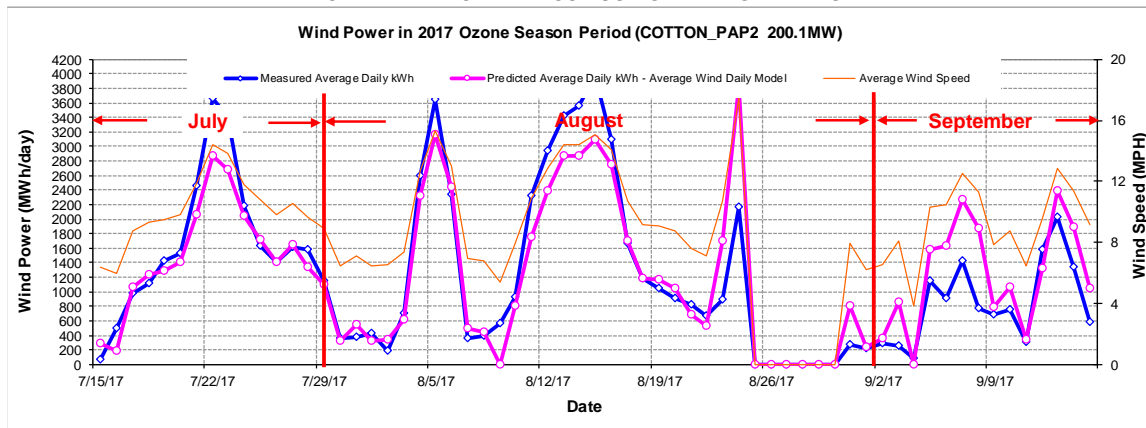
Figure 10-329: COTTON\_PAP2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	62,560	59,082	5.56%	42%	40%
Feb-17	28	13.29	58,561	53,767	8.19%	44%	40%
Mar-17	31	14.29	56,957	66,115	-16.08%	38%	44%
Apr-17	30	14.70	57,199	66,553	-16.35%	40%	46%
May-17	31	12.81	59,233	56,389	4.80%	40%	38%
Jun-17	30	9.21	39,098	31,741	18.82%	27%	22%
Jul-17	31	9.39	44,894	37,400	16.69%	30%	25%
Aug-17	31	10.30	41,164	39,042	5.16%	28%	26%
Sep-17	30	10.25	32,530	40,695	-25.10%	23%	28%
Oct-17	31	9.56	33,786	35,106	-3.91%	23%	24%
Nov-17	30	10.64	40,214	40,833	-1.54%	28%	28%
Dec-17	31	10.48	41,168	41,229	-0.15%	28%	28%
<b>Total</b>	<b>365</b>	<b>11.52</b>	<b>567,363</b>	<b>567,951</b>	<b>-0.10%</b>	<b>32%</b>	<b>32%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>57</b>	<b>9.74</b>	<b>78,735</b>	<b>79,255</b>	<b>-0.66%</b>	<b>29%</b>	<b>29%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

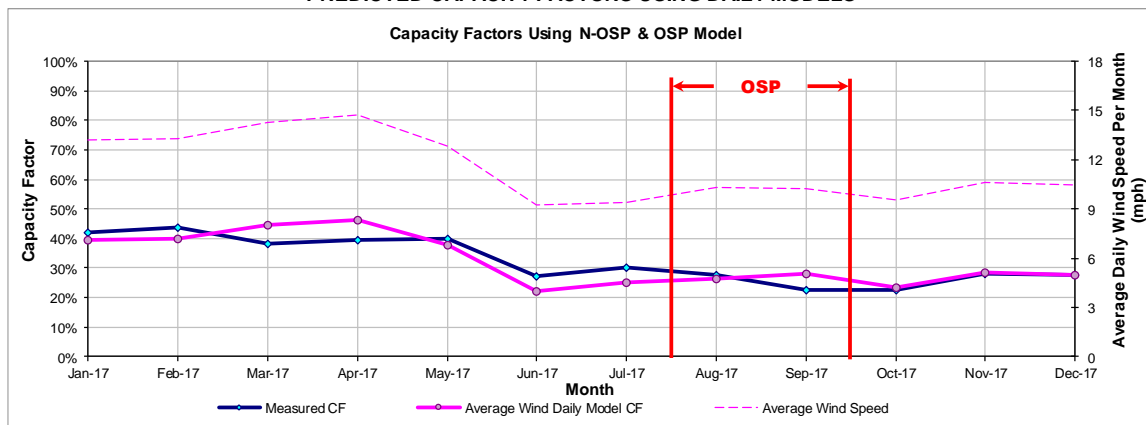


Figure 10-330: COTTON\_PAP2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.76 Papalote Creek Wind Farm

10.76.1 Papalote Creek Wind Farm - PAP1\_PAP1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
PAP1_PAP1	Wind	Taft	SAN PATRICIO	E.On Climate & Renewables	Papalote Creek Wind Farm

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
109 Vestas 1.65 MW	ERCOT	S	Sep-09	Coastal	CRP	180

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

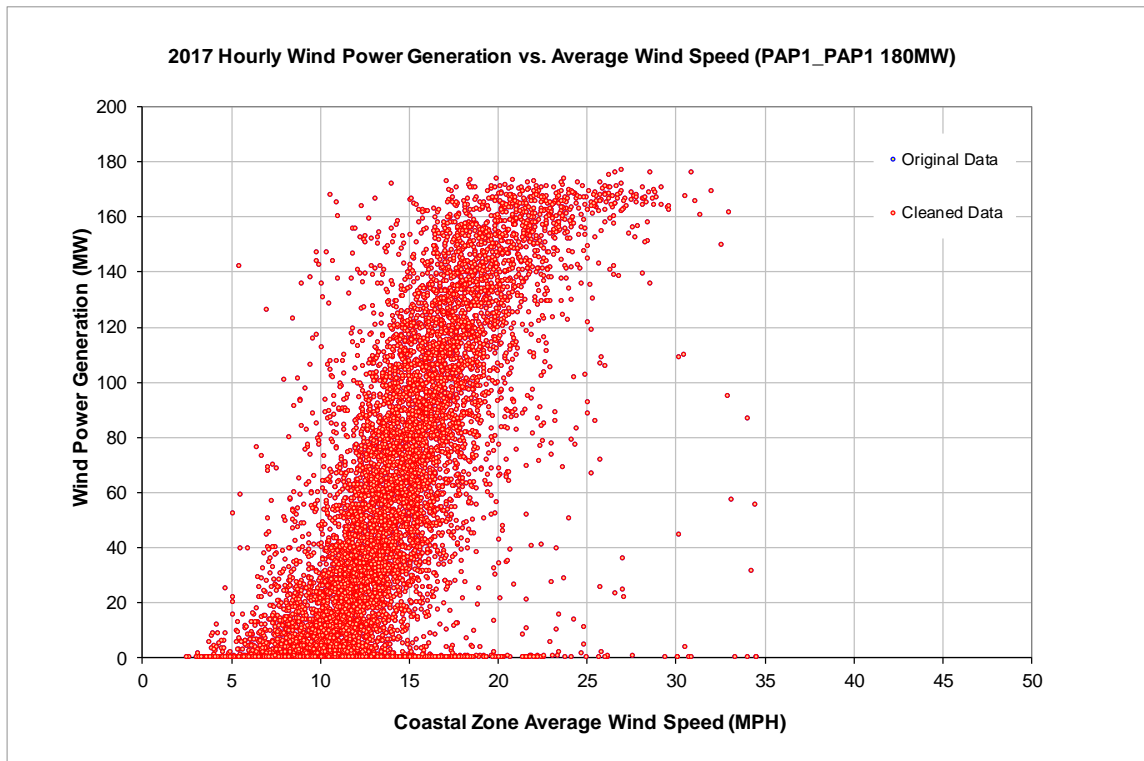


Figure 10-331: PAP1\_PAP1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

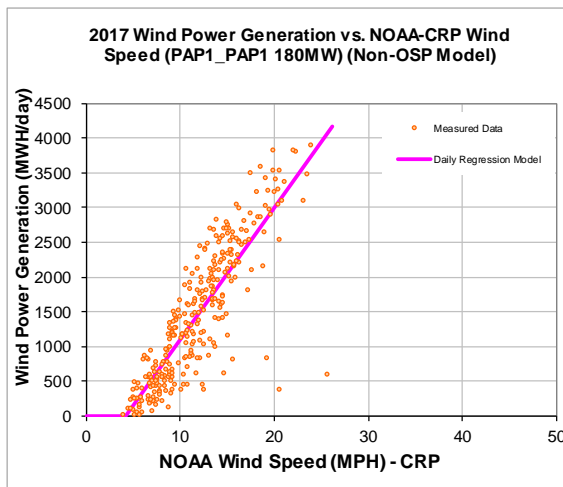
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-790.63
Left Slope (MWh/mph-day)	190.32
RMSE (MWh/day)	504.64
R2	0.73
CV-RMSE	34.3%
Daily Maximum (MWh/day)	4320

**OSP Model:**

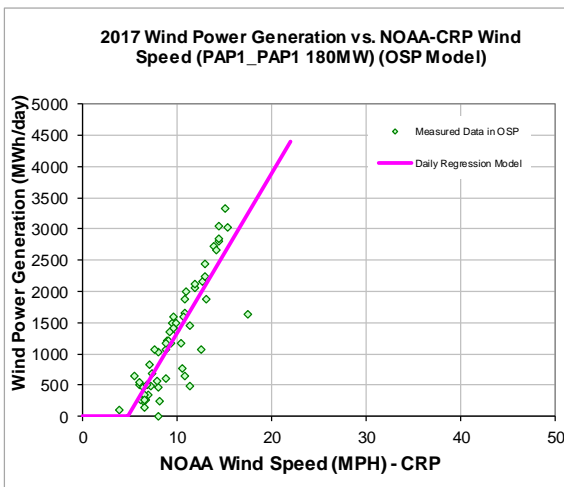
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-1220.50
Left Slope (MWh/mph-day)	255.23
RMSE (MWh/day)	441.71
R2	0.75
CV-RMSE	35.5%
Daily Maximum (MWh/day)	4320

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
512,085	510,702

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
1,086	1,247

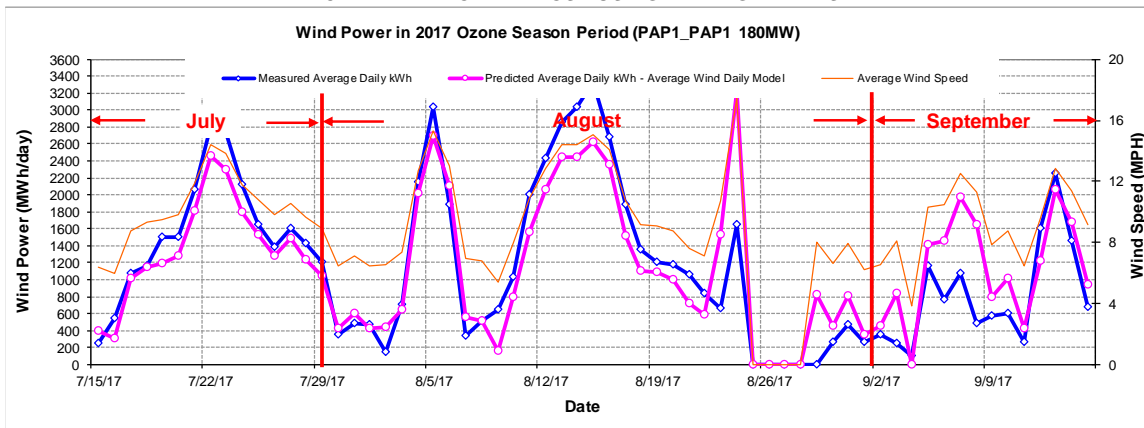
Figure 10-332: PAP1\_PAP1 - Model Coefficients (Using Non-OSP and OSP Data)

COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	56,594	53,482	5.50%	42%	40%
Feb-17	28	13.29	51,837	48,670	6.11%	43%	40%
Mar-17	31	14.29	53,581	59,818	-11.64%	40%	45%
Apr-17	30	14.70	54,251	60,205	-10.97%	42%	46%
May-17	31	12.81	52,134	51,056	2.07%	39%	38%
Jun-17	30	9.21	33,962	28,841	15.08%	26%	22%
Jul-17	31	9.39	42,793	34,222	20.03%	32%	26%
Aug-17	31	10.08	37,817	36,491	3.51%	28%	27%
Sep-17	30	10.12	27,433	31,998	-16.64%	21%	25%
Oct-17	31	9.56	29,299	31,881	-8.81%	22%	24%
Nov-17	30	10.64	36,111	37,033	-2.55%	28%	29%
Dec-17	31	10.68	34,888	37,300	-6.91%	26%	28%
Total	365	11.52	510,702	510,997	-0.06%	32%	32%
Total in OSP (07/15-09/15)	59	9.65	73,378	73,620	-0.33%	29%	29%

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

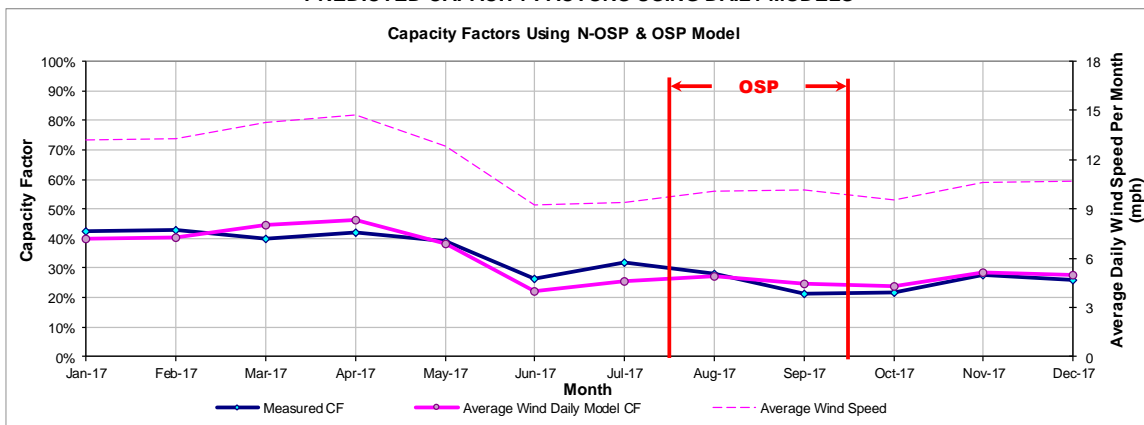


Figure 10-333: PAPI\_PAP1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.77 Penascal Wind Farm

10.77.1 Penascal Wind Farm - PENA\_UNIT1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
PENA_UNIT1	Wind	-	KENEDY	Iberdrola Renewables	Penascal Wind Farm

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
67 Mitsubishi 2.4 MW	ERCOT	S	Nov-08	Coastal	CRP	161

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

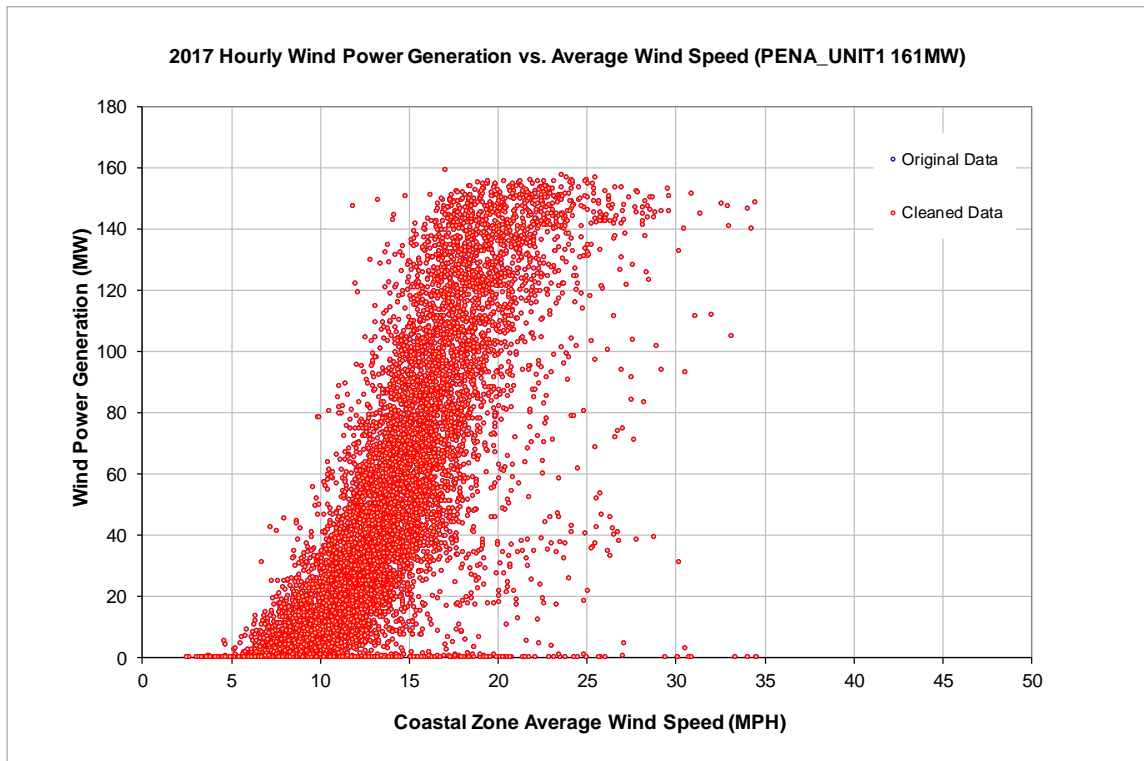


Figure 10-334: PENA\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

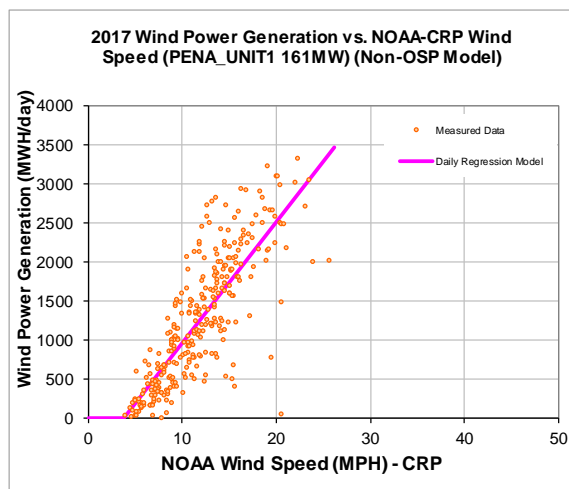
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-574.04
Left Slope (MWh/mph-day)	154.58
RMSE (MWh/day)	479.16
R2	0.66
CV-RMSE	38.0%
Daily Maximum (MWh/day)	3864

**OSP Model:**

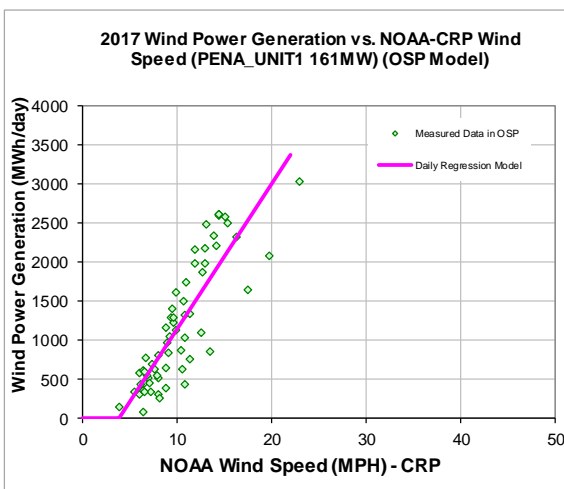
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-707.70
Left Slope (MWh/mph-day)	185.76
RMSE (MWh/day)	414.96
R2	0.73
CV-RMSE	35.0%
Daily Maximum (MWh/day)	3864

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
442,109	454,302

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
971	1,194

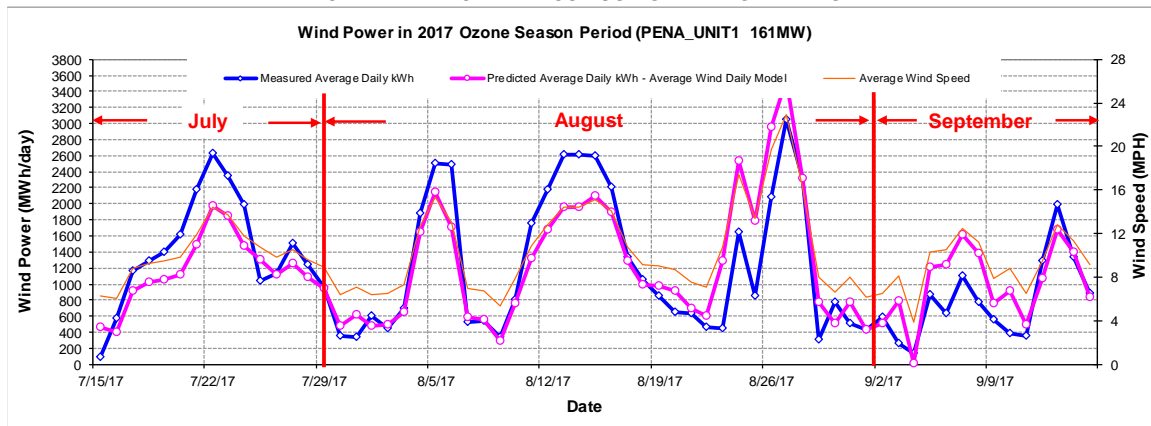
Figure 10-335: PENA\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	43,827	45,550	-3.93%	37%	38%
Feb-17	28	13.53	33,255	40,961	-23.17%	31%	38%
Mar-17	31	14.29	41,581	50,696	-21.92%	35%	42%
Apr-17	30	14.70	48,593	50,942	-4.83%	42%	44%
May-17	31	12.81	51,265	43,579	14.99%	43%	36%
Jun-17	30	9.21	34,565	25,468	26.32%	30%	22%
Jul-17	31	9.39	39,627	30,046	24.18%	33%	25%
Aug-17	31	11.11	41,610	42,032	-1.01%	35%	35%
Sep-17	30	10.25	29,251	32,466	-10.99%	25%	28%
Oct-17	31	9.56	24,826	28,005	-12.81%	21%	23%
Nov-17	30	10.64	33,626	32,122	4.48%	29%	28%
Dec-17	31	10.48	32,276	32,436	-0.50%	27%	27%
<b>Total</b>	<b>365</b>	<b>11.58</b>	<b>454,302</b>	<b>454,302</b>	<b>0.00%</b>	<b>32%</b>	<b>32%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>74,657</b>	<b>74,657</b>	<b>0.00%</b>	<b>31%</b>	<b>31%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

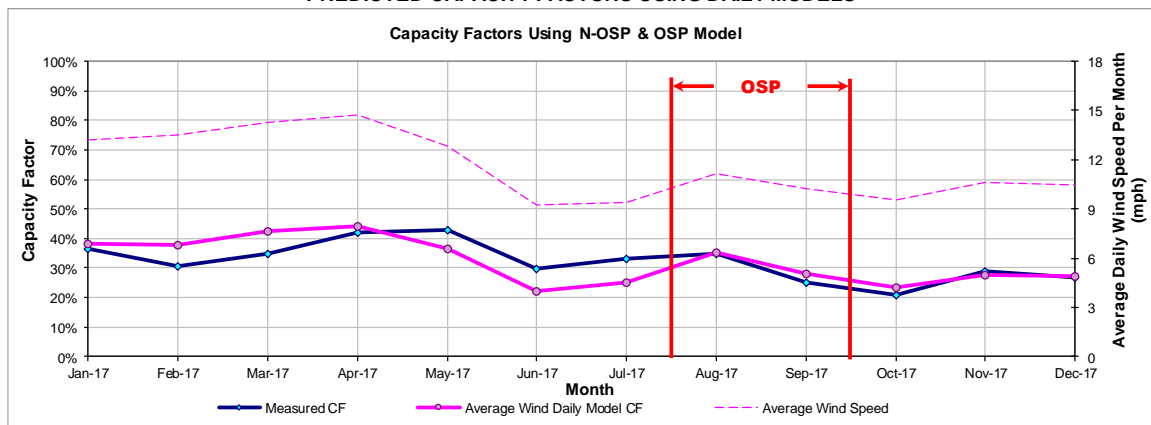


Figure 10-336: PENA\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.77.2 Penascal Wind Farm - PENA\_UNIT2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
PENA_UNIT2	Wind	-	KENEDY	Iberdrola Renewables	Penascal Wind Farm

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
59 Mitsubishi 2.4 MW	ERCOT	S	Nov-08	Coastal	CRP	142

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

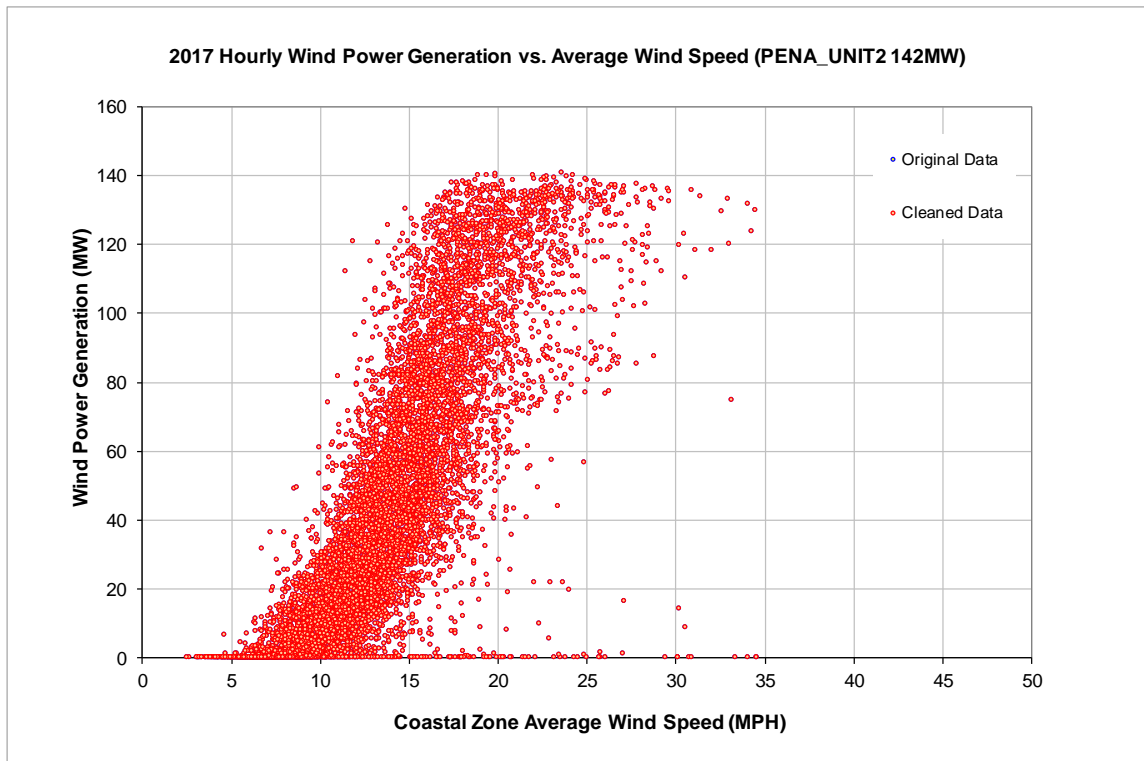


Figure 10-337: PENA\_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

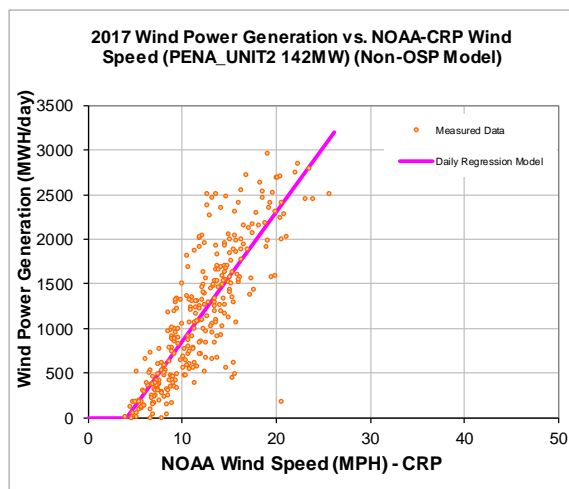
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-584.08
Left Slope (MWh/mph-day)	144.98
RMSE (MWh/day)	406.35
R2	0.70
CV-RMSE	35.7%
Daily Maximum (MWh/day)	3408

**OSP Model:**

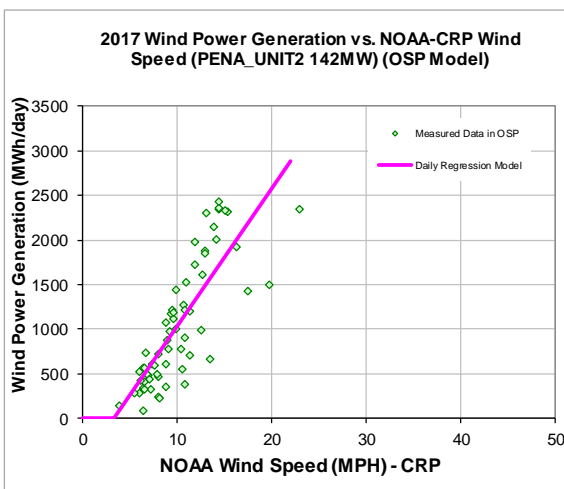
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-520.37
Left Slope (MWh/mph-day)	154.49
RMSE (MWh/day)	407.30
R2	0.66
CV-RMSE	38.7%
Daily Maximum (MWh/day)	3408

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
398,644	408,720	876	1,063

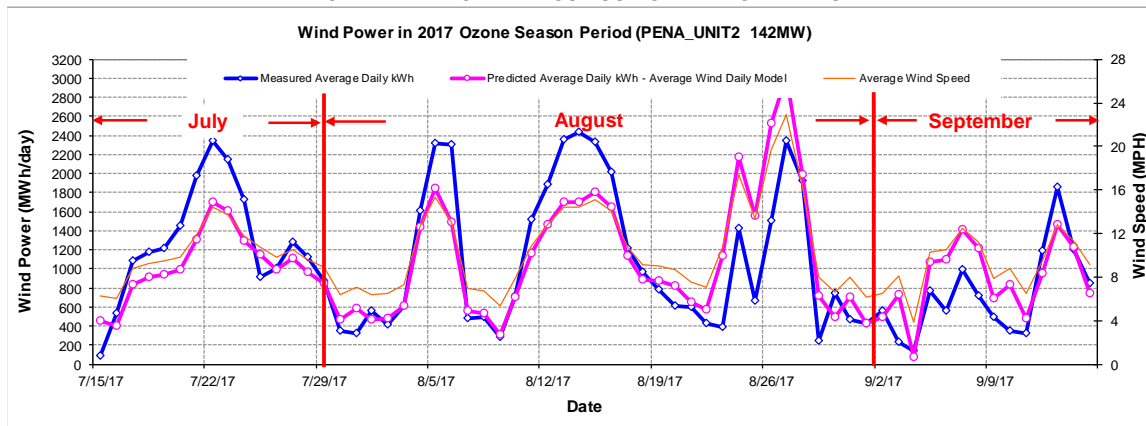
Figure 10-338: PENA\_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	38,951	41,307	-6.05%	37%	39%
Feb-17	28	13.53	32,626	37,185	-13.98%	34%	39%
Mar-17	31	14.29	36,733	46,134	-25.59%	35%	44%
Apr-17	30	14.70	46,038	46,410	-0.81%	45%	45%
May-17	31	12.81	46,681	39,458	15.47%	44%	37%
Jun-17	30	9.21	30,933	22,517	27.21%	30%	22%
Jul-17	31	9.39	35,490	26,751	24.62%	34%	25%
Aug-17	31	11.11	36,515	37,070	-1.52%	35%	35%
Sep-17	30	10.25	26,980	29,271	-8.49%	26%	29%
Oct-17	31	9.56	21,605	24,851	-15.03%	20%	24%
Nov-17	30	10.64	29,069	28,758	1.07%	28%	28%
Dec-17	31	10.48	27,099	29,030	-7.13%	26%	27%
<b>Total</b>	<b>365</b>	<b>11.58</b>	<b>408,720</b>	<b>408,742</b>	<b>-0.01%</b>	<b>33%</b>	<b>33%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>66,384</b>	<b>66,384</b>	<b>0.00%</b>	<b>31%</b>	<b>31%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

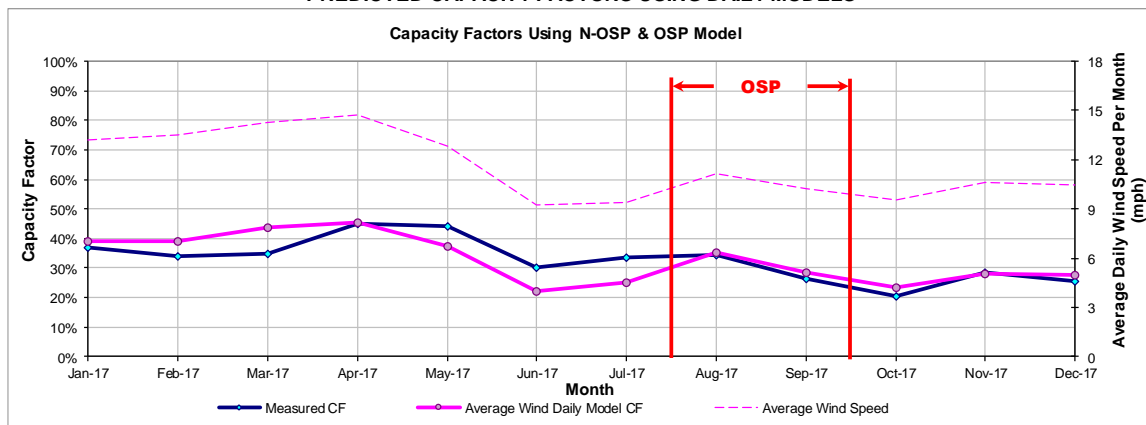


Figure 10-339: PENA\_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.78 Penascal Wind Farm 2

10.78.1 Penascal Wind Farm 2 - PENA3\_UNIT3

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
PENA3_UNIT3	Wind	-	KENEDY	Iberdrola Renewables	Penascal Wind Farm 2

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
42 Mitsubishi 2.4 MW	ERCOT	S	Oct-10	Coastal	CRP	101

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

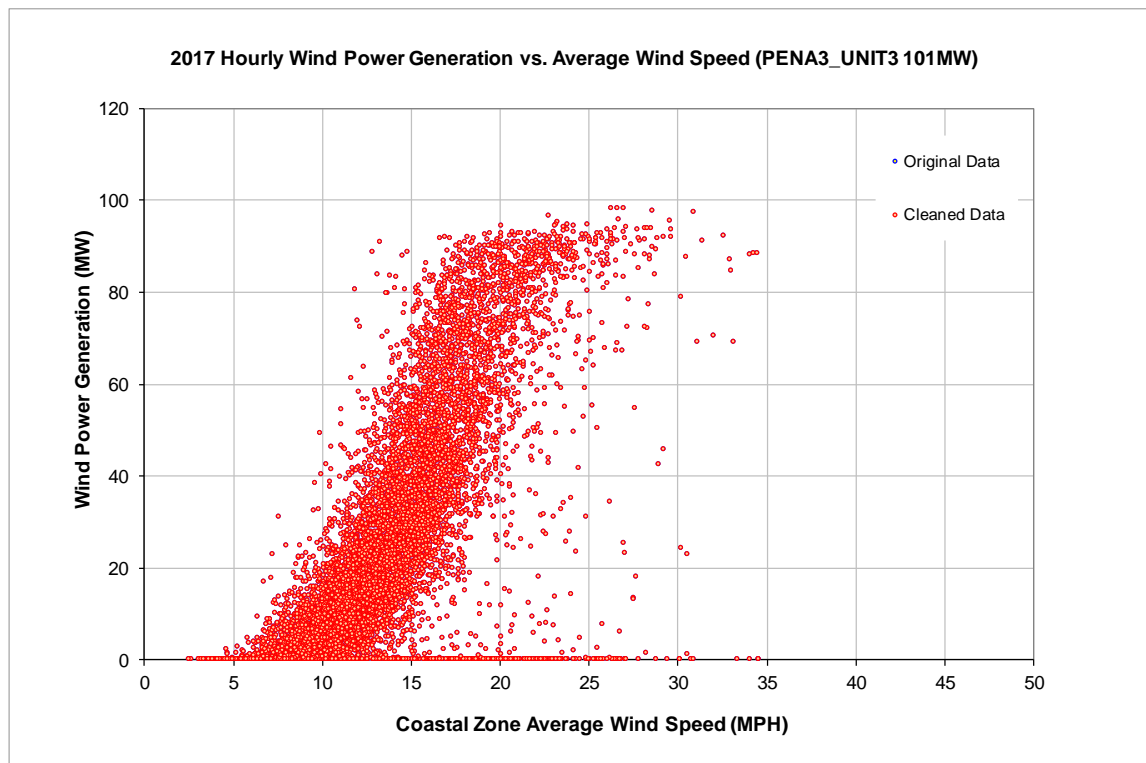


Figure 10-340: PENA3\_UNIT3 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

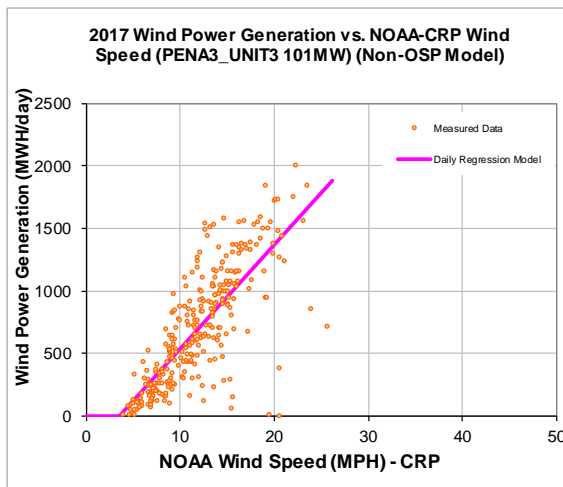
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-289.87
Left Slope (MWh/mph-day)	83.10
RMSE (MWh/day)	294.72
R2	0.60
CV-RMSE	42.2%
Daily Maximum (MWh/day)	2424

**OSP Model:**

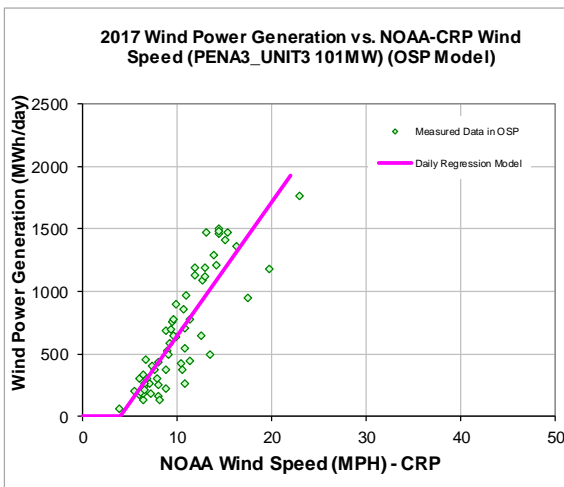
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-425.98
Left Slope (MWh/mph-day)	107.20
RMSE (MWh/day)	232.08
R2	0.74
CV-RMSE	34.8%
Daily Maximum (MWh/day)	2424

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
244,647	250,747

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
543	671

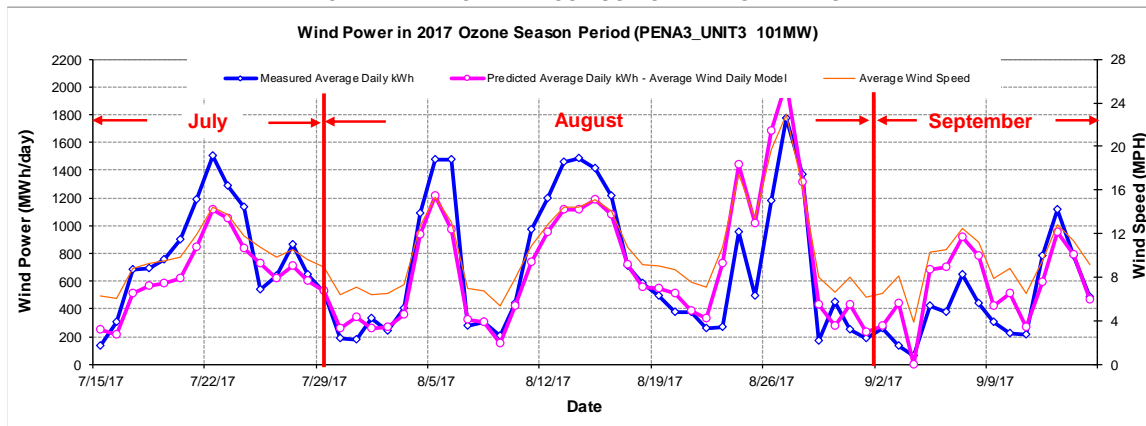
Figure 10-341: PENA3\_UNIT3 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	26,413	25,067	5.10%	35%	33%
Feb-17	28	13.73	16,881	22,122	-31.05%	25%	33%
Mar-17	31	14.43	22,101	27,285	-23.45%	29%	36%
Apr-17	30	14.70	26,031	27,946	-7.36%	36%	38%
May-17	31	12.81	27,785	24,007	13.60%	37%	32%
Jun-17	30	9.21	19,304	14,253	26.17%	27%	20%
Jul-17	31	9.39	22,321	16,840	24.55%	30%	22%
Aug-17	31	11.11	23,606	23,711	-0.45%	31%	32%
Sep-17	30	10.25	16,360	18,049	-10.32%	22%	25%
Oct-17	31	9.56	13,768	15,635	-13.56%	18%	21%
Nov-17	30	10.64	18,186	17,829	1.96%	25%	25%
Dec-17	31	10.48	17,990	18,017	-0.15%	24%	24%
<b>Total</b>	<b>365</b>	<b>11.59</b>	<b>250,747</b>	<b>250,762</b>	<b>-0.01%</b>	<b>28%</b>	<b>28%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>41,976</b>	<b>41,991</b>	<b>-0.04%</b>	<b>27%</b>	<b>27%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

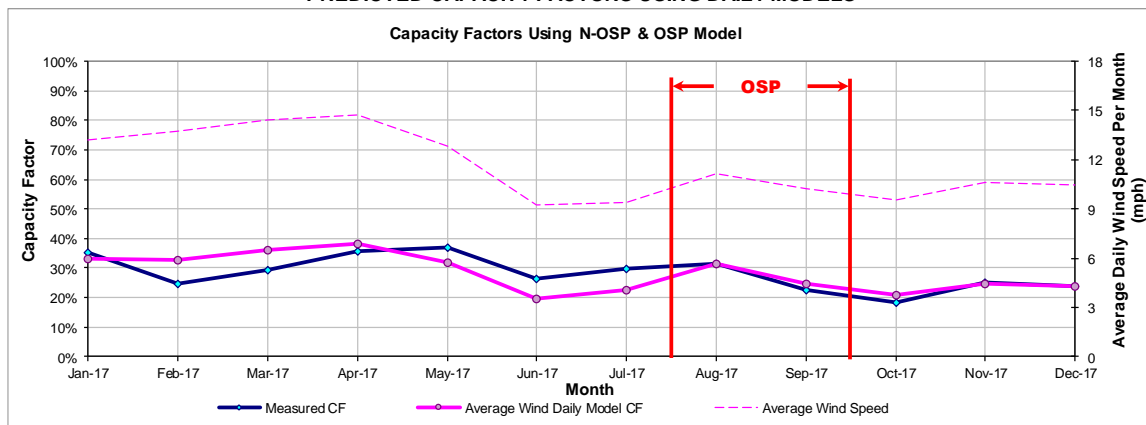


Figure 10-342: PENA3\_UNIT3 - Predicted Wind Power and Capacity Factor Using Daily Models



10.79 Pyron Wind Farm

10.79.1 Pyron Wind Farm - PYR\_PYRON1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
PYR_PYRON1	Wind	-	SCURRY	E.On Climate & Renewables	Pyron

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
166 GE 1.5 MW	ERCOT	W	Nov-08	West	ABI	249

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

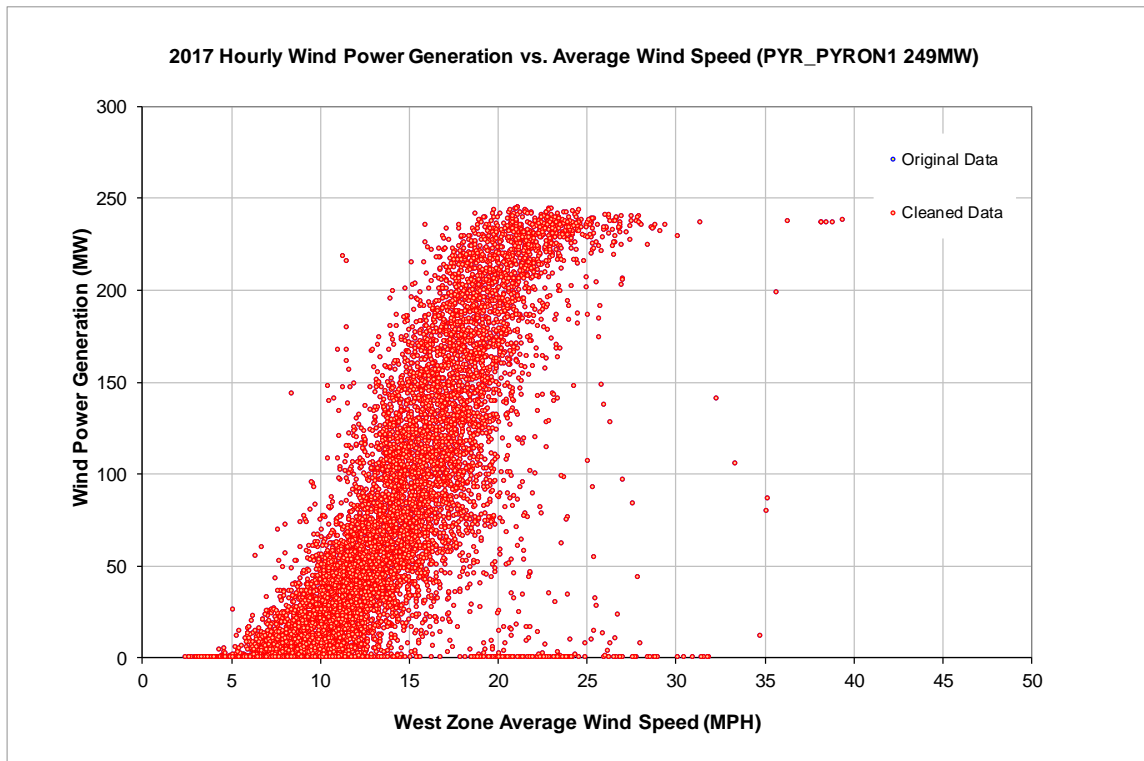


Figure 10-343: PYR\_PYRON1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

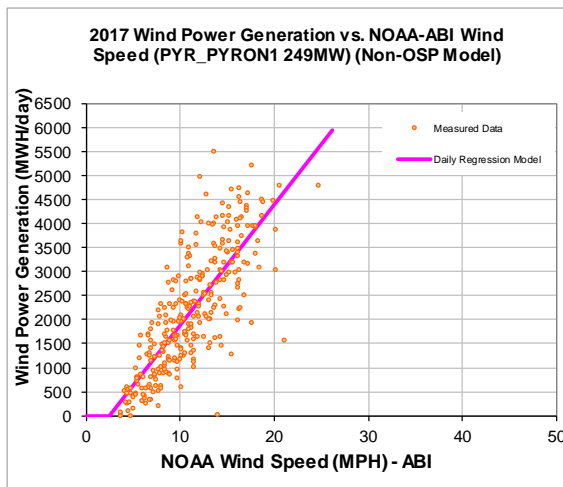
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-599.17
Left Slope (MWh/mph-day)	250.68
RMSE (MWh/day)	767.92
R2	0.63
CV-RMSE	35.1%
Daily Maximum (MWh/day)	5976

**OSP Model:**

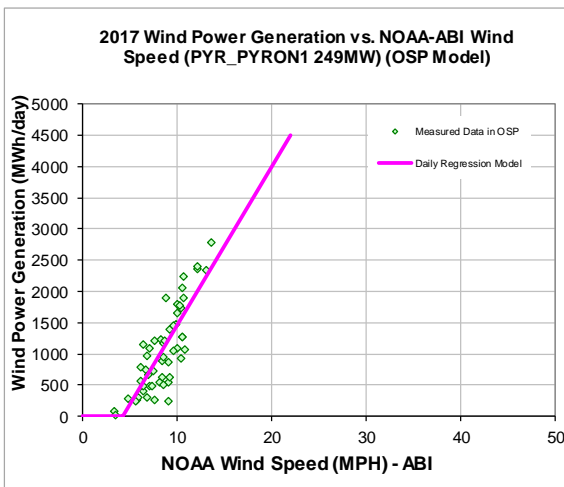
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-1096.44
Left Slope (MWh/mph-day)	254.64
RMSE (MWh/day)	380.83
R2	0.69
CV-RMSE	36.0%
Daily Maximum (MWh/day)	5976

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
799,978	712,621	1,134	1,084

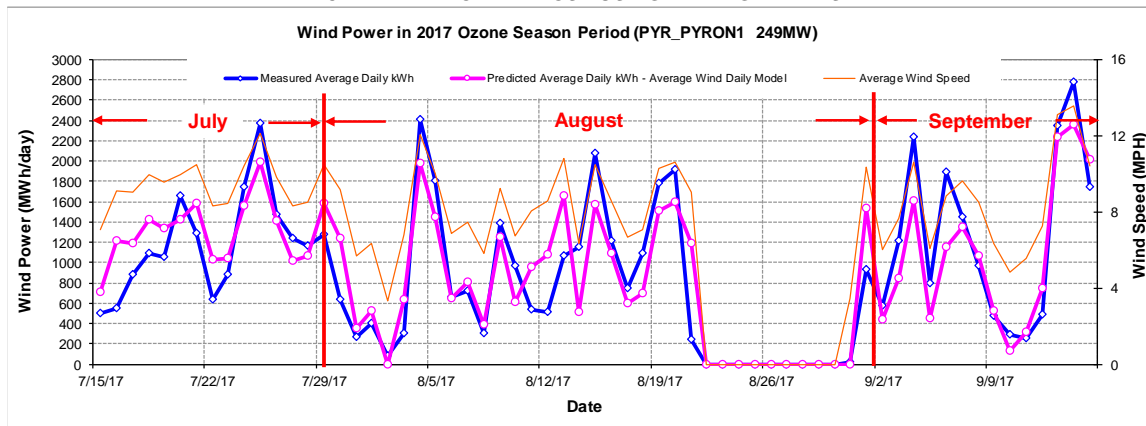
Figure 10-344: PYR\_PYRON1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	66,800	62,510	6.42%	36%	34%
Feb-17	28	11.23	65,845	62,020	5.81%	39%	37%
Mar-17	31	12.96	83,531	82,126	1.68%	45%	44%
Apr-17	30	13.49	79,258	83,456	-5.30%	44%	47%
May-17	31	11.55	71,029	71,200	-0.24%	38%	38%
Jun-17	30	10.72	58,256	62,639	-7.52%	32%	35%
Jul-17	31	9.17	38,892	44,875	-15.39%	21%	24%
Aug-17	31	8.03	21,666	21,113	2.55%	12%	11%
Sep-17	30	9.51	48,273	46,750	3.16%	27%	26%
Oct-17	31	11.07	72,708	67,440	7.25%	39%	36%
Nov-17	30	10.21	62,146	58,816	5.36%	35%	33%
Dec-17	31	9.29	44,219	50,140	-13.39%	24%	27%
<b>Total</b>	<b>365</b>	<b>10.70</b>	<b>712,621</b>	<b>713,085</b>	<b>-0.07%</b>	<b>33%</b>	<b>33%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>54</b>	<b>8.46</b>	<b>57,068</b>	<b>57,531</b>	<b>-0.81%</b>	<b>18%</b>	<b>18%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

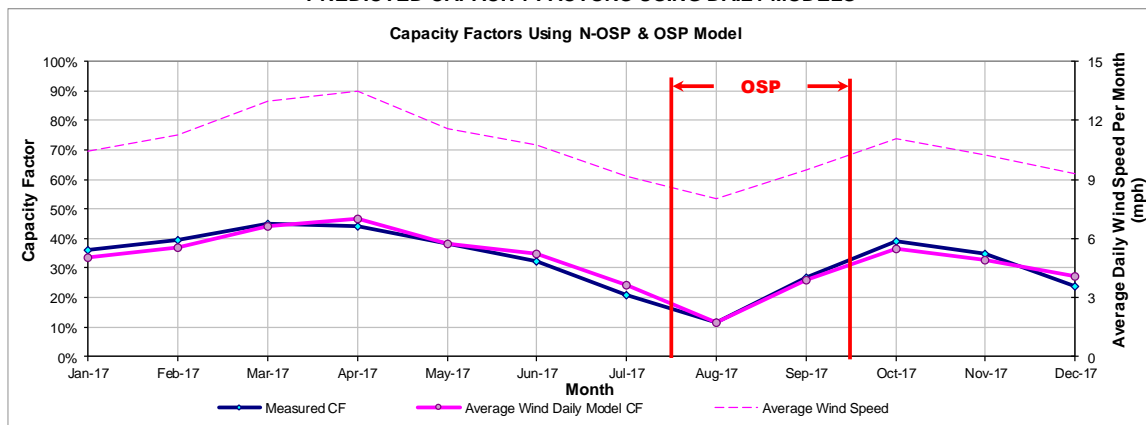


Figure 10-345: PYR\_PYRON1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.80 RattleSnake Wind Ph 1

10.80.1 RattleSnake Wind Ph 1 - RSnake\_G1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
RSNAKE_G1	Wind	Garden	GLASSCOCK	Invenergy	RattleSnake Wind Ph 1

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
61 GE 1.7 MW	ERCOT	W	Sep-15	West	ABI	104.3

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

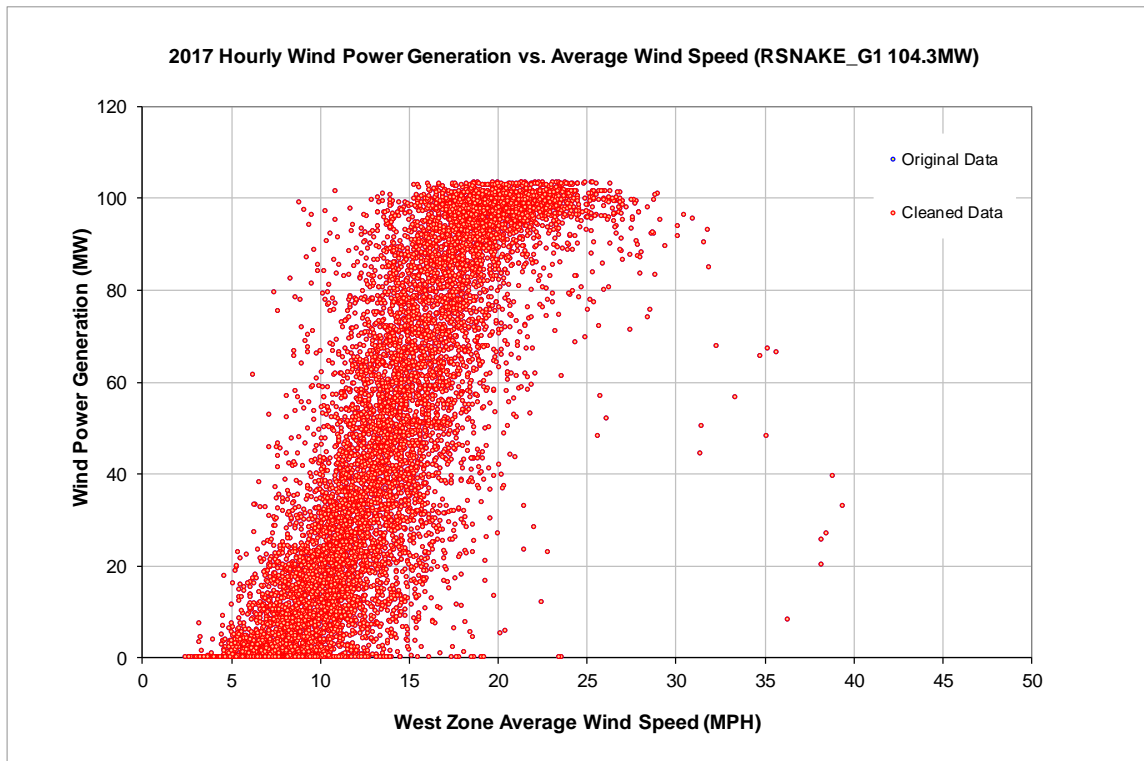


Figure 10-346: RSNAKE\_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

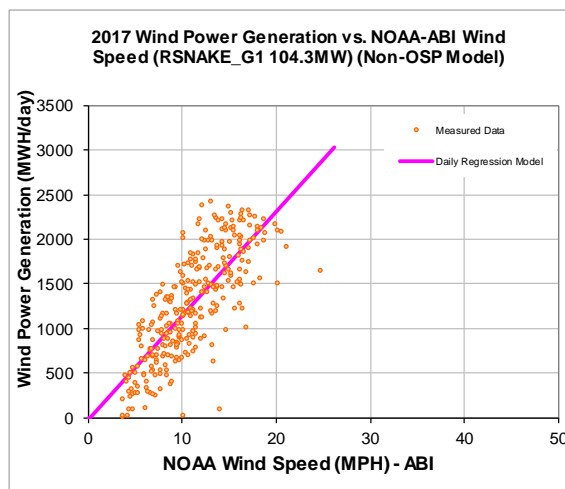
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-19.90
Left Slope (MWh/mph-day)	116.74
RMSE (MWh/day)	377.44
R2	0.60
CV-RMSE	29.6%
Daily Maximum (MWh/day)	2503

**OSP Model:**

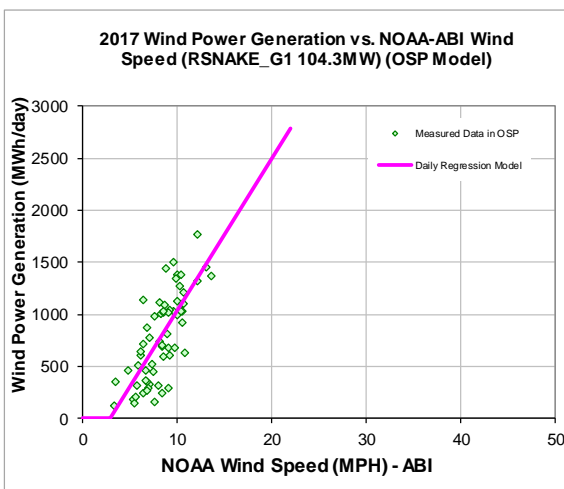
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-428.70
Left Slope (MWh/mph-day)	146.28
RMSE (MWh/day)	278.58
R2	0.56
CV-RMSE	35.4%
Daily Maximum (MWh/day)	2503

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
471,318	434,247	849	799

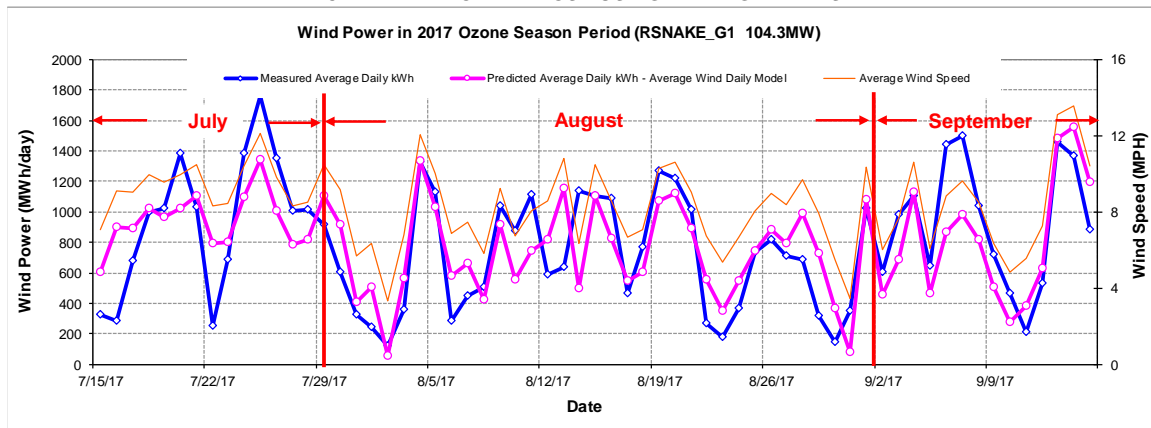
Figure 10-347: RSNAGE\_G1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	37,071	37,144	-0.20%	48%	48%
Feb-17	28	11.23	37,269	36,139	3.03%	53%	52%
Mar-17	31	12.96	47,993	45,918	4.32%	62%	59%
Apr-17	30	13.49	45,933	46,640	-1.54%	61%	62%
May-17	31	11.55	40,966	41,192	-0.55%	53%	53%
Jun-17	30	10.72	34,784	36,945	-6.21%	46%	49%
Jul-17	31	9.17	29,577	30,299	-2.44%	38%	39%
Aug-17	31	7.87	21,313	22,384	-5.02%	27%	29%
Sep-17	30	9.51	33,098	30,159	8.88%	44%	40%
Oct-17	31	11.07	39,585	39,440	0.36%	51%	51%
Nov-17	30	10.21	36,433	35,165	3.48%	49%	47%
Dec-17	31	9.14	30,226	32,460	-7.39%	39%	42%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>434,247</b>	<b>433,885</b>	<b>0.08%</b>	<b>48%</b>	<b>47%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>49,617</b>	<b>49,617</b>	<b>0.00%</b>	<b>31%</b>	<b>31%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

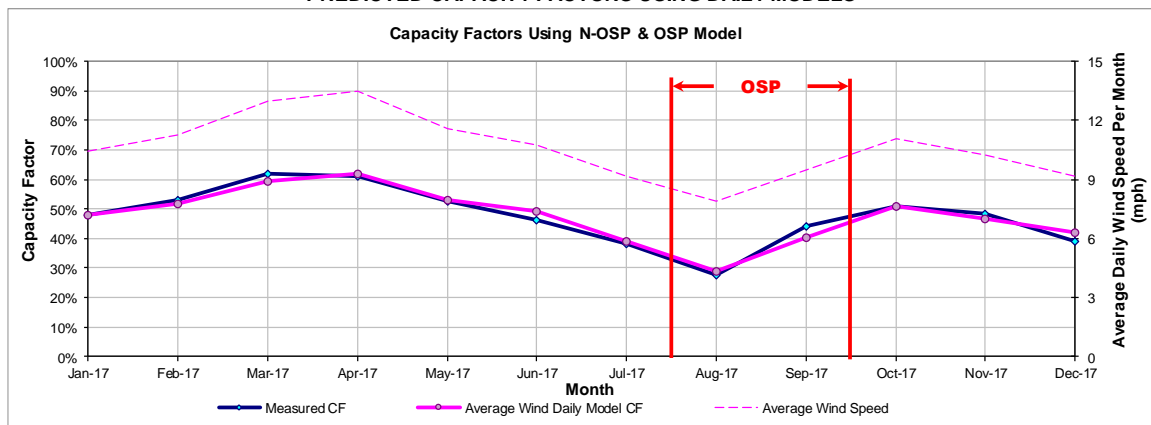


Figure 10-348: RSNAKE\_G1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.80.2 RattleSnake Wind Ph 1 - RSNAKE\_G2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
RSNAKE_G2	Wind	Garden	GLASSCOCK	Invenergy	RattleSnake Wind Ph 1

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
61 GE 1.7 MW	ERCOT	W	Sep-15	West	ABI	103

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

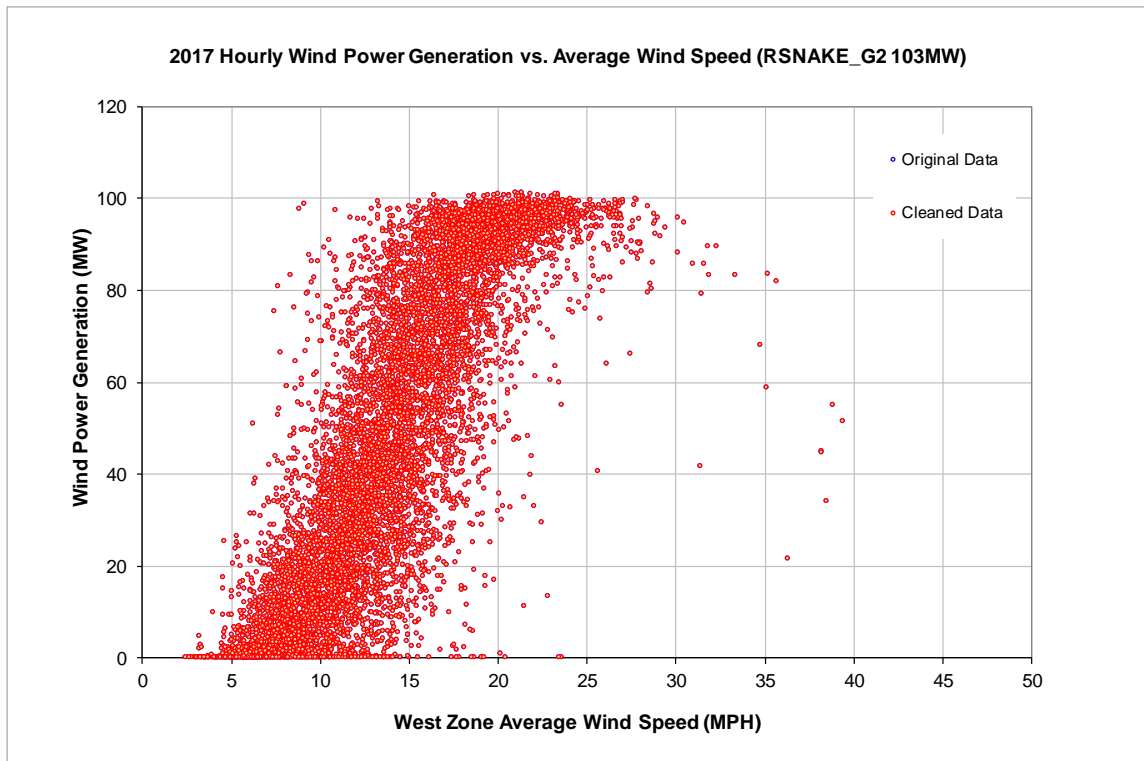


Figure 10-349: RSNAKE\_G2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

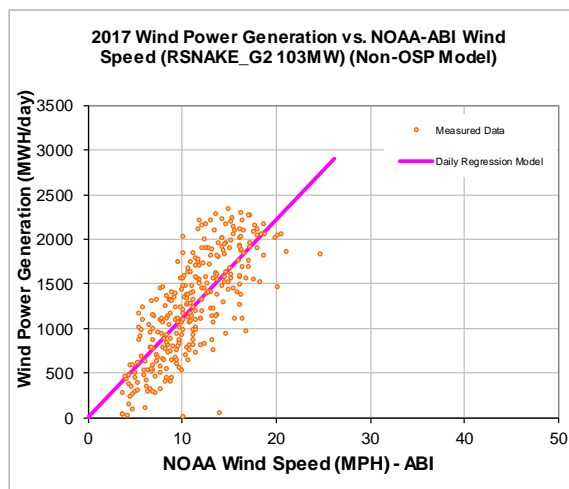
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	17.16
Left Slope (MWh/mph-day)	110.75
RMSE (MWh/day)	368.97
R2	0.59
CV-RMSE	29.7%
Daily Maximum (MWh/day)	2472

**OSP Model:**

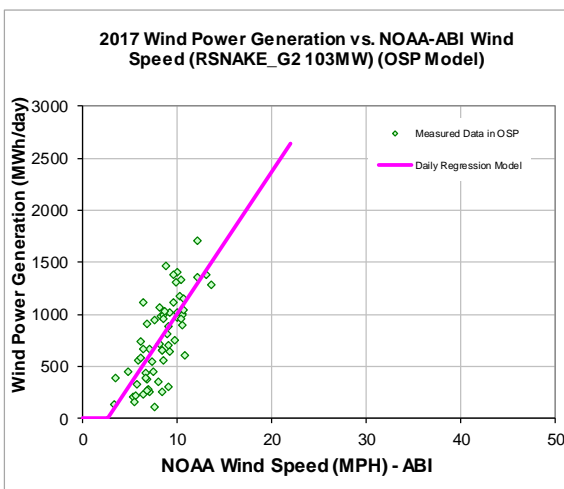
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-369.33
Left Slope (MWh/mph-day)	136.81
RMSE (MWh/day)	271.25
R2	0.54
CV-RMSE	35.3%
Daily Maximum (MWh/day)	2472

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
459,332	424,178	826	779

Figure 10-350: RSNAKE\_G2 - Model Coefficients (Using Non-OSP and OSP Data)

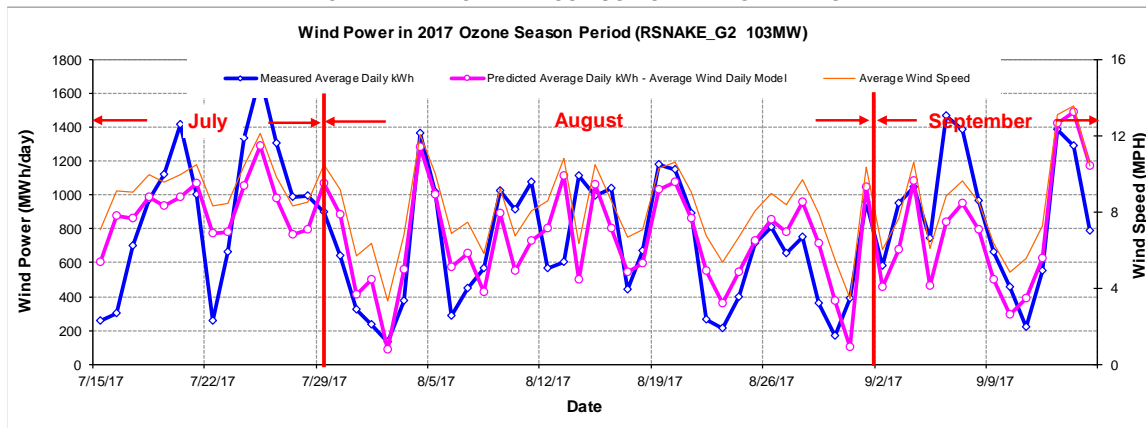


**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	37,617	36,356	3.35%	49%	47%
Feb-17	28	11.23	36,598	35,294	3.56%	53%	51%
Mar-17	31	12.96	47,643	44,741	6.09%	62%	58%
Apr-17	30	13.49	45,828	45,328	1.09%	62%	61%
May-17	31	11.55	40,691	40,195	1.22%	53%	52%
Jun-17	30	10.72	34,632	36,131	-4.33%	47%	49%
Jul-17	31	9.17	29,471	29,574	-0.35%	38%	39%
Aug-17	31	7.87	20,715	21,915	-5.79%	27%	29%
Sep-17	30	9.51	31,038	29,474	5.04%	42%	40%
Oct-17	31	11.07	37,344	38,534	-3.19%	49%	50%
Nov-17	30	10.21	33,905	34,442	-1.58%	46%	46%
Dec-17	31	9.14	28,696	31,912	-11.21%	37%	42%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>424,178</b>	<b>423,896</b>	<b>0.07%</b>	<b>47%</b>	<b>47%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>48,398</b>	<b>48,398</b>	<b>0.00%</b>	<b>31%</b>	<b>31%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

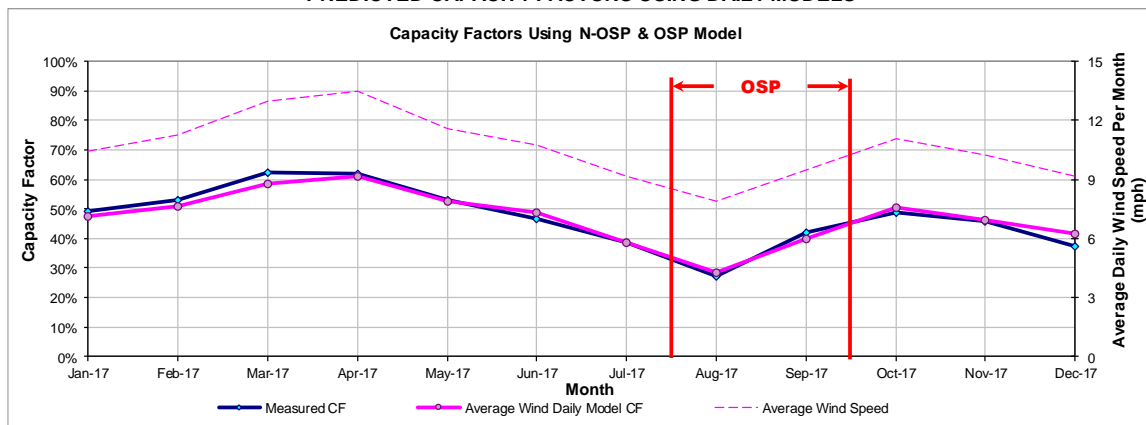


Figure 10-351: RSNAKE\_G2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.81 Red Canyon

10.81.1 Red Canyon - RDCANYON\_RDCNY1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
RDCANYON_RDCNY1	Wind	-	BORDEN	NextEra	Red Canyon 1

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
56 GE 1.5 MW	ERCOT	W	May-06	West	ABI	84

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

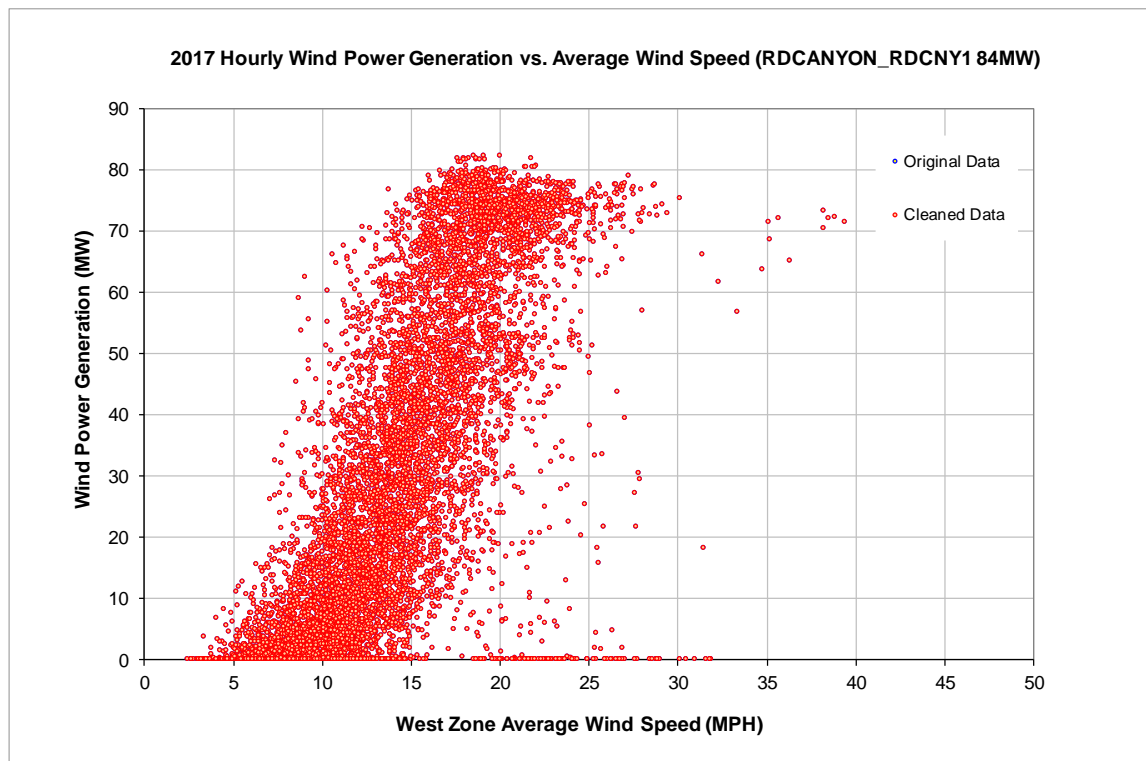


Figure 10-352: RDCANYON\_RDCNY1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

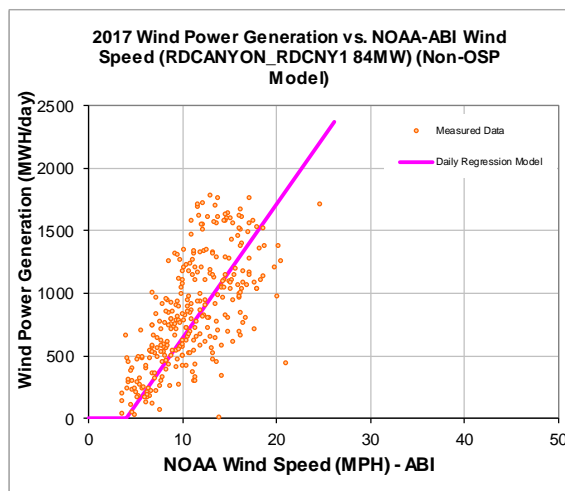
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	38.56
Left Slope (MWh/mph-day)	72.19
RMSE (MWh/day)	324.38
R2	0.44
CV-RMSE	38.7%
Daily Maximum (MWh/day)	2016

**OSP Model:**

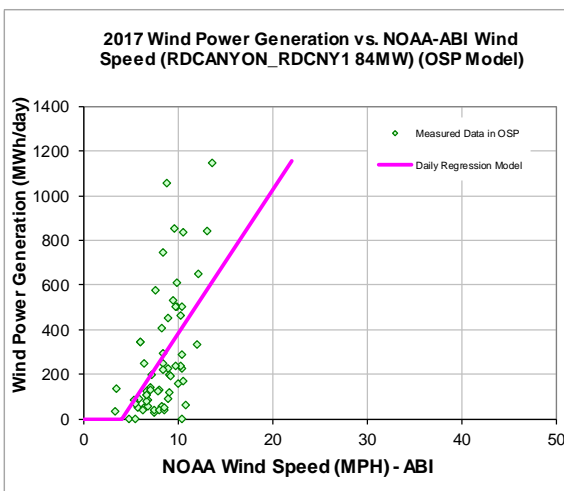
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-339.86
Left Slope (MWh/mph-day)	73.04
RMSE (MWh/day)	223.45
R2	0.33
CV-RMSE	83.5%
Daily Maximum (MWh/day)	2016

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
292,689	269,276	300	286

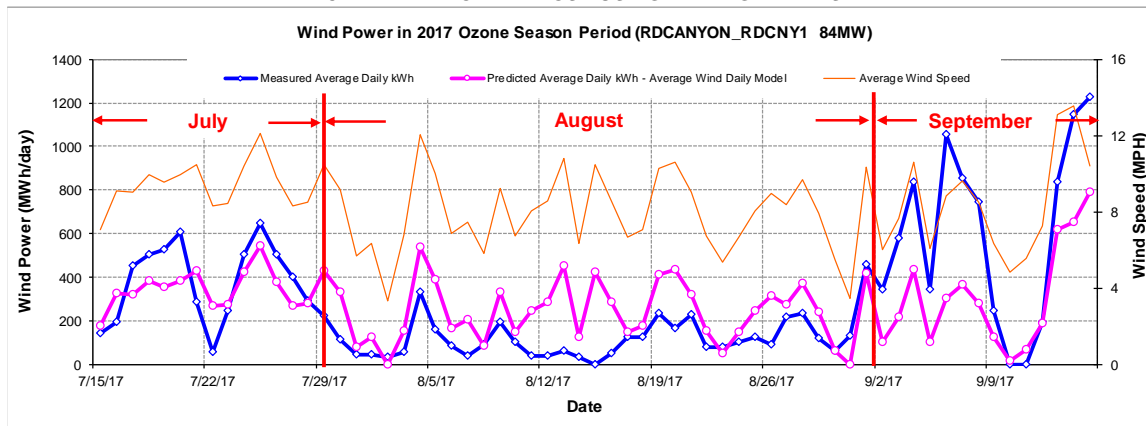
Figure 10-353: RDCANYON\_RDCNY1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	21,517	24,544	-14.07%	34%	39%
Feb-17	28	11.23	21,784	23,770	-9.12%	39%	42%
Mar-17	31	12.96	27,419	30,193	-10.12%	44%	48%
Apr-17	30	13.49	27,769	30,365	-9.35%	46%	50%
May-17	31	11.55	25,682	27,047	-5.31%	41%	43%
Jun-17	30	10.72	20,118	24,370	-21.14%	33%	40%
Jul-17	31	9.17	14,354	15,422	-7.44%	23%	25%
Aug-17	31	7.87	3,386	7,374	-117.76%	5%	12%
Sep-17	30	9.51	22,973	16,257	29.23%	38%	27%
Oct-17	31	11.07	33,572	25,964	22.66%	54%	42%
Nov-17	30	10.21	28,400	23,270	18.07%	47%	38%
Dec-17	31	9.11	22,301	20,884	6.35%	36%	33%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>269,276</b>	<b>269,459</b>	<b>-0.07%</b>	<b>37%</b>	<b>37%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>16,851</b>	<b>17,034</b>	<b>-1.09%</b>	<b>13%</b>	<b>13%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

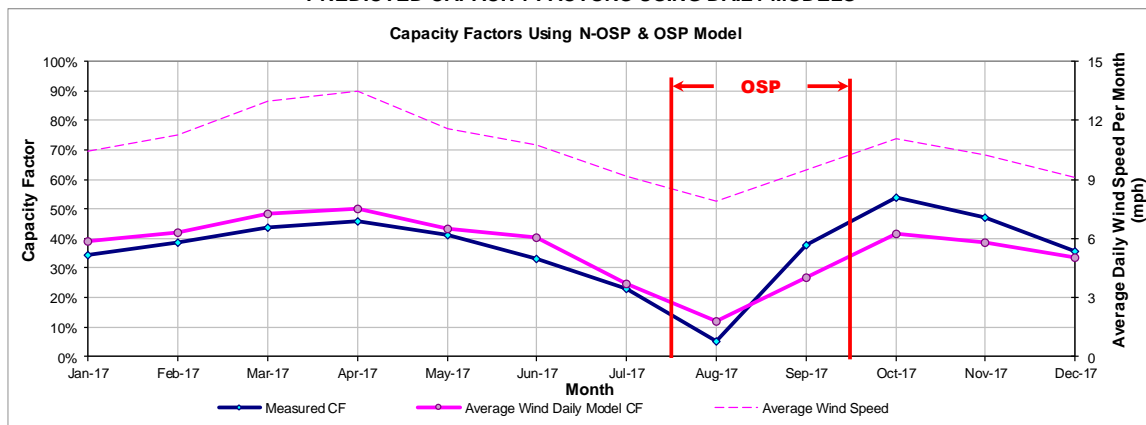


Figure 10-354: RDCANYON\_RDCNY1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.82 Roscoe Wind Farm

10.82.1 Roscoe Wind Farm - TKWSW1\_ROSCOE

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
TKWSW1_ROSCOE	Wind	-	SCURRY	E.On Climate & Renewables	Roscoe Wind Farm 1

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
209 Mitsubishi 1 MW	ERCOT	W	Jan-08	West	ABI	209

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

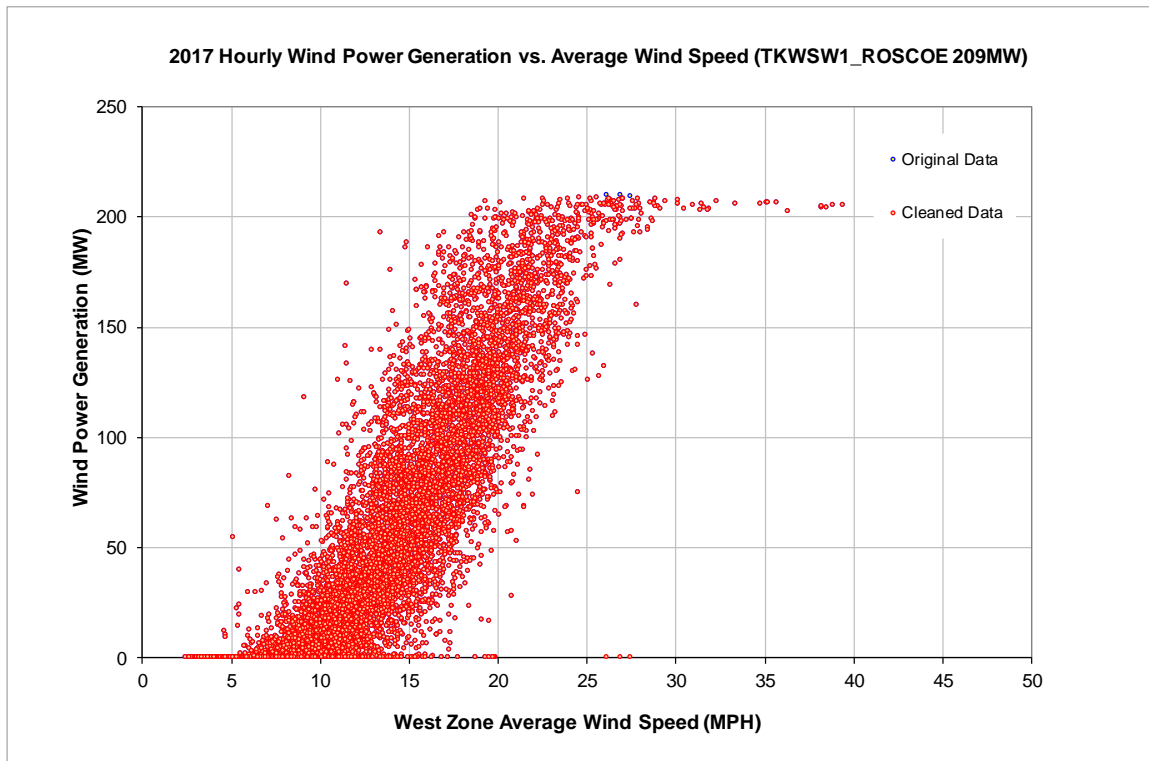


Figure 10-355: TKWSW1\_ROSCOE - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

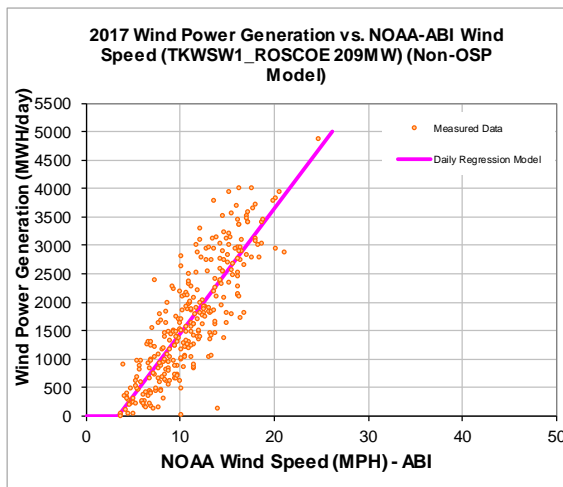
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-755.77
Left Slope (MWh/mph-day)	220.63
RMSE (MWh/day)	545.78
R2	0.72
CV-RMSE	32.2%
Daily Maximum (MWh/day)	5016

**OSP Model:**

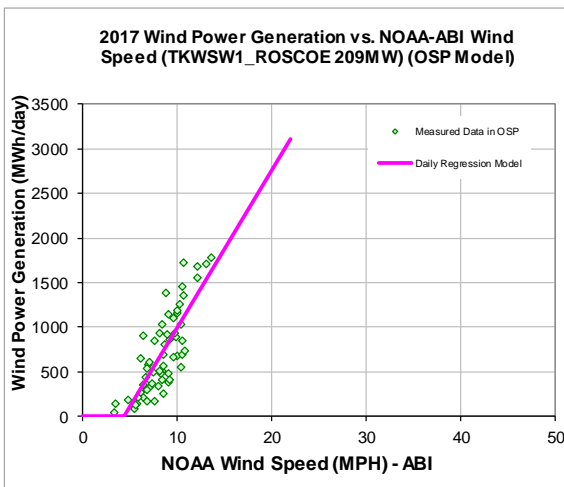
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-765.03
Left Slope (MWh/mph-day)	175.85
RMSE (MWh/day)	271.82
R2	0.66
CV-RMSE	39.0%
Daily Maximum (MWh/day)	5016

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
620,873	553,655

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
775	711

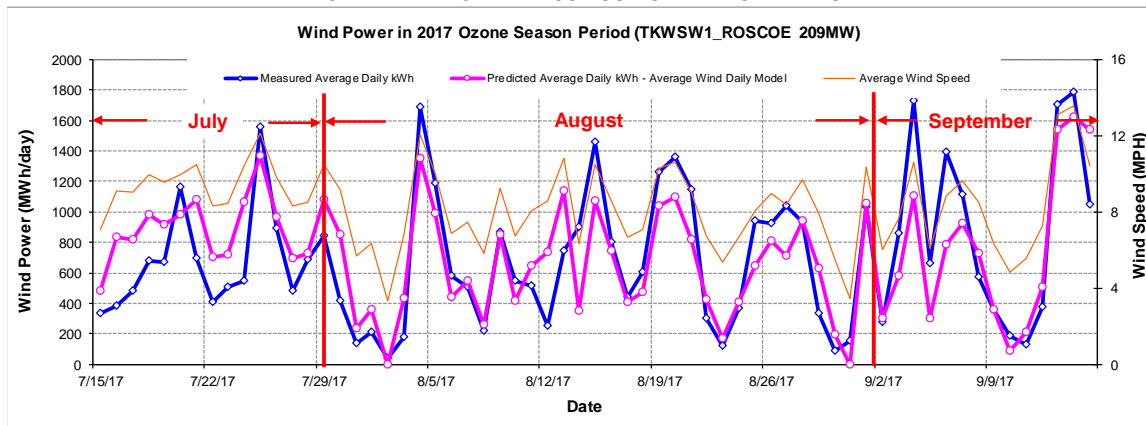
Figure 10-356: TKSW1\_ROSCOE - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	55,240	47,935	13.22%	36%	31%
Feb-17	28	11.23	49,721	48,189	3.08%	35%	34%
Mar-17	31	12.96	65,421	65,199	0.34%	42%	42%
Apr-17	30	13.49	64,851	66,599	-2.69%	43%	44%
May-17	31	11.55	56,764	55,584	2.08%	37%	36%
Jun-17	30	10.72	44,509	48,277	-8.47%	30%	32%
Jul-17	31	9.17	25,310	32,064	-26.68%	16%	21%
Aug-17	31	7.87	20,686	19,349	6.46%	13%	12%
Sep-17	30	9.51	35,281	34,808	1.34%	23%	23%
Oct-17	31	11.07	50,341	52,274	-3.84%	32%	34%
Nov-17	30	10.21	46,893	44,913	4.22%	31%	30%
Dec-17	31	9.29	38,639	38,799	-0.41%	25%	25%
<b>Total</b>	<b>365</b>	<b>10.62</b>	<b>553,655</b>	<b>553,990</b>	<b>-0.06%</b>	<b>30%</b>	<b>30%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>43,921</b>	<b>44,257</b>	<b>-0.76%</b>	<b>14%</b>	<b>14%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

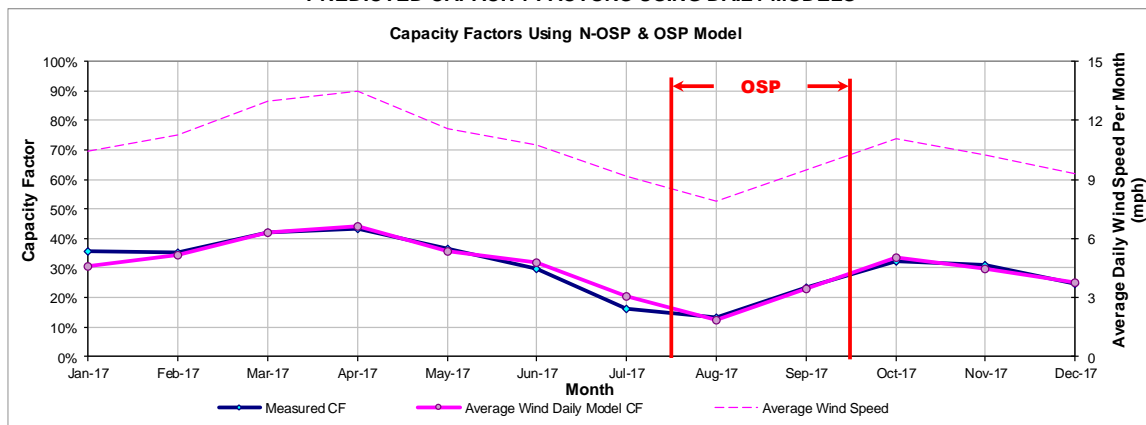


Figure 10-357: TKWSW1\_ROSCOE - Predicted Wind Power and Capacity Factor Using Daily Models

10.83 Route66 Wind

10.83.1 Route66 Wind - ROUTE\_66\_WIND1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
ROUTE_66_WIND1	Wind	Amarilo	ARMSTRONG	First Wind	Route66 Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
75 Vestas 2 MW	ERCOT	W	Aug-15	Panhandle	AMA	150

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

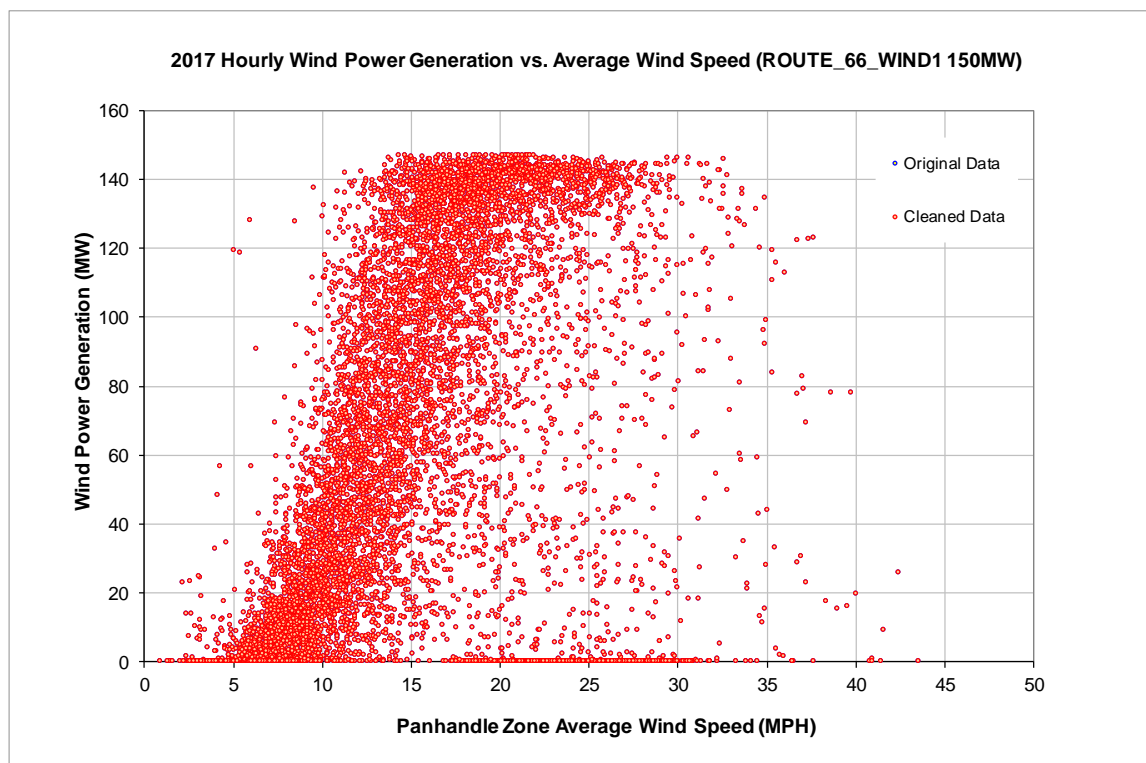


Figure 10-358: ROUTE\_66\_WIND1 - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

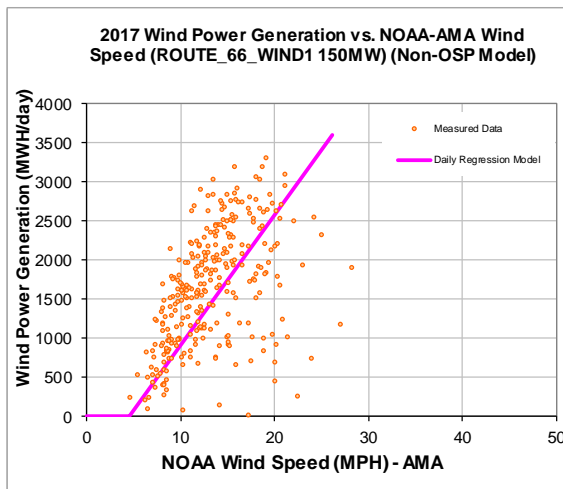
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	499.50
Left Slope (MWh/mph-day)	85.03
RMSE (MWh/day)	641.81
R2	0.24
CV-RMSE	39.5%
Daily Maximum (MWh/day)	3600

**OSP Model:**

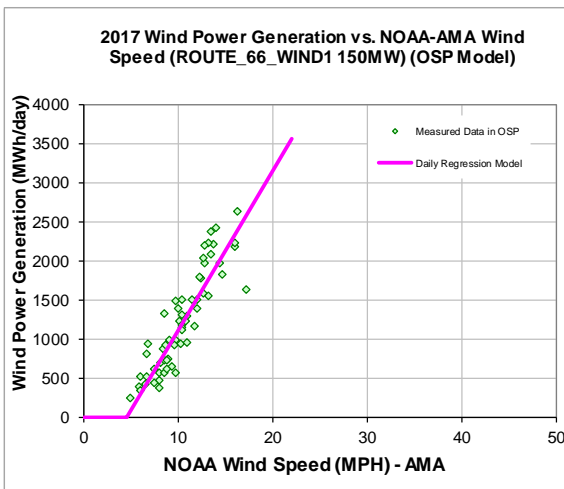
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-859.77
Left Slope (MWh/mph-day)	198.57
RMSE (MWh/day)	280.29
R2	0.80
CV-RMSE	23.1%
Daily Maximum (MWh/day)	3600

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
601,747	564,319

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
1,343	1,222

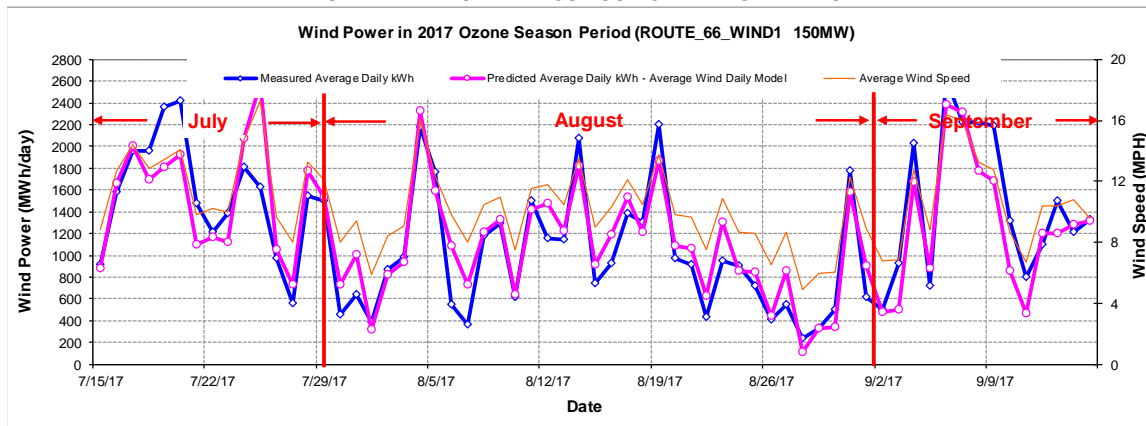
Figure 10-359: ROUTE\_66\_WIND1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.28	56,234	47,858	14.89%	50%	43%
Feb-17	28	13.17	58,930	45,335	23.07%	58%	45%
Mar-17	31	14.31	63,375	53,208	16.04%	57%	48%
Apr-17	30	15.90	52,650	55,543	-5.50%	49%	51%
May-17	31	13.42	52,230	50,855	2.63%	47%	46%
Jun-17	30	13.20	41,844	48,655	-16.28%	39%	45%
Jul-17	31	11.35	42,100	44,730	-6.25%	38%	40%
Aug-17	31	9.62	30,165	32,538	-7.87%	27%	29%
Sep-17	30	11.96	43,766	43,443	0.74%	41%	40%
Oct-17	31	13.76	41,838	50,094	-19.73%	37%	45%
Nov-17	30	12.61	36,260	45,587	-25.72%	34%	42%
Dec-17	31	11.76	44,929	46,473	-3.44%	40%	42%
<b>Total</b>	<b>365</b>	<b>12.76</b>	<b>564,319</b>	<b>564,319</b>	<b>0.00%</b>	<b>43%</b>	<b>43%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>76,329</b>	<b>76,329</b>	<b>0.00%</b>	<b>34%</b>	<b>34%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

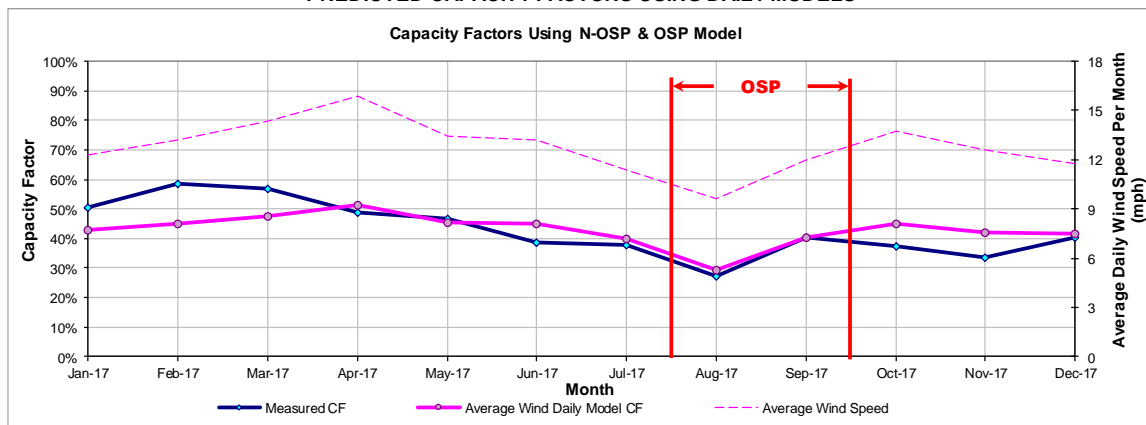


Figure 10-360: ROUTE\_66\_WIND1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.84 Salt Fork Wind

10.84.1 Salt Fork Wind - SALTFORK\_UNIT1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SALTFORK_UNIT1	Wind	-	DONLEY	Southern Company	Salt Fork Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
32 Vestas 2 MW	ERCOT	W	Dec-16	Panhandle	AMA	64

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

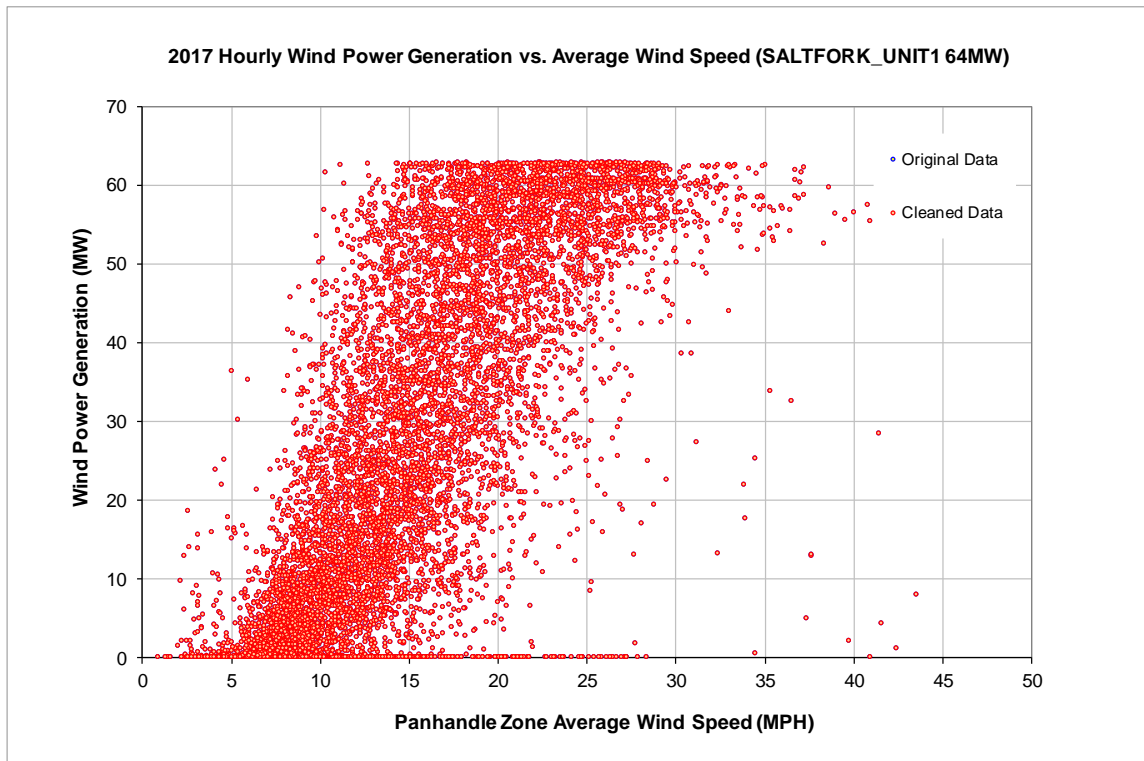


Figure 10-361: SALTFORK\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

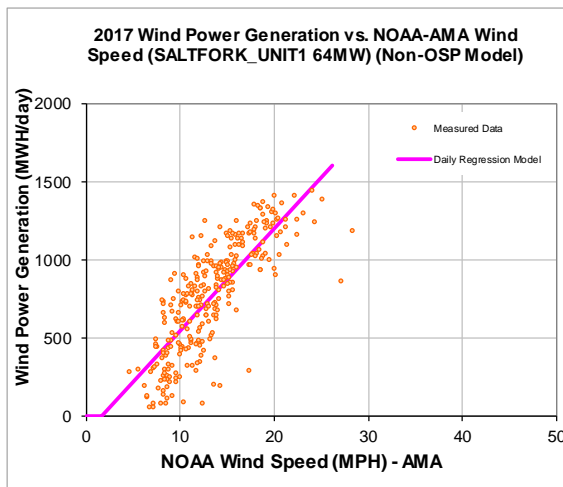
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-105.08
Left Slope (MWh/mph-day)	65.51
RMSE (MWh/day)	208.70
R2	0.64
CV-RMSE	27.1%
Daily Maximum (MWh/day)	1536

**OSP Model:**

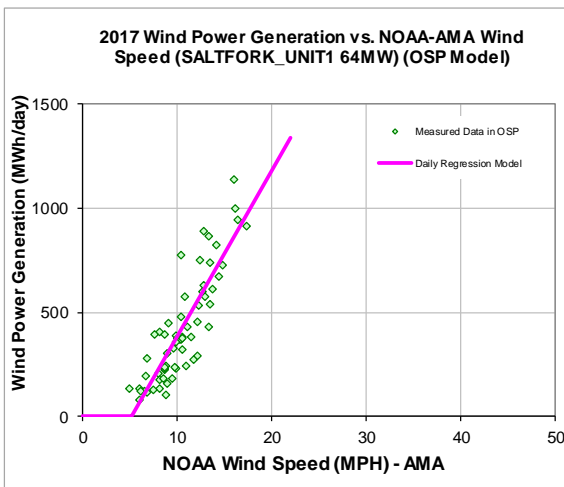
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-410.87
Left Slope (MWh/mph-day)	79.52
RMSE (MWh/day)	129.79
R2	0.75
CV-RMSE	31.0%
Daily Maximum (MWh/day)	1536

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
279,811	253,154	474	422

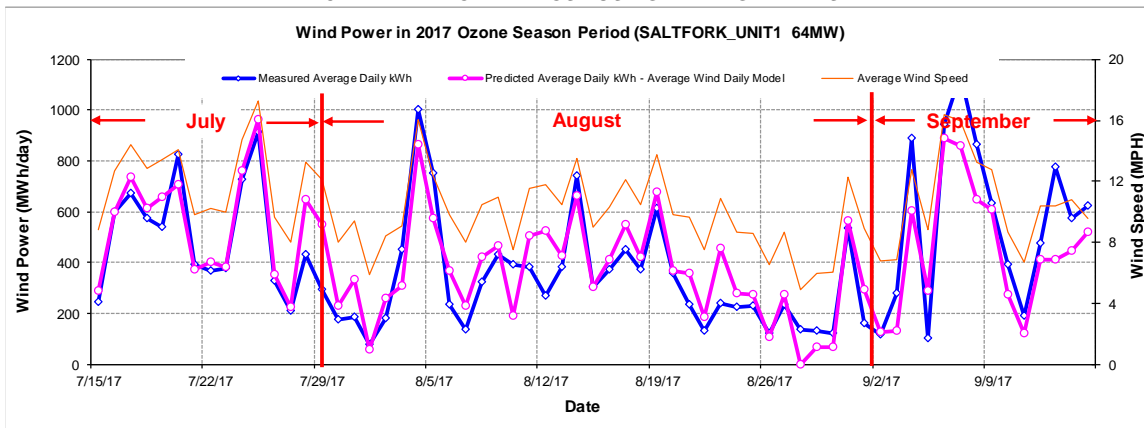
Figure 10-362: SALTFORK\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.28	21,574	21,683	-0.51%	45%	46%
Feb-17	28	13.17	22,417	21,209	5.39%	52%	49%
Mar-17	31	14.31	28,604	25,590	10.54%	60%	54%
Apr-17	30	15.90	28,382	27,957	1.50%	62%	61%
May-17	31	13.42	23,756	23,992	-0.99%	50%	50%
Jun-17	30	13.43	20,438	22,463	-9.91%	44%	49%
Jul-17	31	11.35	14,331	17,366	-21.17%	30%	36%
Aug-17	31	9.62	10,221	10,986	-7.49%	21%	23%
Sep-17	30	11.96	19,106	18,026	5.66%	41%	39%
Oct-17	31	14.37	19,660	20,913	-6.37%	41%	44%
Nov-17	30	12.81	22,840	22,023	3.58%	50%	48%
Dec-17	31	11.76	21,825	20,616	5.54%	46%	43%
<b>Total</b>	<b>365</b>	<b>12.83</b>	<b>253,154</b>	<b>252,824</b>	<b>0.13%</b>	<b>45%</b>	<b>45%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>26,373</b>	<b>26,392</b>	<b>-0.08%</b>	<b>27%</b>	<b>27%</b>

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

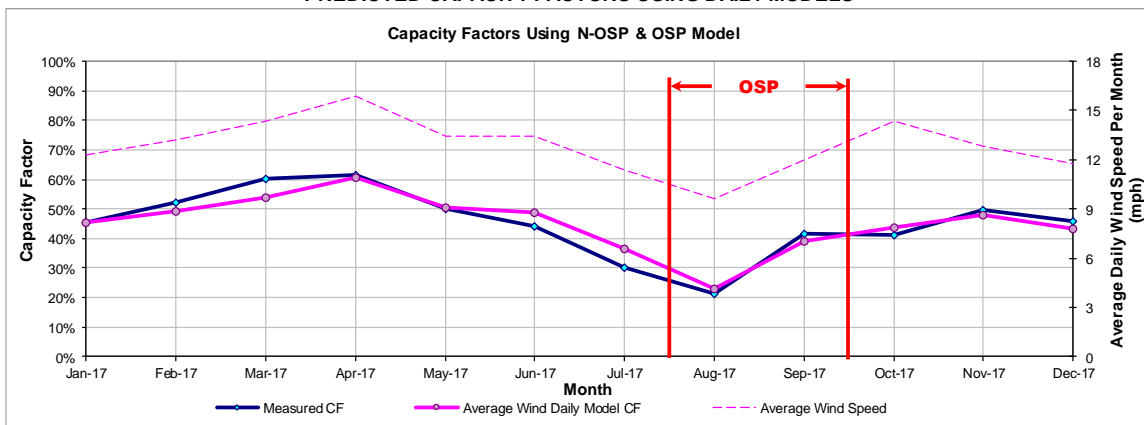


Figure 10-363: SALTFOK\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.84.2 Salt Fork Wind - SALTFORK\_UNIT2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SALTFORK_UNIT2	Wind	-	DONLEY	Southern Company	Salt Fork Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
55 Vestas 2 MW	ERCOT	W	Dec-16	Panhandle	AMA	110

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

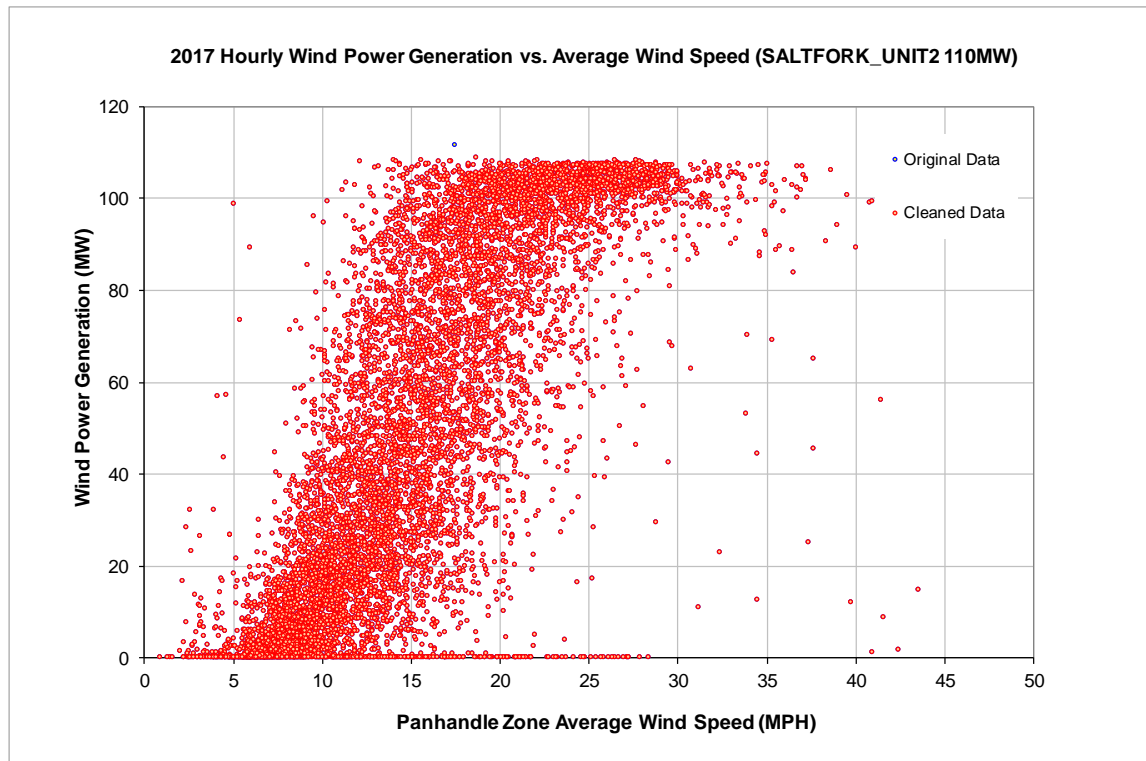


Figure 10-364: SALTFORK\_UNIT2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

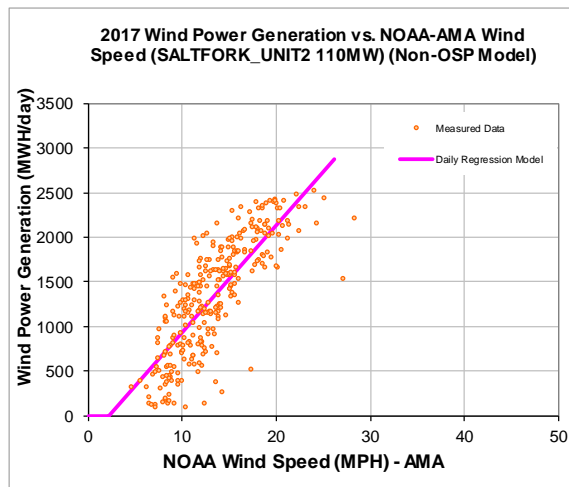
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-255.05
Left Slope (MWh/mph-day)	119.80
RMSE (MWh/day)	376.49
R2	0.64
CV-RMSE	28.0%
Daily Maximum (MWh/day)	2640

**OSP Model:**

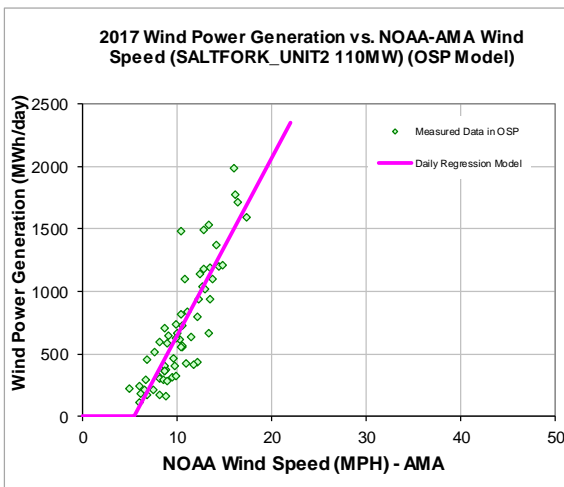
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-769.99
Left Slope (MWh/mph-day)	142.07
RMSE (MWh/day)	236.25
R2	0.75
CV-RMSE	33.2%
Daily Maximum (MWh/day)	2640

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
489,239	441,031	812	722

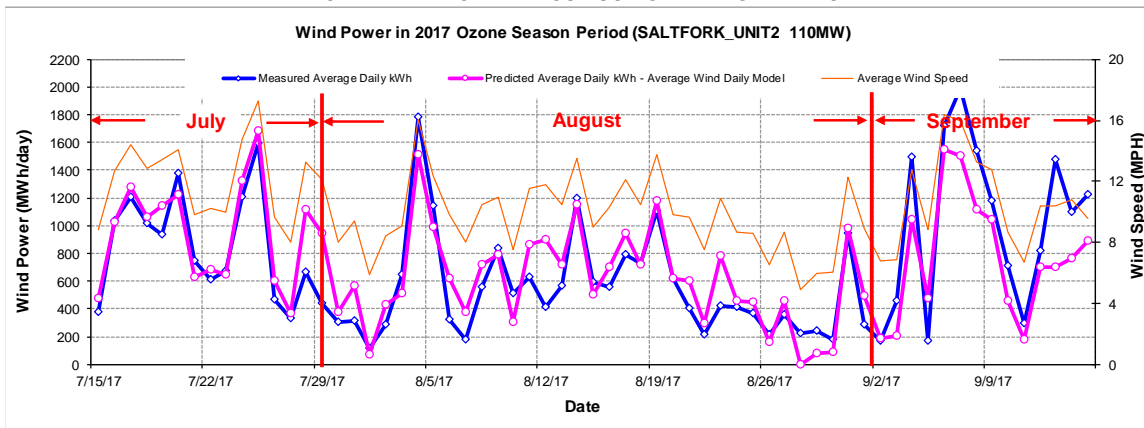
Figure 10-365: SALTFORK\_UNIT2 - Model Coefficients (Using Non-OSP and OSP Data)

COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.28	39,313	37,688	4.13%	48%	46%
Feb-17	28	13.17	39,133	37,026	5.38%	53%	50%
Mar-17	31	14.31	48,596	44,637	8.15%	59%	55%
Apr-17	30	15.90	49,161	49,135	0.05%	62%	62%
May-17	31	13.42	40,854	41,926	-2.62%	50%	51%
Jun-17	30	13.43	34,353	39,257	-14.28%	43%	50%
Jul-17	31	11.35	24,369	29,898	-22.69%	30%	37%
Aug-17	31	9.62	16,936	18,550	-9.53%	21%	23%
Sep-17	30	11.96	32,879	31,200	5.11%	42%	39%
Oct-17	31	14.37	35,357	36,673	-3.72%	43%	45%
Nov-17	30	12.81	40,507	38,388	5.23%	51%	48%
Dec-17	31	11.76	39,574	35,752	9.66%	48%	44%
Total	365	12.83	441,031	440,128	0.20%	46%	46%
Total in OSP (07/15-09/15)	63	10.43	44,852	44,924	-0.16%	27%	27%

PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



PREDICTED CAPACITY FACTORS USING DAILY MODELS

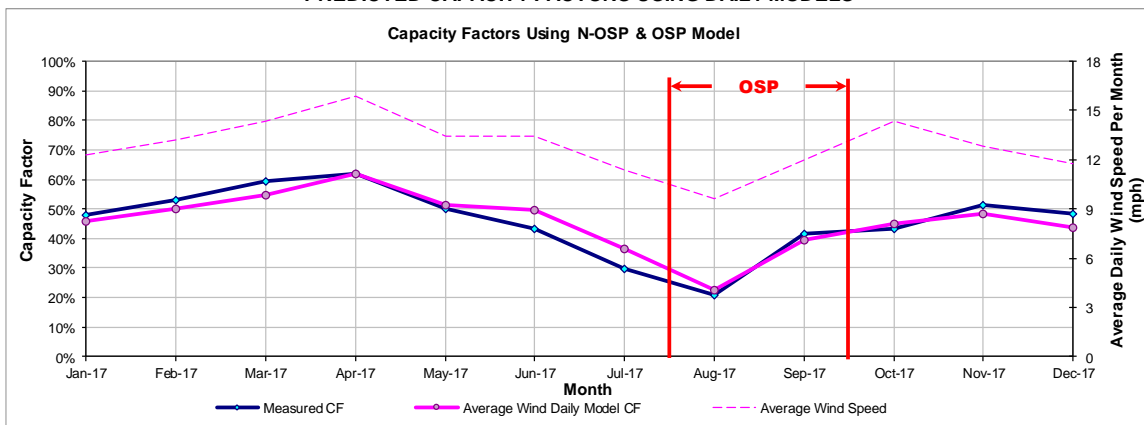


Figure 10-366: SALTFOK\_UNIT2 - Predicted Wind Power and Capacity Factor Using Daily Models



10.85 San Roman Wind 1

10.85.1 San Roman Wind 1 - SANROMAN\_WIND\_1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SANROMAN_WIND_1	Wind	-	CAMERON	Pioneer Green	San Roman Wind 1

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
31 Acciona 3 MW	ERCOT	S	Feb-17	Coastal	CRP	95.2

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

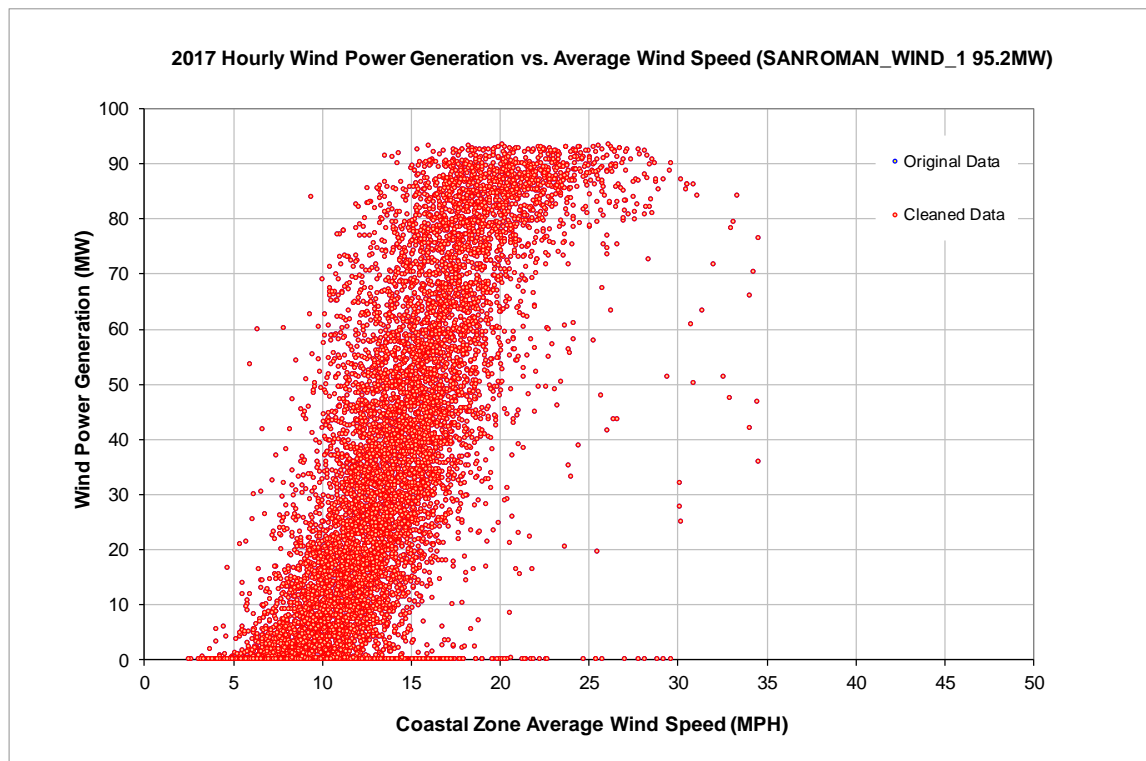


Figure 10-367: SANROMAN\_WIND\_1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

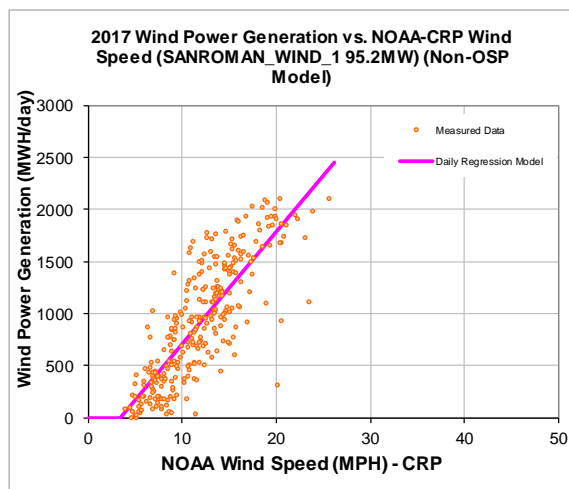
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-367.91
Left Slope (MWh/mph-day)	108.08
RMSE (MWh/day)	327.19
R2	0.67
CV-RMSE	35.7%
Daily Maximum (MWh/day)	2285

**OSP Model:**

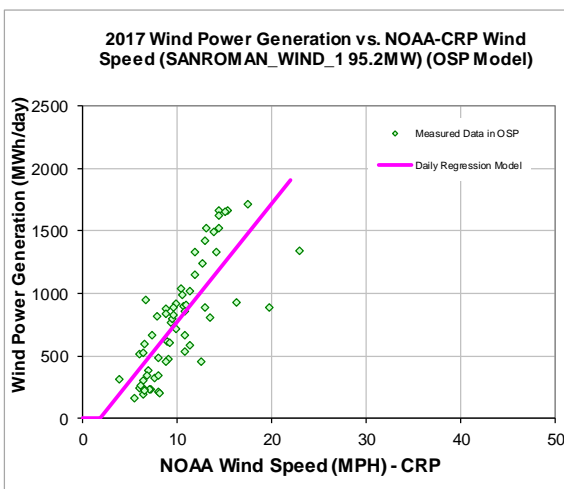
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-177.82
Left Slope (MWh/mph-day)	94.95
RMSE (MWh/day)	288.84
R2	0.60
CV-RMSE	36.6%
Daily Maximum (MWh/day)	2285

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
319,331	321,293	680	798

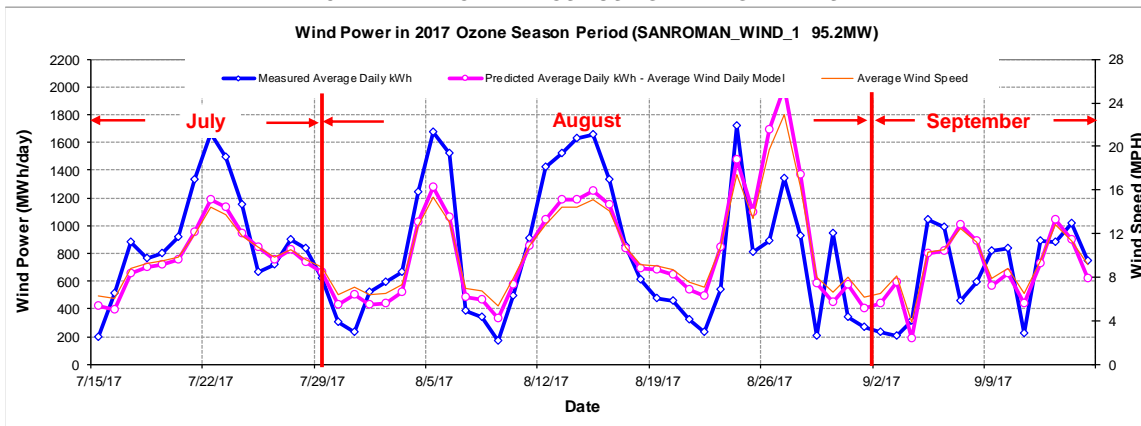
Figure 10-368: SANROMAN\_WIND\_1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	32,320	32,884	-1.75%	46%	46%
Feb-17	28	13.29	30,873	29,908	3.12%	48%	47%
Mar-17	31	14.29	34,568	36,482	-5.54%	49%	52%
Apr-17	30	14.89	32,544	35,894	-10.29%	47%	52%
May-17	31	13.29	27,439	27,793	-1.29%	39%	39%
Jun-17	30	9.21	23,228	18,810	19.02%	34%	27%
Jul-17	31	9.39	25,102	21,153	15.73%	35%	30%
Aug-17	31	11.11	26,631	27,186	-2.08%	38%	38%
Sep-17	30	10.25	21,086	23,275	-10.38%	31%	34%
Oct-17	31	9.56	18,661	20,617	-10.48%	26%	29%
Nov-17	30	10.64	23,510	23,462	0.21%	34%	34%
Dec-17	31	10.48	25,331	23,715	6.38%	36%	33%
<b>Total</b>	<b>365</b>	<b>11.59</b>	<b>321,293</b>	<b>321,181</b>	<b>0.03%</b>	<b>39%</b>	<b>39%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>49,748</b>	<b>49,748</b>	<b>0.00%</b>	<b>35%</b>	<b>35%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

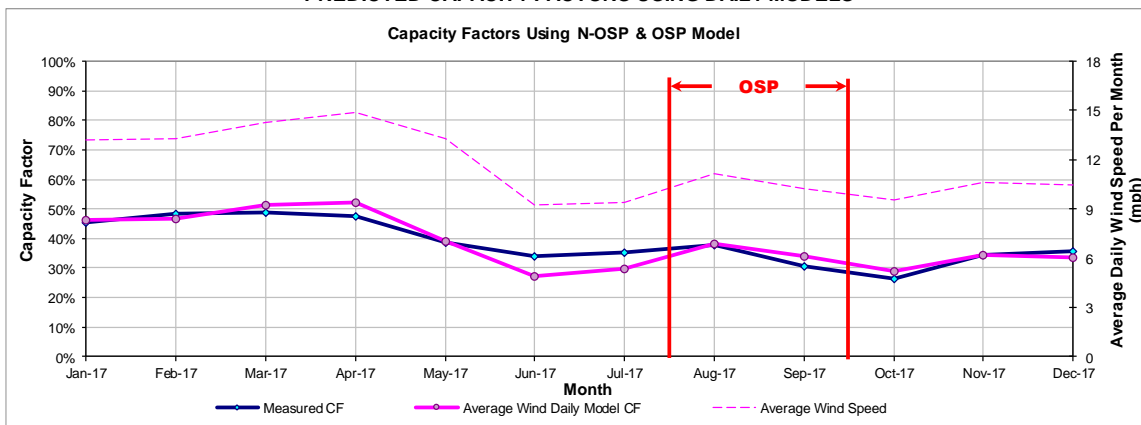


Figure 10-369: SANROMAN\_WIND\_1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.86 Sand Bluff Wind Farm

10.86.1 Sand Bluff Wind Farm - MCDLD\_SBW1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
MCDLD_SBW1	Wind	Abilene	STERLING	E.On Climate & Renewables	Sand Bluff Wind Farm

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
45 Gamesa 2 MW	ERCOT	W	Dec-06	West	ABI	90

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

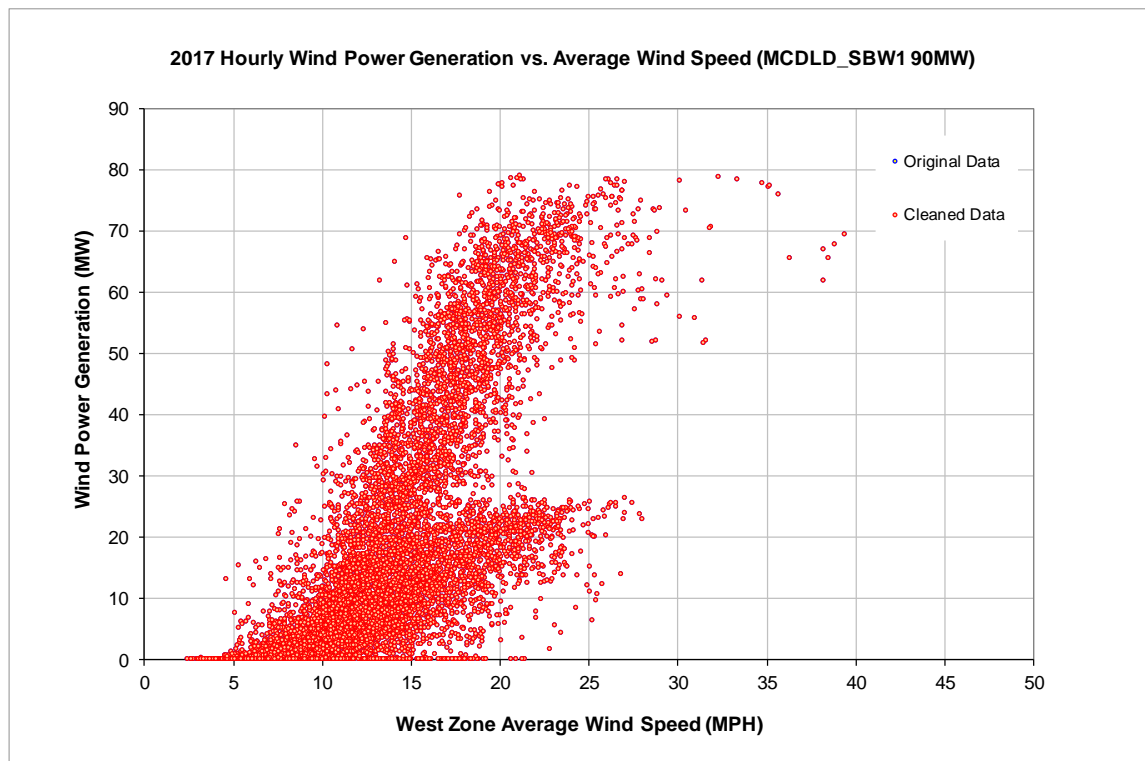


Figure 10-370: MCDLD\_SBW1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

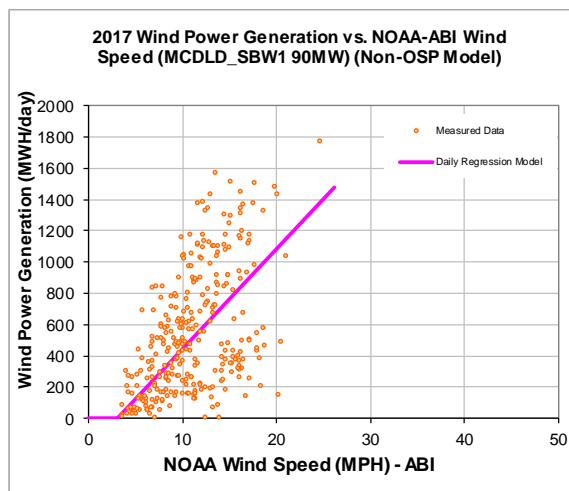
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-18.98
Left Slope (MWh/mph-day)	50.83
RMSE (MWh/day)	338.41
R2	0.26
CV-RMSE	62.1%
Daily Maximum (MWh/day)	2160

**OSP Model:**

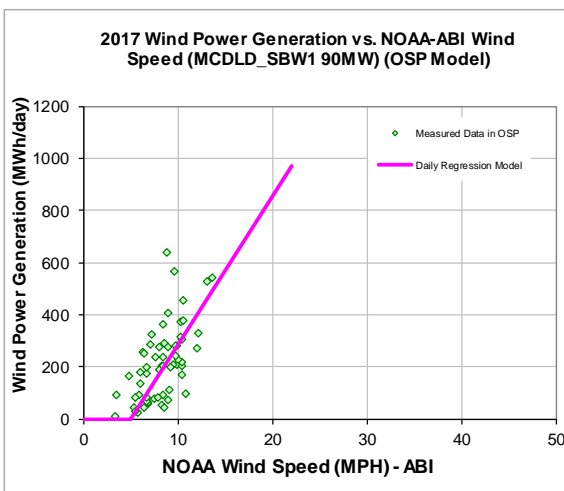
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-123.56
Left Slope (MWh/mph-day)	40.42
RMSE (MWh/day)	115.19
R2	0.37
CV-RMSE	54.0%
Daily Maximum (MWh/day)	2160

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
193,254	176,233

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
230	217

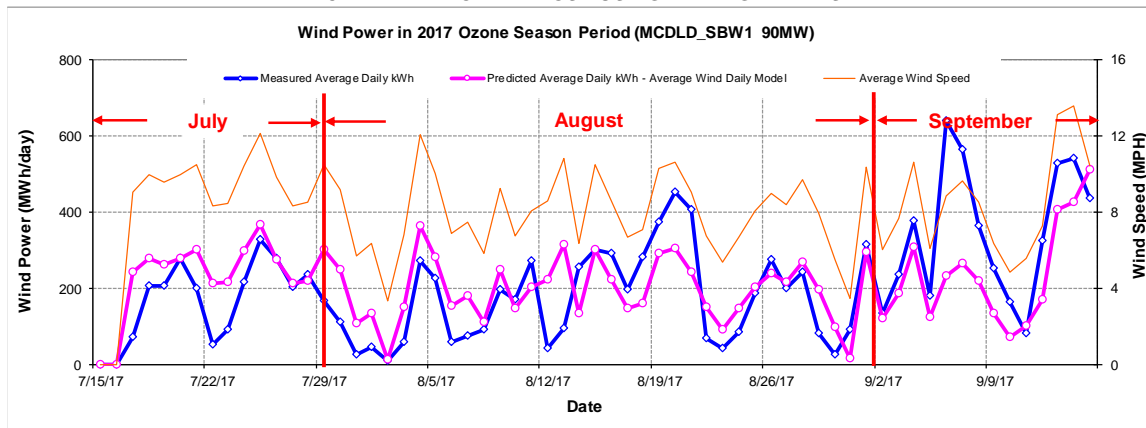
Figure 10-371: MCDLD\_SBW1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	23,154	15,853	31.53%	35%	24%
Feb-17	28	11.23	23,114	15,446	33.17%	38%	26%
Mar-17	31	12.96	25,984	19,830	23.68%	39%	30%
Apr-17	30	13.49	8,340	19,997	-139.79%	13%	31%
May-17	31	11.55	7,252	17,615	-142.91%	11%	26%
Jun-17	30	10.72	6,361	15,776	-148.03%	10%	24%
Jul-17	31	9.33	4,499	9,424	-109.45%	7%	14%
Aug-17	31	7.87	5,385	6,027	-11.92%	8%	9%
Sep-17	30	9.51	14,212	11,089	21.98%	22%	17%
Oct-17	31	11.07	20,713	16,852	18.64%	31%	25%
Nov-17	30	10.21	19,965	15,001	24.86%	31%	23%
Dec-17	31	9.11	17,254	13,322	22.79%	26%	20%
<b>Total</b>	<b>365</b>	<b>10.63</b>	<b>176,233</b>	<b>176,233</b>	<b>0.00%</b>	<b>22%</b>	<b>22%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>60</b>	<b>8.34</b>	<b>12,801</b>	<b>12,801</b>	<b>0.00%</b>	<b>10%</b>	<b>10%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

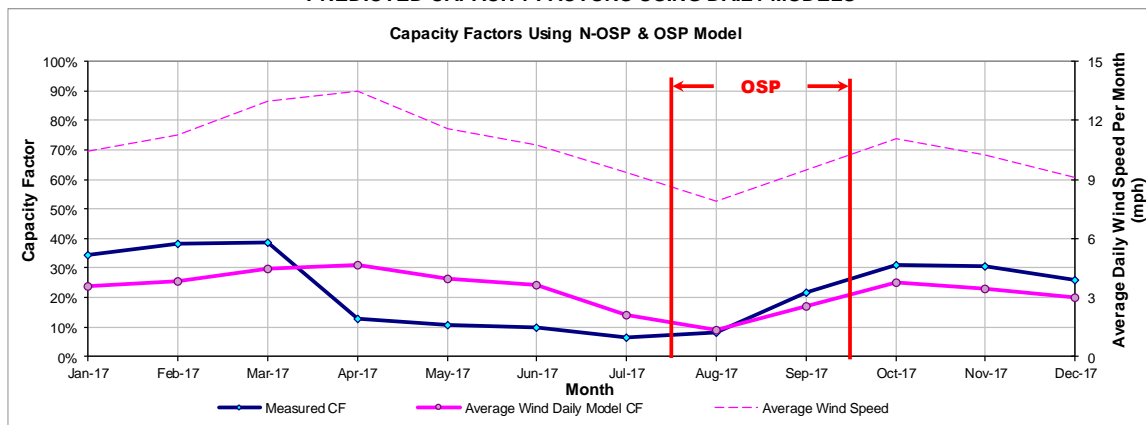


Figure 10-372: MCDLD\_SBW1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.87 Senate Wind Farm

10.87.1 Senate Wind Farm - SENATEWD\_UNIT1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SENATEWD_UNIT1	Wind	-	JACK	Liberty Power	Senate Wind Project

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
75 Gamesa 2 MW	ERCOT	N	Dec-12	North	ABI	150

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

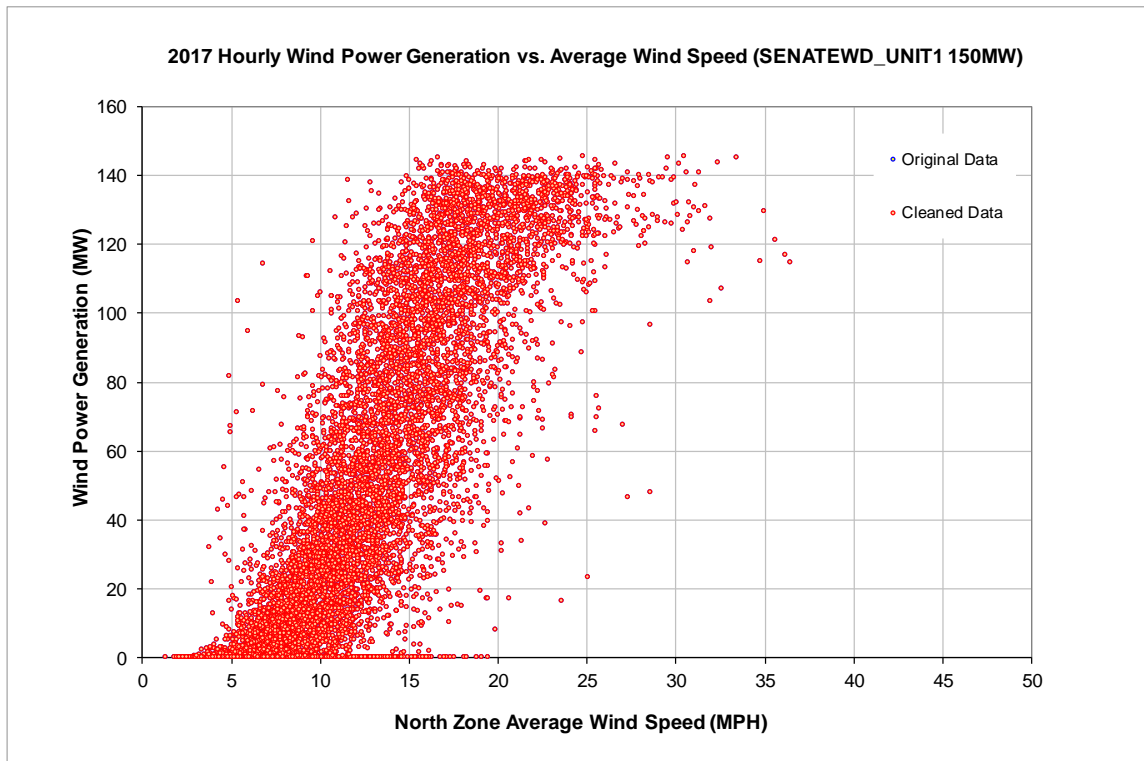


Figure 10-373: SENATEWD\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

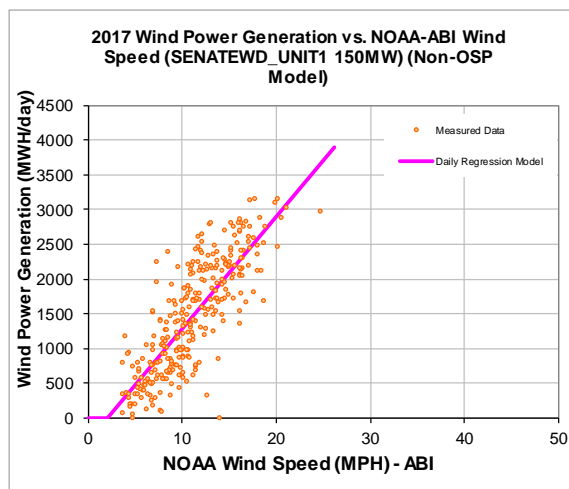
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-321.68
Left Slope (MWh/mph-day)	161.71
RMSE (MWh/day)	468.89
R2	0.65
CV-RMSE	31.9%
Daily Maximum (MWh/day)	3600

**OSP Model:**

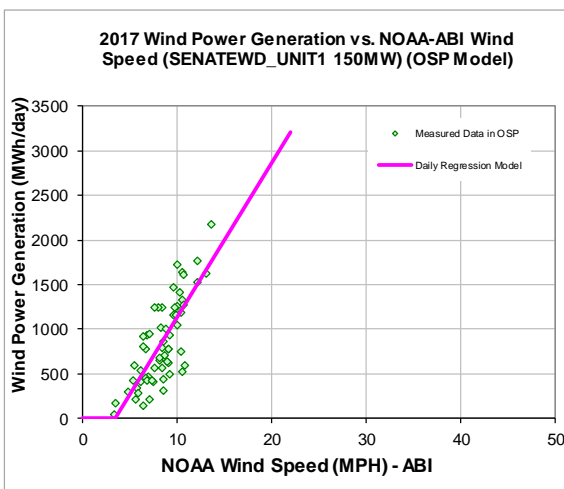
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-597.78
Left Slope (MWh/mph-day)	172.75
RMSE (MWh/day)	301.22
R2	0.60
CV-RMSE	35.9%
Daily Maximum (MWh/day)	3600

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
547,141	492,736

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
913	857

Figure 10-374: SENATEWD\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

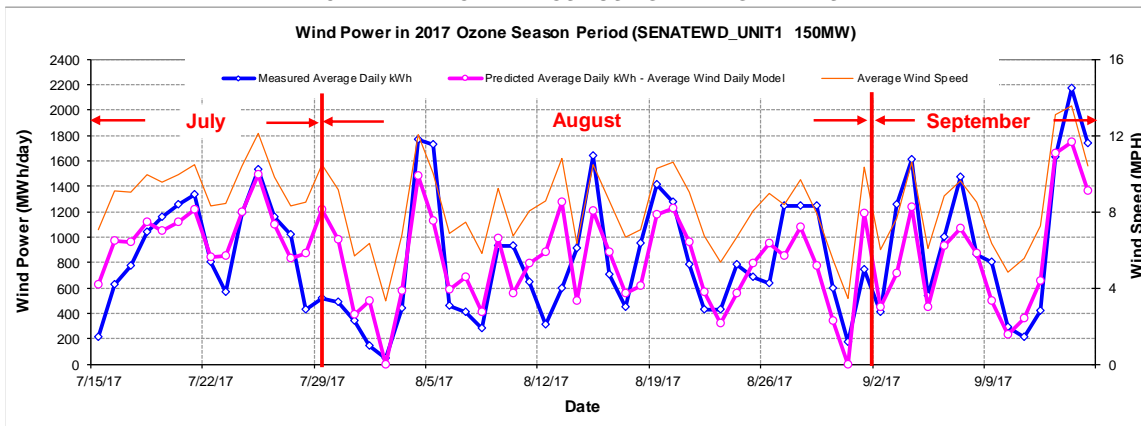


**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	47,591	42,335	11.04%	43%	38%
Feb-17	28	11.23	47,063	41,824	11.13%	47%	41%
Mar-17	31	12.96	53,765	54,915	-2.14%	48%	49%
Apr-17	30	13.49	50,881	55,782	-9.63%	47%	52%
May-17	31	11.55	45,830	47,941	-4.61%	41%	43%
Jun-17	30	10.72	36,309	42,353	-16.65%	34%	39%
Jul-17	31	9.17	27,564	33,060	-19.94%	25%	30%
Aug-17	31	7.87	24,511	23,620	3.64%	22%	21%
Sep-17	30	9.51	32,743	33,667	-2.82%	30%	31%
Oct-17	31	11.14	44,715	41,454	7.29%	40%	37%
Nov-17	30	10.21	42,966	39,887	7.17%	40%	37%
Dec-17	31	9.14	38,798	35,846	7.61%	35%	32%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>492,736</b>	<b>492,684</b>	<b>0.01%</b>	<b>37%</b>	<b>37%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>52,832</b>	<b>52,854</b>	<b>-0.04%</b>	<b>23%</b>	<b>23%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

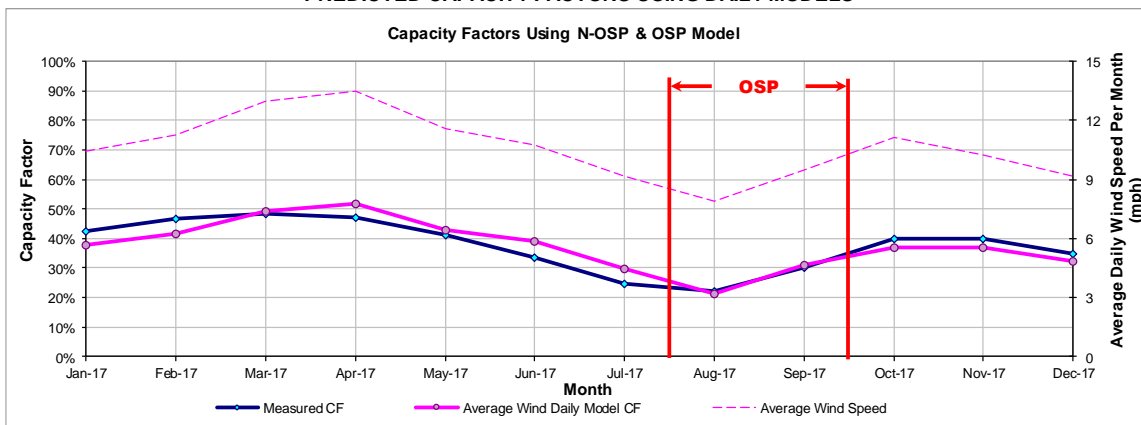


Figure 10-375: SENATEWD\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.88 Sendero Wind Energy Project

10.88.1 Sendero Wind Energy Project - EXGNSND\_WIND\_1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
EXGNSND_WIND_1	Wind	-	JIM HOGG	Exelon	Sendero Wind Energy Project

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
39 GE 2 MW	ERCOT	S	Dec-15	South	CRP	76

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

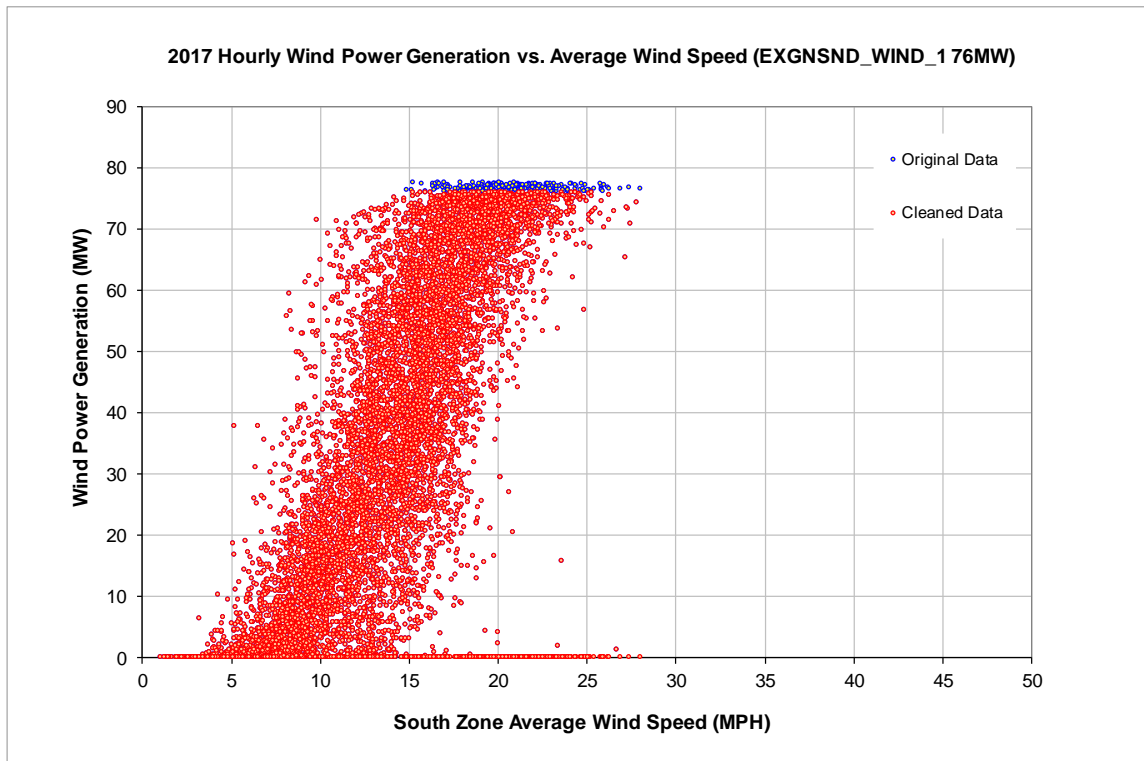


Figure 10-376: EXGNSND\_WIND\_1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

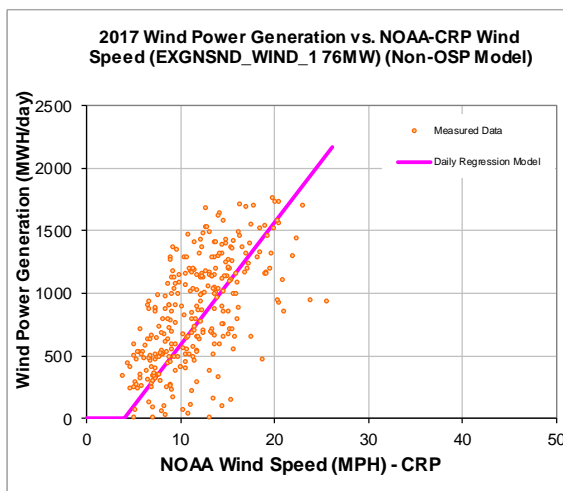
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	106.30
Left Slope (MWh/mph-day)	62.66
RMSE (MWh/day)	333.94
R2	0.39
CV-RMSE	39.6%
Daily Maximum (MWh/day)	1824

**OSP Model:**

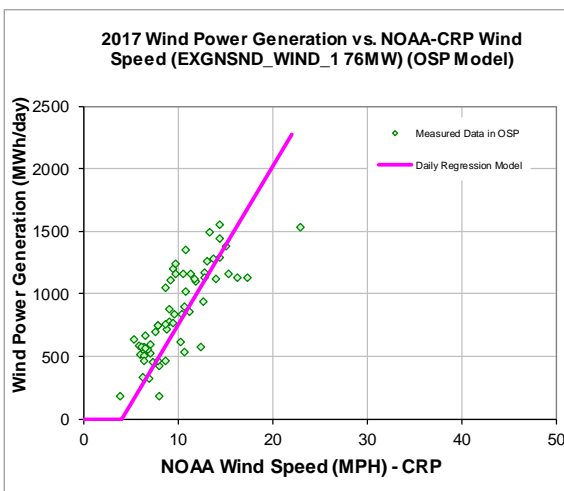
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	42.44
Left Slope (MWh/mph-day)	80.65
RMSE (MWh/day)	217.16
R2	0.63
CV-RMSE	25.5%
Daily Maximum (MWh/day)	1824

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
305,739	301,783

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
771	856

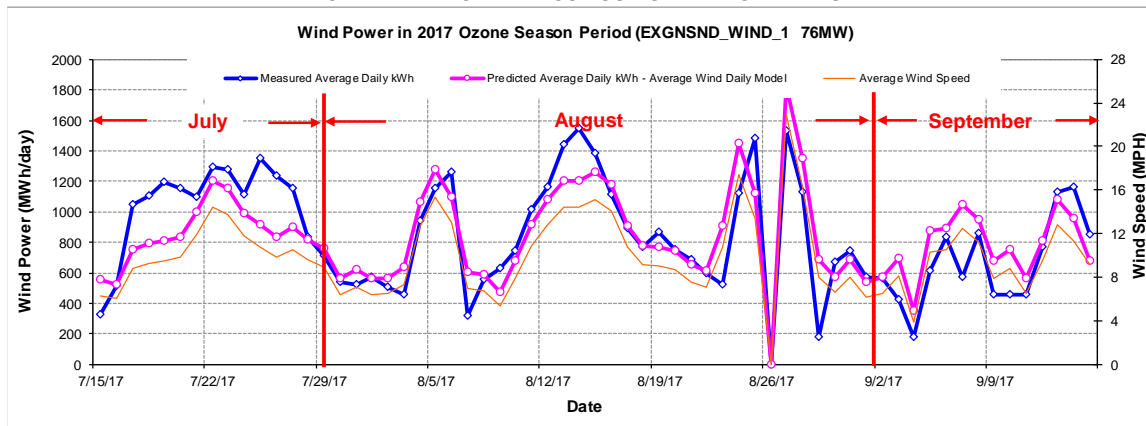
Figure 10-377: EXGNSND\_WIND\_1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.05	28,220	27,730	1.74%	50%	49%
Feb-17	28	13.29	25,274	26,290	-4.02%	49%	51%
Mar-17	31	13.69	25,242	26,992	-6.94%	45%	48%
Apr-17	30	14.70	31,939	30,821	3.50%	58%	56%
May-17	31	12.81	31,641	28,176	10.95%	56%	50%
Jun-17	30	9.21	23,539	20,495	12.93%	43%	37%
Jul-17	31	9.39	31,574	23,400	25.89%	56%	41%
Aug-17	31	10.82	26,504	27,392	-3.35%	47%	48%
Sep-17	30	10.25	24,024	23,903	0.50%	44%	44%
Oct-17	31	9.56	21,010	21,862	-4.06%	37%	39%
Nov-17	30	10.50	16,958	21,392	-26.15%	31%	39%
Dec-17	31	10.68	15,857	23,262	-46.70%	28%	41%
<b>Total</b>	<b>365</b>	<b>11.47</b>	<b>301,783</b>	<b>301,717</b>	<b>0.02%</b>	<b>45%</b>	<b>45%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>62</b>	<b>10.04</b>	<b>52,815</b>	<b>52,749</b>	<b>0.13%</b>	<b>47%</b>	<b>47%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

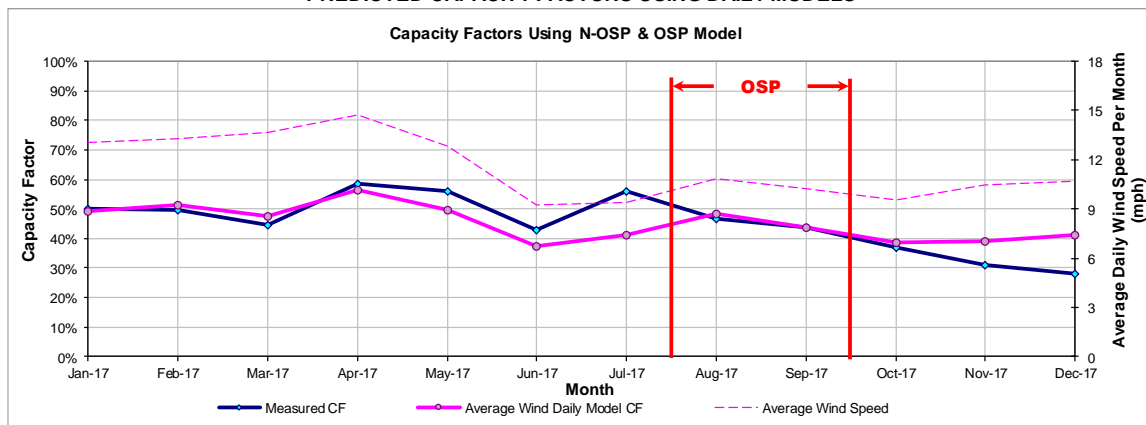


Figure 10-378: EXGNSND\_WIND\_1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.89 Shannon Wind

10.89.1 Shannon Wind - SHANNONW\_UNIT\_1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SHANNONW_UNIT_1	Wind	-	CLAY	Alterra Power/Starwood Energy	Shannon Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
119 GE 1.7 MW	ERCOT	W	Dec-15	West	ABI	204.1

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

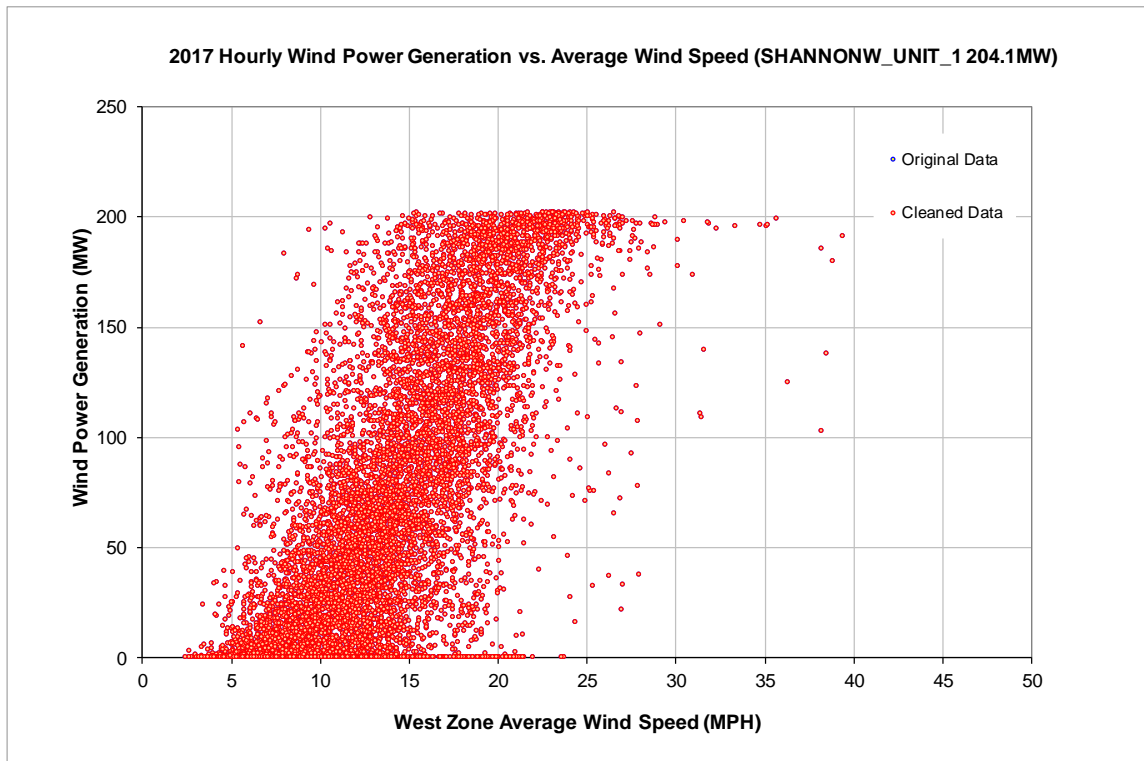


Figure 10-379: SHANNONW\_UNIT\_1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

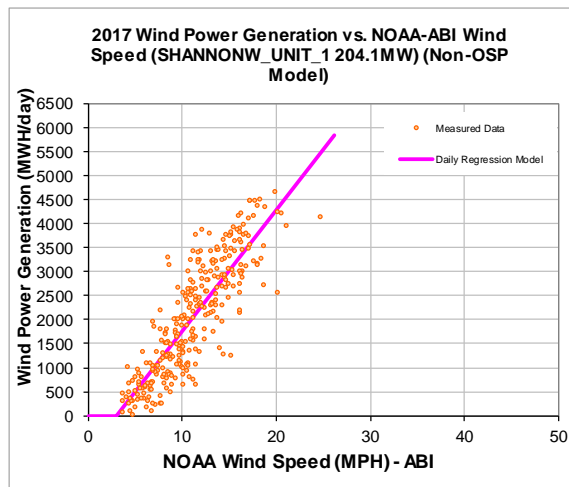
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-768.81
Left Slope (MWh/mph-day)	253.65
RMSE (MWh/day)	617.87
R2	0.73
CV-RMSE	30.0%
Daily Maximum (MWh/day)	4898

**OSP Model:**

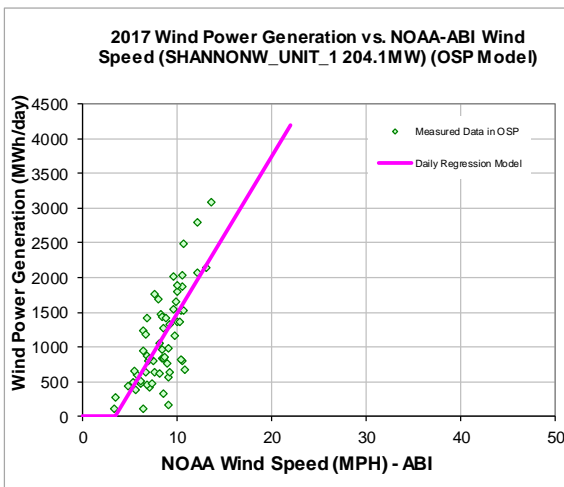
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-785.87
Left Slope (MWh/mph-day)	226.25
RMSE (MWh/day)	452.21
R2	0.54
CV-RMSE	41.3%
Daily Maximum (MWh/day)	4898

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
763,066	676,834	1,192	1,123

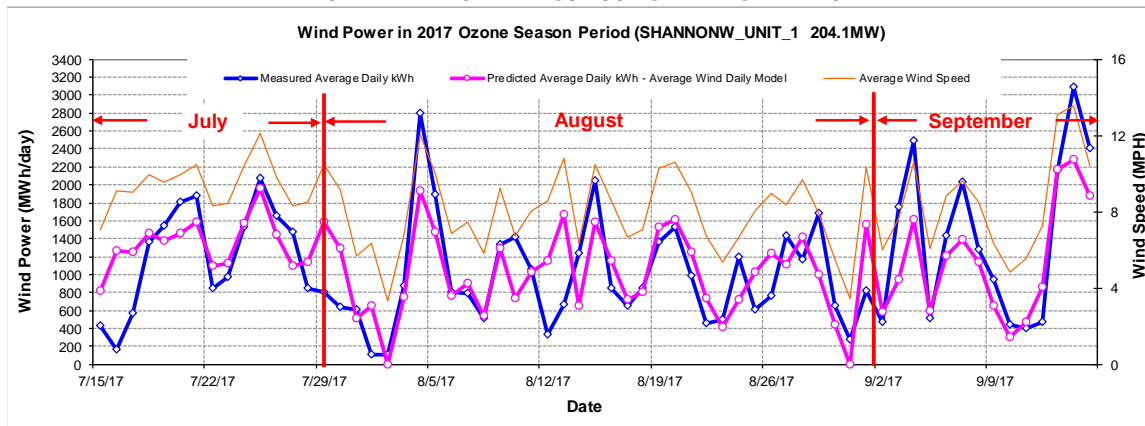
Figure 10-380: SHANNONW\_UNIT\_1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	65,400	58,211	10.99%	43%	38%
Feb-17	28	11.23	66,196	58,203	12.07%	48%	42%
Mar-17	31	12.96	76,935	77,459	-0.68%	51%	51%
Apr-17	30	13.49	74,374	79,567	-6.98%	51%	54%
May-17	31	11.55	68,967	67,004	2.85%	45%	44%
Jun-17	30	10.72	51,986	58,504	-12.54%	35%	40%
Jul-17	31	9.17	35,921	43,664	-21.56%	24%	29%
Aug-17	31	7.87	31,248	30,847	1.28%	21%	20%
Sep-17	30	9.51	44,992	45,678	-1.53%	31%	31%
Oct-17	31	11.07	69,094	63,199	8.53%	46%	42%
Nov-17	30	10.21	56,458	54,636	3.23%	38%	37%
Dec-17	31	9.49	35,262	39,295	-11.44%	23%	26%
<b>Total</b>	<b>365</b>	<b>10.65</b>	<b>676,834</b>	<b>676,269</b>	<b>0.08%</b>	<b>38%</b>	<b>38%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>69,009</b>	<b>69,044</b>	<b>-0.05%</b>	<b>22%</b>	<b>22%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

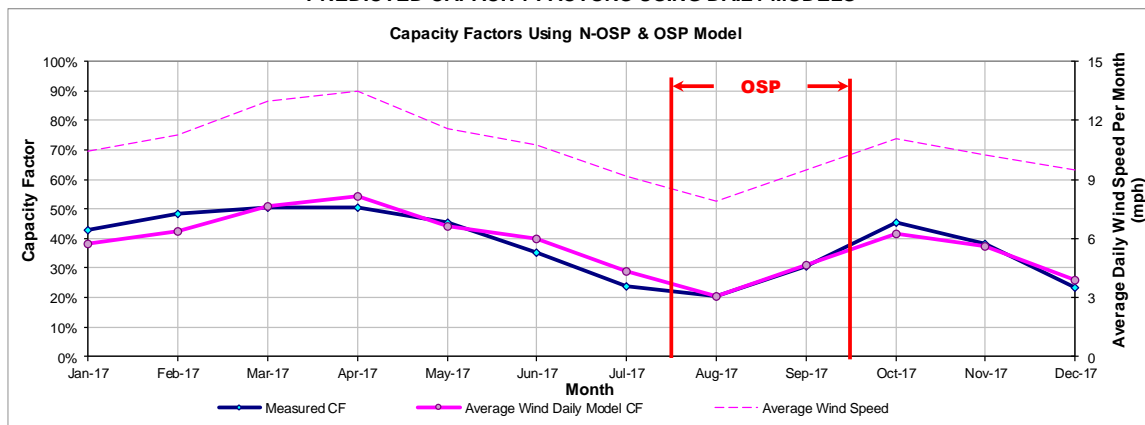


Figure 10-381: SHANNONW\_UNIT\_1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.90 Sherbino 1 Wind Farm

10.90.1 Sherbino 1 Wind Farm - KEO\_KEO\_SM1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
KEO_KEO_SM1	Wind	-	PECOS	BP Alternative Energy	Sherbino Mesa Wind Farm

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
50 Vestas 3 MW	ERCOT	W	Sep-08	West	FST	150

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

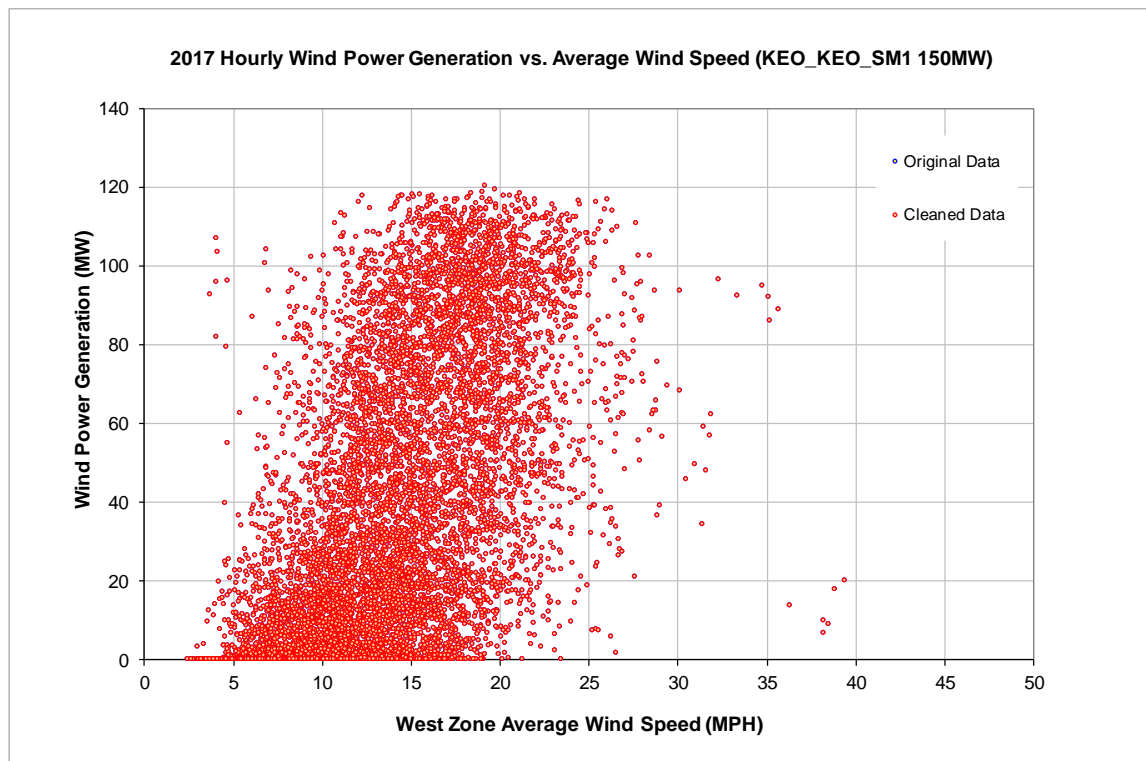


Figure 10-382: KEO\_KEO\_SM1 - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

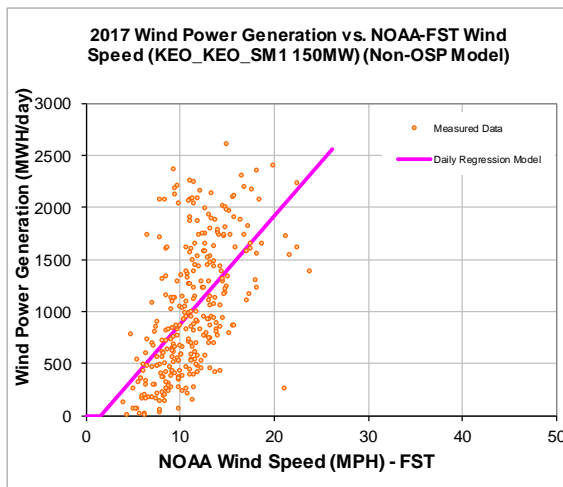
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-155.75
Left Slope (MWh/mph-day)	104.16
RMSE (MWh/day)	513.62
R2	0.33
CV-RMSE	51.0%
Daily Maximum (MWh/day)	3600

**OSP Model:**

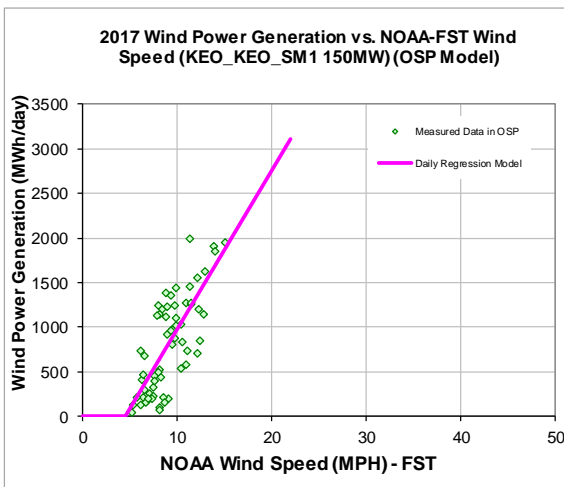
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-810.07
Left Slope (MWh/mph-day)	178.04
RMSE (MWh/day)	353.91
R2	0.58
CV-RMSE	43.8%
Daily Maximum (MWh/day)	3600

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
355,540	355,245	768	817

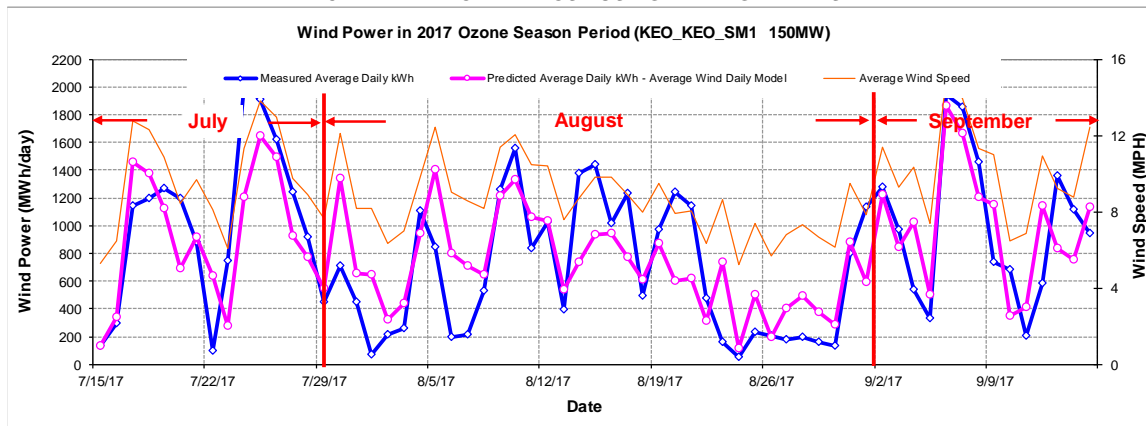
Figure 10-383: KEO\_KEO\_SM1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (FST) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.60	23,741	29,385	-23.77%	21%	26%
Feb-17	28	11.24	25,121	28,424	-13.15%	25%	28%
Mar-17	31	11.81	42,369	33,321	21.36%	38%	30%
Apr-17	30	13.08	38,520	36,198	6.03%	36%	34%
May-17	31	12.22	26,334	34,645	-31.56%	24%	31%
Jun-17	30	11.10	30,038	30,009	0.10%	28%	28%
Jul-17	31	11.01	34,400	31,614	8.10%	31%	28%
Aug-17	31	8.40	19,671	21,260	-8.08%	18%	19%
Sep-17	30	11.19	33,181	31,518	5.01%	31%	29%
Oct-17	31	10.75	37,031	29,888	19.29%	33%	27%
Nov-17	30	9.40	24,589	24,688	-0.40%	23%	23%
Dec-17	31	9.02	20,249	24,294	-19.98%	18%	22%
<b>Total</b>	<b>365</b>	<b>10.81</b>	<b>355,245</b>	<b>355,245</b>	<b>0.00%</b>	<b>27%</b>	<b>27%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>9.09</b>	<b>50,916</b>	<b>50,916</b>	<b>0.00%</b>	<b>22%</b>	<b>22%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

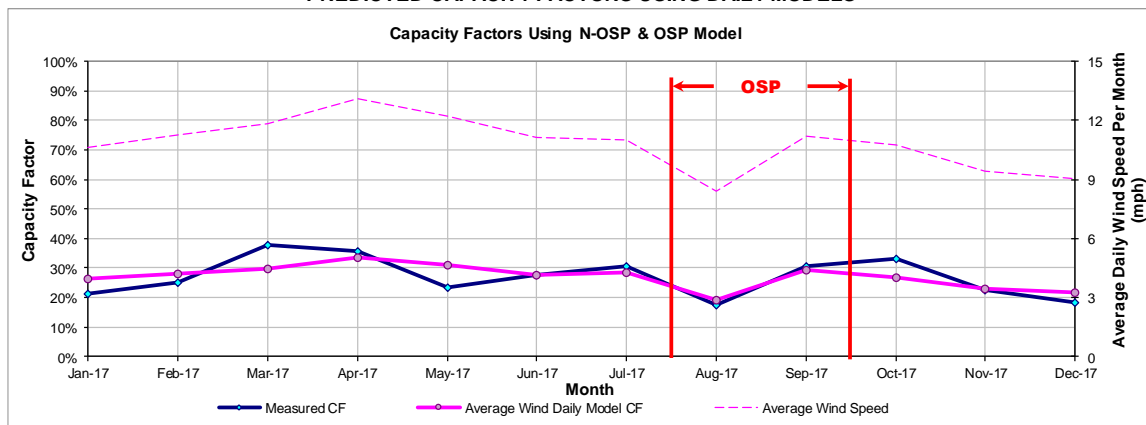


Figure 10-384: KEO\_KEO\_SM1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.91 Sherbino 2 Wind Farm

10.91.1 Sherbino 2 Wind Farm - KEO\_SHRBINO2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
KEO_SHRBINO2	Wind	-	PECOS	BP Alternative Energy	Sherbino Mesa Wind Farm 2

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
60 Clipper Liberty 2.5 MW	ERCOT	W	Nov-11	West	FST	150

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

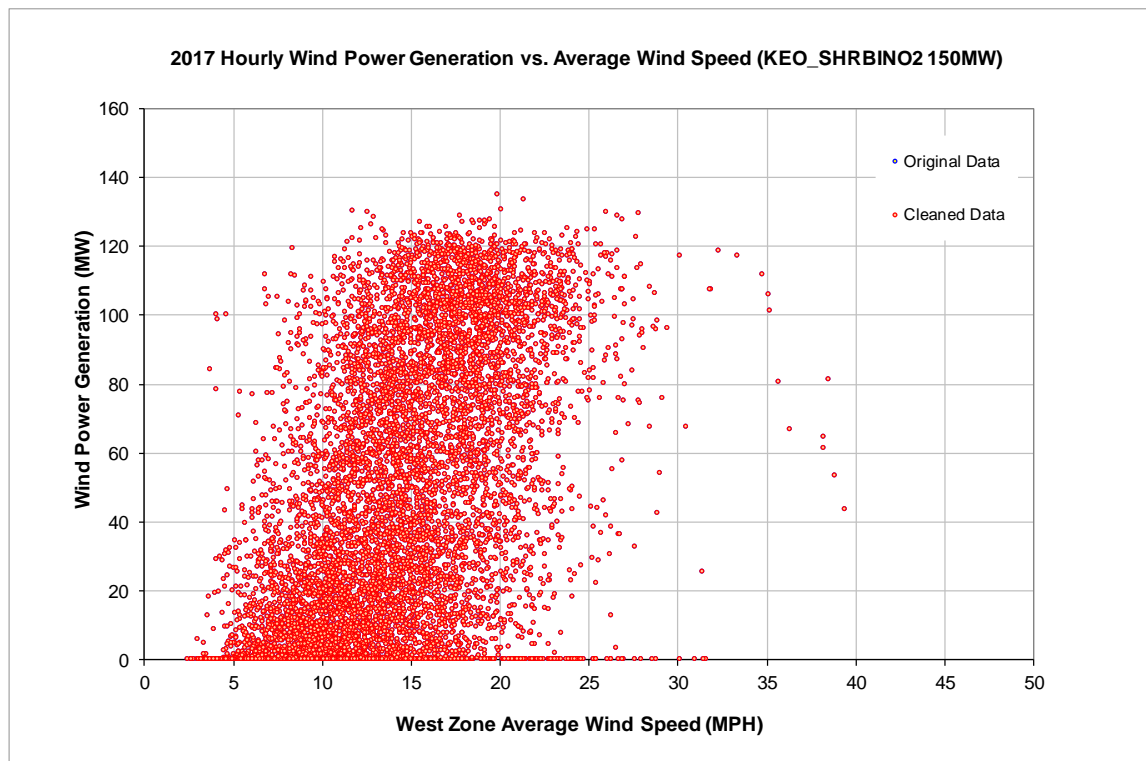


Figure 10-385: KEO\_SHRBINO2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

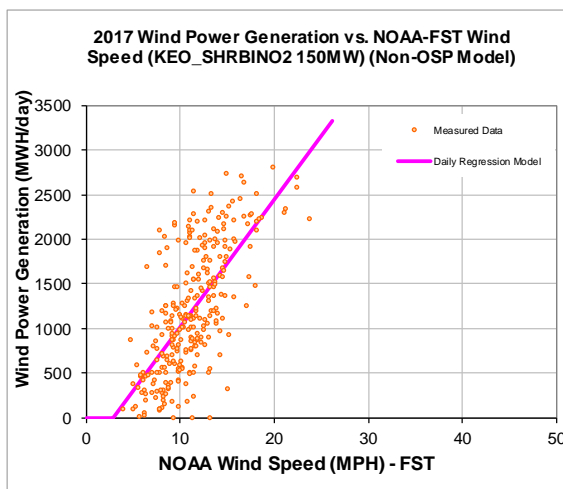
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-414.40
Left Slope (MWh/mph-day)	143.20
RMSE (MWh/day)	505.72
R2	0.48
CV-RMSE	42.4%
Daily Maximum (MWh/day)	3600

**OSP Model:**

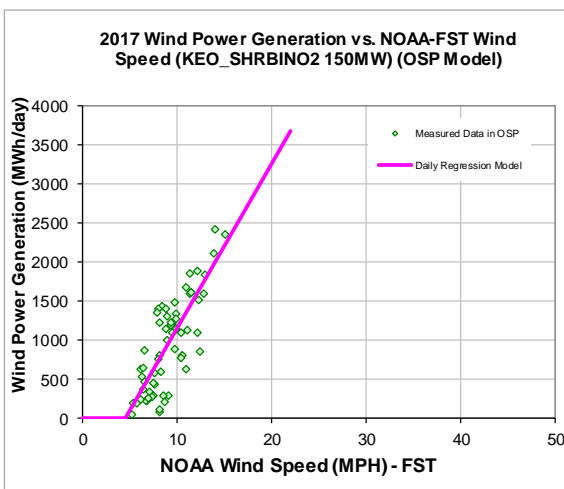
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-965.72
Left Slope (MWh/mph-day)	211.32
RMSE (MWh/day)	363.94
R2	0.64
CV-RMSE	38.1%
Daily Maximum (MWh/day)	3600

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
418,693	402,726	907	962

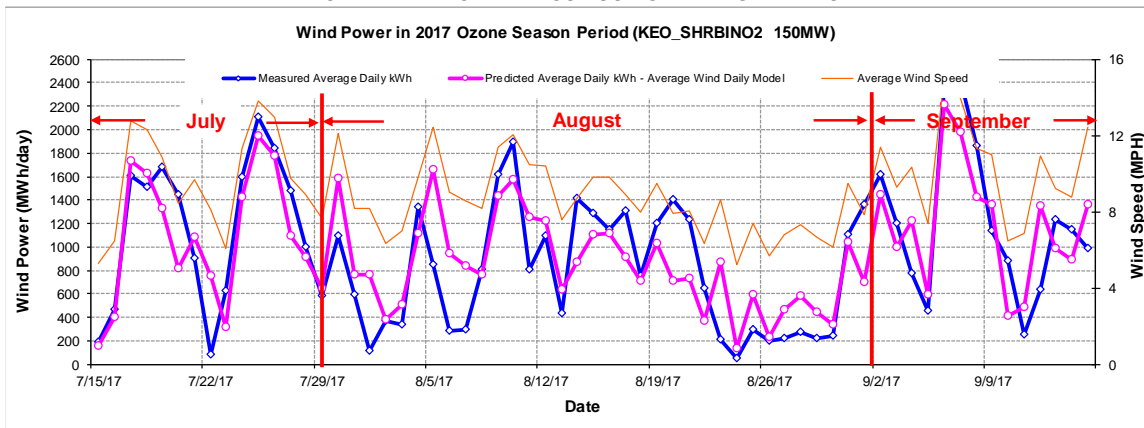
Figure 10-386: KEO\_SHRBINO2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (FST) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.32	14,519	21,265	-46.47%	13%	19%
Feb-17	28	11.24	31,247	33,469	-7.11%	31%	33%
Mar-17	31	11.81	46,336	39,601	14.53%	42%	35%
Apr-17	30	13.08	46,954	43,756	6.81%	43%	41%
May-17	31	12.22	40,520	41,421	-2.22%	36%	37%
Jun-17	30	11.40	30,886	34,120	-10.47%	29%	32%
Jul-17	31	11.01	39,554	37,731	4.61%	35%	34%
Aug-17	31	8.40	22,956	25,102	-9.35%	21%	22%
Sep-17	30	11.19	40,438	37,546	7.15%	37%	35%
Oct-17	31	10.75	41,830	34,881	16.61%	37%	31%
Nov-17	30	9.54	25,010	26,643	-6.53%	23%	25%
Dec-17	31	9.02	22,477	27,190	-20.97%	20%	24%
<b>Total</b>	<b>365</b>	<b>10.84</b>	<b>402,726</b>	<b>402,726</b>	<b>0.00%</b>	<b>31%</b>	<b>31%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>9.09</b>	<b>60,165</b>	<b>60,165</b>	<b>0.00%</b>	<b>27%</b>	<b>27%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

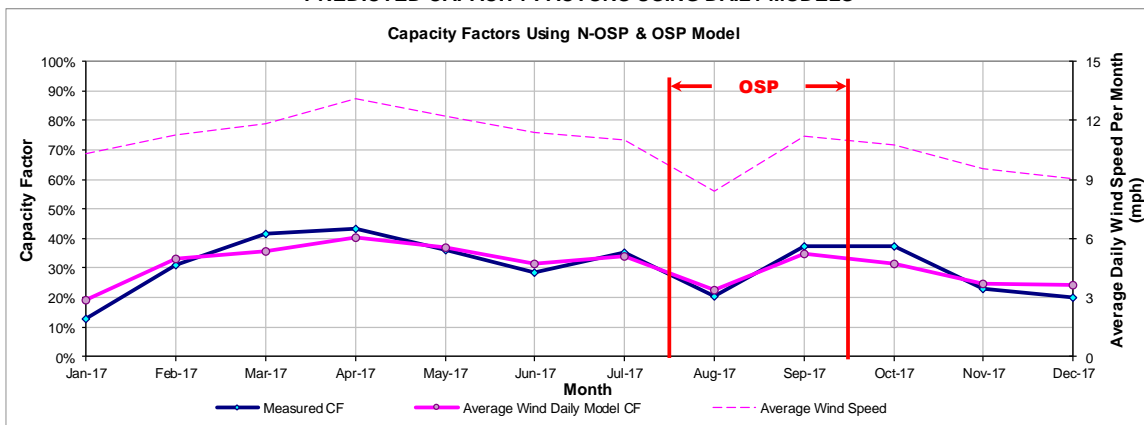


Figure 10-387: KEO\_SHRBINO2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.92 Silver Star Phase I

10.92.1 Silver Star Phase I - FLTCK\_SSI

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
FLTCK_SSI	Wind	-	ERATH	BP Alternative Energy/Clipper Windpower	Silver Star Phase I

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
24 Clipper Liberty 2.5 MW	ERCOT	N	Mar-08	North	ABI	60

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

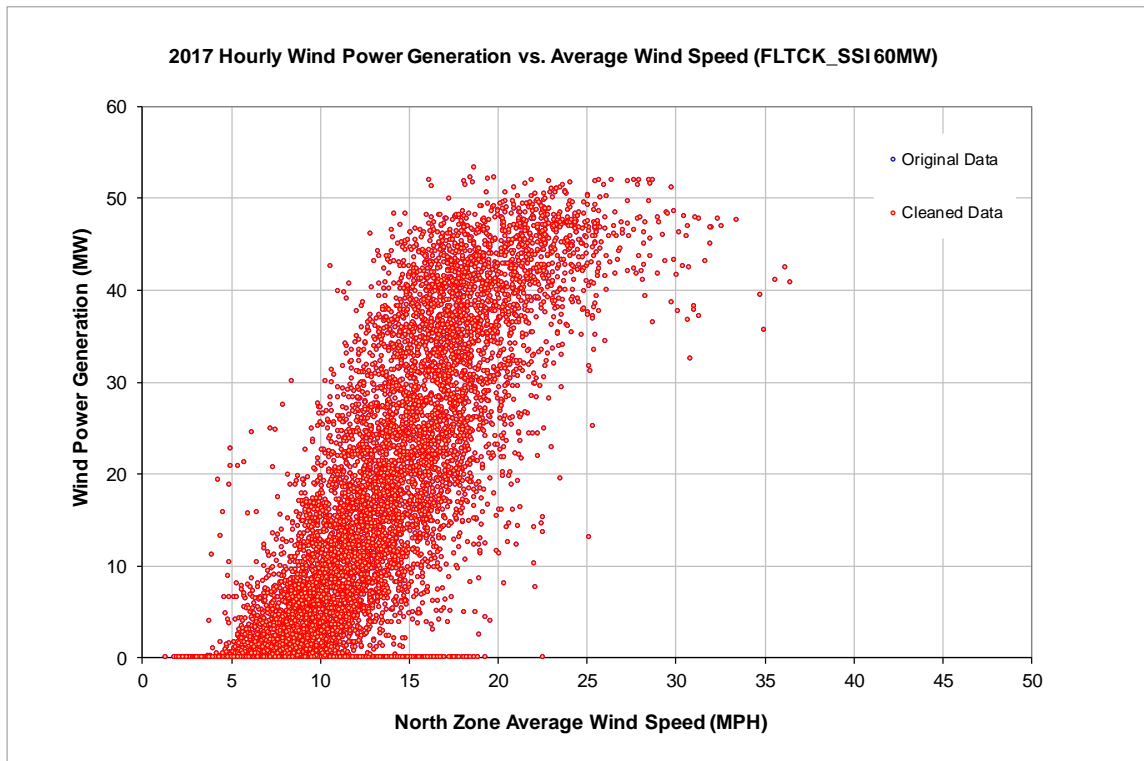


Figure 10-388: FLTCK\_SSI - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

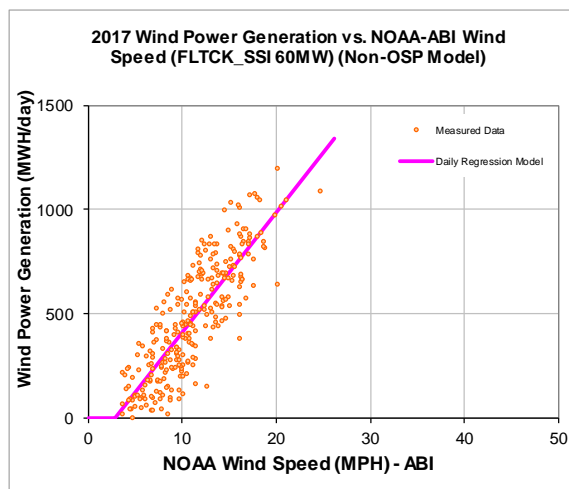
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-163.85
Left Slope (MWh/mph-day)	57.69
RMSE (MWh/day)	147.59
R2	0.71
CV-RMSE	30.9%
Daily Maximum (MWh/day)	1440

**OSP Model:**

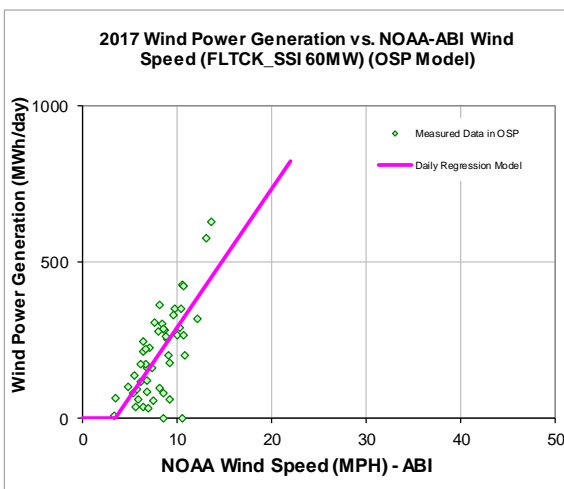
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-151.95
Left Slope (MWh/mph-day)	44.39
RMSE (MWh/day)	102.05
R2	0.49
CV-RMSE	49.8%
Daily Maximum (MWh/day)	1440

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
174,699	145,728	236	213

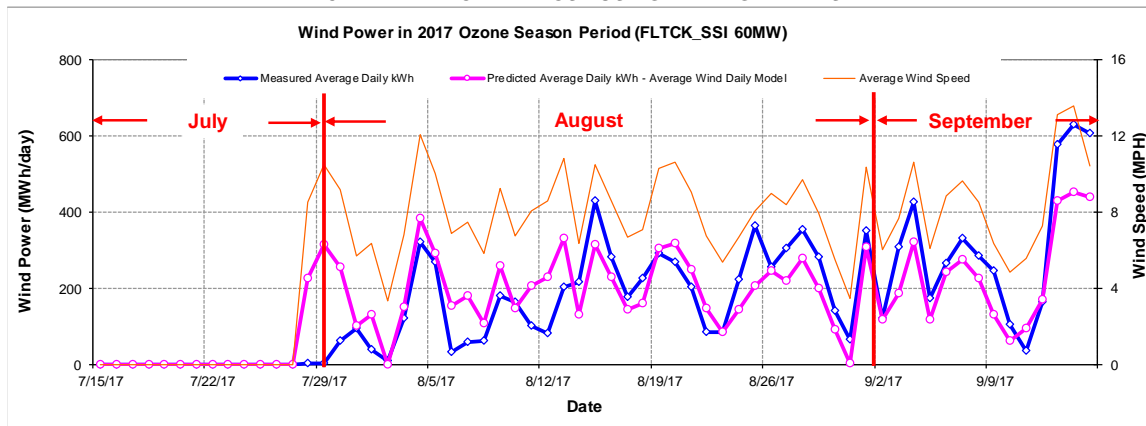
Figure 10-389: FLTCK\_SSI - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	16,590	13,583	18.13%	37%	30%
Feb-17	28	11.23	14,941	13,548	9.33%	37%	34%
Mar-17	31	12.96	17,196	18,097	-5.24%	39%	41%
Apr-17	30	13.49	17,199	18,429	-7.16%	40%	43%
May-17	31	11.55	14,506	15,583	-7.42%	32%	35%
Jun-17	30	10.15	9,368	11,382	-21.50%	22%	26%
Jul-17	31	9.39	66	794	-1110.83%	0%	2%
Aug-17	31	7.87	5,893	6,119	-3.83%	13%	14%
Sep-17	30	9.51	9,350	10,095	-7.98%	22%	23%
Oct-17	31	11.07	15,446	14,717	4.72%	35%	33%
Nov-17	30	10.21	13,640	12,758	6.46%	32%	30%
Dec-17	31	8.98	11,534	10,626	7.87%	26%	24%
<b>Total</b>	<b>365</b>	<b>10.67</b>	<b>145,728</b>	<b>145,732</b>	<b>0.00%</b>	<b>28%</b>	<b>28%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>49</b>	<b>8.04</b>	<b>10,037</b>	<b>10,041</b>	<b>-0.04%</b>	<b>14%</b>	<b>14%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

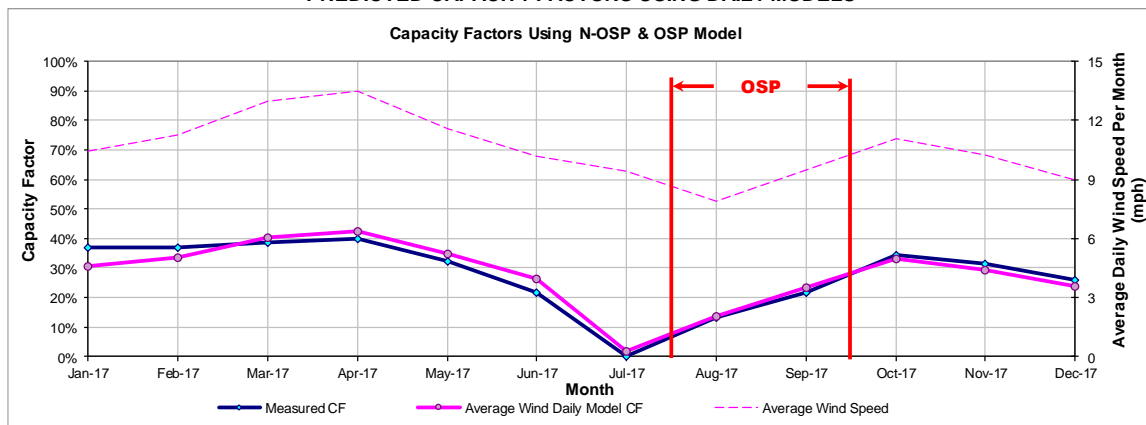


Figure 10-390: FLTK\_SSI - Predicted Wind Power and Capacity Factor Using Daily Models



10.93 Snyder Wind Project

10.93.1 Snyder Wind Project - ENAS\_ENA1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
ENAS_ENA1	Wind	Snyder	SCURRY	Enel Green Power	Snyder Wind Project

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
21 Vestas 3 MW	ERCOT	W	Dec-07	West	ABI	63

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

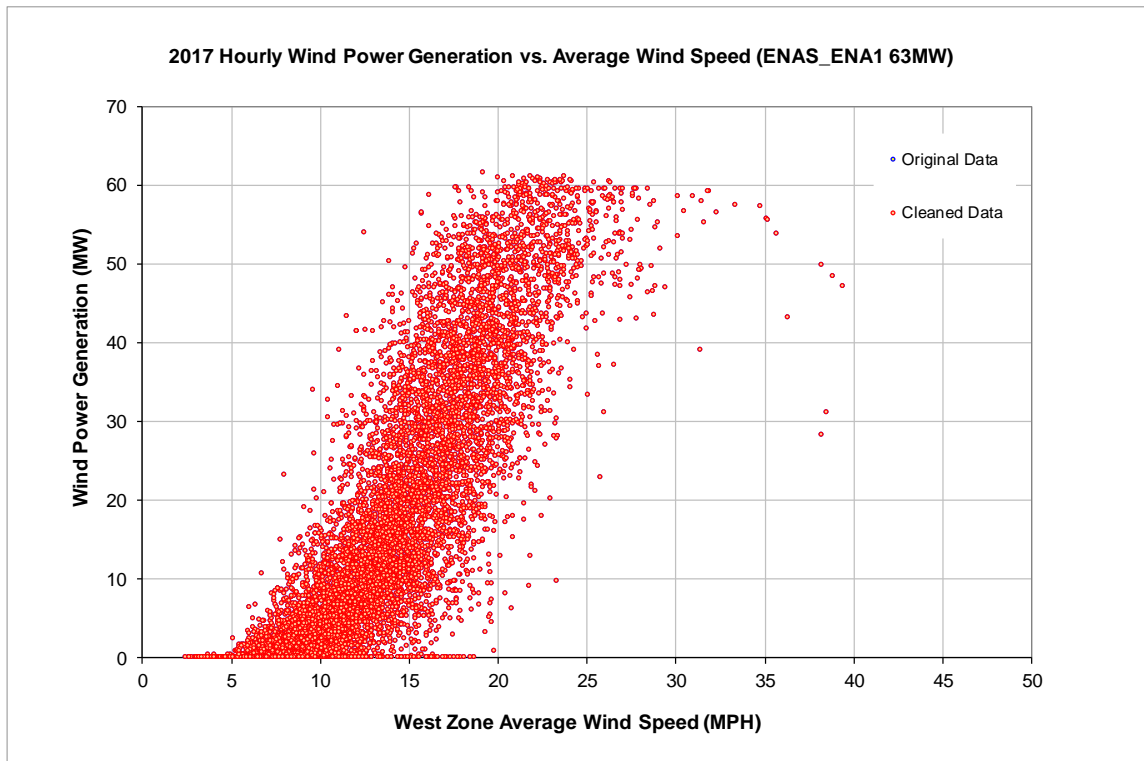


Figure 10-391: ENAS\_ENA1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

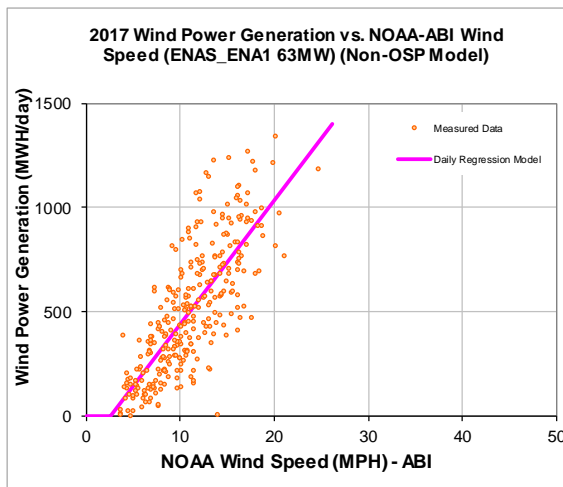
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-151.23
Left Slope (MWh/mph-day)	59.52
RMSE (MWh/day)	193.85
R2	0.60
CV-RMSE	38.1%
Daily Maximum (MWh/day)	1512

**OSP Model:**

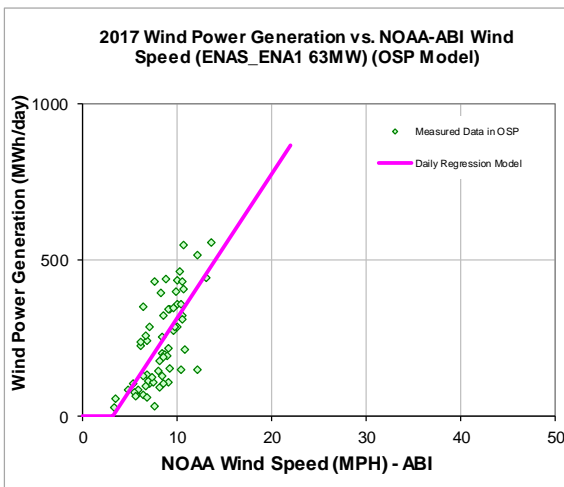
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-147.13
Left Slope (MWh/mph-day)	46.14
RMSE (MWh/day)	103.70
R2	0.48
CV-RMSE	43.9%
Daily Maximum (MWh/day)	1512

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
186,407	167,947	256	244

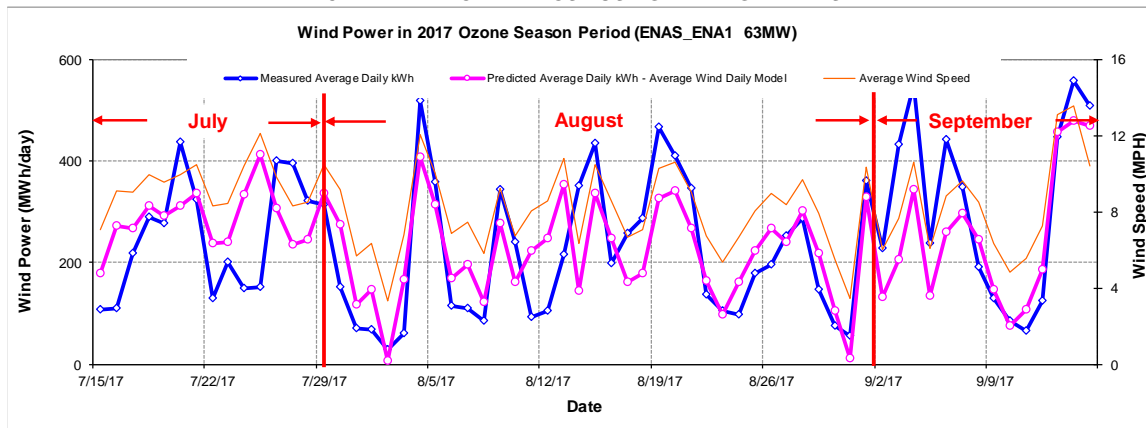
Figure 10-392: ENAS\_ENA1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	17,151	14,564	15.08%	37%	31%
Feb-17	28	11.23	16,458	14,475	12.05%	39%	34%
Mar-17	31	12.96	18,912	19,222	-1.64%	40%	41%
Apr-17	30	13.49	17,655	19,547	-10.72%	39%	43%
May-17	31	11.55	15,386	16,628	-8.07%	33%	35%
Jun-17	30	10.72	11,345	14,604	-28.73%	25%	32%
Jul-17	31	9.17	8,493	10,188	-19.96%	18%	22%
Aug-17	31	7.87	6,638	6,691	-0.79%	14%	14%
Sep-17	30	9.51	11,008	10,868	1.27%	24%	24%
Oct-17	31	11.07	17,202	15,735	8.53%	37%	34%
Nov-17	30	10.21	15,371	13,696	10.90%	34%	30%
Dec-17	31	9.11	12,331	11,730	4.87%	26%	25%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>167,947</b>	<b>167,947</b>	<b>0.00%</b>	<b>30%</b>	<b>30%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>14,899</b>	<b>14,899</b>	<b>0.00%</b>	<b>16%</b>	<b>16%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

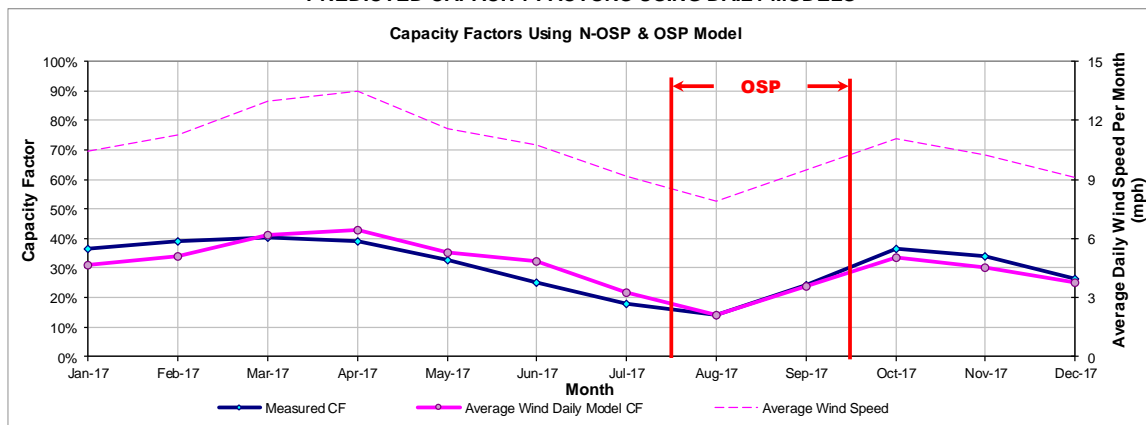


Figure 10-393: ENAS\_ENA1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.94 South Plains Wind I

10.94.1 South Plains Wind I - SPLAIN1\_WIND1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SPLAIN1_WIND1	Wind	Floydada	FLOYD	SunEdison	South Plains Wind I

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
51 Vestas 2 MW	ERCOT	W	Nov-15	Panhandle	LBB	102

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

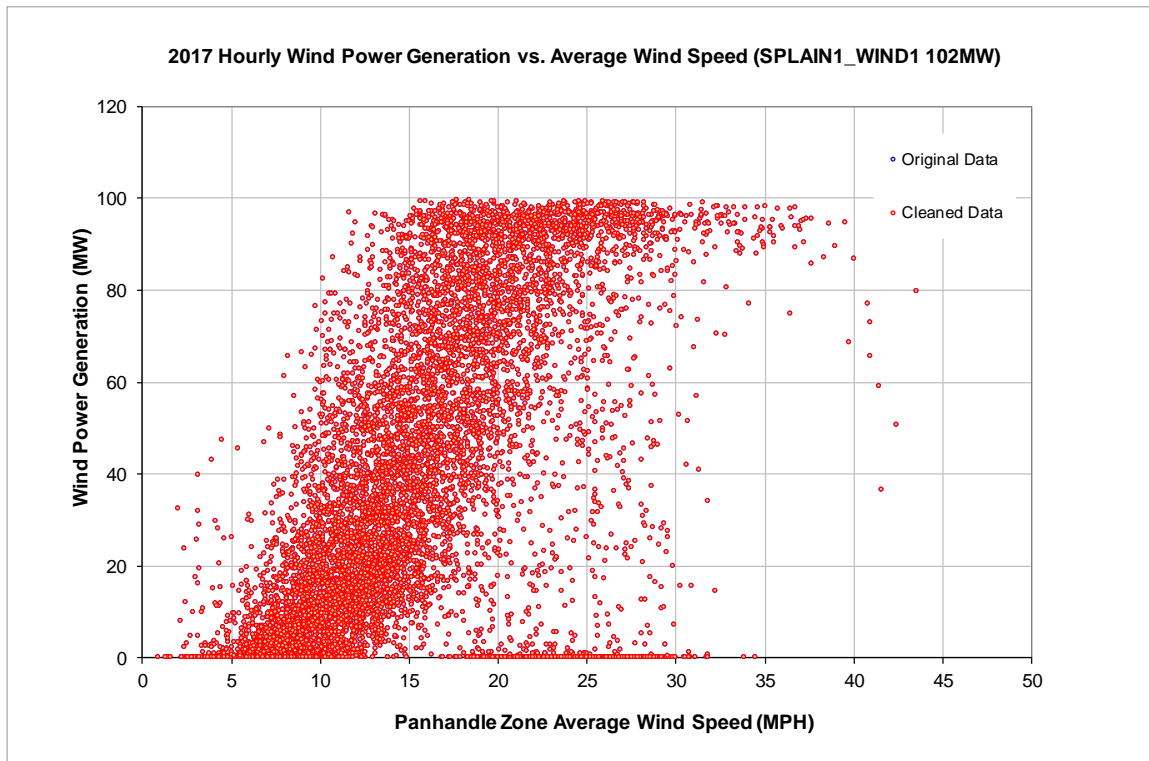


Figure 10-394: SPLAIN1\_WIND1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

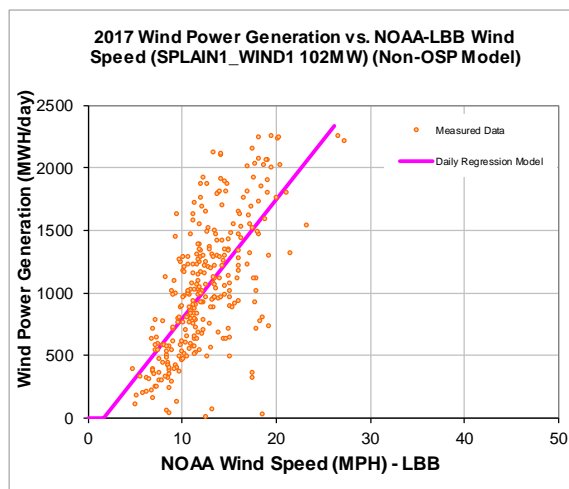
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-153.53
Left Slope (MWh/mph-day)	95.25
RMSE (MWh/day)	388.25
R2	0.46
CV-RMSE	37.7%
Daily Maximum (MWh/day)	2448

**OSP Model:**

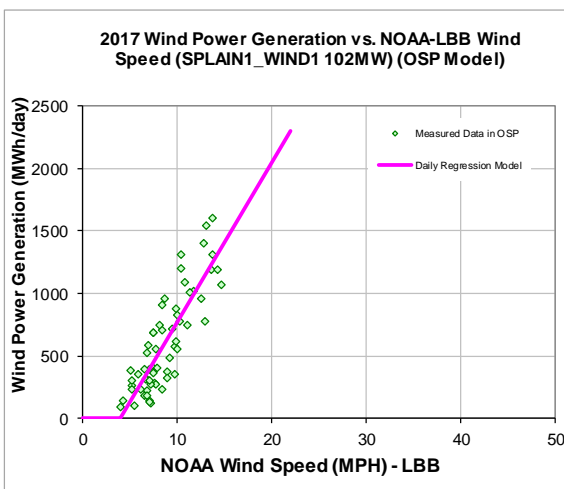
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-503.96
Left Slope (MWh/mph-day)	127.62
RMSE (MWh/day)	211.28
R2	0.72
CV-RMSE	35.2%
Daily Maximum (MWh/day)	2448

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
354,046	349,208

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
649	610

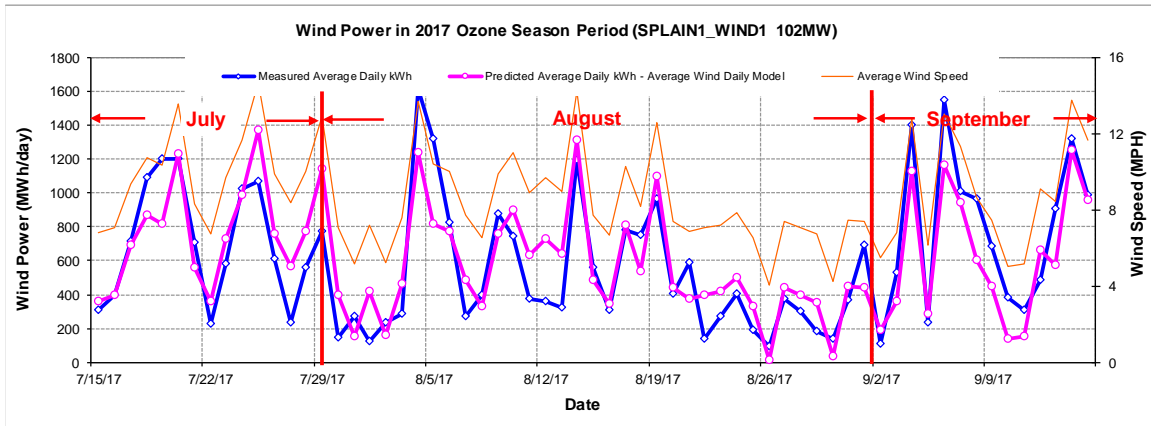
Figure 10-395: SPLAIN1\_WIND1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	37,125	30,617	17.53%	49%	40%
Feb-17	28	12.91	38,974	30,133	22.68%	57%	44%
Mar-17	31	13.57	42,491	35,300	16.92%	56%	47%
Apr-17	30	14.59	34,980	37,093	-6.04%	48%	51%
May-17	31	13.77	34,357	35,891	-4.47%	45%	47%
Jun-17	30	12.33	25,008	30,616	-22.43%	34%	42%
Jul-17	31	10.03	20,862	24,174	-15.87%	27%	32%
Aug-17	31	8.19	15,670	16,787	-7.13%	21%	22%
Sep-17	30	10.41	24,933	24,026	3.64%	34%	33%
Oct-17	31	11.80	25,944	30,085	-15.96%	34%	40%
Nov-17	30	11.45	22,073	28,116	-27.38%	30%	38%
Dec-17	31	10.54	26,791	26,371	1.57%	35%	35%
<b>Total</b>	<b>365</b>	<b>11.78</b>	<b>349,208</b>	<b>349,208</b>	<b>0.00%</b>	<b>39%</b>	<b>39%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>37,797</b>	<b>37,797</b>	<b>0.00%</b>	<b>25%</b>	<b>25%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

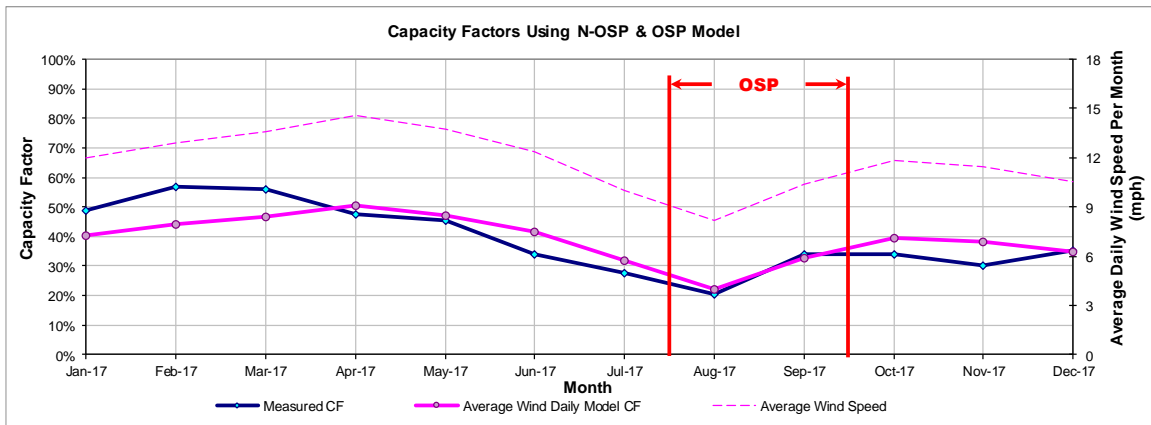


Figure 10-396: SPLAIN1\_WIND1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.94.2 South Plains Wind I - SPLAIN1\_WIND2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SPLAIN1_WIND2	Wind	Floydada	FLOYD	SunEdison	South Plains Wind I

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
49 Vestas 2 MW	ERCOT	W	Nov-15	Panhandle	LBB	98

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

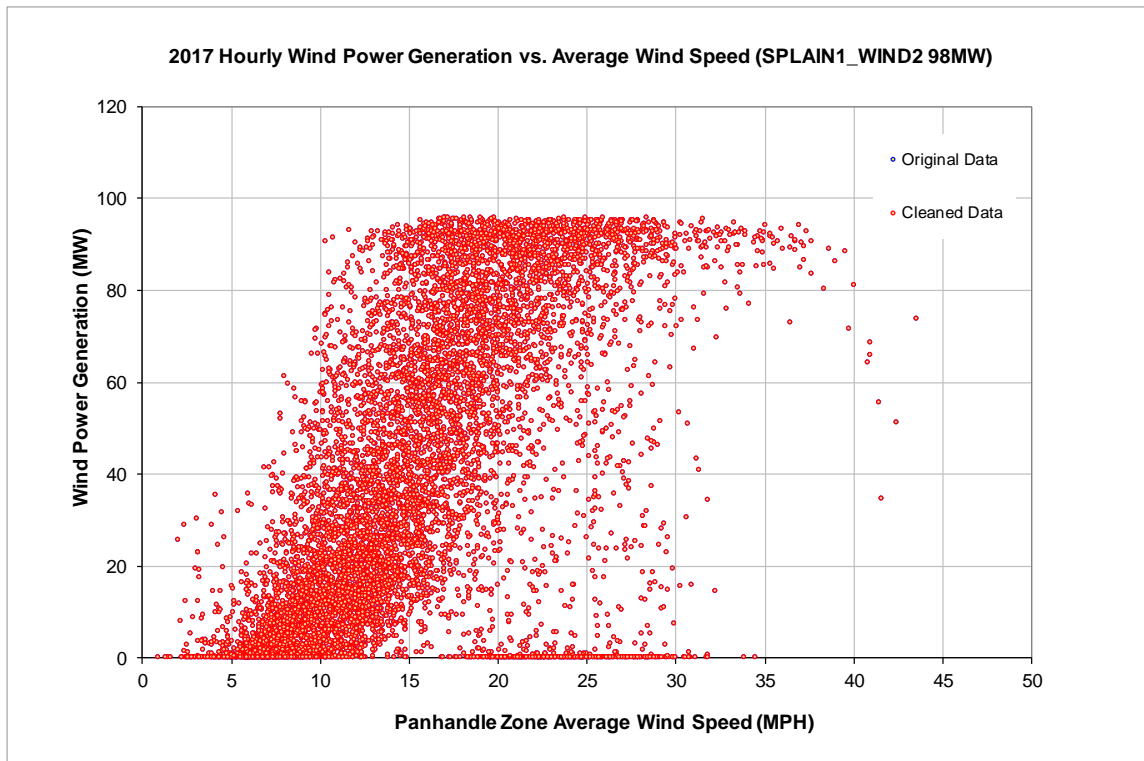


Figure 10-397: SPLAIN1\_WIND2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

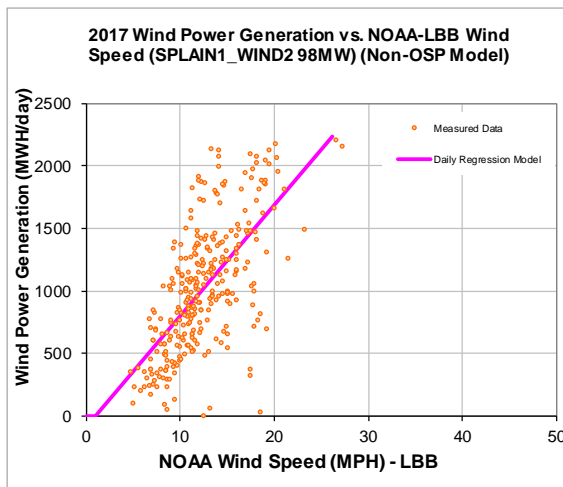
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-88.34
Left Slope (MWh/mph-day)	89.21
RMSE (MWh/day)	383.63
R2	0.43
CV-RMSE	37.6%
Daily Maximum (MWh/day)	2352

**OSP Model:**

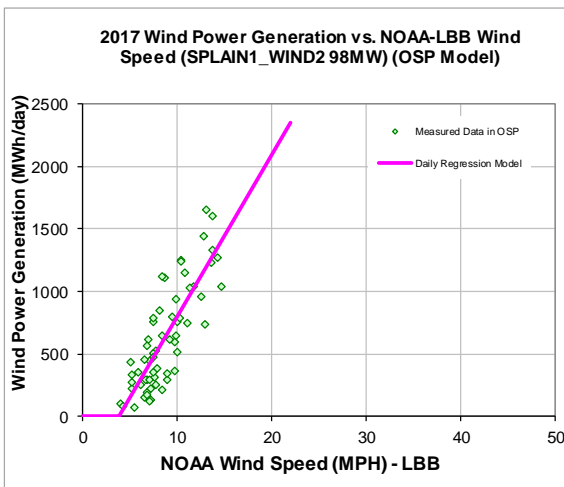
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-503.12
Left Slope (MWh/mph-day)	129.66
RMSE (MWh/day)	238.82
R2	0.67
CV-RMSE	38.6%
Daily Maximum (MWh/day)	2352

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
352,195	347,376

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
668	629

Figure 10-398: SPLAIN1\_WIND2 - Model Coefficients (Using Non-OSP and OSP Data)

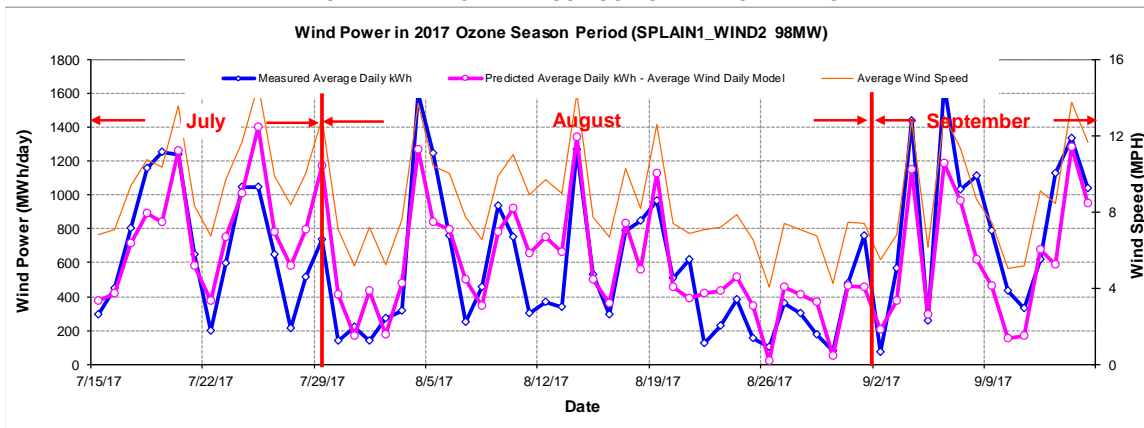


**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	36,178	30,395	15.98%	50%	42%
Feb-17	28	12.91	38,614	29,775	22.89%	59%	45%
Mar-17	31	13.57	42,368	34,781	17.91%	58%	48%
Apr-17	30	14.59	33,984	36,405	-7.12%	48%	52%
May-17	31	13.77	33,081	35,335	-6.81%	45%	48%
Jun-17	30	12.33	24,465	30,338	-24.01%	35%	43%
Jul-17	31	10.03	20,901	24,540	-17.41%	29%	34%
Aug-17	31	8.19	15,660	17,331	-10.67%	21%	24%
Sep-17	30	10.41	26,180	24,165	7.70%	37%	34%
Oct-17	31	11.80	26,285	29,897	-13.74%	36%	41%
Nov-17	30	11.45	23,051	27,997	-21.45%	33%	40%
Dec-17	31	10.54	26,607	26,418	0.71%	36%	36%
<b>Total</b>	<b>365</b>	<b>11.78</b>	<b>347,376</b>	<b>347,376</b>	<b>0.00%</b>	<b>40%</b>	<b>40%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>38,961</b>	<b>38,961</b>	<b>0.00%</b>	<b>26%</b>	<b>26%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

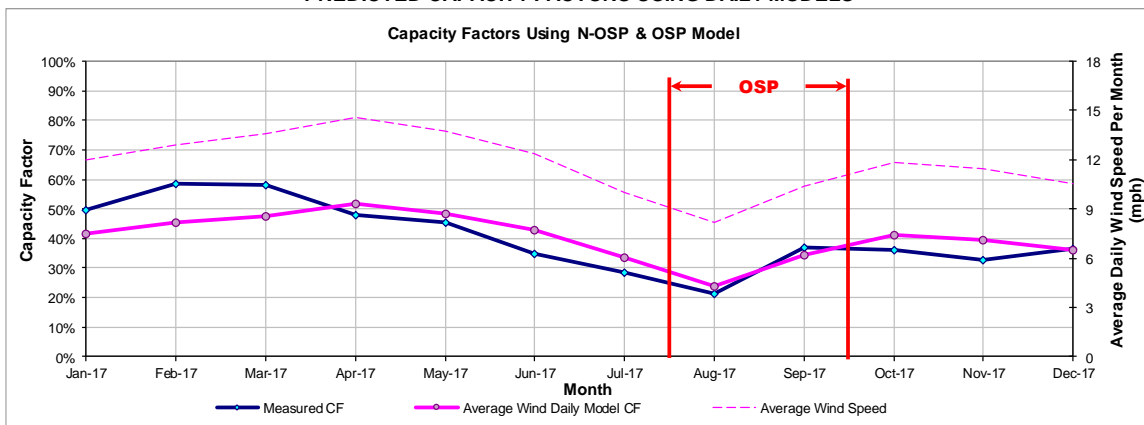


Figure 10-399: SPLAIN1\_WIND2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.95 South Plains Wind II Phase a

10.95.1 South Plains Wind II Phase a - SPLAIN2\_WIND21

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SPLAIN2_WIND21	Wind	Floydada	FLOYD	SunEdison	South Plains Wind II Phase a

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
45 Vestas 3.3 MW	ERCOT	W	Jun-16	Panhandle	LBB	148.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

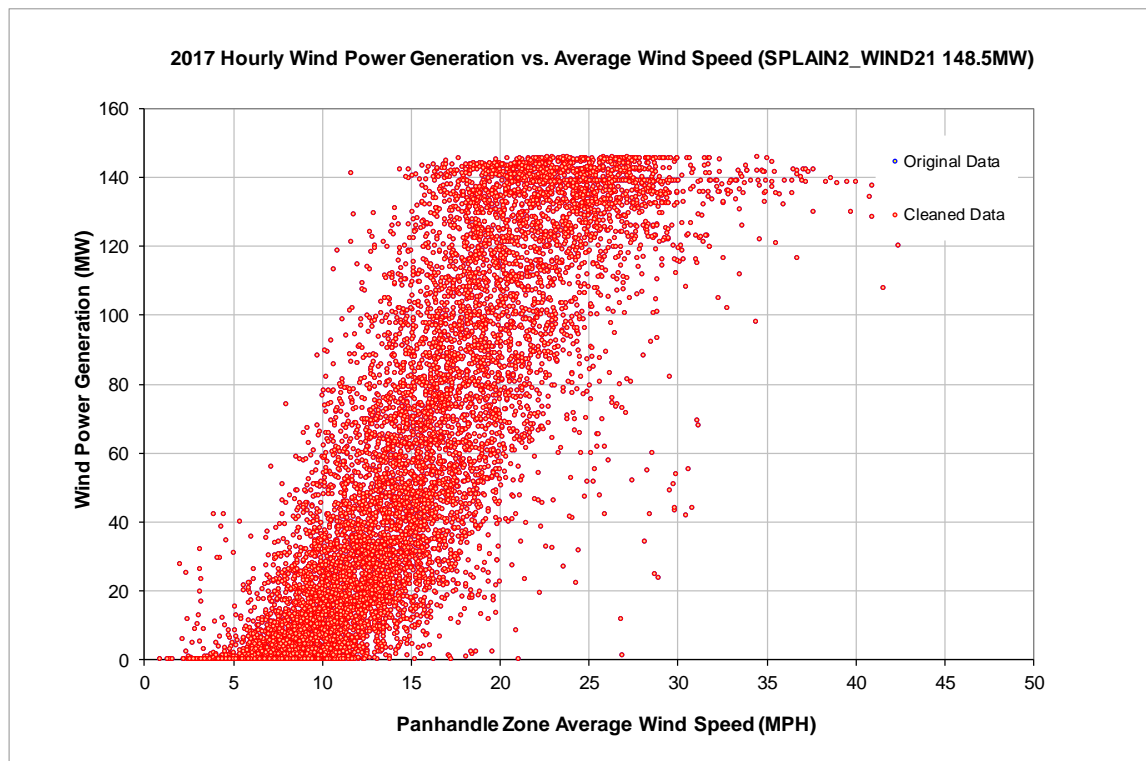


Figure 10-400: SPLAIN2\_WIND21 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

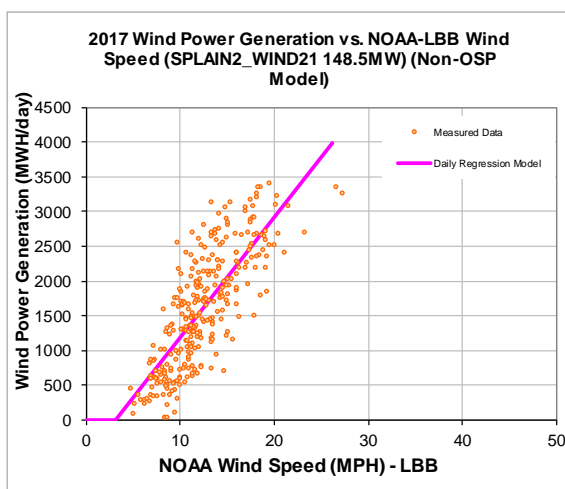
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-547.86
Left Slope (MWh/mph-day)	173.74
RMSE (MWh/day)	510.53
R2	0.62
CV-RMSE	31.7%
Daily Maximum (MWh/day)	3564

**OSP Model:**

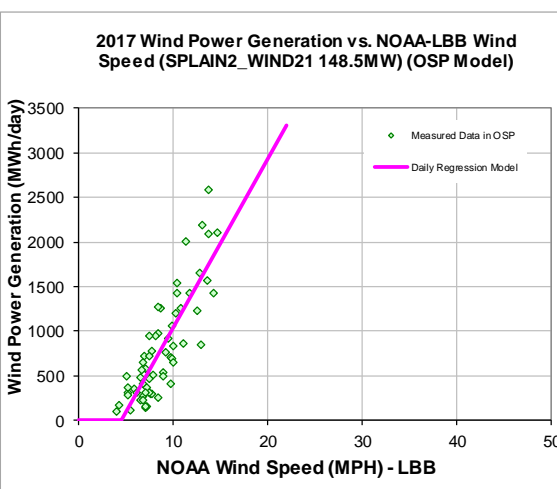
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-838.33
Left Slope (MWh/mph-day)	188.52
RMSE (MWh/day)	320.48
R2	0.71
CV-RMSE	40.4%
Daily Maximum (MWh/day)	3564

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
544,718	535,356	866	810

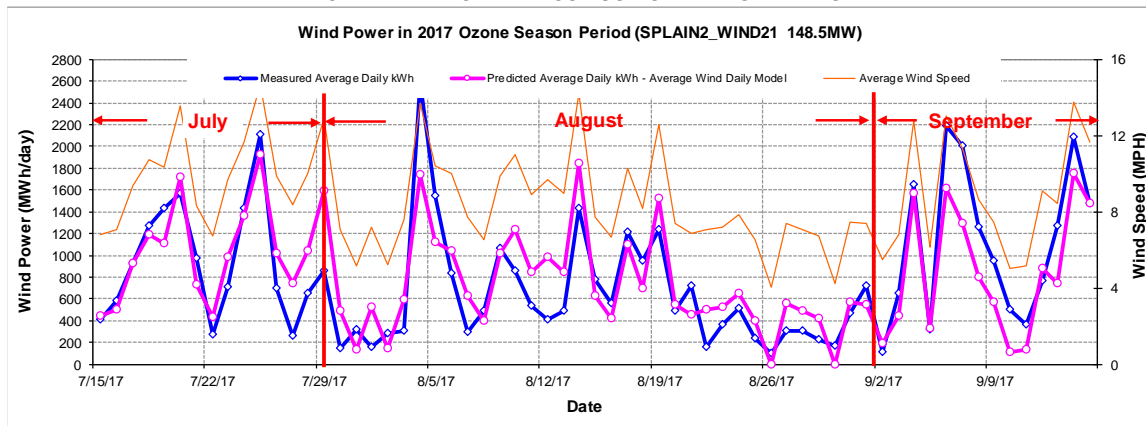
Figure 10-401: SPLAIN2\_WIND21 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	44,140	47,547	-7.72%	40%	43%
Feb-17	28	12.91	50,931	47,468	6.80%	51%	48%
Mar-17	31	13.57	59,163	54,968	7.09%	54%	50%
Apr-17	30	14.59	54,443	59,627	-9.52%	51%	56%
May-17	31	13.77	48,569	57,168	-17.71%	44%	52%
Jun-17	30	12.33	40,081	47,813	-19.29%	37%	45%
Jul-17	31	10.03	28,886	34,506	-19.46%	26%	31%
Aug-17	31	8.19	19,930	22,001	-10.39%	18%	20%
Sep-17	30	10.41	37,345	35,357	5.32%	35%	33%
Oct-17	31	11.80	58,593	46,577	20.51%	53%	42%
Nov-17	30	11.45	52,481	43,252	17.59%	49%	40%
Dec-17	31	10.46	40,795	38,062	6.70%	37%	34%
<b>Total</b>	<b>365</b>	<b>11.78</b>	<b>535,356</b>	<b>534,348</b>	<b>0.19%</b>	<b>41%</b>	<b>41%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>49,920</b>	<b>50,034</b>	<b>-0.23%</b>	<b>22%</b>	<b>22%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

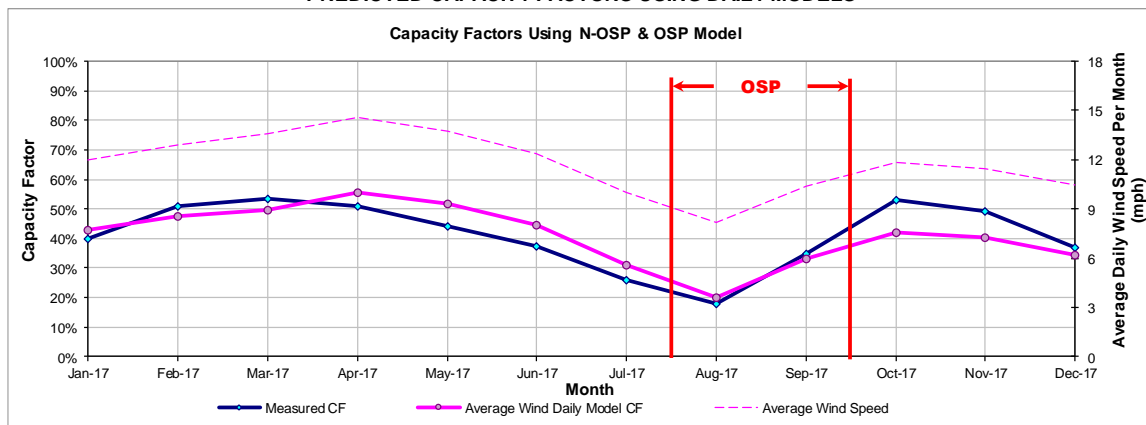


Figure 10-402: SPLAIN2\_WIND21 - Predicted Wind Power and Capacity Factor Using Daily Models

10.96 South Plains Wind II Phase b

10.96.1 South Plains Wind II Phase b - SPLAIN2\_WIND22

**SITE INFORMATION**

GENSITECODE_EERCOT	Renewable Energy	City	County	Company	Facility
SPLAIN2_WIND22	Wind	Floydada	FLOYD	SunEdison	South Plains Wind II Phase b

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
46 Vestas 3.3 MW	ERCOT	W	Jun-16	Panhandle	LBB	151.8

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

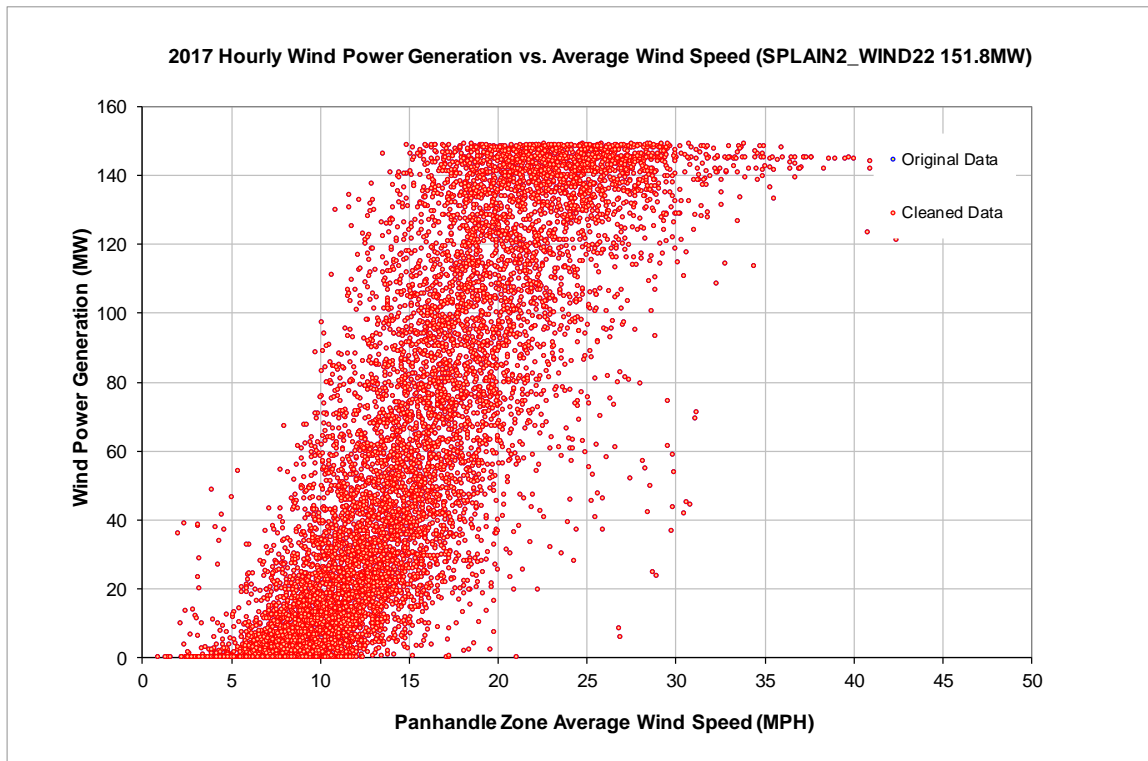


Figure 10-403: SPLAIN2\_WIND22 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

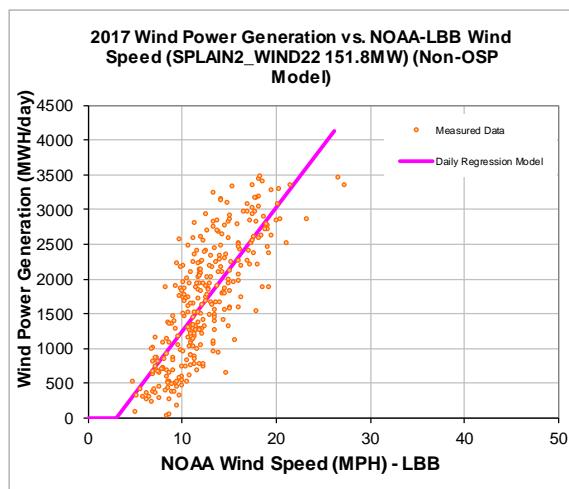
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-531.81
Left Slope (MWh/mph-day)	179.09
RMSE (MWh/day)	539.97
R2	0.61
CV-RMSE	31.9%
Daily Maximum (MWh/day)	3643

**OSP Model:**

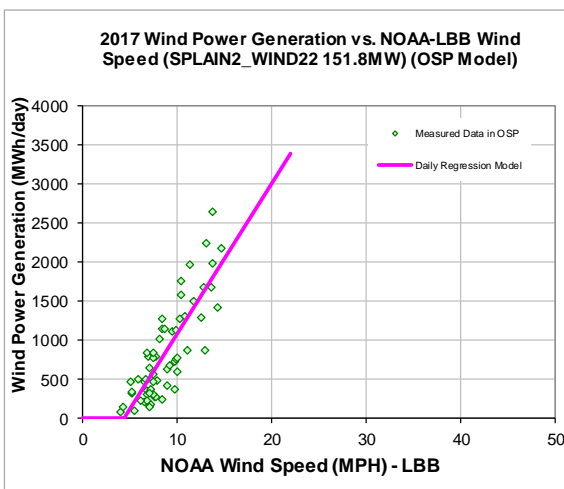
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-856.24
Left Slope (MWh/mph-day)	193.13
RMSE (MWh/day)	339.16
R2	0.69
CV-RMSE	41.6%
Daily Maximum (MWh/day)	3643

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
571,316	561,602

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
890	831

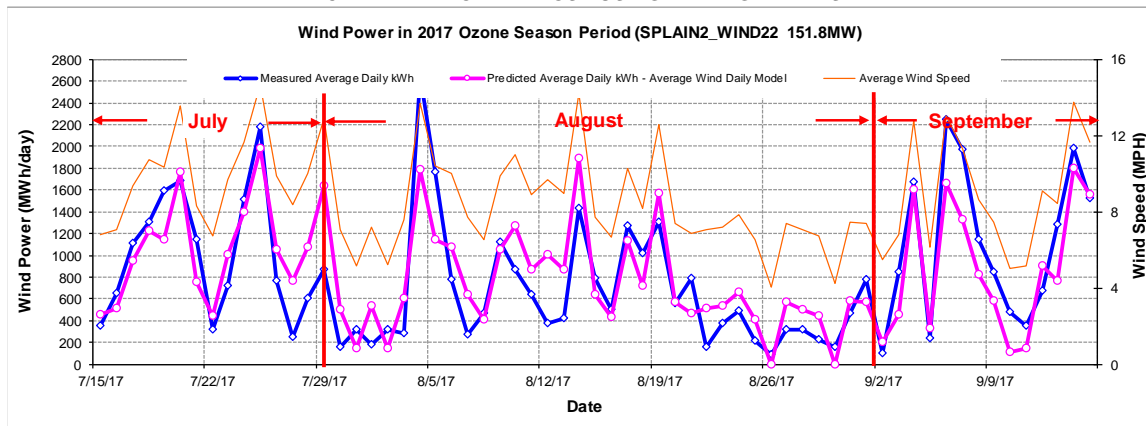
Figure 10-404: SPLAIN2\_WIND22 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	50,111	50,033	0.16%	44%	44%
Feb-17	28	12.91	54,663	49,852	8.80%	54%	49%
Mar-17	31	13.57	60,508	57,554	4.88%	54%	51%
Apr-17	30	14.59	57,376	62,452	-8.85%	52%	57%
May-17	31	13.77	50,709	59,950	-18.22%	45%	53%
Jun-17	30	12.33	40,662	50,273	-23.64%	37%	46%
Jul-17	31	10.03	30,185	35,970	-19.17%	27%	32%
Aug-17	31	8.19	20,503	22,615	-10.30%	18%	20%
Sep-17	30	10.41	37,483	36,905	1.54%	34%	34%
Oct-17	31	11.80	61,135	49,033	19.80%	54%	43%
Nov-17	30	11.45	54,285	45,572	16.05%	50%	42%
Dec-17	31	10.46	43,983	40,222	8.55%	39%	36%
<b>Total</b>	<b>365</b>	<b>11.78</b>	<b>561,602</b>	<b>560,430</b>	<b>0.21%</b>	<b>42%</b>	<b>42%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>51,305</b>	<b>51,416</b>	<b>-0.22%</b>	<b>22%</b>	<b>22%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

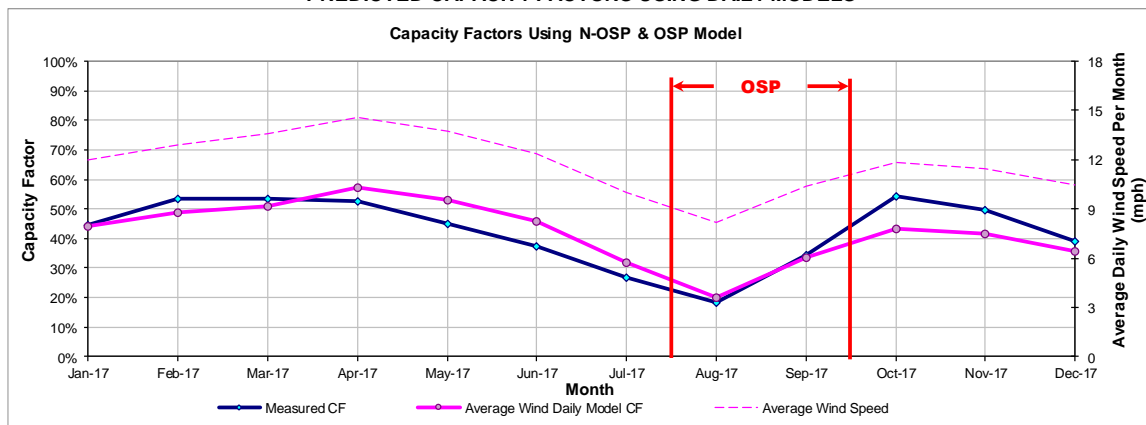


Figure 10-405: SPLAIN2\_WIND22 - Predicted Wind Power and Capacity Factor Using Daily Models

10.97 South Trent Wind Farm

10.97.1 South Trent Wind Farm - STWF\_T1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
STWF_T1	Wind	-	TAYLOR	Babcock & Brown	South Trent Wind Farm

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
44 Siemens 2.3 MW	ERCOT	W	Oct-08	West	ABI	101.2

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

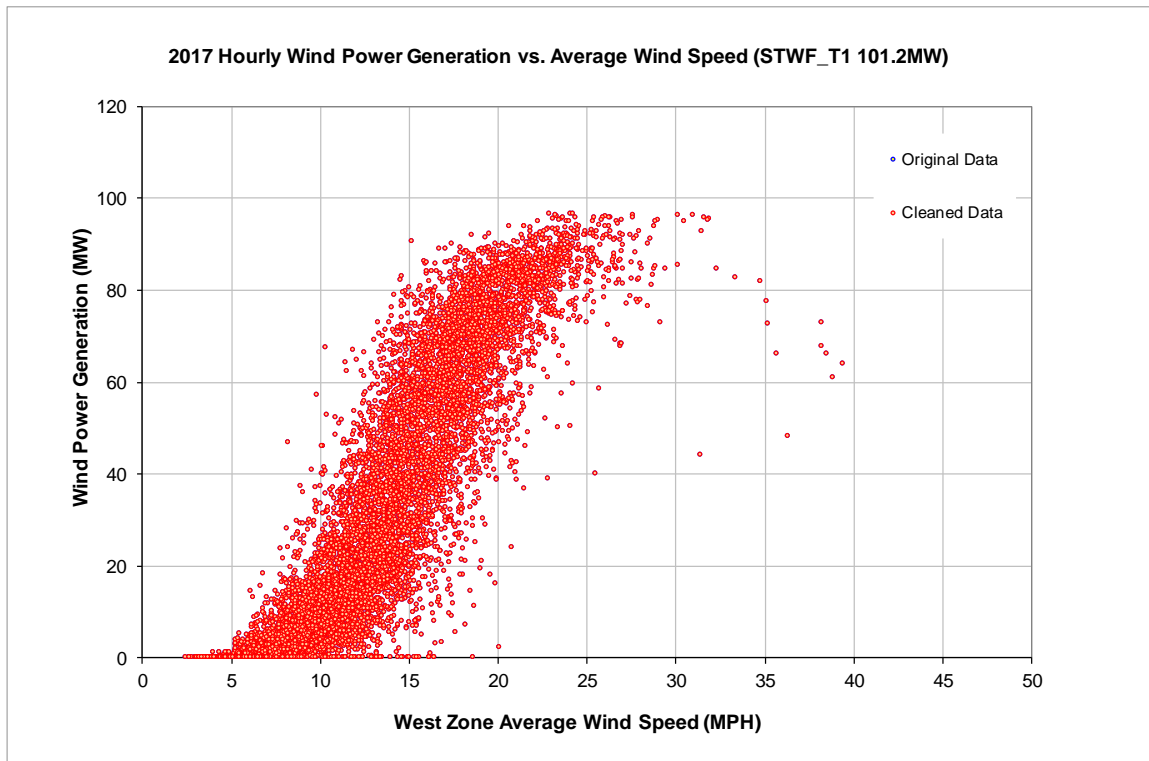


Figure 10-406: STWF\_T1 - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

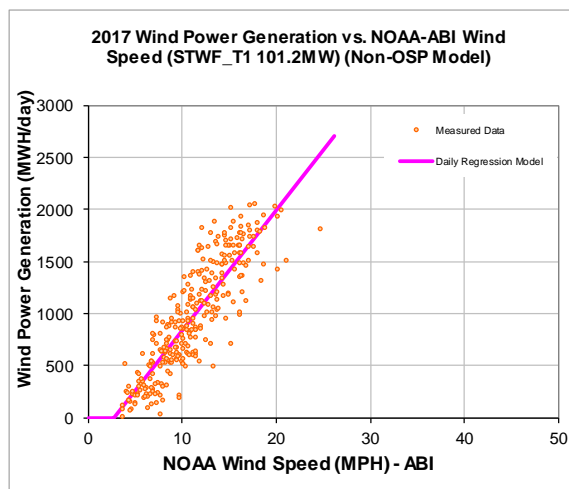
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-318.38
Left Slope (MWh/mph-day)	115.73
RMSE (MWh/day)	264.26
R2	0.75
CV-RMSE	27.4%
Daily Maximum (MWh/day)	2429

**OSP Model:**

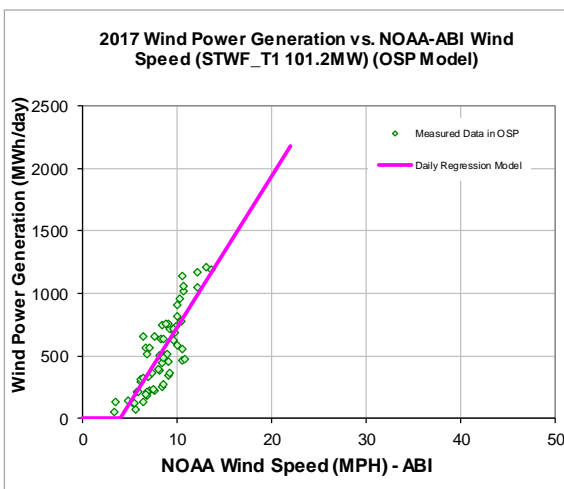
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-478.77
Left Slope (MWh/mph-day)	121.06
RMSE (MWh/day)	169.90
R2	0.70
CV-RMSE	32.2%
Daily Maximum (MWh/day)	2429

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
360,277	321,980	581	538

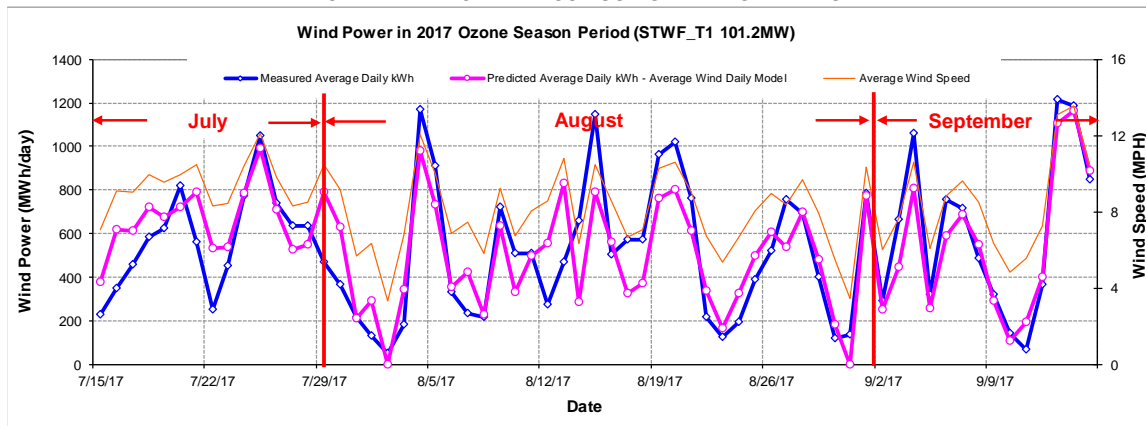
Figure 10-407: STWF\_T1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	30,321	27,563	9.09%	40%	37%
Feb-17	28	11.23	28,696	27,462	4.30%	42%	40%
Mar-17	31	12.96	35,670	36,507	-2.35%	47%	48%
Apr-17	30	13.49	34,740	37,275	-7.30%	48%	51%
May-17	31	11.55	29,704	31,575	-6.30%	39%	42%
Jun-17	30	10.72	23,538	27,665	-17.53%	32%	38%
Jul-17	31	9.17	18,712	21,152	-13.04%	25%	28%
Aug-17	31	7.87	15,525	14,757	4.94%	21%	20%
Sep-17	30	9.51	22,343	21,754	2.63%	31%	30%
Oct-17	31	11.07	33,126	29,839	9.92%	44%	40%
Nov-17	30	10.21	27,143	25,900	4.58%	37%	36%
Dec-17	31	9.09	22,462	20,553	8.50%	30%	27%
<b>Total</b>	<b>365</b>	<b>10.61</b>	<b>321,980</b>	<b>322,003</b>	<b>-0.01%</b>	<b>36%</b>	<b>36%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>33,254</b>	<b>33,389</b>	<b>-0.41%</b>	<b>22%</b>	<b>22%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

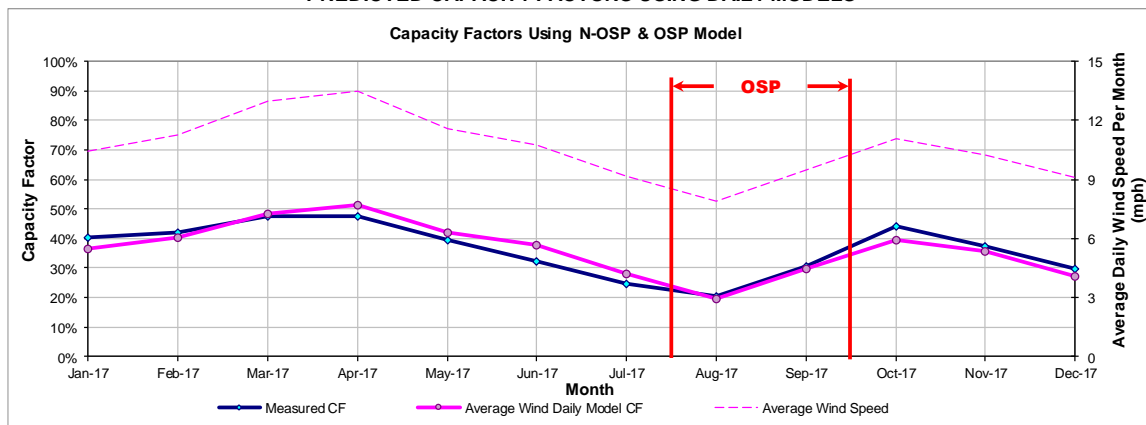


Figure 10-408: STWF\_T1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.98 Southwest Mesa Wind Project

10.98.1 Southwest Mesa Wind Project - SW\_MESA\_SW\_MESA

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SW_MESA_SW_MESA	Wind	McCamey	UPTON	NextEra	Southwest Mesa Wind Project

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
107 NEG Micon 0.75 MW	ERCOT	W	Jun-99	West	FST	74.6

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

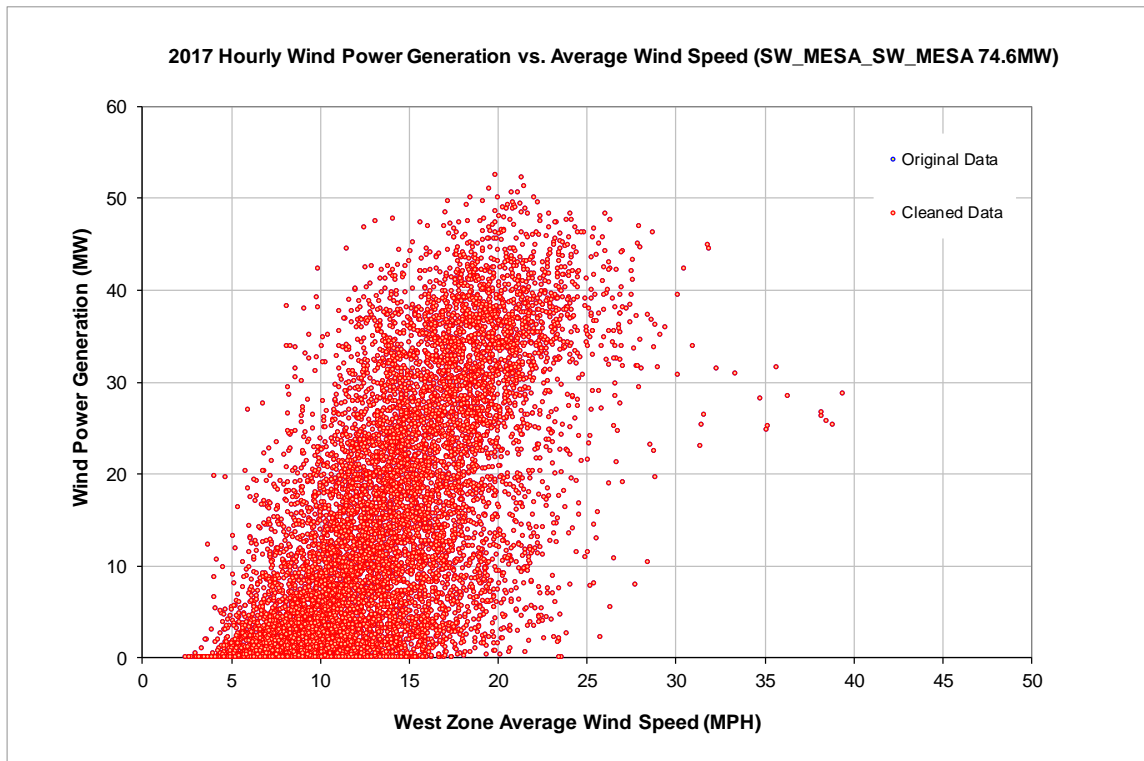


Figure 10-409: SW\_MESA\_SW\_MESA - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

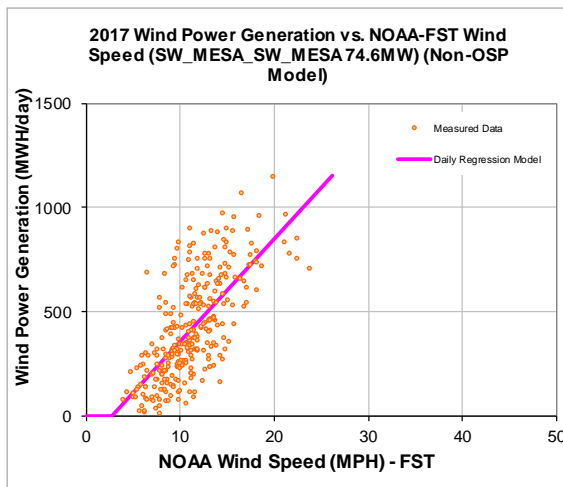
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-131.21
Left Slope (MWh/mph-day)	49.23
RMSE (MWh/day)	175.14
R2	0.49
CV-RMSE	41.8%
Daily Maximum (MWh/day)	1790

**OSP Model:**

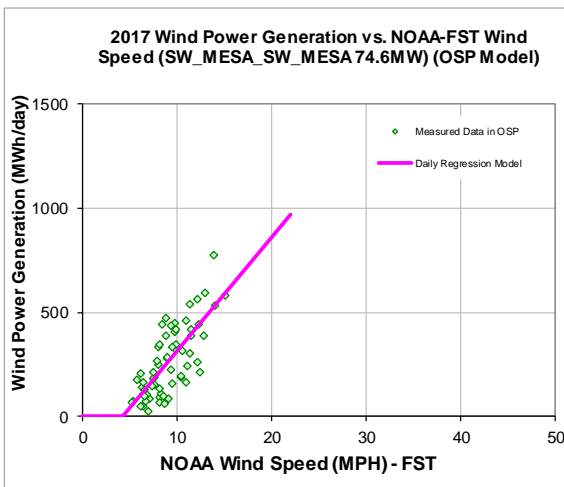
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-230.43
Left Slope (MWh/mph-day)	54.57
RMSE (MWh/day)	113.29
R2	0.55
CV-RMSE	42.7%
Daily Maximum (MWh/day)	1790

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
143,731	143,160	253	268

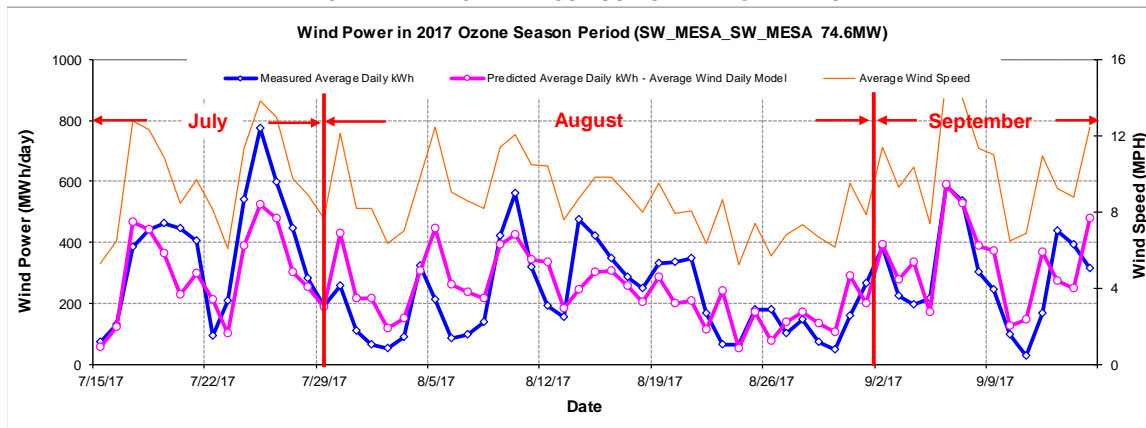
Figure 10-410: SW\_MESA\_SW\_MESA - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (FST) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.60	10,404	12,101	-16.32%	19%	22%
Feb-17	28	11.24	11,955	11,820	1.13%	24%	24%
Mar-17	31	11.81	16,946	13,961	17.61%	31%	25%
Apr-17	30	13.08	17,526	15,379	12.25%	33%	29%
May-17	31	12.22	14,595	14,587	0.05%	26%	26%
Jun-17	30	11.10	13,438	12,454	7.32%	25%	23%
Jul-17	31	11.01	13,180	11,914	9.60%	24%	21%
Aug-17	31	8.40	6,620	7,071	-6.82%	12%	13%
Sep-17	30	11.19	10,233	11,898	-16.28%	19%	22%
Oct-17	31	10.75	12,037	12,339	-2.51%	22%	22%
Nov-17	30	9.40	8,933	9,939	-11.27%	17%	19%
Dec-17	31	9.02	7,295	9,695	-32.90%	13%	17%
<b>Total</b>	<b>365</b>	<b>10.81</b>	<b>143,160</b>	<b>143,160</b>	<b>0.00%</b>	<b>22%</b>	<b>22%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>9.09</b>	<b>16,734</b>	<b>16,734</b>	<b>0.00%</b>	<b>15%</b>	<b>15%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

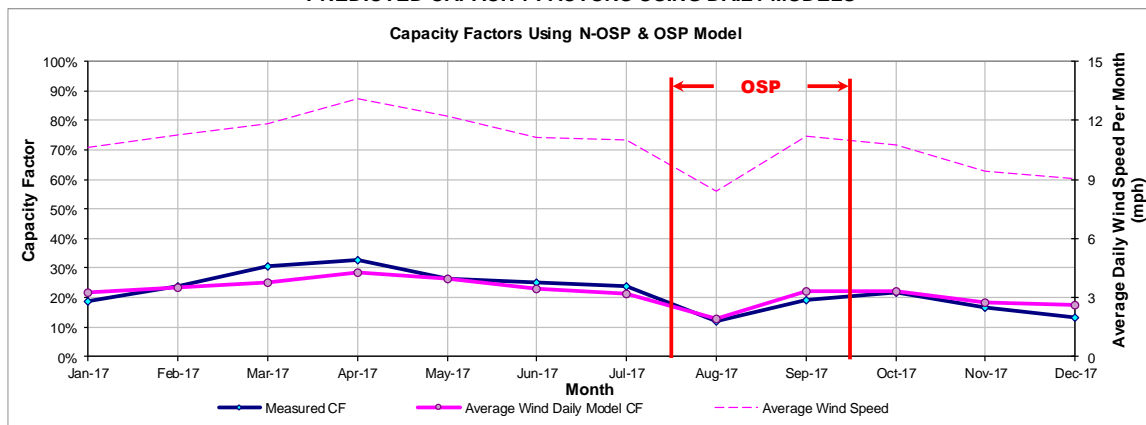


Figure 10-411: SW\_MESA\_SW\_MESA - Predicted Wind Power and Capacity Factor Using Daily Models

10.99 Spinning Spur Wind II

10.99.1 Spinning Spur Wind II - SSPUR TWO\_WIND\_1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SSPUR TWO_WIND_1	Wind	Amarillo	OLDHAM	EDF Renewable	Spinning Spur Wind II

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
87 GE 1.85 MW	ERCOT	W	Jun-14	Panhandle	AMA	161

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

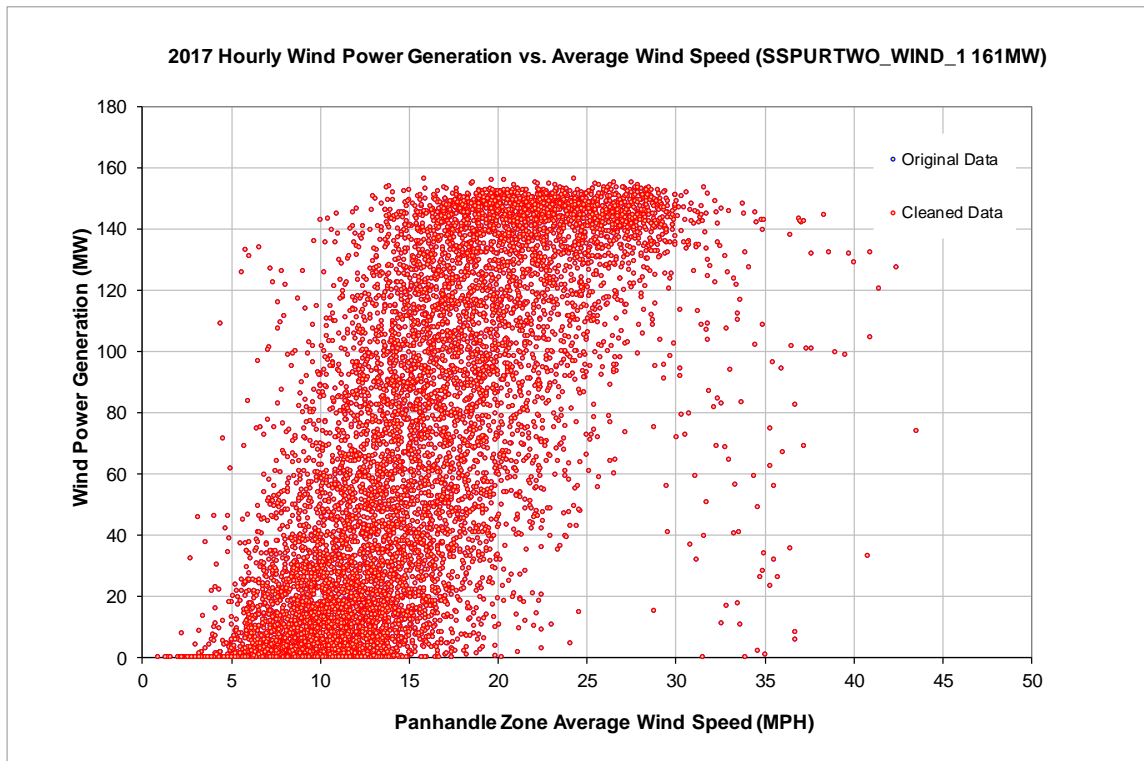


Figure 10-412: SSPUR TWO\_WIND\_1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

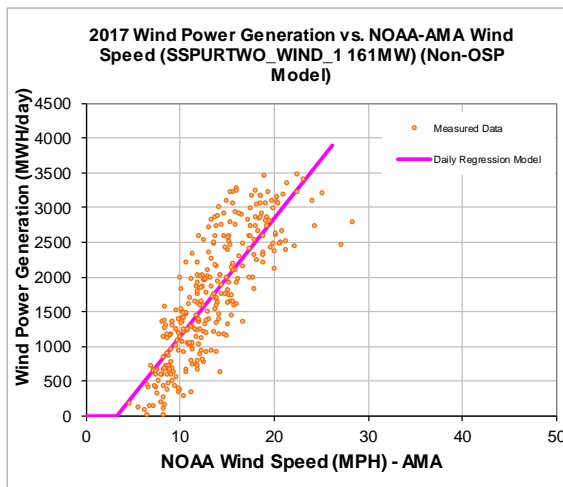
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-558.86
Left Slope (MWh/mph-day)	170.49
RMSE (MWh/day)	507.04
R2	0.67
CV-RMSE	29.7%
Daily Maximum (MWh/day)	3864

**OSP Model:**

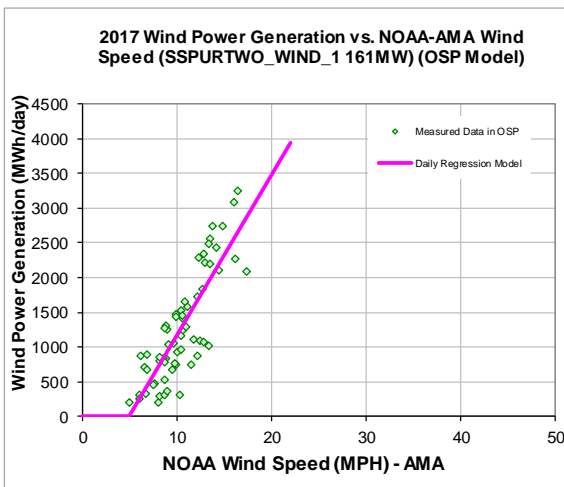
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-1148.45
Left Slope (MWh/mph-day)	231.72
RMSE (MWh/day)	427.69
R2	0.70
CV-RMSE	33.7%
Daily Maximum (MWh/day)	3864

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
653,961	596,082	1,427	1,280

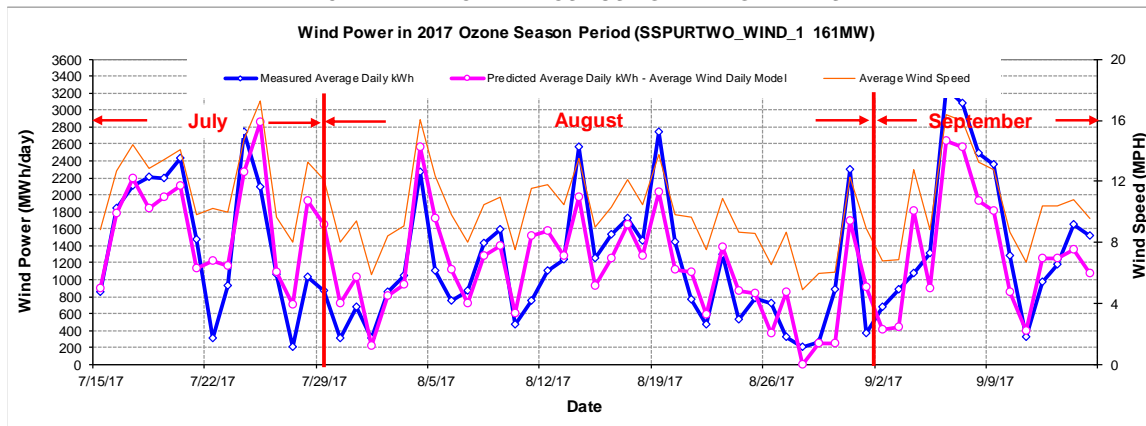
Figure 10-413: SSPUR TWO\_WIND\_1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.28	43,802	47,583	-8.63%	37%	40%
Feb-17	28	13.17	51,789	47,206	8.85%	48%	44%
Mar-17	31	14.31	56,670	57,909	-2.19%	47%	48%
Apr-17	30	15.90	60,884	64,349	-5.69%	53%	56%
May-17	31	13.42	51,797	53,592	-3.47%	43%	45%
Jun-17	30	13.20	45,854	50,741	-10.66%	40%	44%
Jul-17	31	11.35	41,022	44,746	-9.08%	34%	37%
Aug-17	31	9.62	33,319	33,479	-0.48%	28%	28%
Sep-17	30	11.96	49,217	45,445	7.67%	42%	39%
Oct-17	31	14.04	60,566	56,881	6.08%	51%	47%
Nov-17	30	12.81	54,485	48,752	10.52%	47%	42%
Dec-17	31	11.76	46,676	44,805	4.01%	39%	37%
<b>Total</b>	<b>365</b>	<b>12.81</b>	<b>596,082</b>	<b>595,488</b>	<b>0.10%</b>	<b>42%</b>	<b>42%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>79,926</b>	<b>79,935</b>	<b>-0.01%</b>	<b>33%</b>	<b>33%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

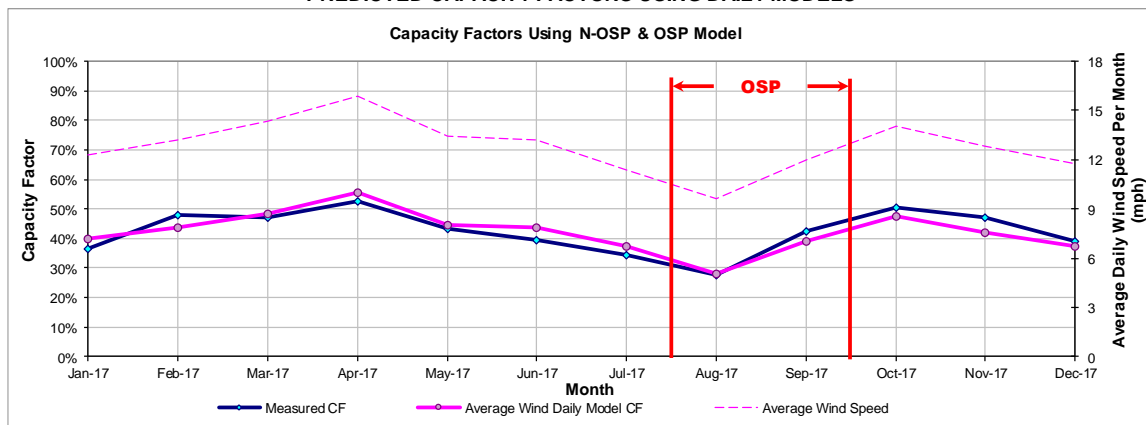


Figure 10-414: SSPUR TWO\_WIND\_1 - Predicted Wind Power and Capacity Factor Using Daily Models



10.100 Spinning Spur Wind III

10.100.1 Spinning Spur Wind III - SSPURTWO\_SS3WIND1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SSPURTWO_SS3WIND1	Wind	Amarillo	OLDHAM	EDF Renewable	Spinning Spur Wind III

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
48 Vestas 2 MW	ERCOT	W	Oct-15	Panhandle	AMA	96

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

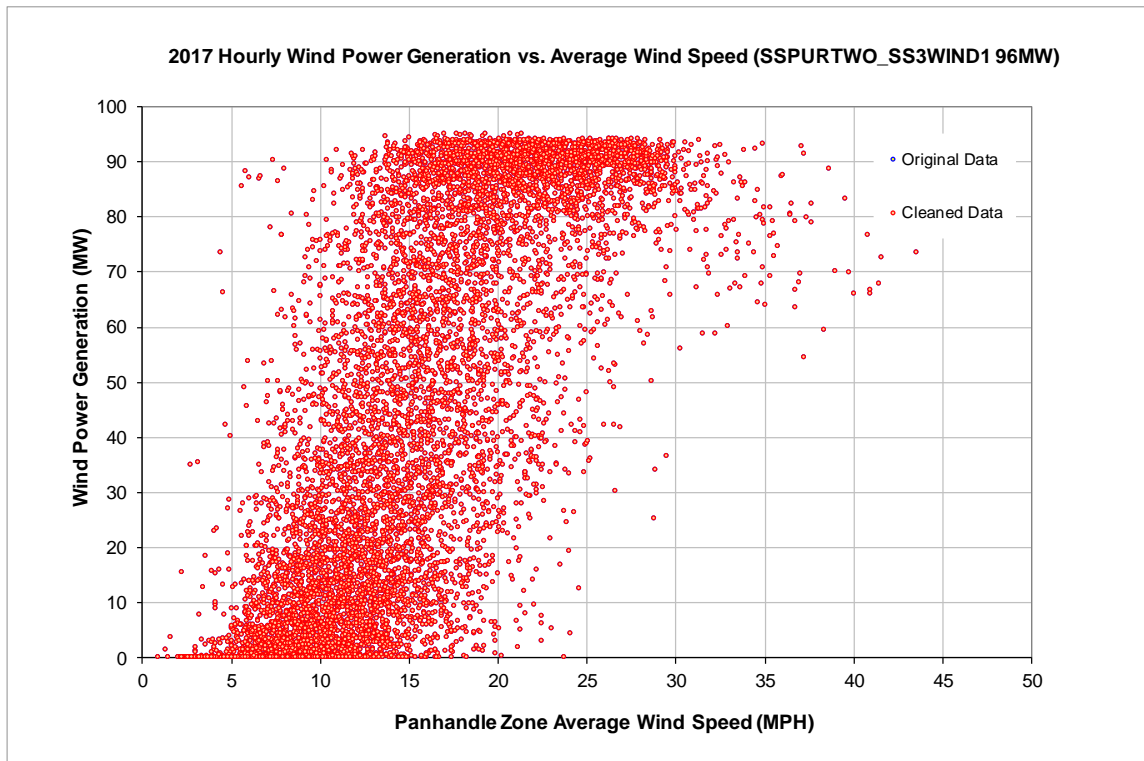


Figure 10-415: SSPURTWO\_SS3WIND1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

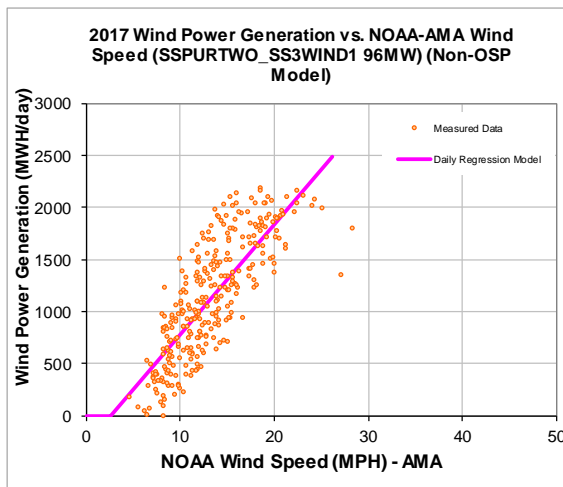
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-268.21
Left Slope (MWh/mph-day)	105.74
RMSE (MWh/day)	337.63
R2	0.64
CV-RMSE	29.7%
Daily Maximum (MWh/day)	2304

**OSP Model:**

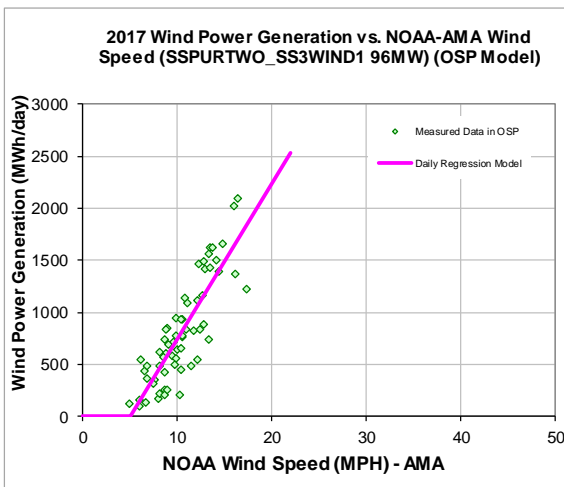
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-744.77
Left Slope (MWh/mph-day)	148.96
RMSE (MWh/day)	260.04
R2	0.73
CV-RMSE	32.1%
Daily Maximum (MWh/day)	2304

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
430,997	394,776	911	818

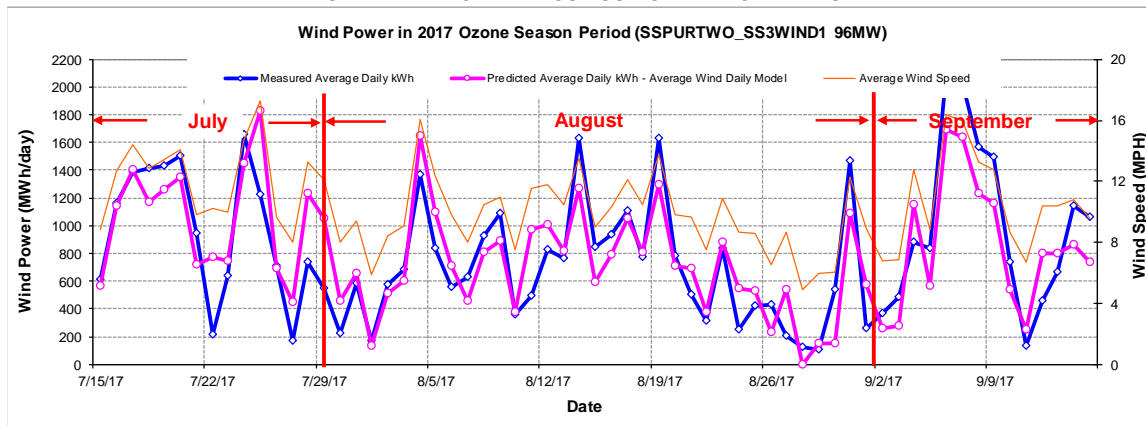
Figure 10-416: SSPURTWO\_SS3WIND1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.28	30,296	31,942	-5.43%	42%	45%
Feb-17	28	13.17	36,550	31,473	13.89%	57%	49%
Mar-17	31	14.31	38,516	38,095	1.09%	54%	53%
Apr-17	30	15.90	39,857	42,091	-5.61%	58%	61%
May-17	31	13.42	33,034	35,669	-7.98%	46%	50%
Jun-17	30	13.20	29,116	33,823	-16.16%	42%	49%
Jul-17	31	11.35	26,614	29,334	-10.22%	37%	41%
Aug-17	31	9.62	21,287	21,327	-0.19%	30%	30%
Sep-17	30	11.96	31,939	29,722	6.94%	46%	43%
Oct-17	31	14.04	39,579	37,709	4.73%	55%	53%
Nov-17	30	12.81	36,392	32,589	10.45%	53%	47%
Dec-17	31	11.76	31,595	30,219	4.35%	44%	42%
<b>Total</b>	<b>365</b>	<b>12.81</b>	<b>394,776</b>	<b>393,993</b>	<b>0.20%</b>	<b>47%</b>	<b>47%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>50,972</b>	<b>50,984</b>	<b>-0.02%</b>	<b>35%</b>	<b>35%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

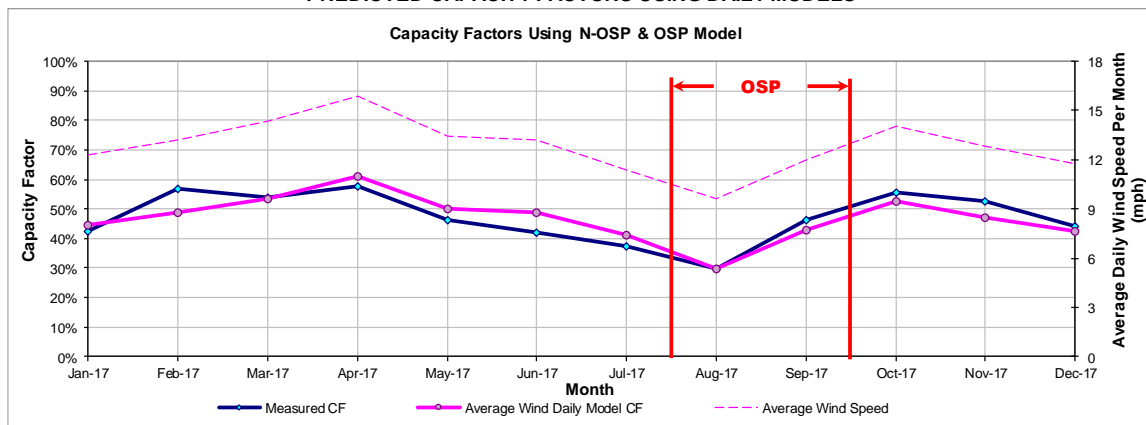


Figure 10-417: SSPUR TWO\_SS3WIND1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.100.2 Spinning Spur Wind III - SSPURTWO\_SS3WIND2

**SITE INFORMATION**

GENSITECODE_EERCOT	Renewable Energy	City	County	Company	Facility
SSPURTWO_SS3WIND2	Wind	Amarillo	OLDHAM	EDF Renewable	Spinning Spur Wind III

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
49 Vestas 2 MW	ERCOT	W	Oct-15	Panhandle	AMA	98

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

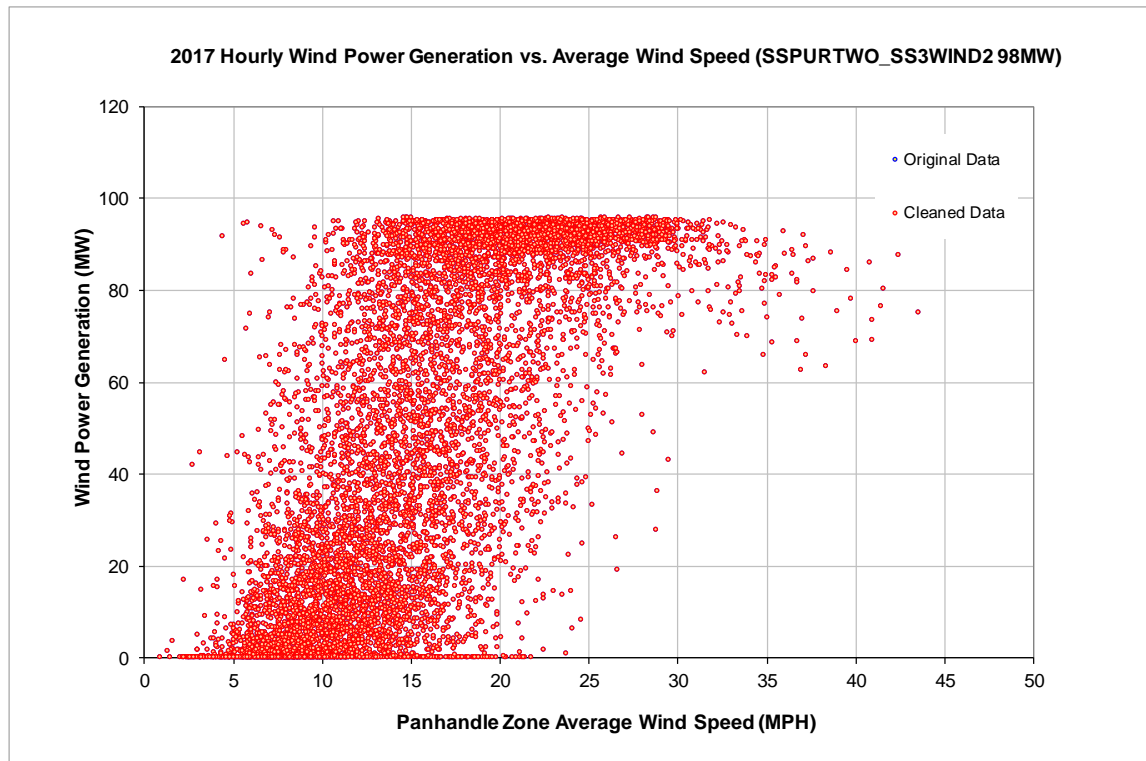


Figure 10-418: SSPURTWO\_SS3WIND2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

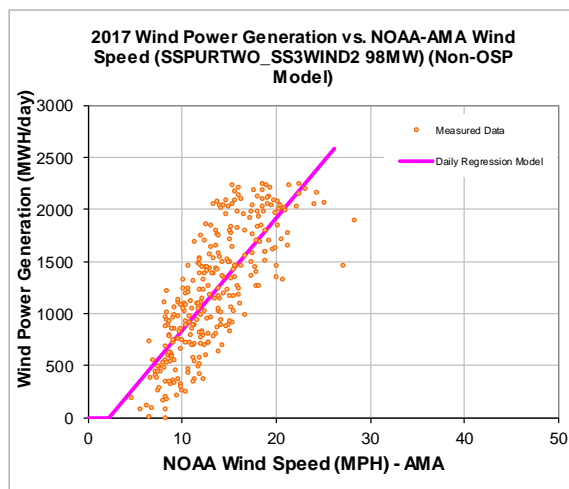
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-237.92
Left Slope (MWh/mph-day)	108.30
RMSE (MWh/day)	365.27
R2	0.61
CV-RMSE	30.2%
Daily Maximum (MWh/day)	2352

**OSP Model:**

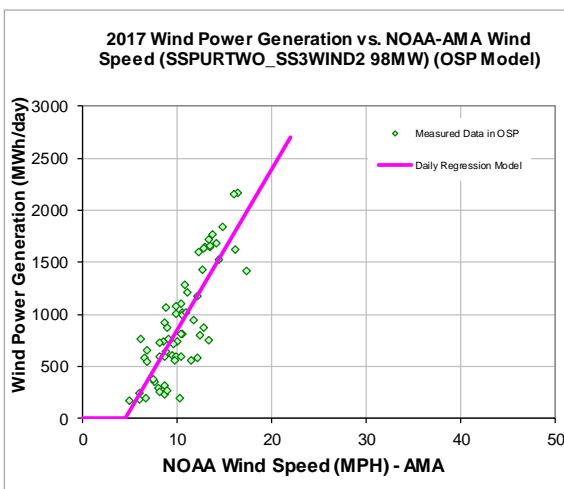
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-688.88
Left Slope (MWh/mph-day)	154.27
RMSE (MWh/day)	296.53
R2	0.69
CV-RMSE	32.2%
Daily Maximum (MWh/day)	2352

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
458,251	415,953	1,023	929

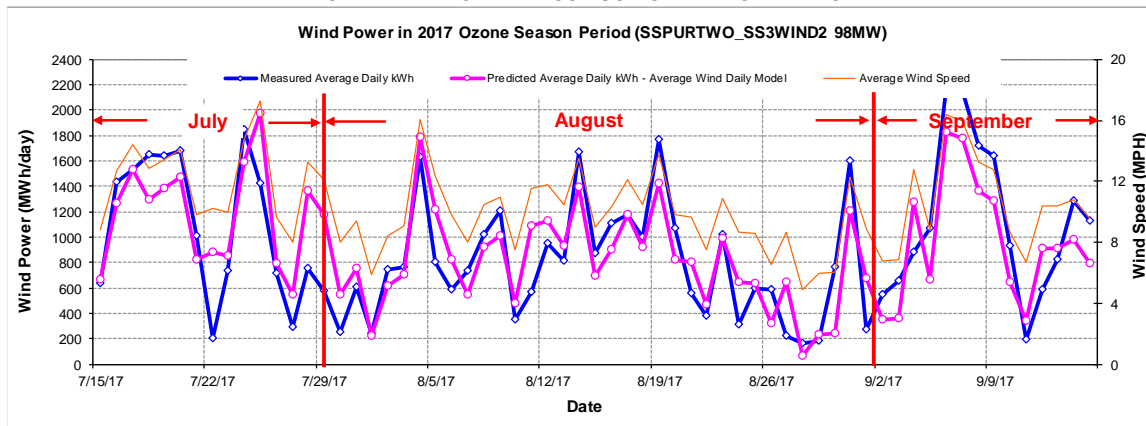
Figure 10-419: SSPURTWO\_SS3WIND2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (AMA) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	12.45	31,805	33,286	-4.66%	44%	46%
Feb-17	28	13.65	30,803	28,521	7.41%	47%	43%
Mar-17	31	14.31	40,195	40,069	0.31%	55%	55%
Apr-17	30	15.90	42,107	44,156	-4.87%	60%	63%
May-17	31	13.42	35,588	37,674	-5.86%	49%	52%
Jun-17	30	13.20	30,983	35,745	-15.37%	44%	51%
Jul-17	31	11.35	30,146	32,153	-6.66%	41%	44%
Aug-17	31	9.62	24,483	24,631	-0.61%	34%	34%
Sep-17	30	11.96	34,982	32,378	7.44%	50%	46%
Oct-17	31	14.04	42,567	39,763	6.59%	58%	55%
Nov-17	30	12.81	38,650	34,482	10.78%	55%	49%
Dec-17	31	11.76	33,645	32,092	4.62%	46%	44%
<b>Total</b>	<b>365</b>	<b>12.85</b>	<b>415,953</b>	<b>414,950</b>	<b>0.24%</b>	<b>48%</b>	<b>48%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.43</b>	<b>57,985</b>	<b>57,985</b>	<b>0.00%</b>	<b>39%</b>	<b>39%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

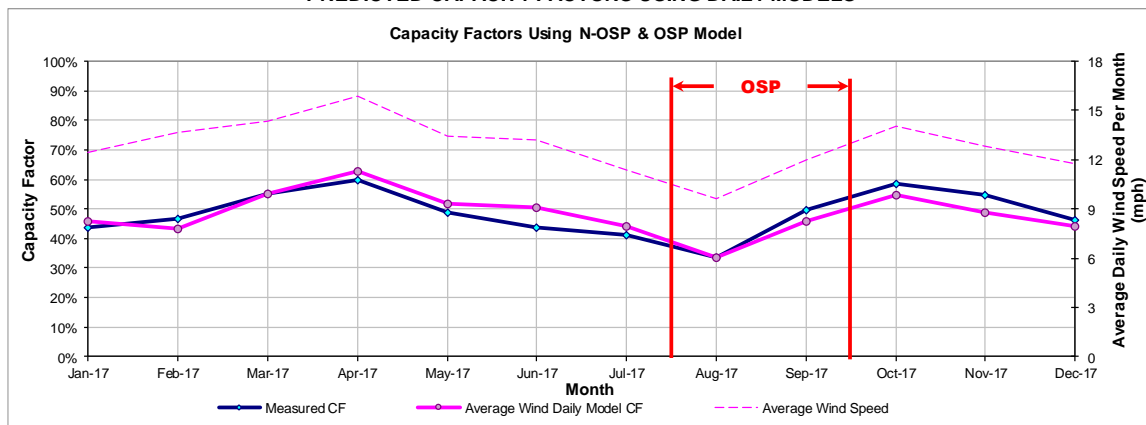


Figure 10-420: SSPUR TWO\_SS3WIND2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.101 Stanton Wind Energy

10.101.1 Stanton Wind Energy - SWEC\_G1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SWEC_G1	Wind	Stanton	MARTIN	Invenergy	Stanton Wind Energy

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
80 GE 1.5 MW	ERCOT	W	Jan-08	West	MAF	120

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

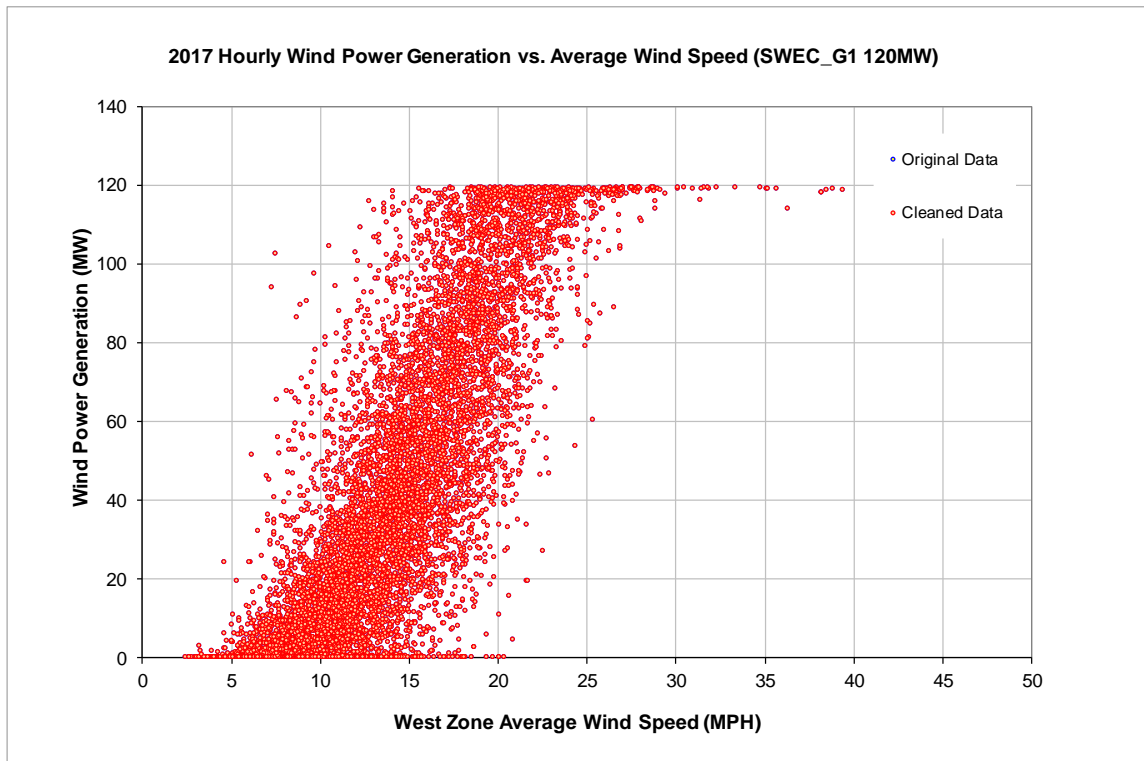


Figure 10-421: SWEC\_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

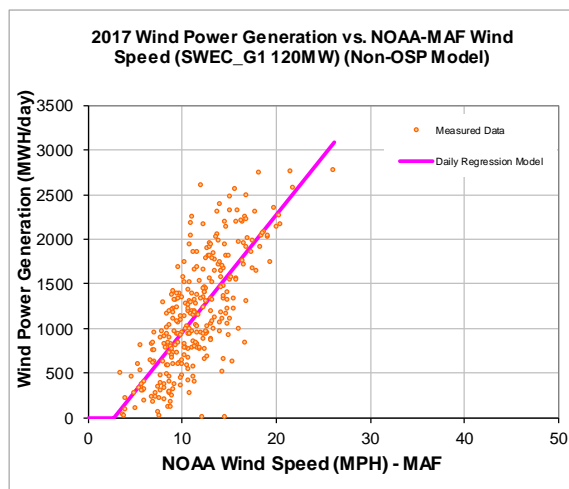
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-347.26
Left Slope (MWh/mph-day)	131.56
RMSE (MWh/day)	419.61
R2	0.56
CV-RMSE	36.0%
Daily Maximum (MWh/day)	2880

**OSP Model:**

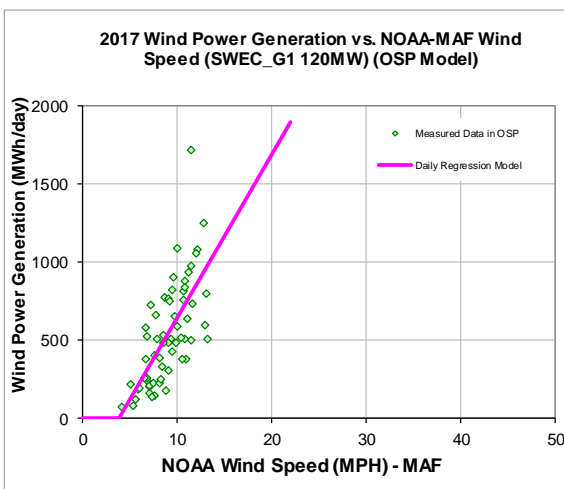
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-397.61
Left Slope (MWh/mph-day)	104.37
RMSE (MWh/day)	235.39
R2	0.48
CV-RMSE	43.7%
Daily Maximum (MWh/day)	2880

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
355,244	384,381	508	554

Figure 10-422: SWEC\_G1 - Model Coefficients (Using Non-OSP and OSP Data)

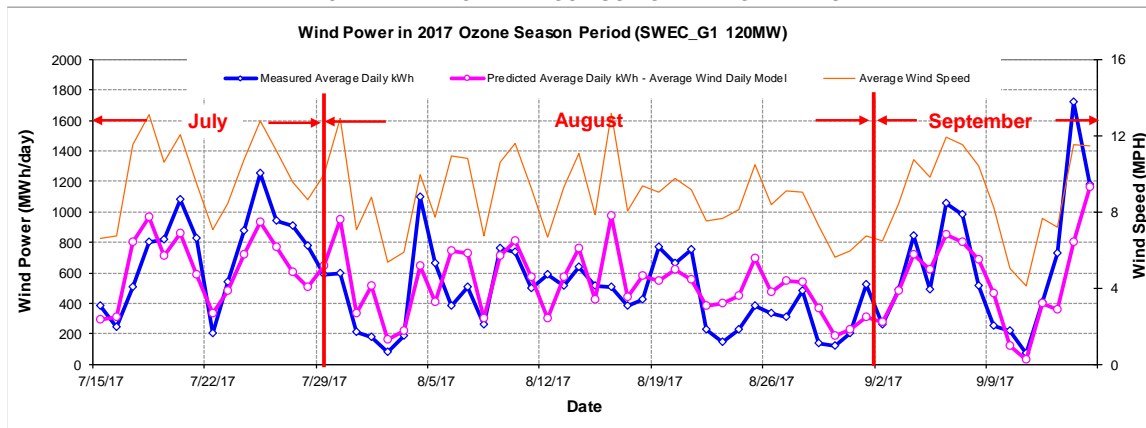


**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (MAF) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.88	39,631	33,598	15.22%	44%	38%
Feb-17	28	11.12	38,757	31,236	19.41%	48%	39%
Mar-17	31	12.31	43,693	39,237	10.20%	49%	44%
Apr-17	30	13.57	42,549	43,138	-1.38%	49%	50%
May-17	31	13.06	38,108	42,495	-11.51%	43%	48%
Jun-17	30	11.49	26,908	34,948	-29.88%	31%	40%
Jul-17	31	10.79	23,926	27,822	-16.28%	27%	31%
Aug-17	31	8.74	13,680	15,964	-16.69%	15%	18%
Sep-17	30	10.72	24,885	27,730	-11.44%	29%	32%
Oct-17	31	10.78	32,855	33,181	-1.00%	37%	37%
Nov-17	30	9.84	31,109	28,403	8.70%	36%	33%
Dec-17	31	9.34	28,280	26,441	6.50%	32%	30%
<b>Total</b>	<b>365</b>	<b>11.05</b>	<b>384,381</b>	<b>384,194</b>	<b>0.05%</b>	<b>37%</b>	<b>37%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.97</b>	<b>33,918</b>	<b>33,918</b>	<b>0.00%</b>	<b>19%</b>	<b>19%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

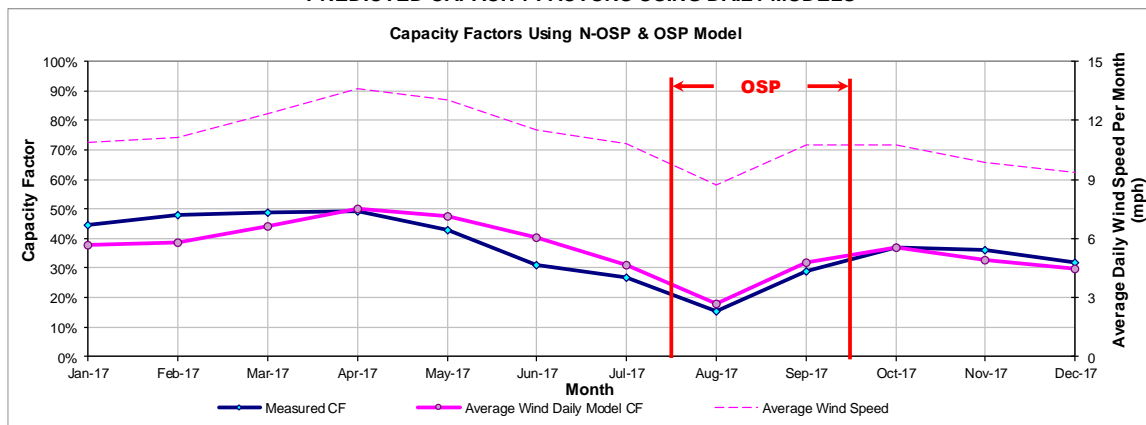


Figure 10-423: SWEC\_G1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.102 Stephens Ranch Wind Phase 1

10.102.1 Stephens Ranch Wind Phase 1 - SRWE1\_UNIT1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SRWE1_UNIT1	Wind	-	BORDEN	Starwood Energy Group Global	Stephens Ranch Wind Phase 1

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
118 GE 1.7 MW	ERCOT	W	Dec-14	West	LBB	211.2

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

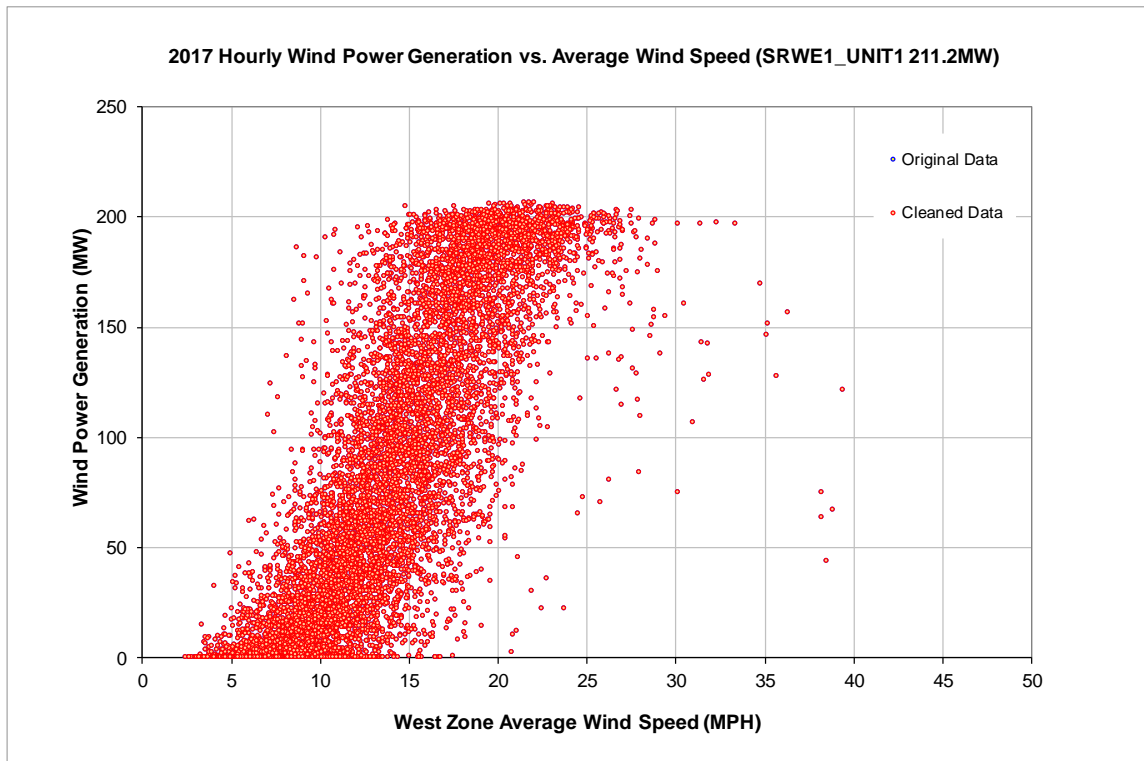


Figure 10-424: SRWE1\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

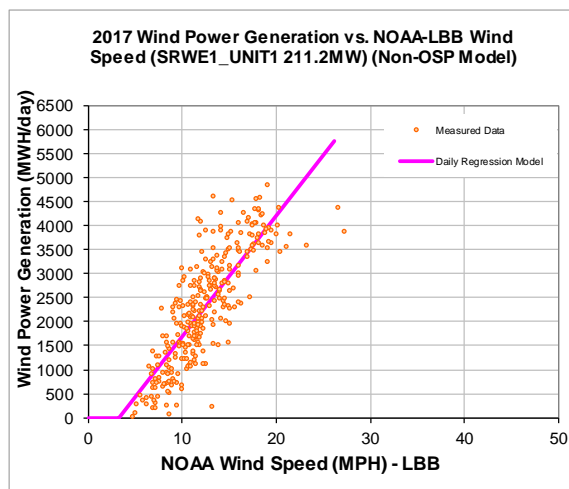
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-811.50
Left Slope (MWh/mph-day)	251.43
RMSE (MWh/day)	657.24
R2	0.67
CV-RMSE	28.4%
Daily Maximum (MWh/day)	5069

**OSP Model:**

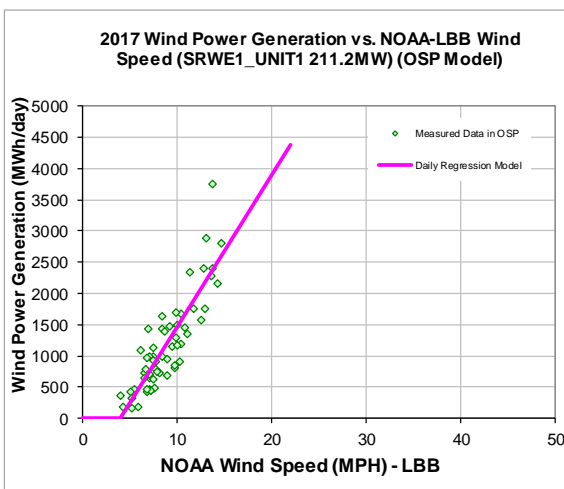
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-964.75
Left Slope (MWh/mph-day)	242.69
RMSE (MWh/day)	360.56
R2	0.76
CV-RMSE	31.8%
Daily Maximum (MWh/day)	5069

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
780,999	770,843

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
1,228	1,172

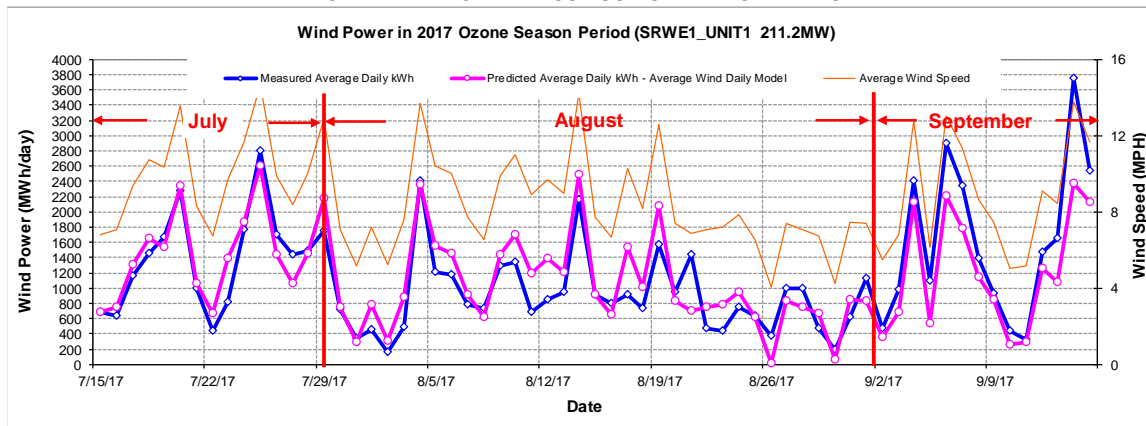
Figure 10-425: SRWE1\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	71,989	68,228	5.22%	46%	43%
Feb-17	28	12.91	73,585	68,170	7.36%	52%	48%
Mar-17	31	13.57	81,004	78,826	2.69%	52%	50%
Apr-17	30	14.59	83,929	85,729	-2.14%	55%	56%
May-17	31	13.77	78,130	82,151	-5.15%	50%	52%
Jun-17	30	12.33	55,463	68,631	-23.74%	36%	45%
Jul-17	31	10.03	45,398	48,987	-7.91%	29%	31%
Aug-17	31	8.19	27,649	31,725	-14.74%	18%	20%
Sep-17	30	10.41	55,170	50,757	8.00%	36%	33%
Oct-17	31	11.80	72,101	66,825	7.32%	46%	43%
Nov-17	30	11.45	66,658	62,031	6.94%	44%	41%
Dec-17	31	10.54	59,767	57,019	4.60%	38%	36%
<b>Total</b>	<b>365</b>	<b>11.78</b>	<b>770,843</b>	<b>769,079</b>	<b>0.23%</b>	<b>42%</b>	<b>42%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>71,475</b>	<b>71,475</b>	<b>0.00%</b>	<b>22%</b>	<b>22%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

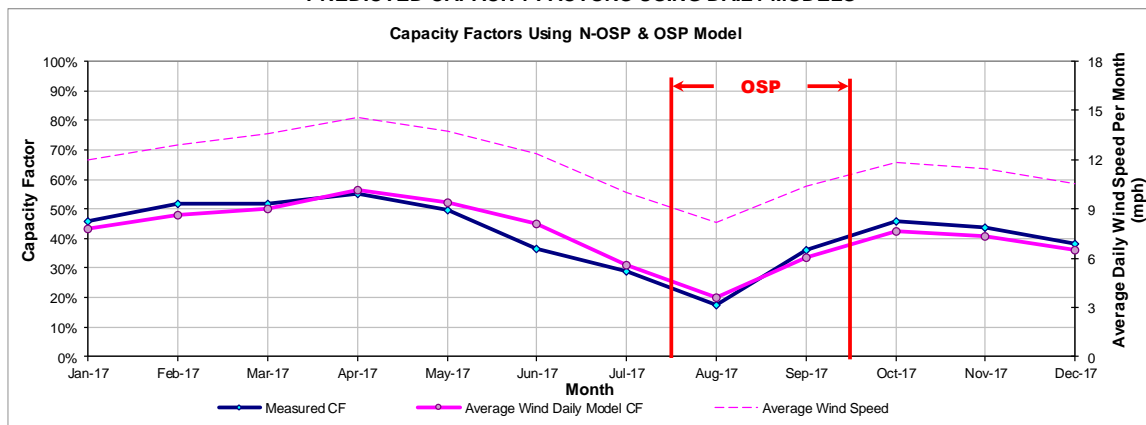


Figure 10-426: SRWE1\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.103 Stephens Ranch Wind Phase b

10.103.1 Stephens Ranch Wind Phase b - SRWE1\_SRWE2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SRWE1_SRWE2	Wind	-	BORDEN	Wind Tex Energy	Stephens Ranch Wind Phase b

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
97 GE 1.7 MW	ERCOT	W	May-15	West	LBB	164.7

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

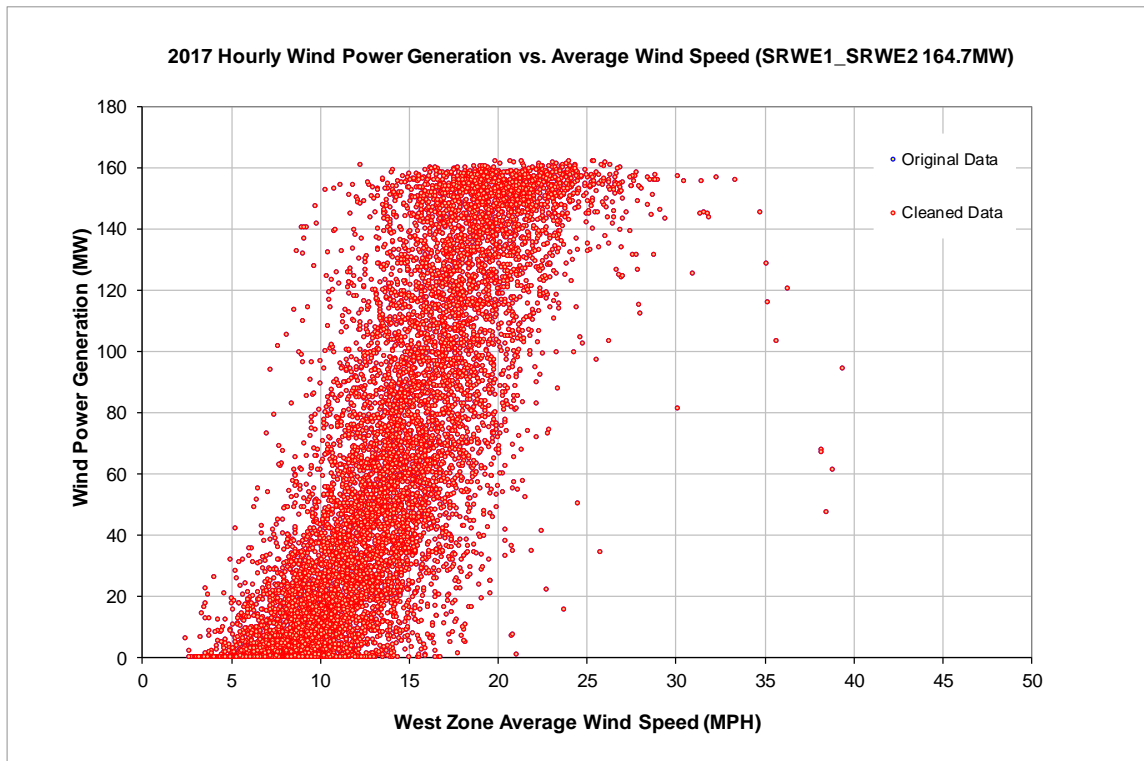


Figure 10-427: SRWE1\_SRWE2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

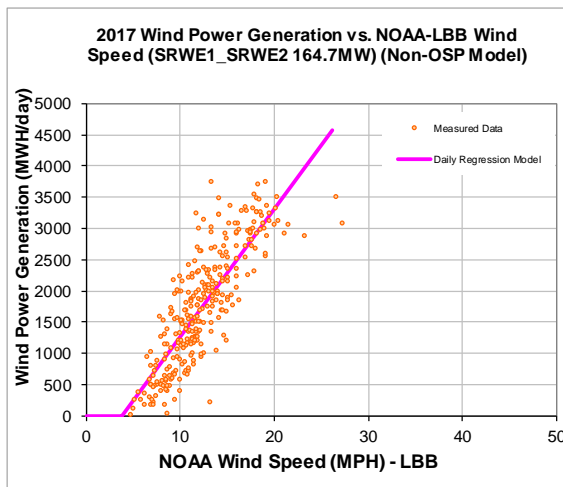
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-757.20
Left Slope (MWh/mph-day)	204.02
RMSE (MWh/day)	518.16
R2	0.69
CV-RMSE	29.1%
Daily Maximum (MWh/day)	3953

**OSP Model:**

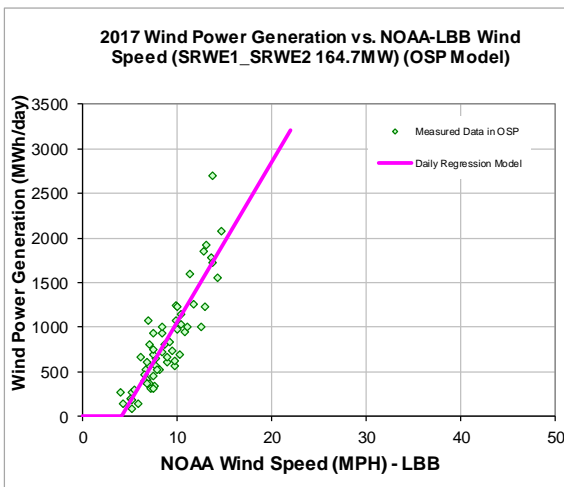
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-749.00
Left Slope (MWh/mph-day)	179.54
RMSE (MWh/day)	253.34
R2	0.78
CV-RMSE	31.5%
Daily Maximum (MWh/day)	3953

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
596,109	588,333	874	833

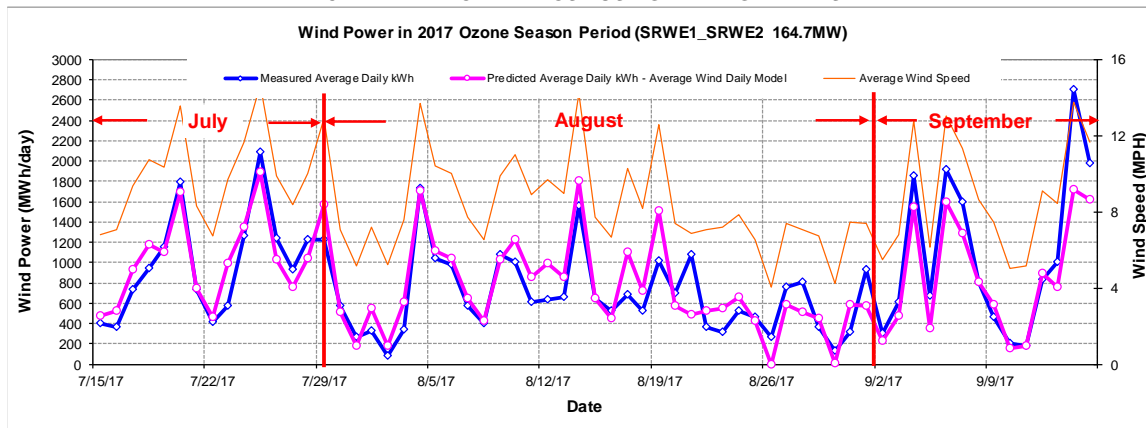
Figure 10-428: SRWE1\_SRWE2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	57,635	52,302	9.25%	47%	43%
Feb-17	28	12.91	59,725	52,551	12.01%	54%	47%
Mar-17	31	13.57	61,517	60,779	1.20%	50%	50%
Apr-17	30	14.59	64,079	66,576	-3.90%	54%	56%
May-17	31	13.77	60,128	63,600	-5.77%	49%	52%
Jun-17	30	12.33	41,314	52,728	-27.63%	35%	44%
Jul-17	31	10.03	32,683	36,109	-10.48%	27%	29%
Aug-17	31	8.19	20,480	22,401	-9.38%	17%	18%
Sep-17	30	10.41	38,612	37,987	1.62%	33%	32%
Oct-17	31	11.80	54,032	51,163	5.31%	44%	42%
Nov-17	30	11.45	51,715	47,373	8.40%	44%	40%
Dec-17	31	10.54	46,412	43,207	6.91%	38%	35%
<b>Total</b>	<b>365</b>	<b>11.78</b>	<b>588,333</b>	<b>586,777</b>	<b>0.26%</b>	<b>41%</b>	<b>41%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>50,656</b>	<b>50,679</b>	<b>-0.05%</b>	<b>20%</b>	<b>20%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

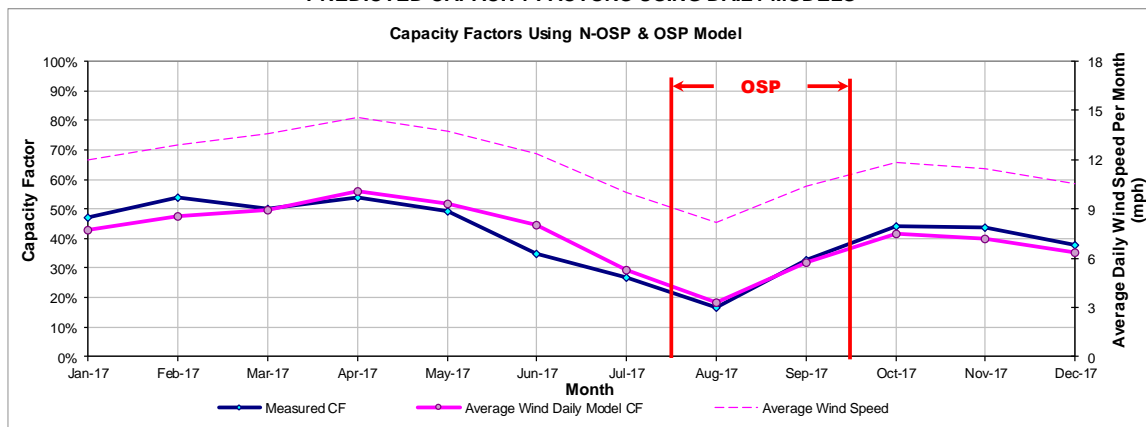


Figure 10-429: SRWE1\_SRWE2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.104 Sweetwater Wind 1

10.104.1 Sweetwater Wind 1 - SWEETWND\_WND1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SWEETWND_WND1	Wind	Sweetwater	NOLAN	DKRW/BabcockBrown	Sweetwater Wind 1

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
25 GE 1.5 MW	ERCOT	W	Dec-03	West	ABI	37.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

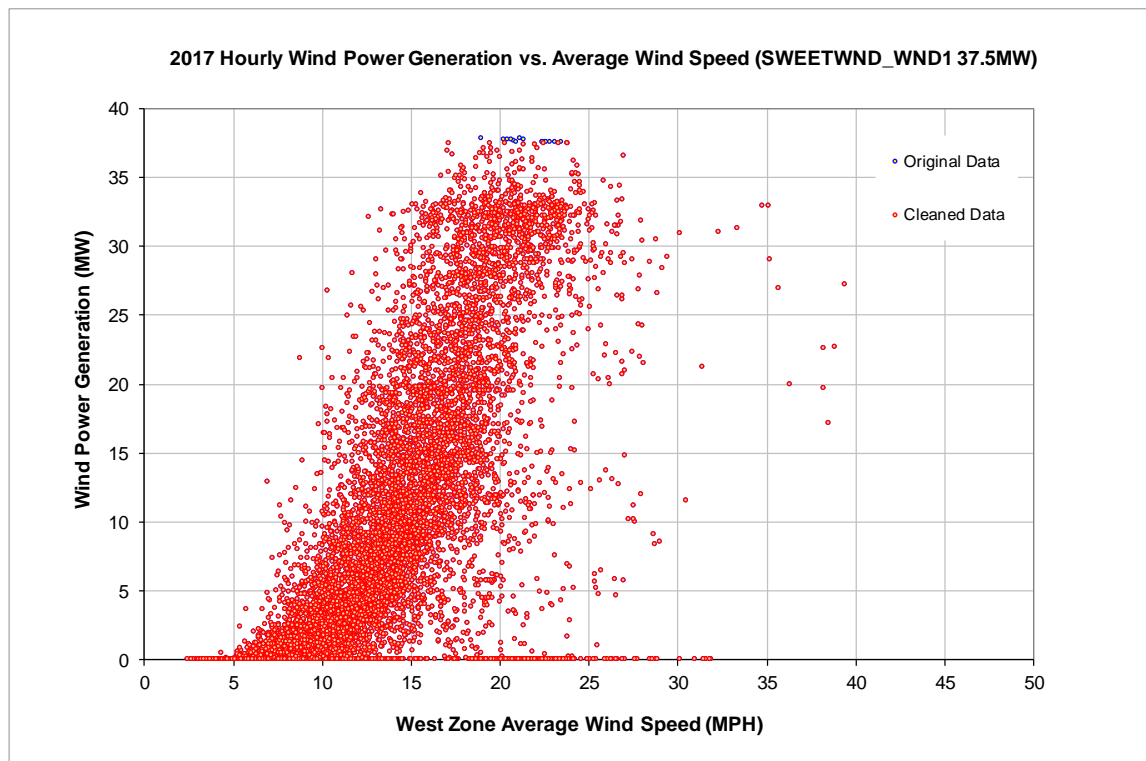


Figure 10-430: SWEETWND\_WND1 - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

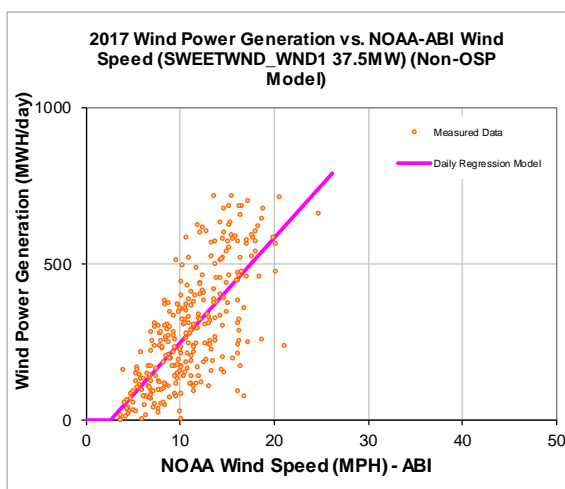
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-84.05
Left Slope (MWh/mph-day)	33.46
RMSE (MWh/day)	127.63
R2	0.52
CV-RMSE	44.6%
Daily Maximum (MWh/day)	900

**OSP Model:**

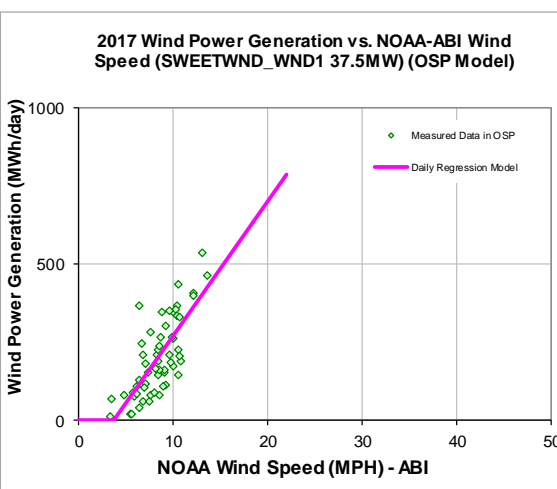
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-159.95
Left Slope (MWh/mph-day)	43.15
RMSE (MWh/day)	81.82
R2	0.57
CV-RMSE	40.3%
Daily Maximum (MWh/day)	900

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
109,729	96,998	218	207

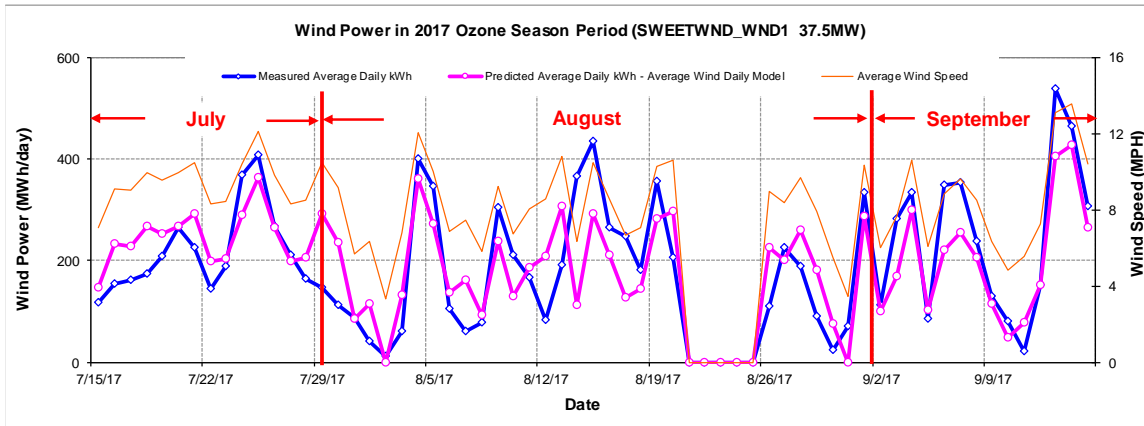
Figure 10-431: SWEETWND\_WND1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.03	8,147	7,299	10.41%	29%	26%
Feb-17	28	11.23	8,569	8,165	4.71%	34%	32%
Mar-17	31	12.96	12,558	10,837	13.71%	45%	39%
Apr-17	30	13.49	11,715	11,019	5.94%	43%	41%
May-17	31	11.55	10,338	9,379	9.28%	37%	34%
Jun-17	30	10.72	9,021	8,240	8.66%	33%	31%
Jul-17	31	9.17	6,855	7,151	-4.33%	25%	26%
Aug-17	31	8.00	4,844	4,837	0.16%	17%	17%
Sep-17	30	9.51	7,923	7,073	10.72%	29%	26%
Oct-17	31	11.07	5,234	8,877	-69.60%	19%	32%
Nov-17	30	10.21	4,259	7,729	-81.50%	16%	29%
Dec-17	31	9.13	7,536	6,419	14.82%	27%	23%
<b>Total</b>	<b>365</b>	<b>10.63</b>	<b>96,998</b>	<b>97,025</b>	<b>-0.03%</b>	<b>30%</b>	<b>30%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>58</b>	<b>8.41</b>	<b>11,783</b>	<b>11,810</b>	<b>-0.23%</b>	<b>23%</b>	<b>23%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

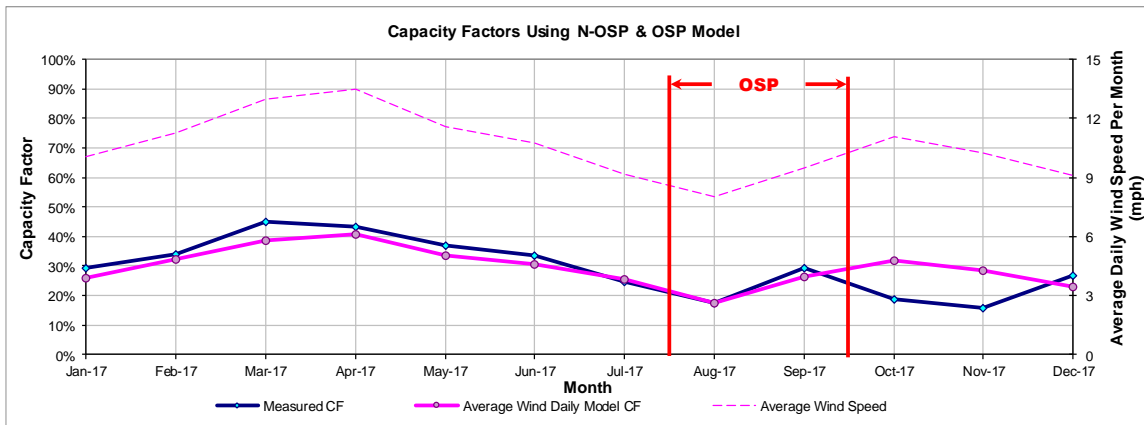


Figure 10-432: SWEETWND\_WND1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.105 Sweetwater Wind 2

10.105.1 Sweetwater Wind 2 - SWEETWN2\_WND2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SWEETWN2_WND2	Wind	Sweetwater	NOLAN	DKRW/BabcockBrown	Sweetwater Wind 2

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
61 GE 1.5 MW	ERCOT	W	Feb-05	West	ABI	97.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

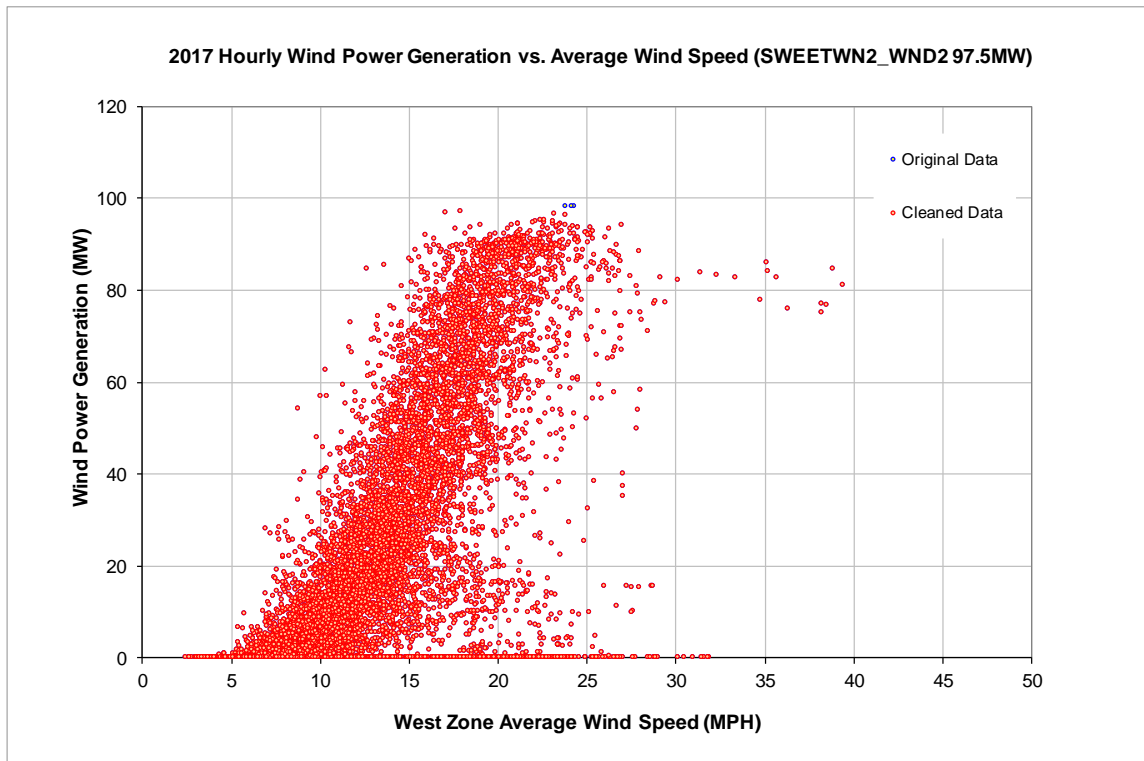


Figure 10-433: SWEETWN2\_WND2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

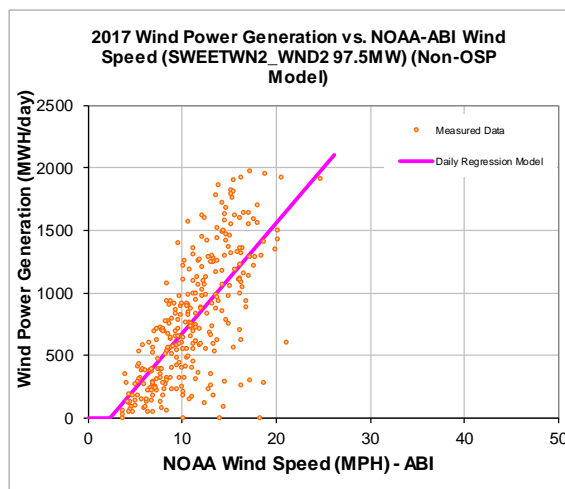
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-207.12
Left Slope (MWh/mph-day)	88.61
RMSE (MWh/day)	356.29
R2	0.49
CV-RMSE	46.2%
Daily Maximum (MWh/day)	2340

**OSP Model:**

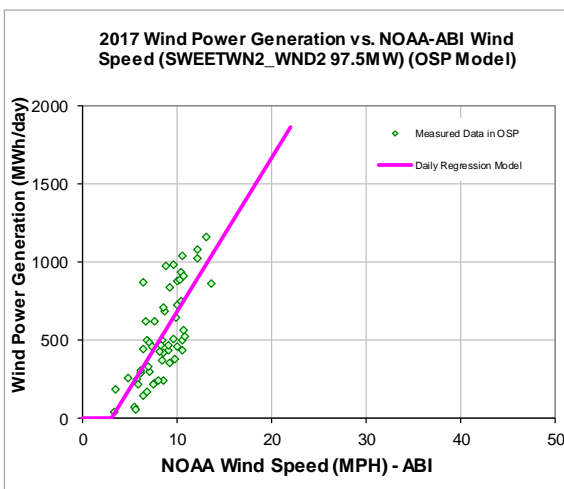
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-297.84
Left Slope (MWh/mph-day)	98.24
RMSE (MWh/day)	198.53
R2	0.55
CV-RMSE	37.6%
Daily Maximum (MWh/day)	2340

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
294,266	257,945	560	534

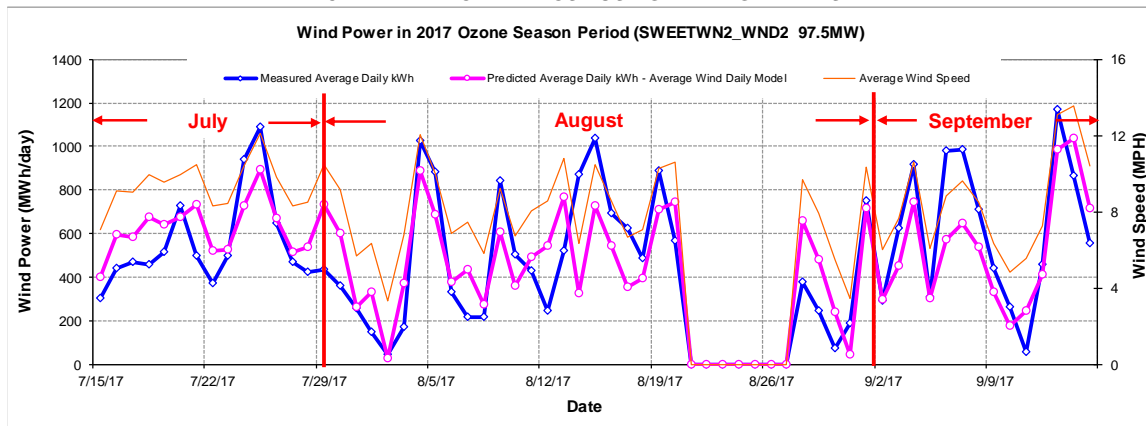
Figure 10-434: SWEETWN2\_WND2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	24,510	22,242	9.26%	34%	31%
Feb-17	28	11.23	21,487	22,054	-2.64%	33%	34%
Mar-17	31	12.83	27,669	26,027	5.93%	38%	36%
Apr-17	30	13.39	26,850	27,423	-2.13%	38%	39%
May-17	31	11.55	27,857	25,313	9.13%	38%	35%
Jun-17	30	10.72	25,876	22,283	13.89%	37%	32%
Jul-17	31	9.17	18,462	18,755	-1.59%	25%	26%
Aug-17	31	7.95	11,698	11,590	0.92%	16%	16%
Sep-17	30	9.51	22,342	18,867	15.55%	32%	27%
Oct-17	31	11.07	28,620	23,984	16.20%	39%	33%
Nov-17	30	10.21	8,311	20,931	-151.85%	12%	30%
Dec-17	31	9.29	14,263	18,476	-29.54%	20%	25%
<b>Total</b>	<b>365</b>	<b>10.62</b>	<b>257,945</b>	<b>257,945</b>	<b>0.00%</b>	<b>30%</b>	<b>30%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>56</b>	<b>8.41</b>	<b>29,562</b>	<b>29,562</b>	<b>0.00%</b>	<b>23%</b>	<b>23%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

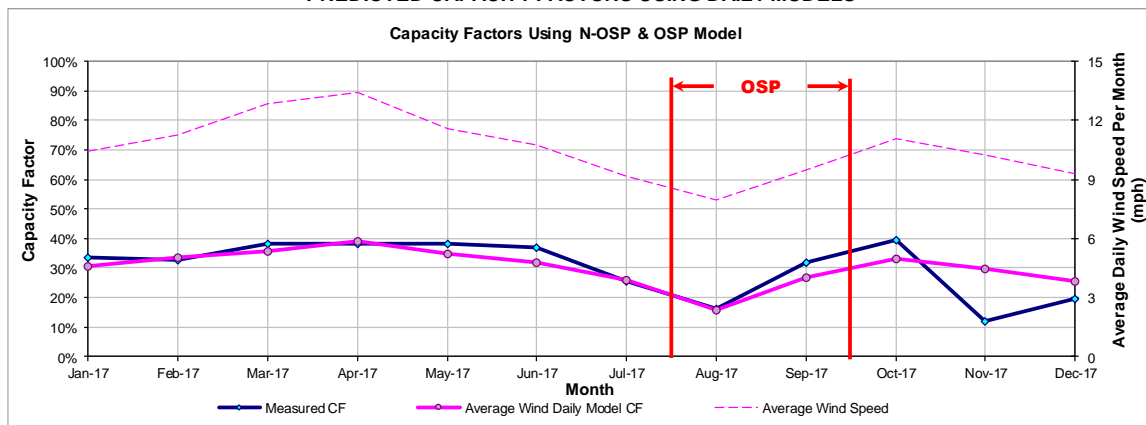


Figure 10-435: SWEETWN2\_WND2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.105.2 Sweetwater Wind 2 - SWEETWN2\_WND24

**SITE INFORMATION**

GENSITECODE_EERCOT	Renewable Energy	City	County	Company	Facility
SWEETWN2_WND24	Wind	Sweetwater	NOLAN	DKRW/BabcockBrown	Sweetwater Wind 2

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
-	ERCOT	W	Feb-05	West	ABI	16

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

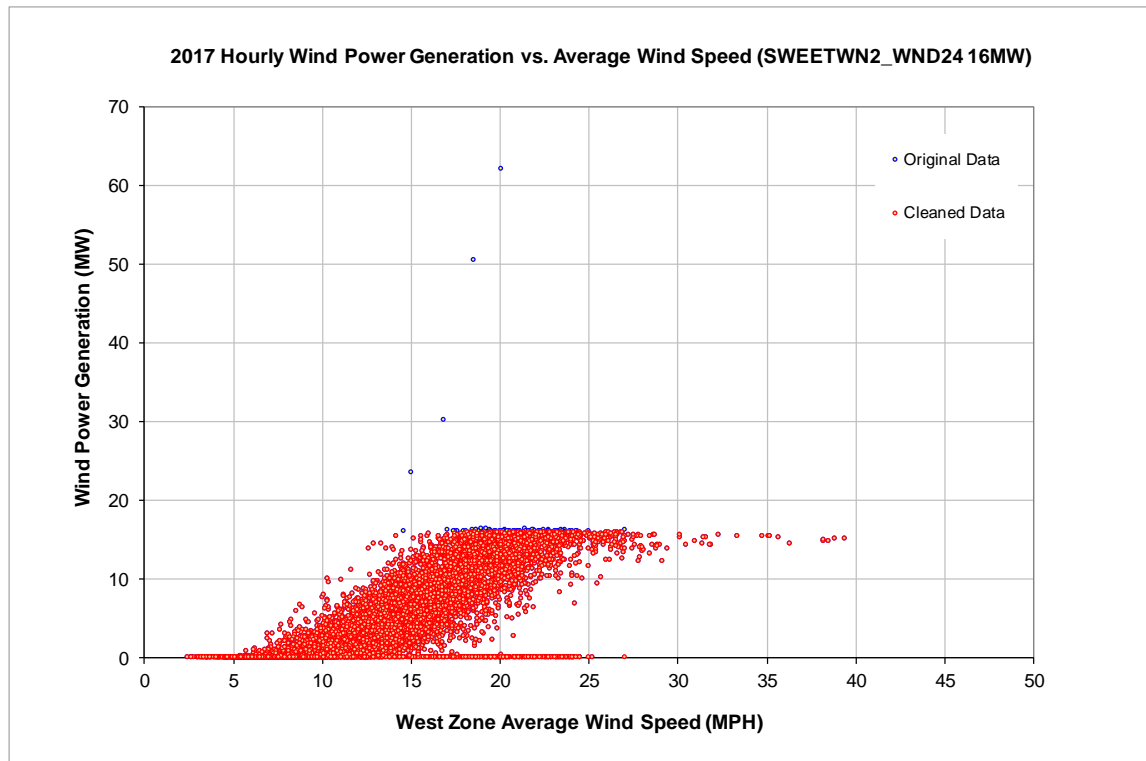


Figure 10-436: SWEETWN2\_WND24 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

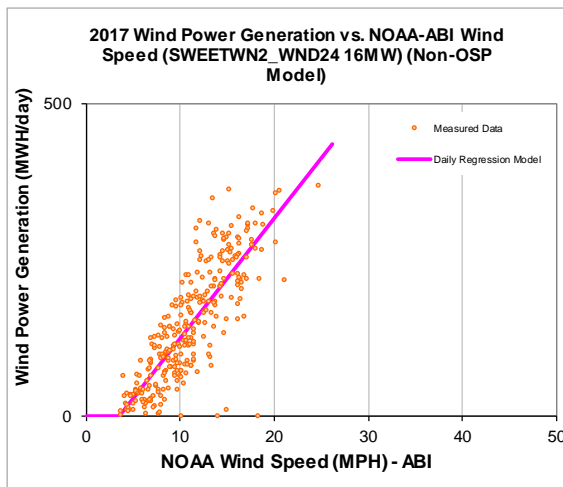
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-67.58
Left Slope (MWh/mph-day)	19.29
RMSE (MWh/day)	53.18
R2	0.67
CV-RMSE	36.5%
Daily Maximum (MWh/day)	384

**OSP Model:**

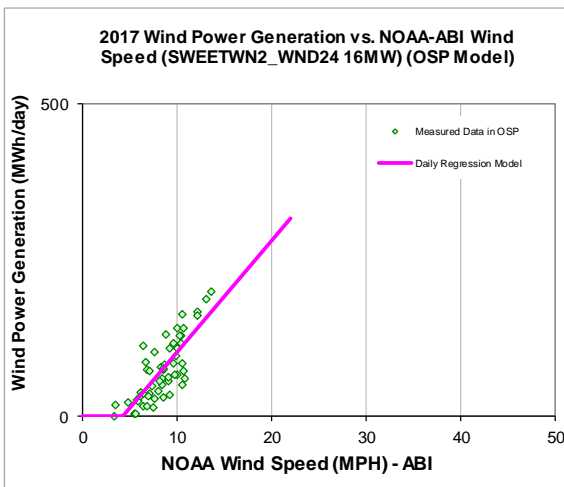
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-75.51
Left Slope (MWh/mph-day)	17.81
RMSE (MWh/day)	30.26
R2	0.63
CV-RMSE	40.8%
Daily Maximum (MWh/day)	384

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
54,615	46,816	80	76

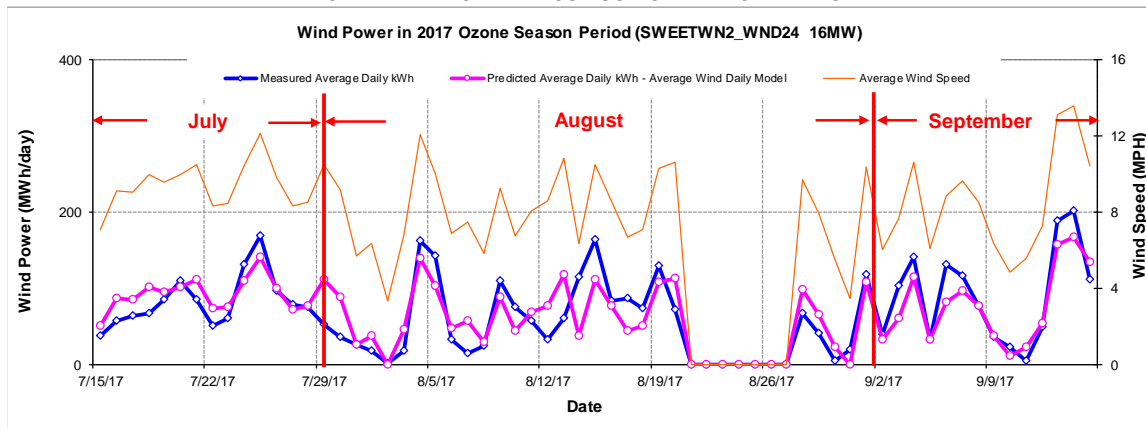
Figure 10-437: SWEETWN2\_WND24 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	4,434	4,143	6.56%	37%	35%
Feb-17	28	11.23	4,250	4,170	1.89%	40%	39%
Mar-17	31	12.84	4,552	4,838	-6.29%	38%	41%
Apr-17	30	13.39	4,589	5,338	-16.33%	40%	46%
May-17	31	11.55	4,666	4,812	-3.12%	39%	40%
Jun-17	30	10.72	3,909	4,174	-6.79%	34%	36%
Jul-17	31	9.17	2,629	3,021	-14.89%	22%	25%
Aug-17	31	7.95	1,604	1,602	0.11%	13%	13%
Sep-17	30	9.51	3,264	3,188	2.32%	28%	28%
Oct-17	31	11.07	5,063	4,522	10.68%	43%	38%
Nov-17	30	10.06	4,207	3,668	12.80%	37%	32%
Dec-17	31	9.48	3,649	3,344	8.38%	31%	28%
<b>Total</b>	<b>365</b>	<b>10.63</b>	<b>46,816</b>	<b>46,821</b>	<b>-0.01%</b>	<b>33%</b>	<b>33%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>56</b>	<b>8.41</b>	<b>4,157</b>	<b>4,187</b>	<b>-0.72%</b>	<b>19%</b>	<b>19%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

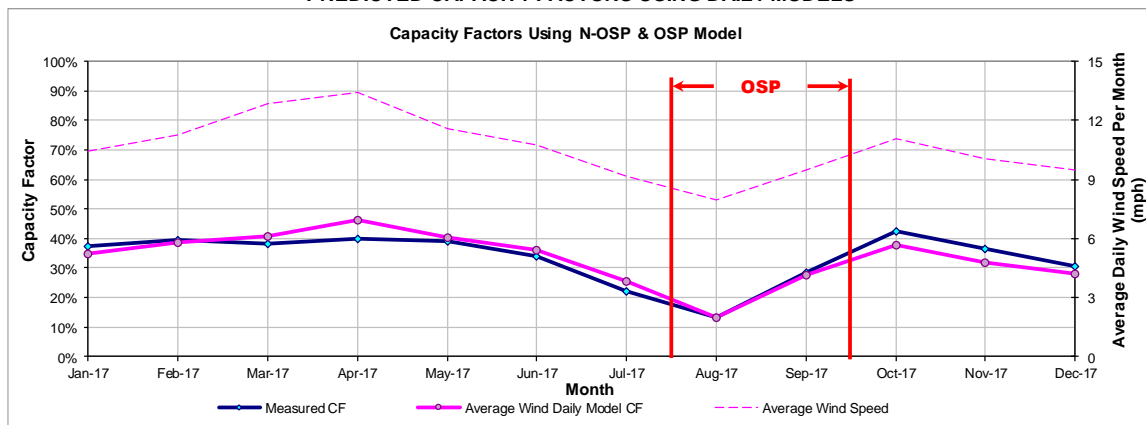


Figure 10-438: SWEETWN2\_WND24 - Predicted Wind Power and Capacity Factor Using Daily Models



10.106 Sweetwater Wind 3

10.106.1 Sweetwater Wind 3 - SWEETWN3\_WND3A

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SWEETWN3_WND3A	Wind	Sweetwater	NOLAN	DKRW/BabcockBrown	Sweetwater Wind 3 (Cottonwood)

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
90 GE 1.5 MW	ERCOT	W	Dec-05	West	ABI	135

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

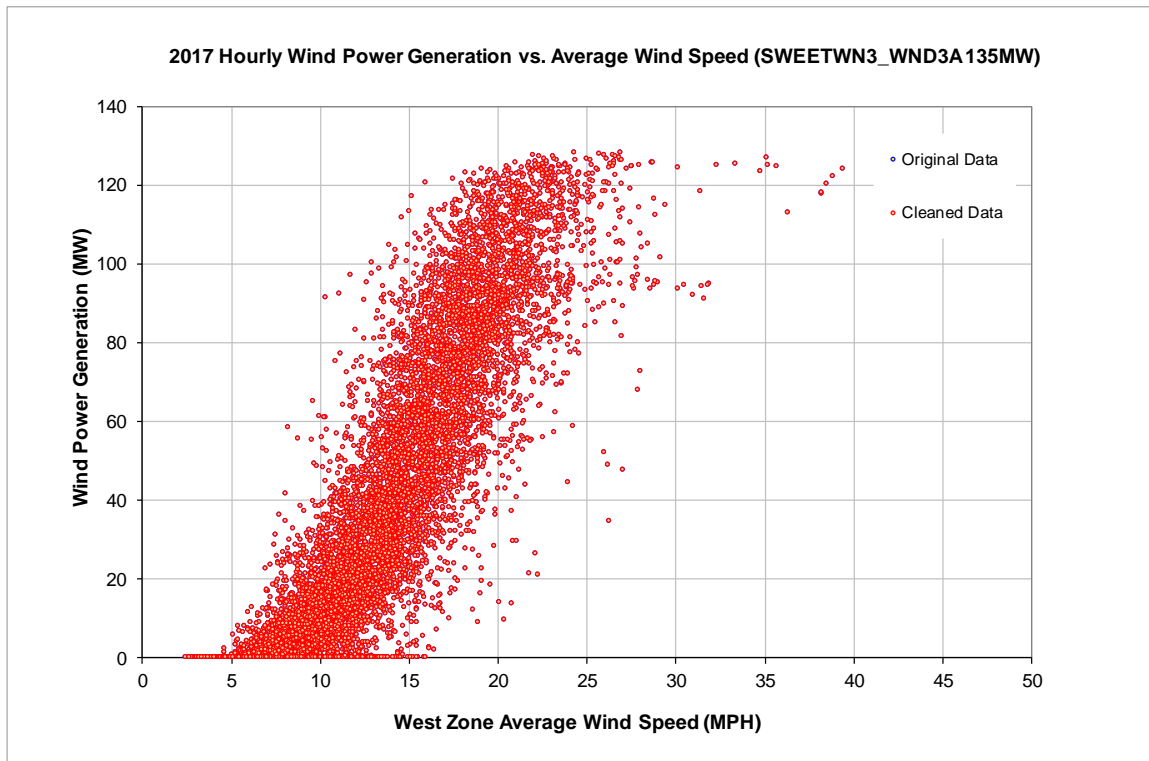


Figure 10-439: SWEETWN3\_WND3A - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

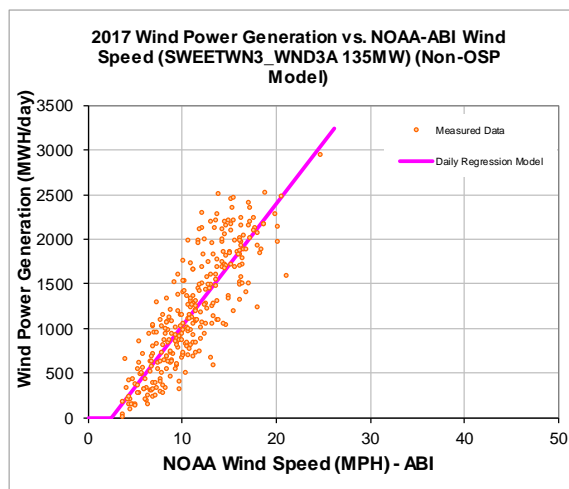
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-323.13
Left Slope (MWh/mph-day)	136.52
RMSE (MWh/day)	338.47
R2	0.72
CV-RMSE	28.4%
Daily Maximum (MWh/day)	3240

**OSP Model:**

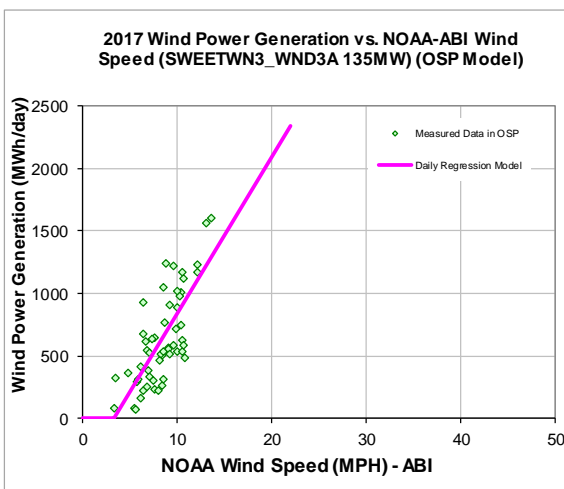
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-420.66
Left Slope (MWh/mph-day)	125.42
RMSE (MWh/day)	248.36
R2	0.56
CV-RMSE	39.4%
Daily Maximum (MWh/day)	3240

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
440,326	390,975	676	642

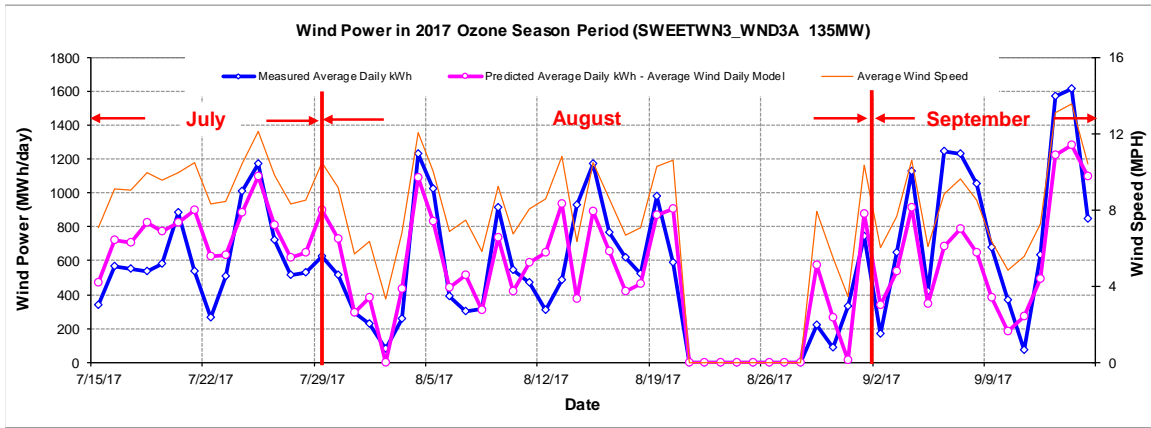
Figure 10-440: SWEETWN3\_WND3A - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	35,882	34,142	4.85%	36%	34%
Feb-17	28	11.23	31,904	33,866	-6.15%	35%	37%
Mar-17	31	12.96	44,385	44,825	-0.99%	44%	45%
Apr-17	30	13.49	42,243	45,547	-7.82%	43%	47%
May-17	31	11.55	38,195	38,875	-1.78%	38%	39%
Jun-17	30	10.72	32,647	34,209	-4.79%	34%	35%
Jul-17	31	9.17	20,711	25,387	-22.58%	21%	25%
Aug-17	31	7.87	12,713	13,034	-2.52%	13%	13%
Sep-17	30	9.51	28,907	26,423	8.59%	30%	27%
Oct-17	31	11.07	41,188	36,827	10.59%	41%	37%
Nov-17	30	10.21	33,388	32,128	3.78%	34%	33%
Dec-17	31	9.09	28,812	25,714	10.75%	29%	26%
<b>Total</b>	<b>365</b>	<b>10.67</b>	<b>390,975</b>	<b>390,978</b>	<b>0.00%</b>	<b>33%</b>	<b>33%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>55</b>	<b>8.38</b>	<b>34,683</b>	<b>34,686</b>	<b>-0.01%</b>	<b>19%</b>	<b>19%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

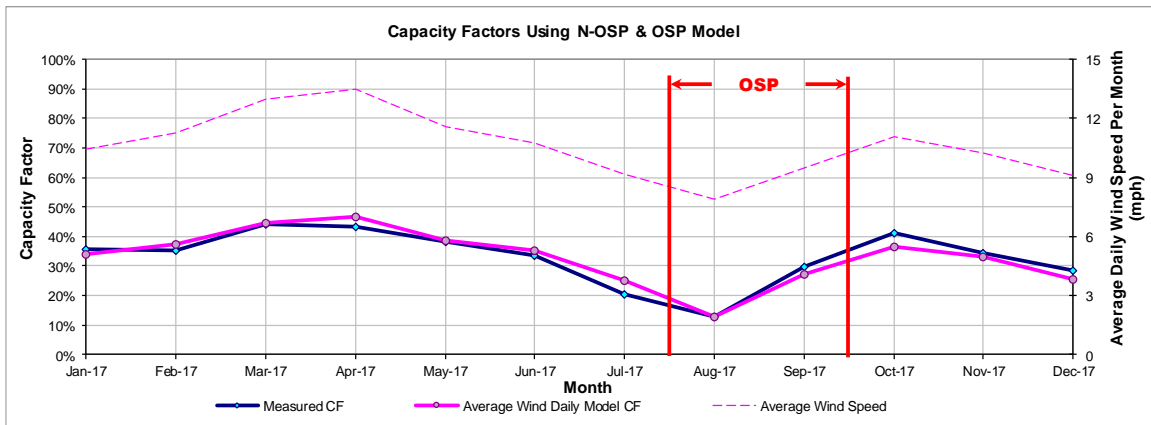


Figure 10-441: SWEETWN3\_WND3A - Predicted Wind Power and Capacity Factor Using Daily Models

10.107 Sweetwater Wind 4

10.107.1 Sweetwater Wind 4 - SWEETWN4\_WND4A

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SWEETWN4_WND4A	Wind	Sweetwater	NOLAN	DKRW/BabcockBrown	Sweetwater Wind 4 (Cottonwood)

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
135 Mitsubishi 1 MW	ERCOT	W	May-07	West	ABI	135

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

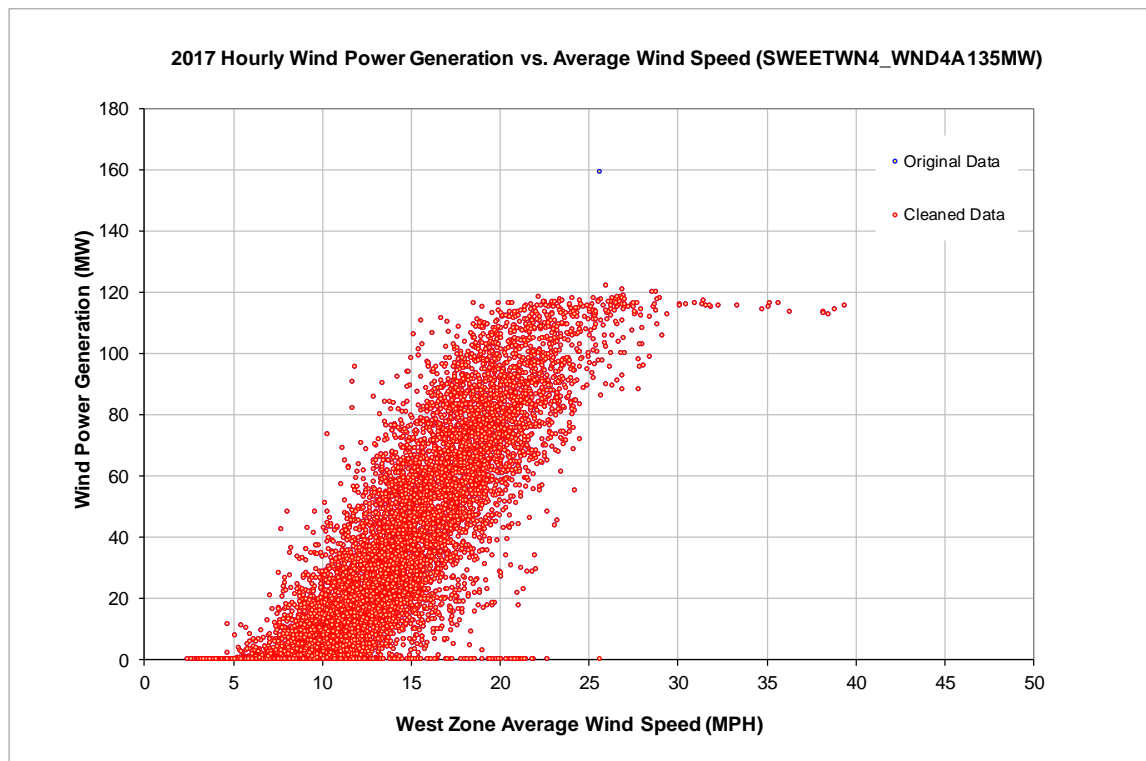


Figure 10-442: SWEETWN4\_WND4A - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

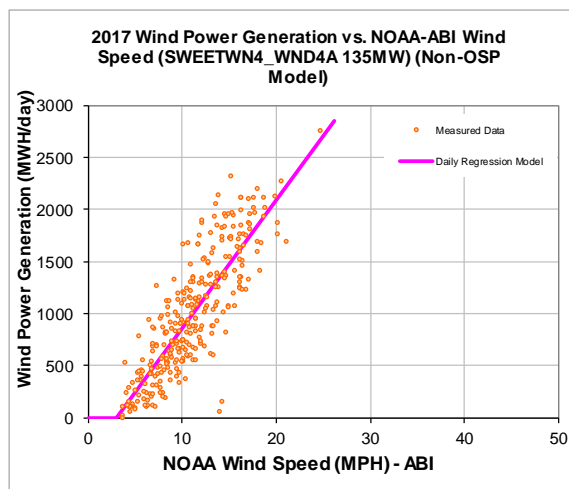
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-363.03
Left Slope (MWh/mph-day)	123.30
RMSE (MWh/day)	315.60
R2	0.71
CV-RMSE	31.5%
Daily Maximum (MWh/day)	3240

**OSP Model:**

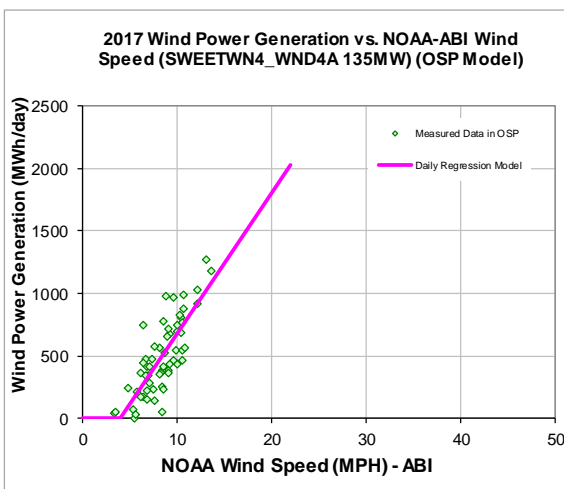
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-441.38
Left Slope (MWh/mph-day)	112.06
RMSE (MWh/day)	182.14
R2	0.64
CV-RMSE	37.3%
Daily Maximum (MWh/day)	3240

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
371,639	328,742	539	496

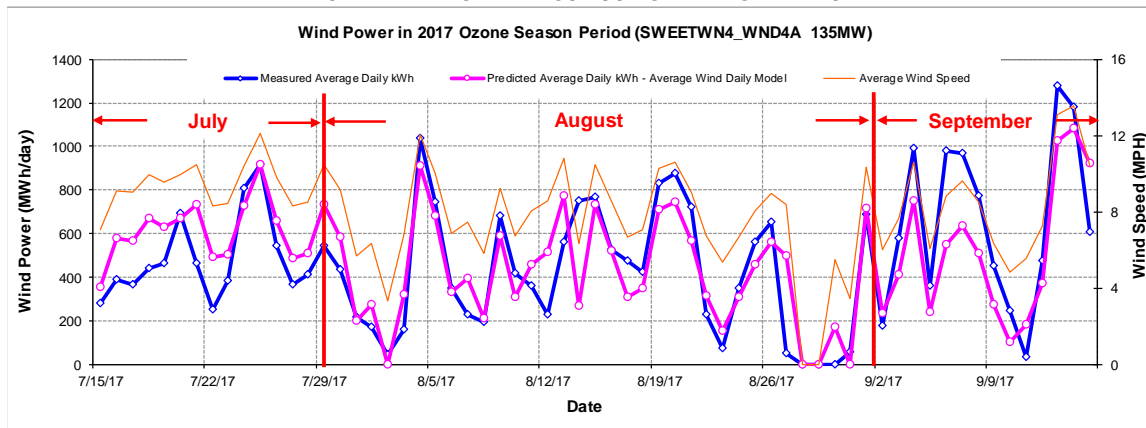
Figure 10-443: SWEETWN4\_WND4A - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	31,560	28,629	9.29%	31%	29%
Feb-17	28	11.23	27,621	28,593	-3.52%	30%	32%
Mar-17	31	12.96	38,856	38,277	1.49%	39%	38%
Apr-17	30	13.49	37,728	39,000	-3.37%	39%	40%
May-17	31	11.55	32,686	32,903	-0.67%	33%	33%
Jun-17	30	10.43	21,220	25,839	-21.77%	22%	27%
Jul-17	31	9.17	17,282	20,696	-19.75%	17%	21%
Aug-17	31	7.80	12,682	12,623	0.47%	13%	13%
Sep-17	30	9.51	23,461	21,781	7.16%	24%	22%
Oct-17	31	11.07	34,026	31,054	8.73%	34%	31%
Nov-17	30	10.21	28,098	26,880	4.33%	29%	28%
Dec-17	31	9.26	23,523	22,589	3.97%	23%	22%
<b>Total</b>	<b>365</b>	<b>10.61</b>	<b>328,742</b>	<b>328,864</b>	<b>-0.04%</b>	<b>28%</b>	<b>28%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>61</b>	<b>8.30</b>	<b>29,804</b>	<b>29,926</b>	<b>-0.41%</b>	<b>15%</b>	<b>15%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

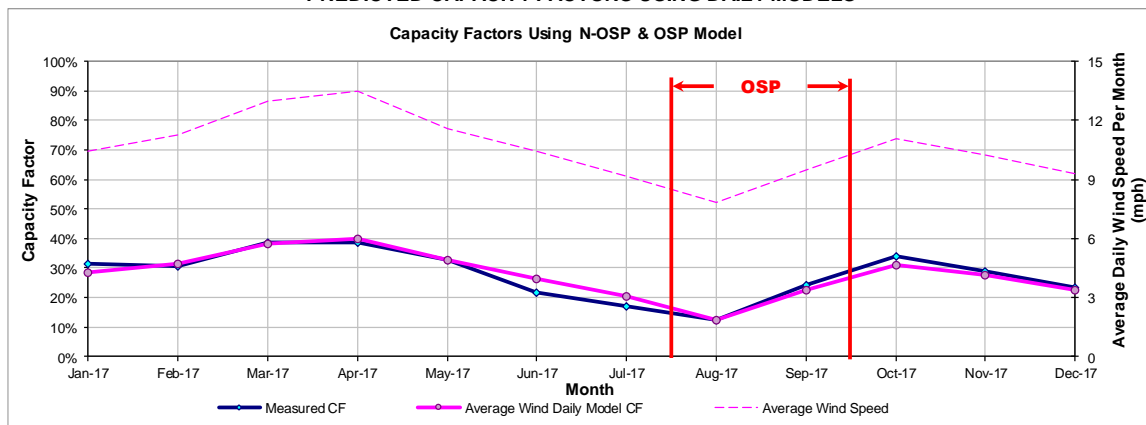


Figure 10-444: SWEETWN4\_WND4A - Predicted Wind Power and Capacity Factor Using Daily Models

10.107.2 Sweetwater Wind 4 - SWEETWN4\_WND4B

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SWEETWN4_WND4B	Wind	Sweetwater	NOLAN	DKRW/BabcockBrown	Sweetwater Wind 4 (Cottonwood)

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
46 Siemens 2.3 MW	ERCOT	W	May-07	West	ABI	105.8

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

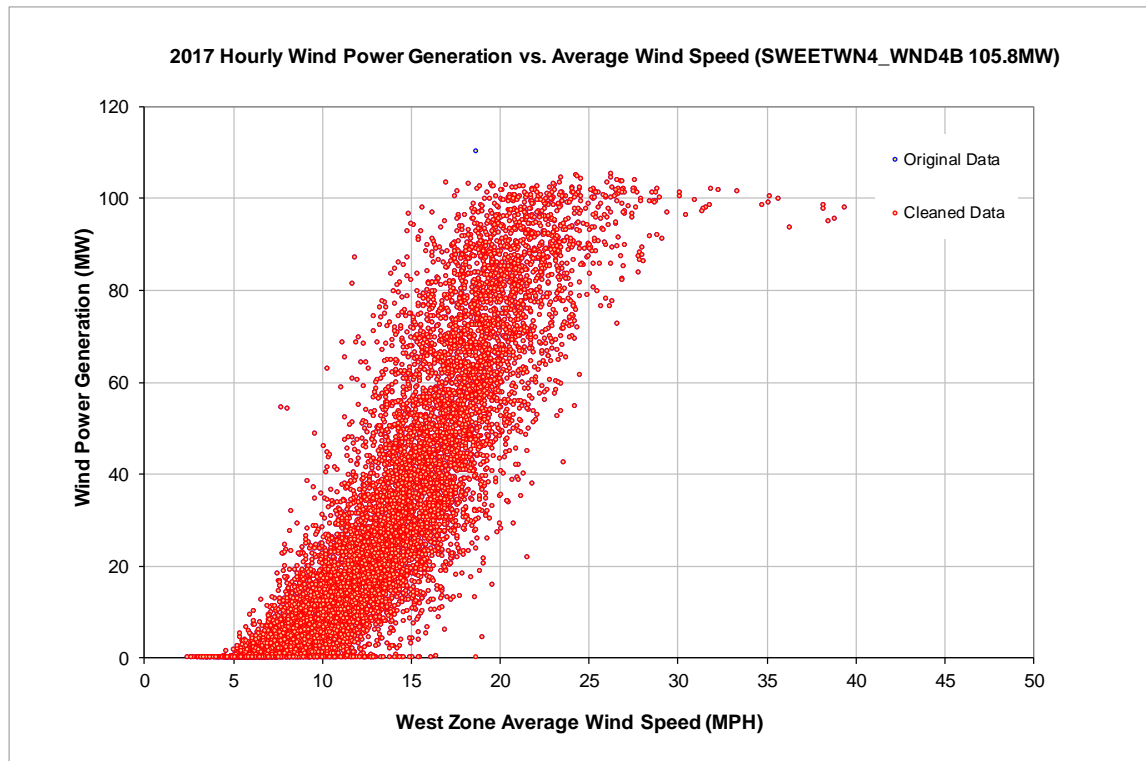


Figure 10-445: SWEETWN4\_WND4B - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

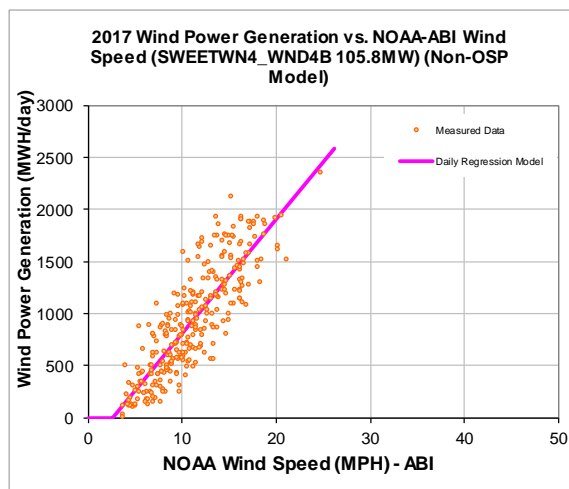
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-277.90
Left Slope (MWh/mph-day)	109.85
RMSE (MWh/day)	271.59
R2	0.72
CV-RMSE	28.9%
Daily Maximum (MWh/day)	2539

**OSP Model:**

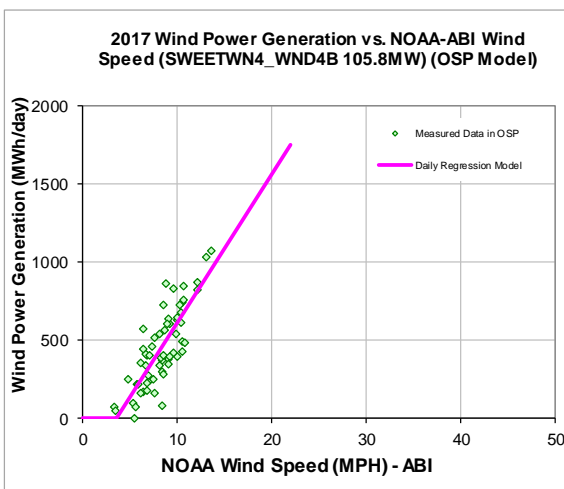
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-335.91
Left Slope (MWh/mph-day)	94.83
RMSE (MWh/day)	147.85
R2	0.66
CV-RMSE	32.8%
Daily Maximum (MWh/day)	2539

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
345,688	308,832	493	456

Figure 10-446: SWEETWN4\_WND4B - Model Coefficients (Using Non-OSP and OSP Data)

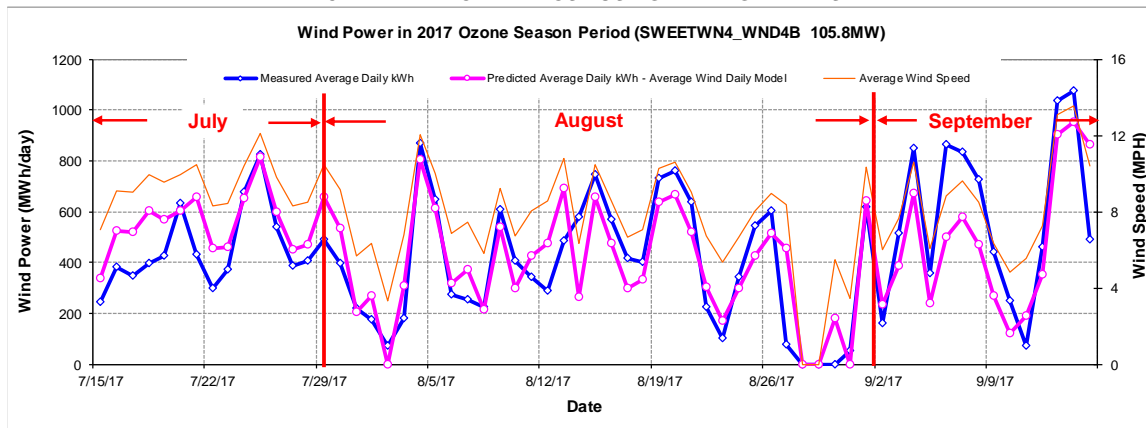


**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	30,393	26,916	11.44%	39%	34%
Feb-17	28	11.23	26,385	26,747	-1.37%	37%	38%
Mar-17	31	12.96	35,132	35,511	-1.08%	45%	45%
Apr-17	30	13.49	34,614	36,110	-4.32%	45%	47%
May-17	31	11.55	30,346	30,724	-1.24%	39%	39%
Jun-17	30	10.72	24,032	26,988	-12.30%	32%	35%
Jul-17	31	9.17	16,201	19,257	-18.86%	21%	24%
Aug-17	31	7.80	11,788	11,734	0.46%	15%	15%
Sep-17	30	9.51	20,782	20,297	2.34%	27%	27%
Oct-17	31	11.07	30,886	29,076	5.86%	39%	37%
Nov-17	30	10.21	26,448	25,313	4.29%	35%	33%
Dec-17	31	9.09	21,824	20,188	7.50%	28%	26%
<b>Total</b>	<b>365</b>	<b>10.62</b>	<b>308,832</b>	<b>308,860</b>	<b>-0.01%</b>	<b>33%</b>	<b>33%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>61</b>	<b>8.30</b>	<b>27,513</b>	<b>27,541</b>	<b>-0.10%</b>	<b>18%</b>	<b>18%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

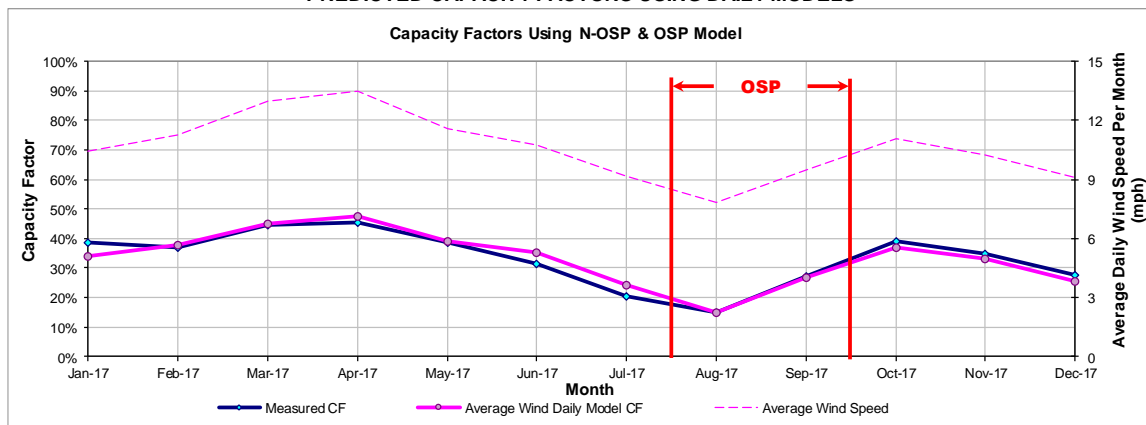


Figure 10-447: SWEETWN4\_WND4B - Predicted Wind Power and Capacity Factor Using Daily Models

10.108 Sweetwater Wind 5

10.108.1 Sweetwater Wind 5 - SWEETWN4\_WND5

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
SWEETWN4_WND5	Wind	Sweetwater	NOLAN	DKRW/BabcockBrown	Sweetwater Wind 5

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
35 Siemens 2.3 MW	ERCOT	W	Dec-07	West	ABI	80.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

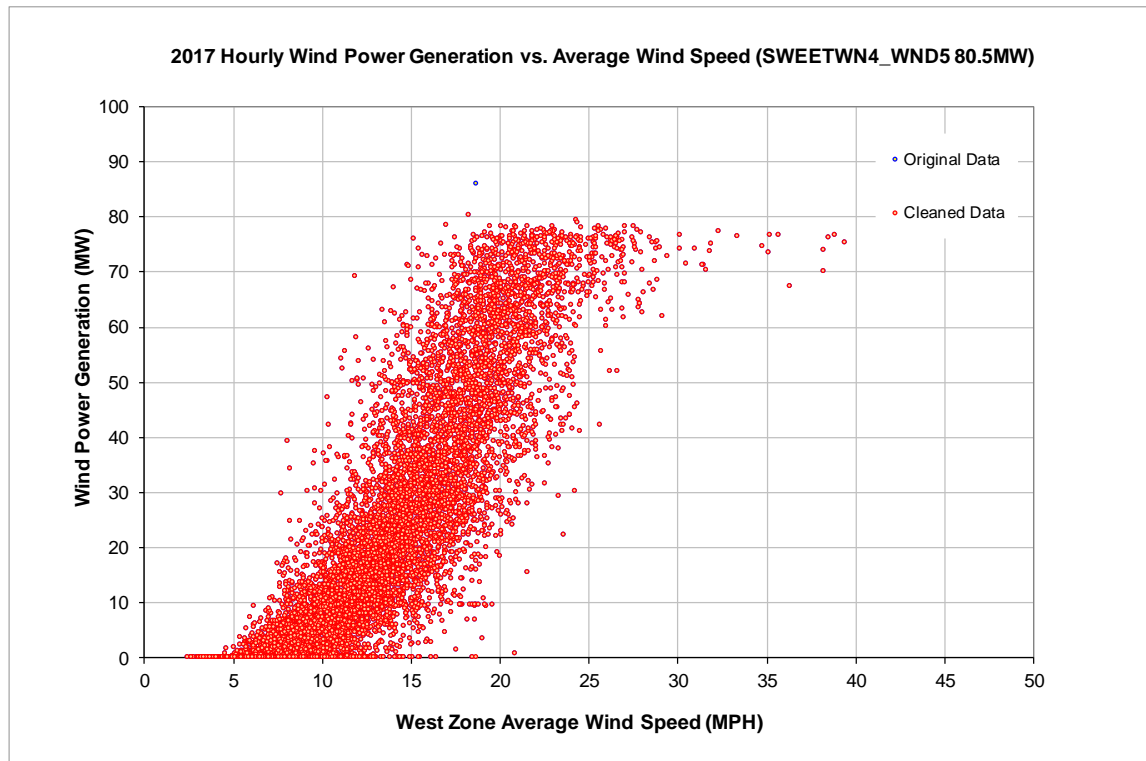


Figure 10-448: SWEETWN4\_WND5 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

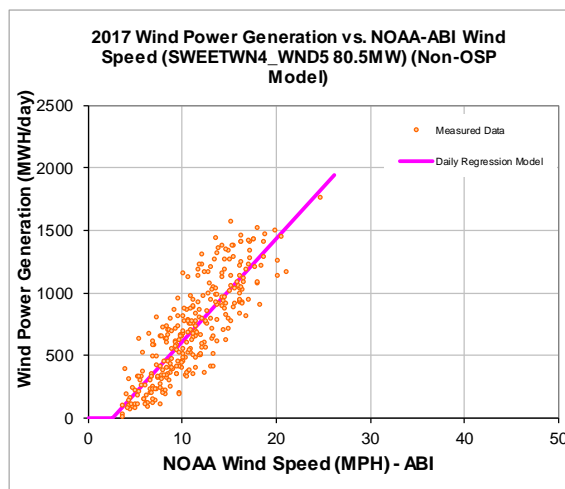
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-217.09
Left Slope (MWh/mph-day)	82.59
RMSE (MWh/day)	206.79
R2	0.72
CV-RMSE	29.6%
Daily Maximum (MWh/day)	1932

**OSP Model:**

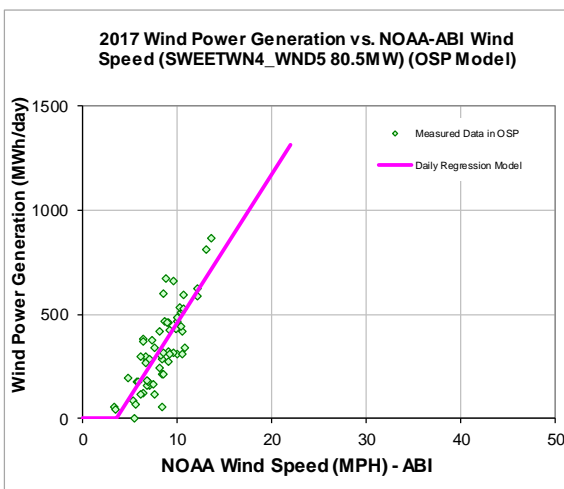
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-251.59
Left Slope (MWh/mph-day)	71.17
RMSE (MWh/day)	114.69
R2	0.65
CV-RMSE	33.8%
Daily Maximum (MWh/day)	1932

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
257,437	229,763

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
371	343

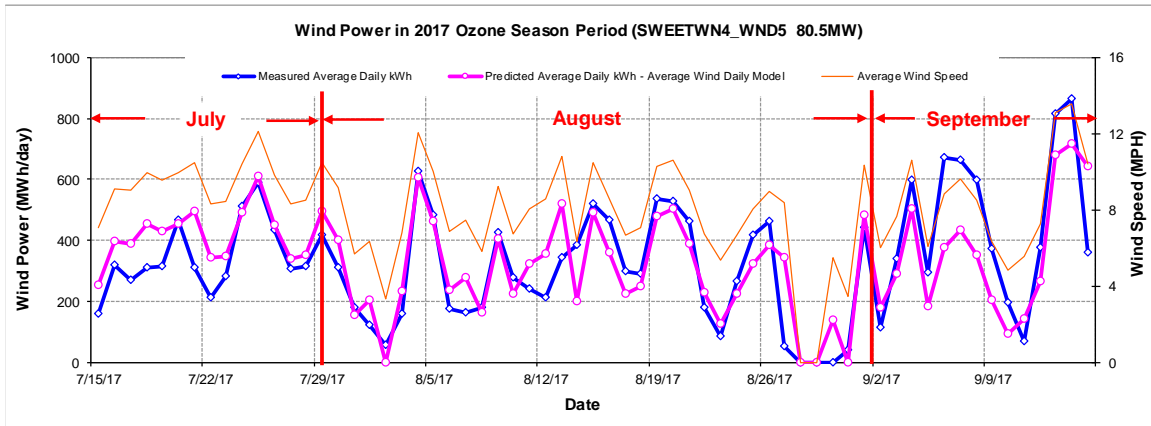
Figure 10-449: SWEETWN4\_WND5 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	22,144	19,985	9.75%	37%	33%
Feb-17	28	11.23	19,772	19,883	-0.56%	37%	37%
Mar-17	31	12.96	26,571	26,448	0.46%	44%	44%
Apr-17	30	13.49	26,353	26,906	-2.10%	45%	46%
May-17	31	11.55	22,975	22,848	0.55%	38%	38%
Jun-17	30	10.72	17,653	20,047	-13.56%	30%	35%
Jul-17	31	9.17	11,153	14,360	-28.76%	19%	24%
Aug-17	31	7.80	8,584	8,819	-2.74%	14%	15%
Sep-17	30	9.51	15,509	15,136	2.40%	27%	26%
Oct-17	31	11.07	23,211	21,610	6.90%	39%	36%
Nov-17	30	10.21	19,326	18,788	2.78%	33%	32%
Dec-17	31	9.09	16,512	14,951	9.45%	28%	25%
<b>Total</b>	<b>365</b>	<b>10.62</b>	<b>229,763</b>	<b>229,783</b>	<b>-0.01%</b>	<b>33%</b>	<b>33%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>61</b>	<b>8.30</b>	<b>20,678</b>	<b>20,698</b>	<b>-0.10%</b>	<b>18%</b>	<b>18%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

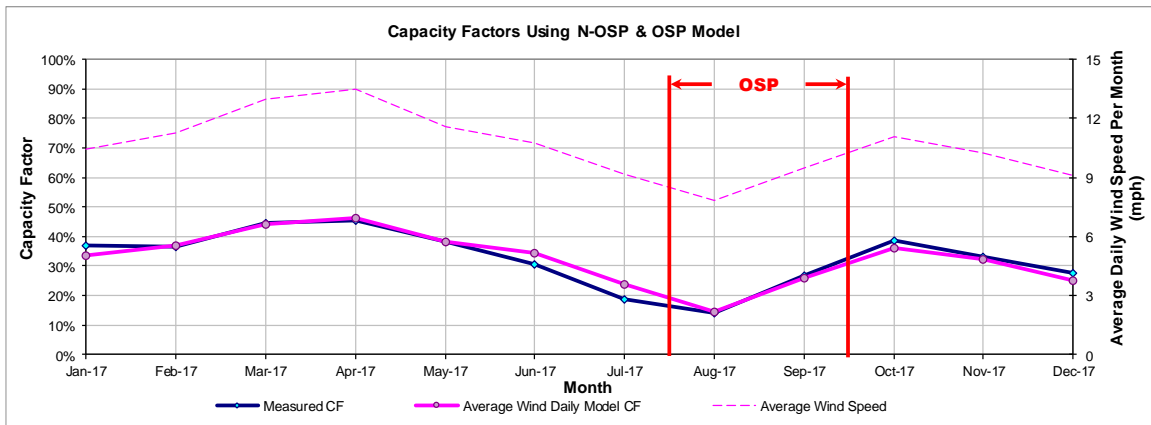


Figure 10-450: SWEETWN4\_WND5 - Predicted Wind Power and Capacity Factor Using Daily Models

10.109 Trent Mesa

10.109.1 Trent Mesa - TRENT\_TRENT

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
TRENT_TRENT	Wind	Trent Mesa	NOLAN	AEP	Trent Mesa

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
100 Enron 1.5 MW	ERCOT	W	Nov-01	West	ABI	150

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

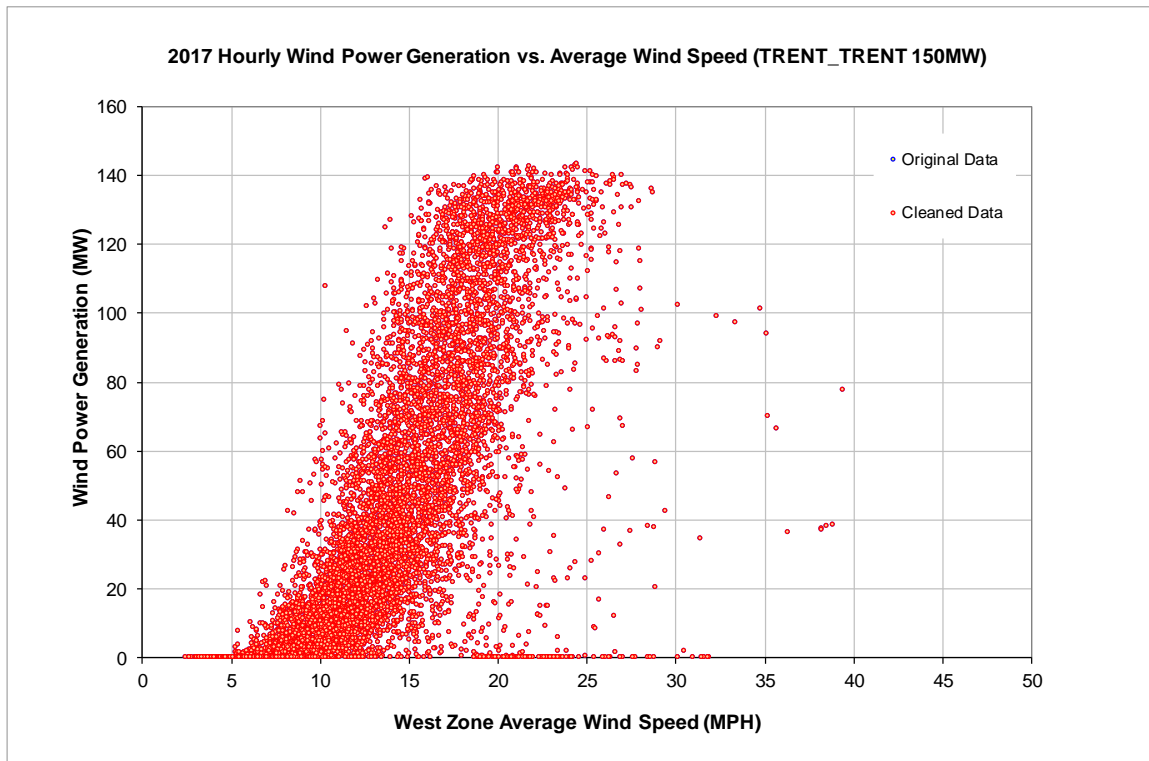


Figure 10-451: TRENT\_TRENT - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

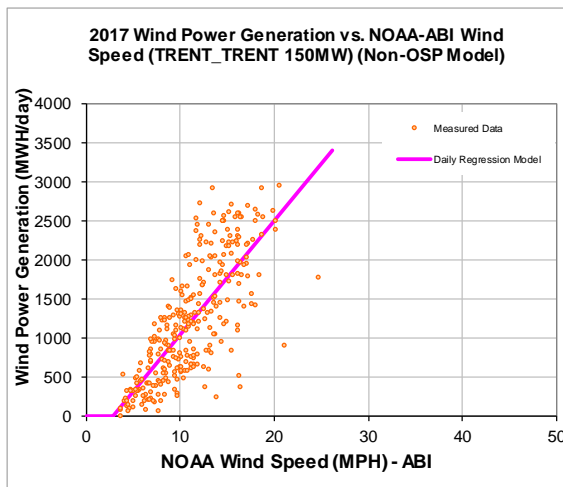
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-406.89
Left Slope (MWh/mph-day)	145.74
RMSE (MWh/day)	485.76
R2	0.59
CV-RMSE	40.1%
Daily Maximum (MWh/day)	3600

**OSP Model:**

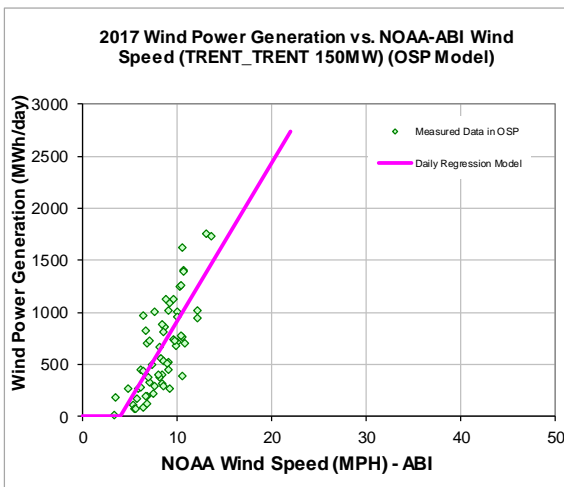
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-613.62
Left Slope (MWh/mph-day)	152.26
RMSE (MWh/day)	284.06
R2	0.57
CV-RMSE	43.5%
Daily Maximum (MWh/day)	3600

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
451,144	402,932

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
719	667

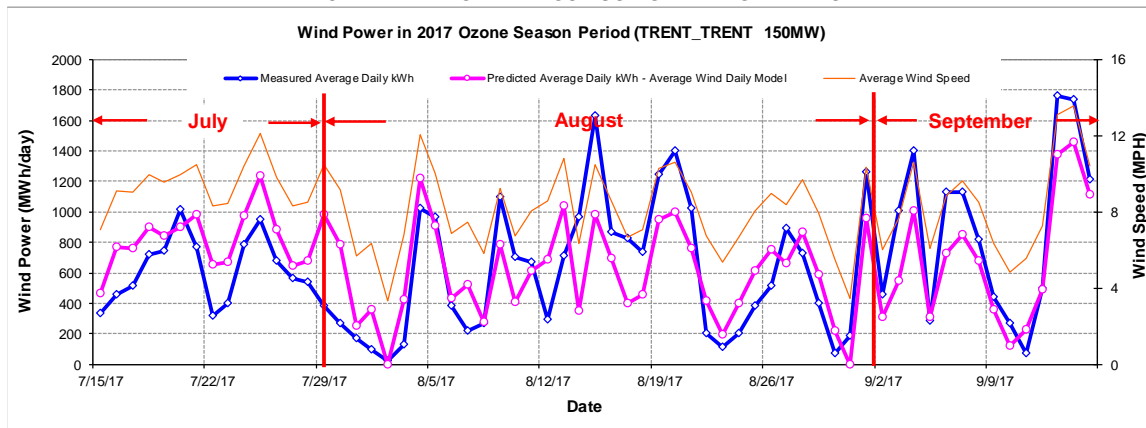
Figure 10-452: TRENT\_TRENT - Model Coefficients (Using Non-OSP and OSP Data)

### COMPARISON OF PREDICTED POWER VS. MEASURED POWER

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	34,782	34,528	0.73%	31%	31%
Feb-17	28	11.23	33,150	34,418	-3.83%	33%	34%
Mar-17	31	12.96	46,123	45,932	0.41%	41%	41%
Apr-17	30	13.49	45,710	46,764	-2.30%	42%	43%
May-17	31	11.55	38,993	39,580	-1.51%	35%	35%
Jun-17	30	10.72	31,627	34,661	-9.59%	29%	32%
Jul-17	31	9.17	21,511	26,342	-22.46%	19%	24%
Aug-17	31	7.87	18,948	18,216	3.86%	17%	16%
Sep-17	30	9.51	30,758	27,134	11.78%	28%	25%
Oct-17	31	11.07	34,255	37,394	-9.16%	31%	34%
Nov-17	30	10.21	37,450	32,439	13.38%	35%	30%
Dec-17	31	9.09	29,624	25,716	13.19%	27%	23%
<b>Total</b>	<b>365</b>	<b>10.61</b>	<b>402,932</b>	<b>403,125</b>	<b>-0.05%</b>	<b>31%</b>	<b>31%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>41,101</b>	<b>41,294</b>	<b>-0.47%</b>	<b>18%</b>	<b>18%</b>

### PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED



### PREDICTED CAPACITY FACTORS USING DAILY MODELS

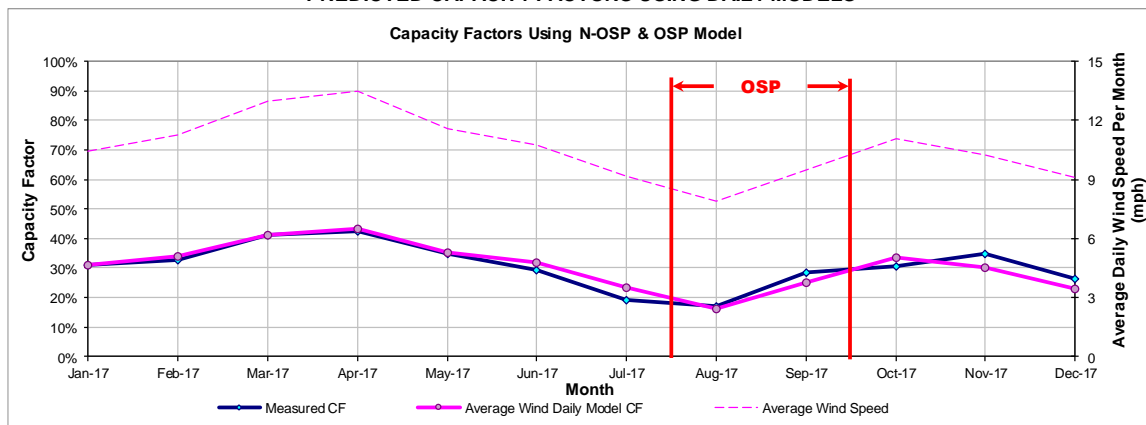


Figure 10-453: TRENT\_TRENT - Predicted Wind Power and Capacity Factor Using Daily Models

10.110 Trinity Hills Wind Farm

10.110.1 Trinity Hills Wind Farm - TRINITY\_TH1\_BUS1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
TRINITY_TH1_BUS1	Wind	-	YOUNG	BP Wind Power	Trinity Hills Wind Farm

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
47 Clipper Liberty 2.5 MW	ERCOT	W	Jan-12	West	ABI	117.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

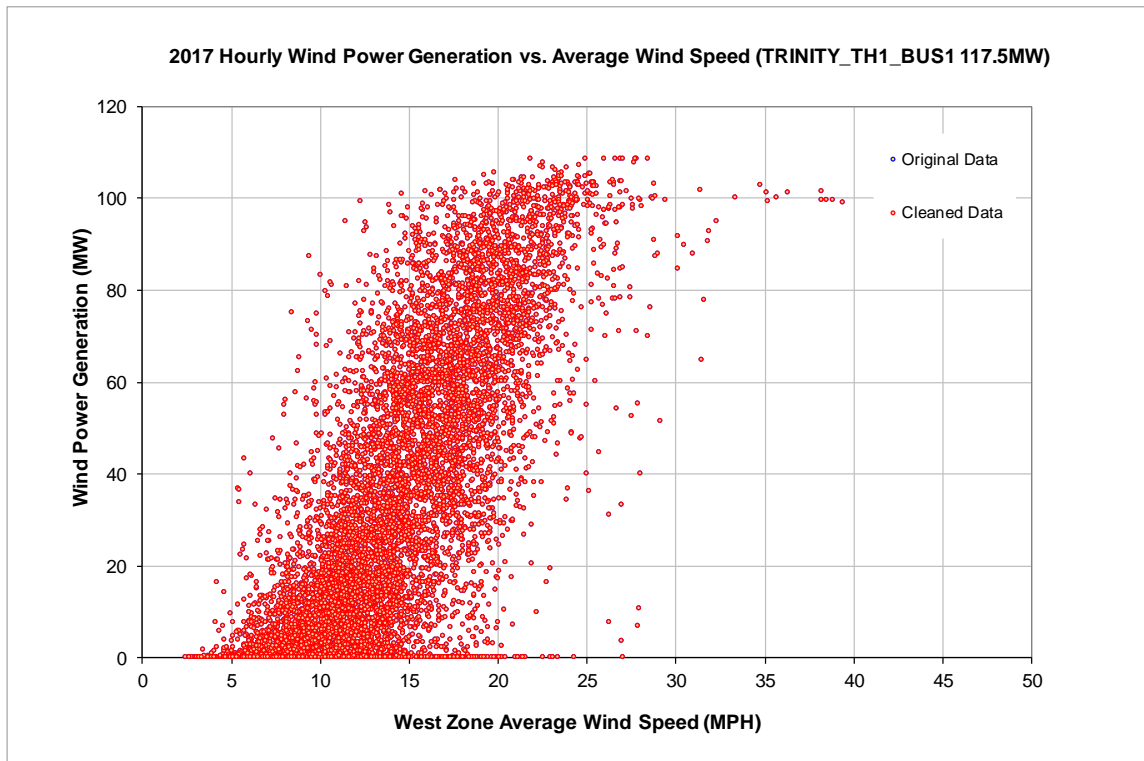


Figure 10-454: TRINITY\_TH1\_BUS1 - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

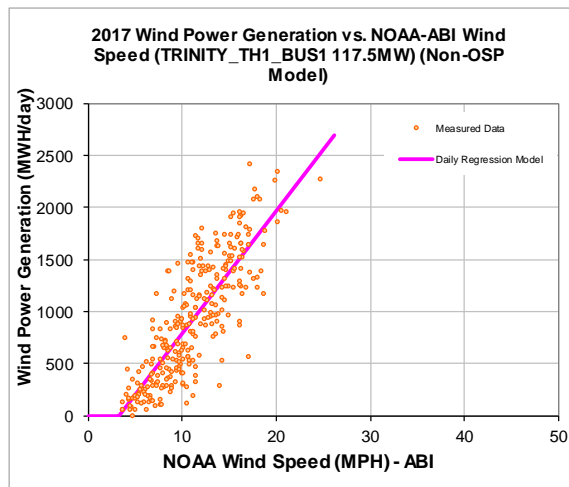
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-381.42
Left Slope (MWh/mph-day)	117.71
RMSE (MWh/day)	321.28
R2	0.68
CV-RMSE	34.8%
Daily Maximum (MWh/day)	2820

**OSP Model:**

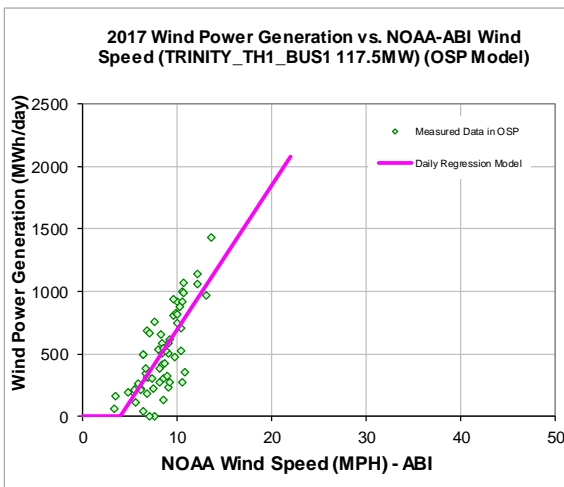
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-452.97
Left Slope (MWh/mph-day)	115.24
RMSE (MWh/day)	210.14
R2	0.58
CV-RMSE	41.6%
Daily Maximum (MWh/day)	2820

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
346,775	307,276	556	522

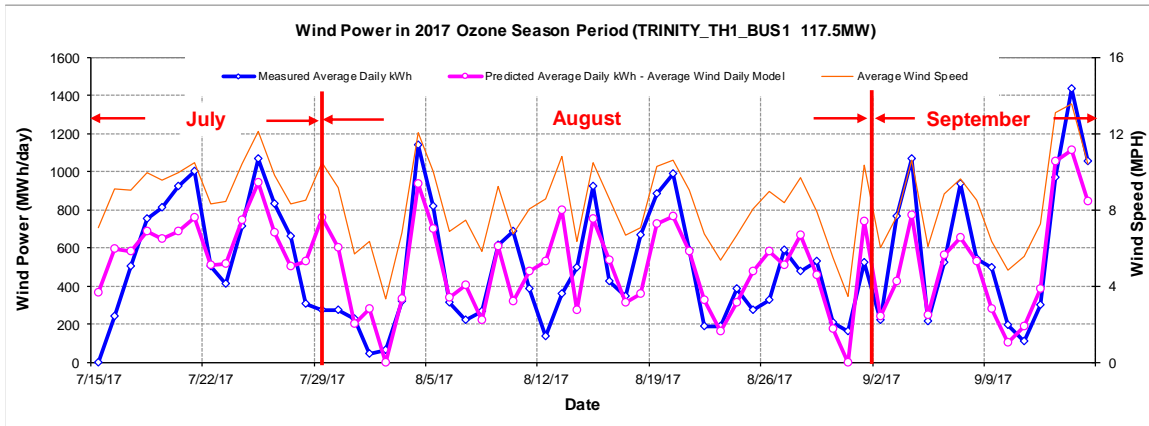
Figure 10-455: TRINITY\_TH1\_BUS1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	30,525	26,249	14.01%	35%	30%
Feb-17	28	11.23	29,321	26,320	10.24%	37%	33%
Mar-17	31	12.96	35,386	35,460	-0.21%	40%	41%
Apr-17	30	13.49	32,559	36,185	-11.14%	38%	43%
May-17	31	11.55	27,523	30,330	-10.20%	31%	35%
Jun-17	30	10.72	22,028	26,410	-19.89%	26%	31%
Jul-17	31	9.03	13,520	16,806	-24.30%	15%	19%
Aug-17	31	7.87	14,087	14,131	-0.31%	16%	16%
Sep-17	30	9.51	20,527	20,804	-1.35%	24%	25%
Oct-17	31	11.07	33,590	28,564	14.96%	38%	33%
Nov-17	30	10.21	26,031	24,615	5.44%	31%	29%
Dec-17	31	9.14	22,179	21,526	2.94%	25%	25%
<b>Total</b>	<b>365</b>	<b>10.61</b>	<b>307,276</b>	<b>307,400</b>	<b>-0.04%</b>	<b>30%</b>	<b>30%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>31,829</b>	<b>31,952</b>	<b>-0.39%</b>	<b>18%</b>	<b>18%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

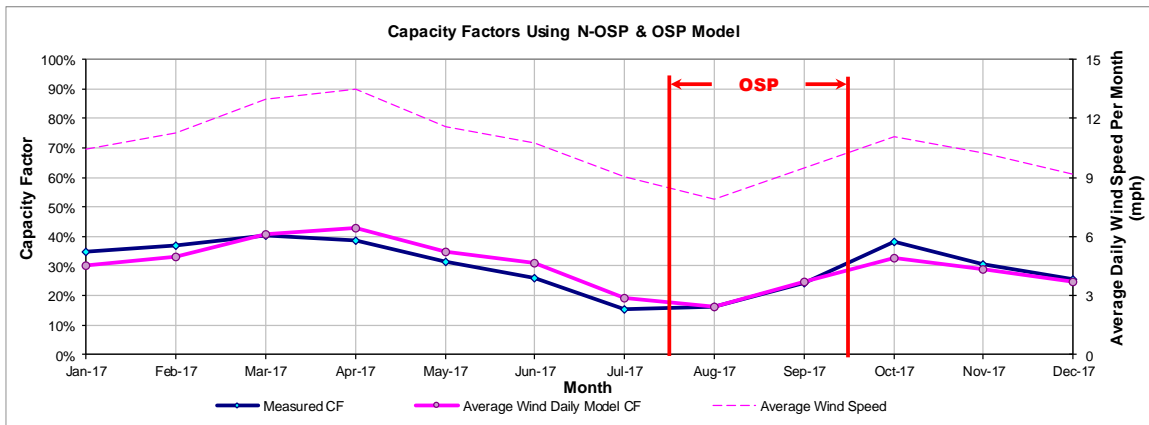


Figure 10-456: TRINITY\_TH1\_BUS1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.110.2 Trinity Hills Wind Farm - TRINITY\_TH1\_BUS2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
TRINITY_TH1_BUS2	Wind	-	YOUNG	BP Wind Power	Trinity Hills Wind Farm

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
43 Clipper Liberty 2.5 MW	ERCOT	W	Jan-12	West	ABI	107.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

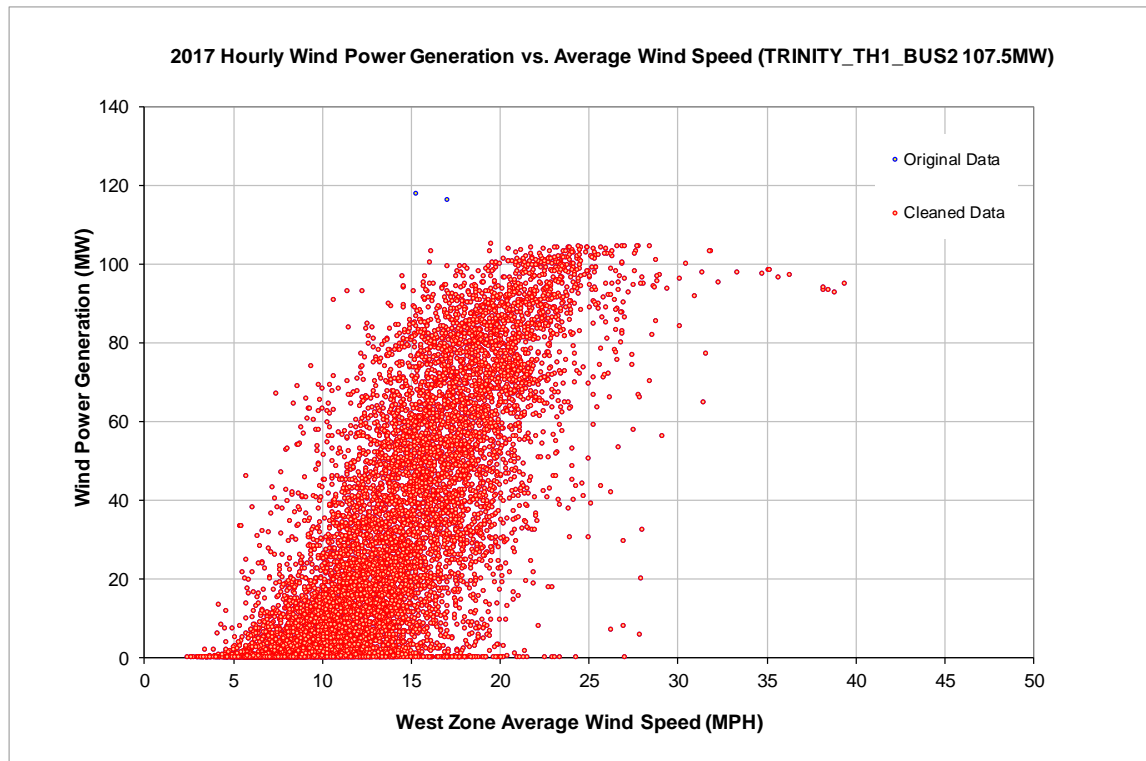


Figure 10-457: TRINITY\_TH1\_BUS2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

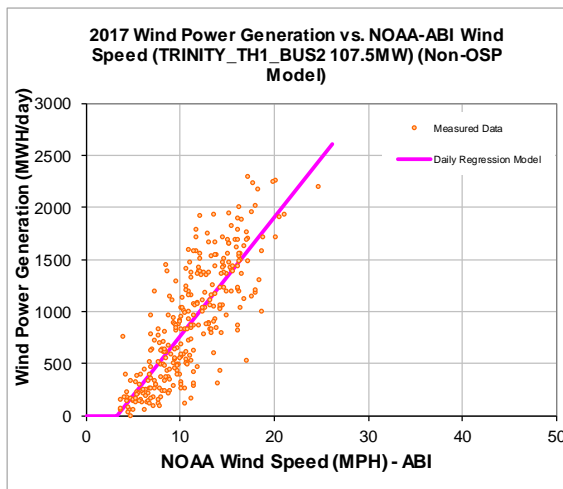
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-372.07
Left Slope (MWh/mph-day)	114.48
RMSE (MWh/day)	330.62
R2	0.66
CV-RMSE	36.9%
Daily Maximum (MWh/day)	2580

**OSP Model:**

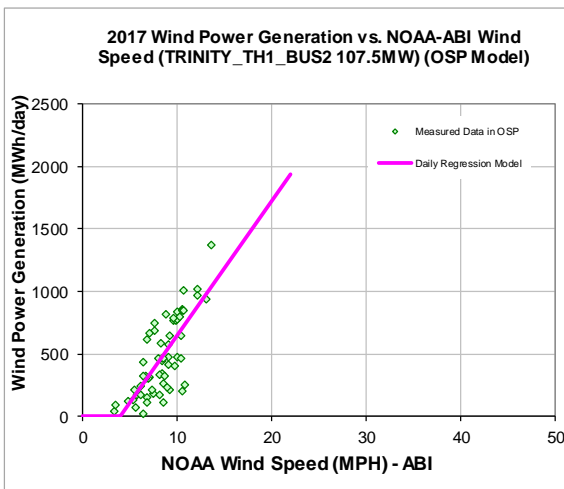
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-427.14
Left Slope (MWh/mph-day)	107.30
RMSE (MWh/day)	198.88
R2	0.57
CV-RMSE	42.8%
Daily Maximum (MWh/day)	2580

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
335,139	297,299

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
512	470

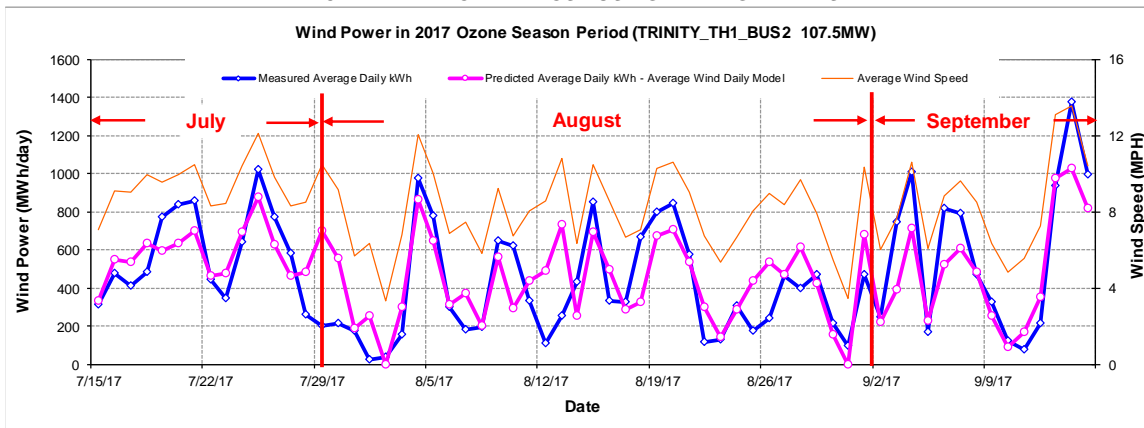
Figure 10-458: TRINITY\_TH1\_BUS2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	30,676	25,494	16.89%	38%	32%
Feb-17	28	11.23	29,840	25,566	14.32%	41%	35%
Mar-17	31	12.96	34,083	34,452	-1.08%	43%	43%
Apr-17	30	13.49	31,220	35,158	-12.61%	40%	45%
May-17	31	11.55	25,914	29,463	-13.70%	32%	37%
Jun-17	30	10.72	21,529	25,652	-19.15%	28%	33%
Jul-17	31	8.97	13,479	16,250	-20.55%	17%	20%
Aug-17	31	7.87	12,116	12,997	-7.27%	15%	16%
Sep-17	30	9.51	19,845	19,839	0.03%	26%	26%
Oct-17	31	11.07	31,204	27,746	11.08%	39%	35%
Nov-17	30	10.21	25,936	23,906	7.83%	34%	31%
Dec-17	31	9.14	21,457	20,901	2.59%	27%	26%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>297,299</b>	<b>297,425</b>	<b>-0.04%</b>	<b>32%</b>	<b>32%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>29,299</b>	<b>29,425</b>	<b>-0.43%</b>	<b>18%</b>	<b>18%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

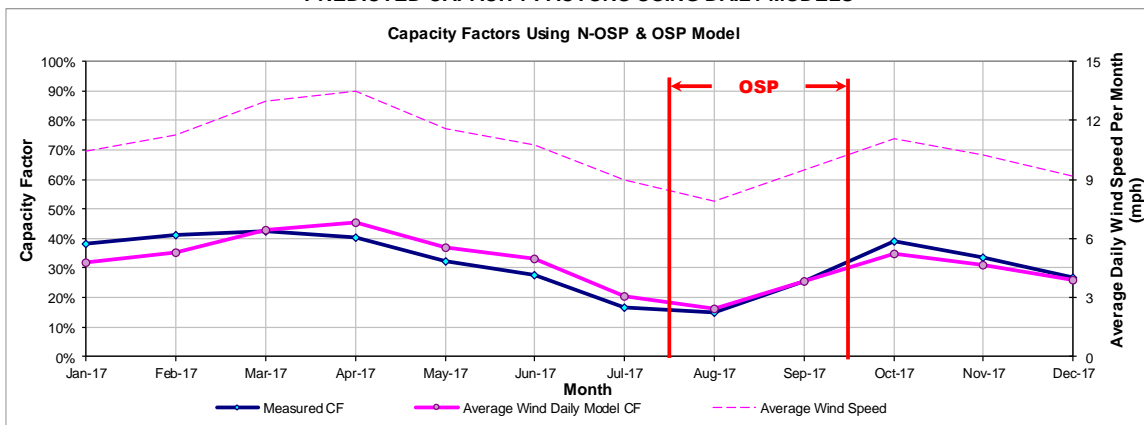


Figure 10-459: TRINITY\_TH1\_BUS2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.111 Turkey Track Energy Center

10.111.1 Turkey Track Energy Center - TTWEC\_G1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
TTWEC_G1	Wind	-	NOLAN	Invenergy	Turkey Track Energy Center

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
113 GE 1.5 MW	ERCOT	W	Nov-08	West	ABI	169.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

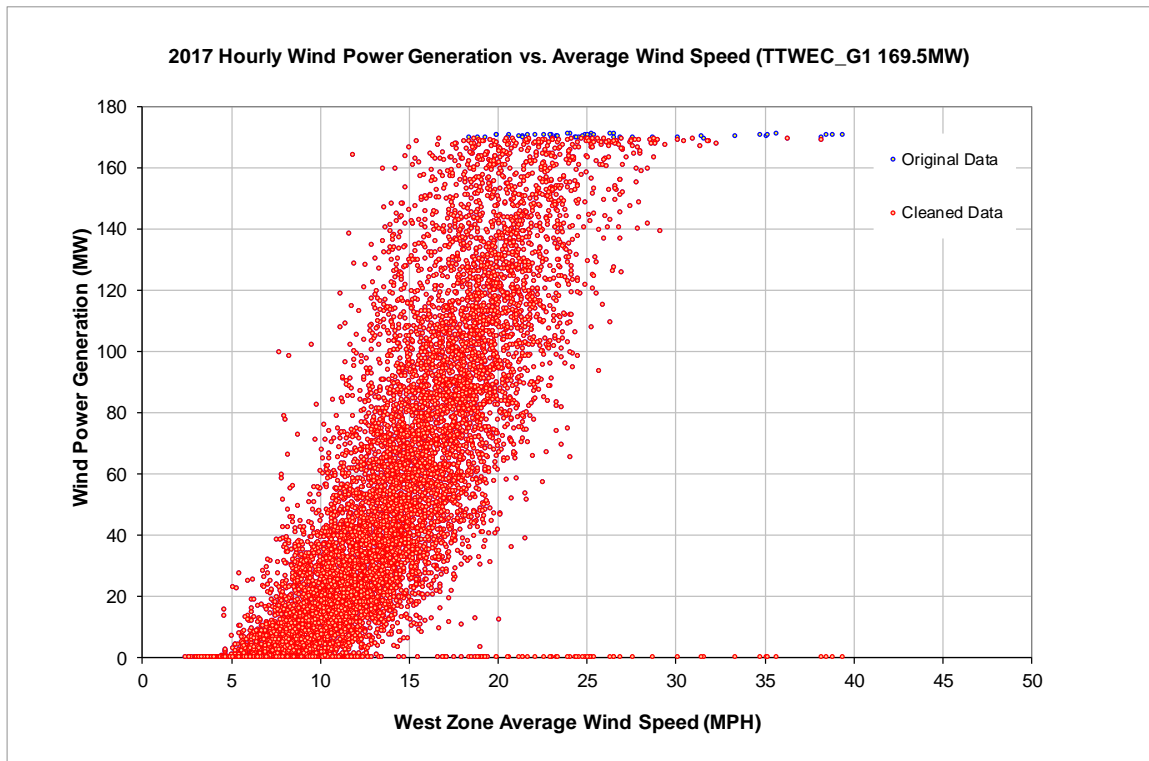


Figure 10-460: TTWEC\_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

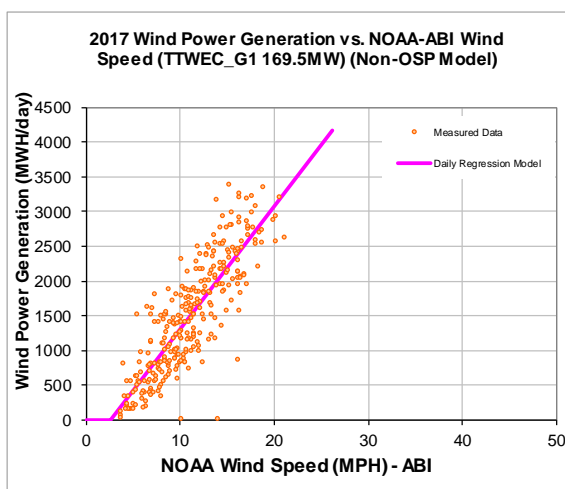
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-457.94
Left Slope (MWh/mph-day)	177.15
RMSE (MWh/day)	431.21
R2	0.72
CV-RMSE	28.7%
Daily Maximum (MWh/day)	4068

**OSP Model:**

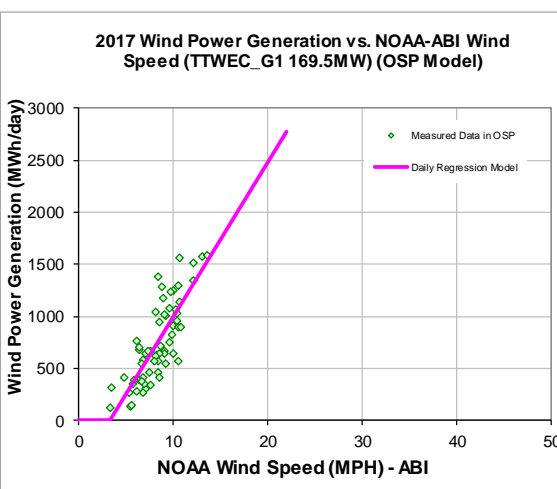
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-481.93
Left Slope (MWh/mph-day)	147.86
RMSE (MWh/day)	228.62
R2	0.66
CV-RMSE	30.6%
Daily Maximum (MWh/day)	4068

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
555,453	496,370	811	755

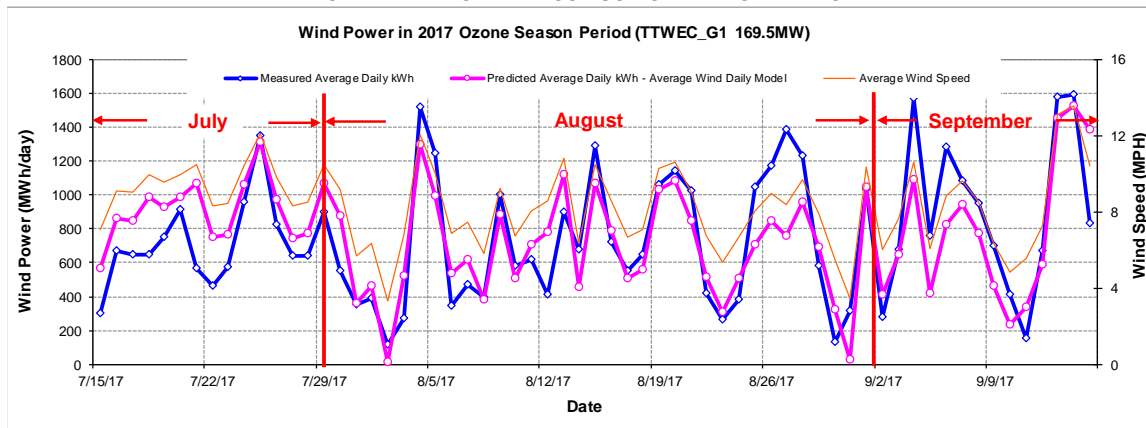
Figure 10-461: TTWEC\_G1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	49,423	43,103	12.79%	39%	34%
Feb-17	28	11.23	43,565	42,861	1.62%	38%	38%
Mar-17	31	12.57	52,791	53,046	-0.48%	42%	42%
Apr-17	30	13.49	57,874	57,940	-0.11%	47%	47%
May-17	31	11.55	50,471	49,244	2.43%	40%	39%
Jun-17	30	10.72	40,848	43,229	-5.83%	33%	35%
Jul-17	31	9.17	25,277	31,133	-23.17%	20%	25%
Aug-17	31	7.87	22,336	21,121	5.44%	18%	17%
Sep-17	30	9.51	34,230	32,852	4.03%	28%	27%
Oct-17	31	11.18	44,541	45,694	-2.59%	35%	36%
Nov-17	30	10.21	40,090	40,528	-1.09%	33%	33%
Dec-17	31	9.29	34,924	35,619	-1.99%	28%	28%
<b>Total</b>	<b>365</b>	<b>10.59</b>	<b>496,370</b>	<b>496,370</b>	<b>0.00%</b>	<b>33%</b>	<b>33%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>47,095</b>	<b>47,095</b>	<b>0.00%</b>	<b>18%</b>	<b>18%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

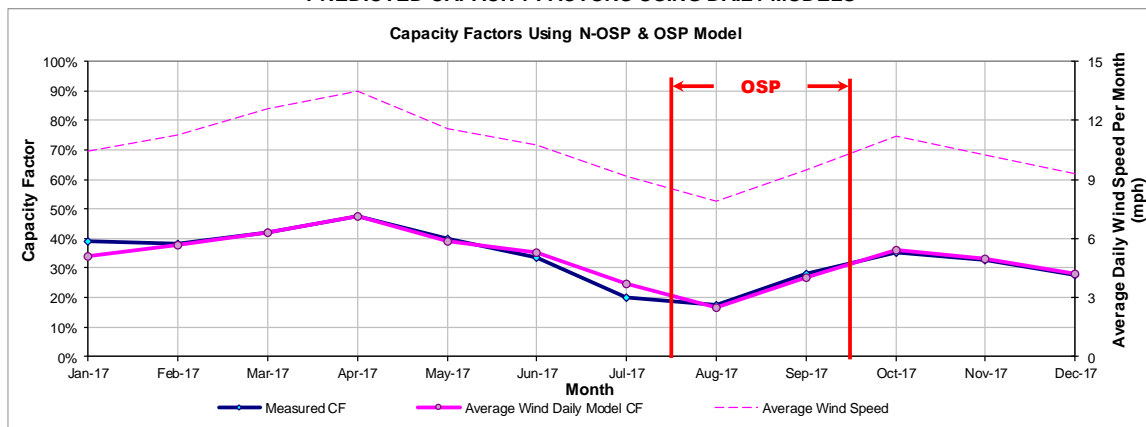


Figure 10-462: TTWEC\_G1 - Predicted Wind Power and Capacity Factor Using Daily Models



10.112 Tyler Bluff Wind (Muenster Wind)

10.112.1 Tyler Bluff Wind (Muenster Wind) - TYLRWIND\_UNIT1

**SITE INFORMATION**

GENSITECODE_EERCOT	Renewable Energy	City	County	Company	Facility
TYLRWIND_UNIT1	Wind	-	COOKE	Southern Power	Tyler Bluff Wind (Muenster Wind)

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
52 Siemens 2.3 MW	ERCOT	N	Dec-16	North	DFW	125.6

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

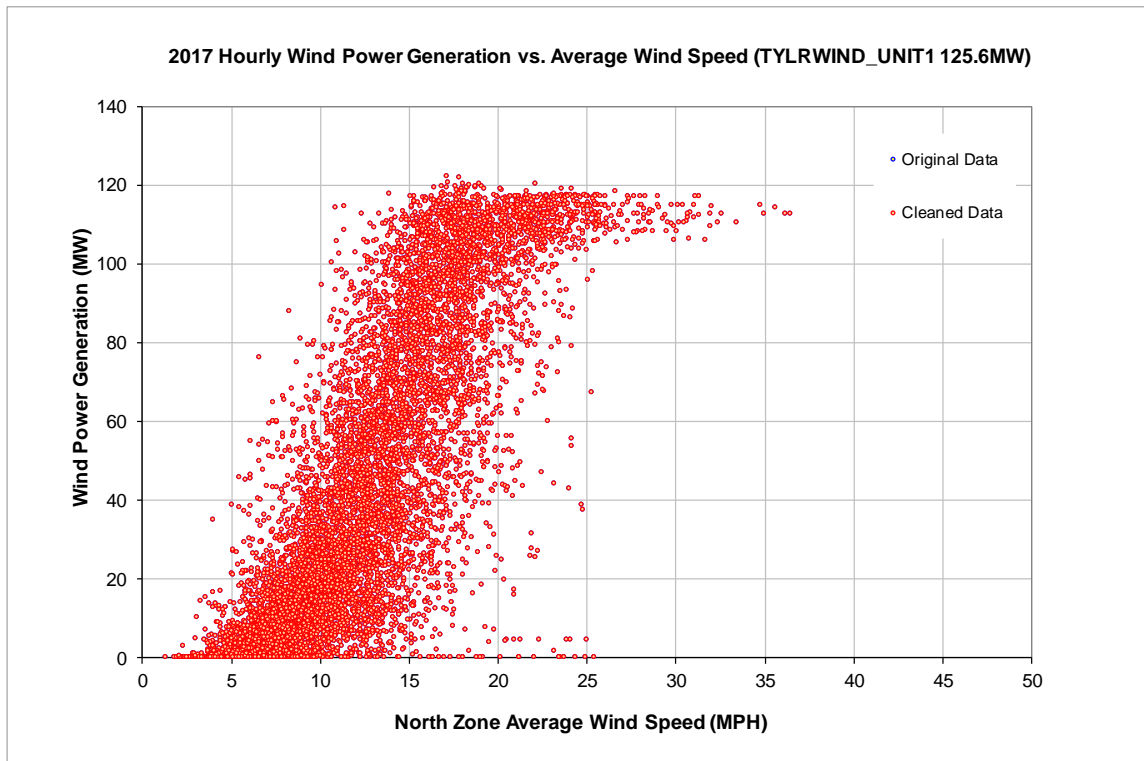


Figure 10-463: TYLRWIND\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

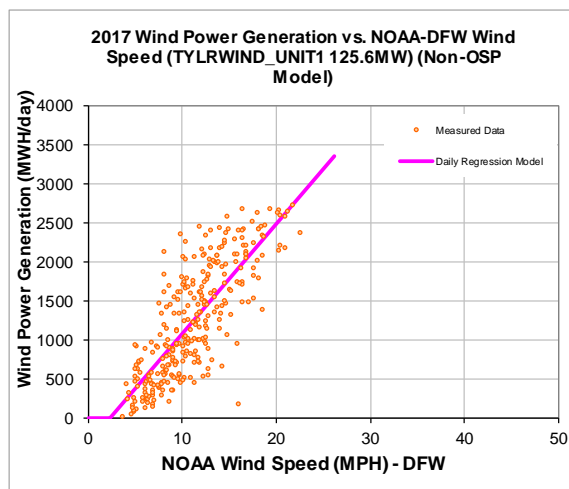
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-328.05
Left Slope (MWh/mph-day)	141.01
RMSE (MWh/day)	434.59
R2	0.64
CV-RMSE	34.9%
Daily Maximum (MWh/day)	3014

**OSP Model:**

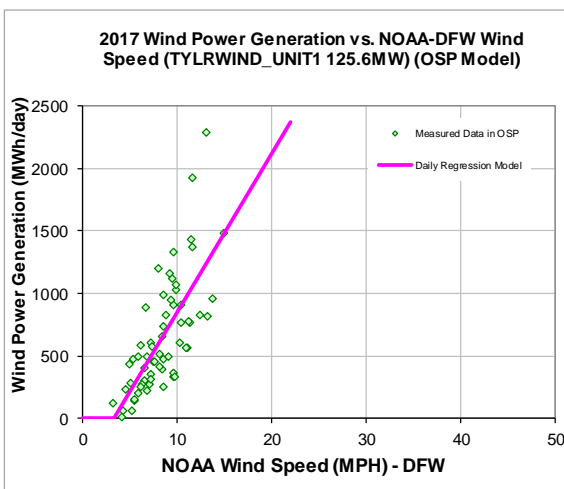
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-412.87
Left Slope (MWh/mph-day)	126.74
RMSE (MWh/day)	314.41
R2	0.52
CV-RMSE	48.5%
Daily Maximum (MWh/day)	3014

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
451,720	417,123

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
707	669

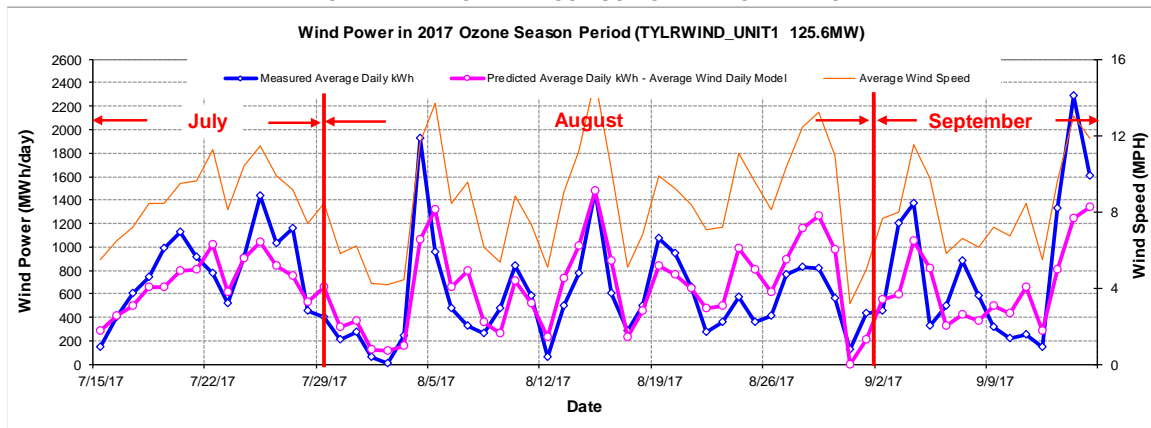
Figure 10-464: TYLRWIND\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (DFW) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.24	39,177	38,966	0.54%	42%	42%
Feb-17	28	12.70	40,852	40,973	-0.30%	48%	49%
Mar-17	31	12.60	47,194	44,895	4.87%	51%	48%
Apr-17	30	13.20	44,671	46,016	-3.01%	49%	51%
May-17	31	12.08	39,792	42,650	-7.18%	43%	46%
Jun-17	30	10.33	32,598	33,877	-3.93%	36%	37%
Jul-17	31	8.66	21,995	24,177	-9.92%	24%	26%
Aug-17	31	8.71	18,278	21,406	-17.11%	20%	23%
Sep-17	30	8.87	27,704	24,790	10.52%	31%	27%
Oct-17	31	10.28	42,755	34,748	18.73%	46%	37%
Nov-17	30	10.17	35,373	33,166	6.24%	39%	37%
Dec-17	31	9.53	26,735	31,469	-17.71%	29%	34%
<b>Total</b>	<b>365</b>	<b>10.68</b>	<b>417,123</b>	<b>417,135</b>	<b>0.00%</b>	<b>38%</b>	<b>38%</b>
Total in OSP (07/15-09/15)	63	8.37	40,857	40,868	-0.03%	22%	22%

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

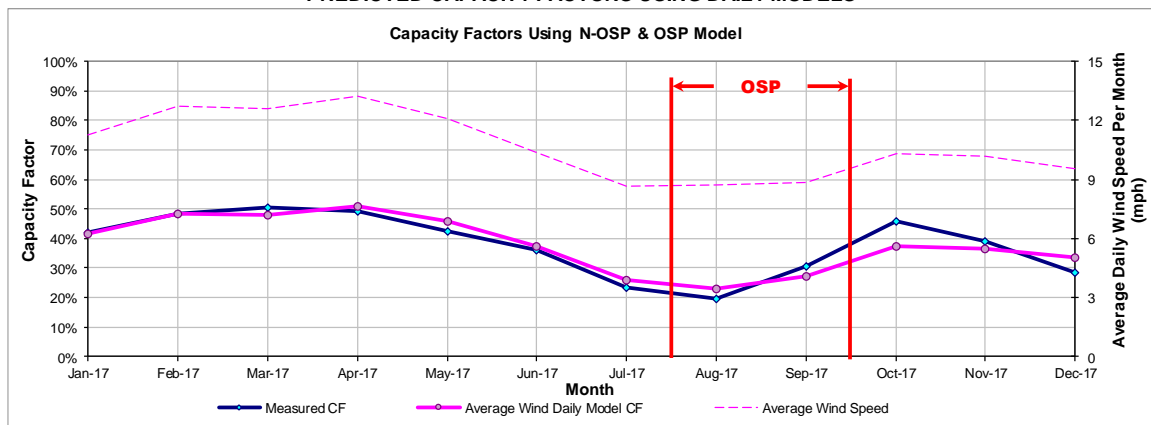


Figure 10-465: TYLRWIND\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.113 Val Verde Wind

10.113.1 Val Verde Wind - FERMI\_WIND1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
FERMI_WIND1	Wind	-	VAL VERDE	Akuo Energy	Val Verde Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
53 GE 2.3 MW	ERCOT	S	Oct-17	West	FST	121.9

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

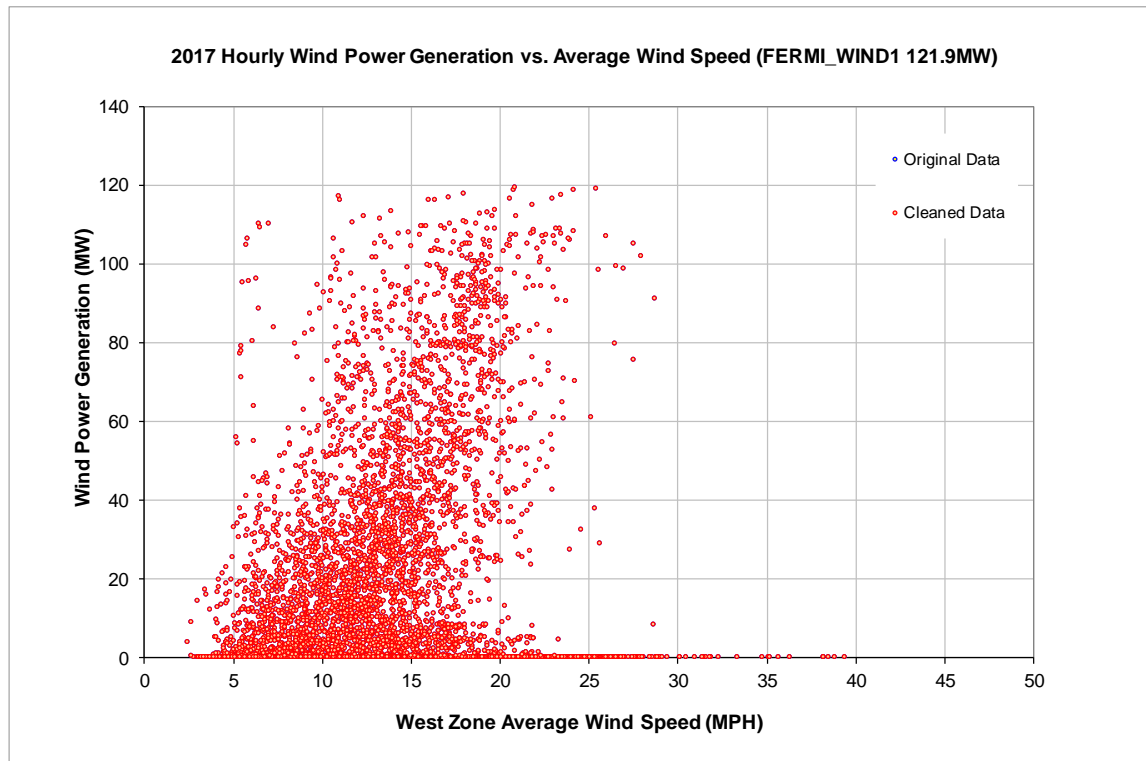


Figure 10-466: FERMI\_WIND1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

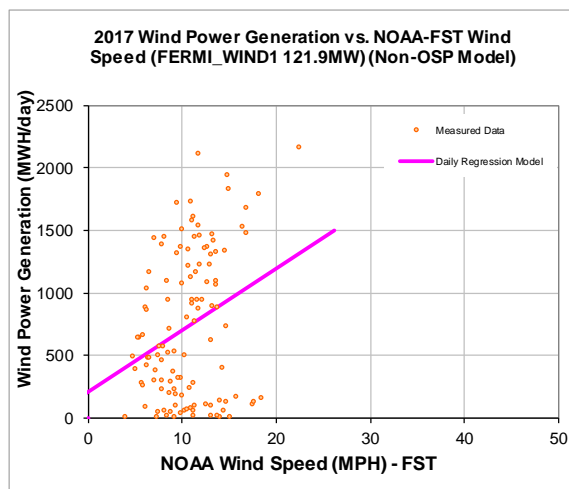
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	209.22
Left Slope (MWh/mph-day)	49.30
RMSE (MWh/day)	569.70
R2	0.08
CV-RMSE	77.6%
Daily Maximum (MWh/day)	2926

**OSP Model:**

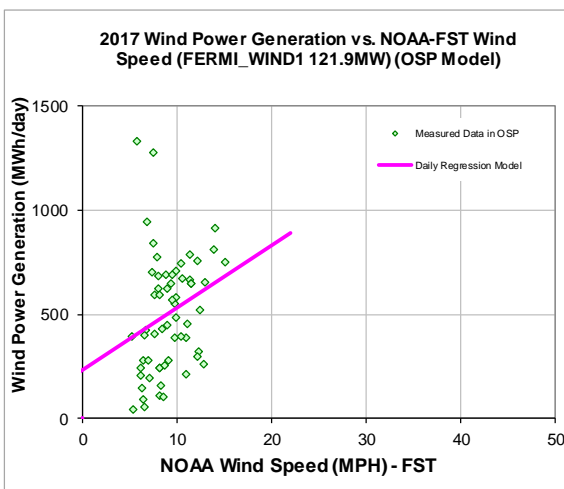
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	231.91
Left Slope (MWh/mph-day)	29.84
RMSE (MWh/day)	271.29
R2	0.06
CV-RMSE	53.9%
Daily Maximum (MWh/day)	2926

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
262,569	116,608

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
496	509

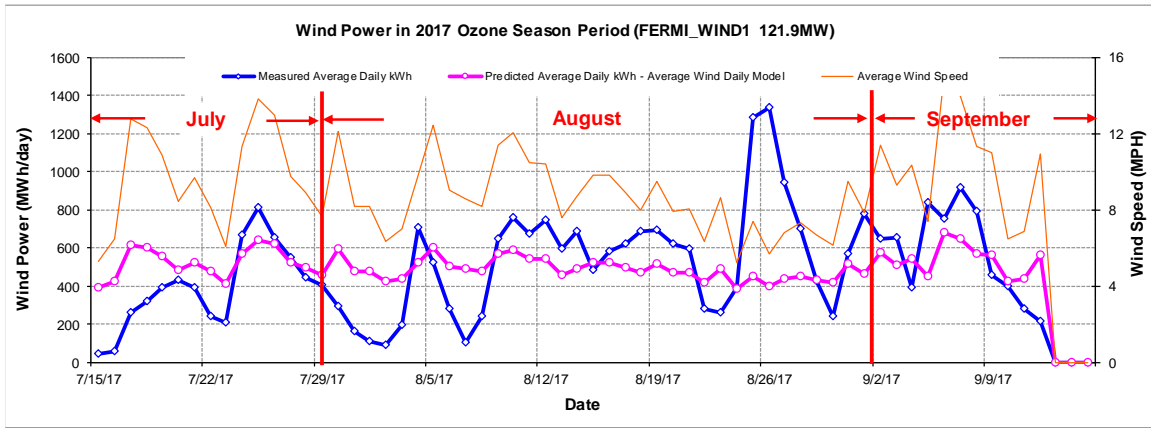
Figure 10-467: FERMI\_WIND1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (FST) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	#DIV/0!	0	0	#DIV/0!	0%	0%
Feb-17	28	#DIV/0!	0	0	#DIV/0!	0%	0%
Mar-17	31	#DIV/0!	0	0	#DIV/0!	0%	0%
Apr-17	30	#DIV/0!	0	0	#DIV/0!	0%	0%
May-17	31	#DIV/0!	0	0	#DIV/0!	0%	0%
Jun-17	30	12.23	239	7,310	-2962.90%	0%	8%
Jul-17	31	11.01	7,719	20,529	-165.94%	9%	23%
Aug-17	31	8.40	16,675	14,962	10.27%	18%	16%
Sep-17	30	11.23	18,359	16,045	12.60%	21%	18%
Oct-17	31	10.75	34,328	22,916	33.24%	38%	25%
Nov-17	30	9.84	16,404	14,578	11.13%	19%	17%
Dec-17	31	9.02	22,884	20,268	11.43%	25%	22%
<b>Total</b>	<b>365</b>	<b>10.12</b>	<b>116,608</b>	<b>116,608</b>	<b>0.00%</b>	<b>11%</b>	<b>11%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>61</b>	<b>9.09</b>	<b>30,697</b>	<b>30,697</b>	<b>0.00%</b>	<b>17%</b>	<b>17%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

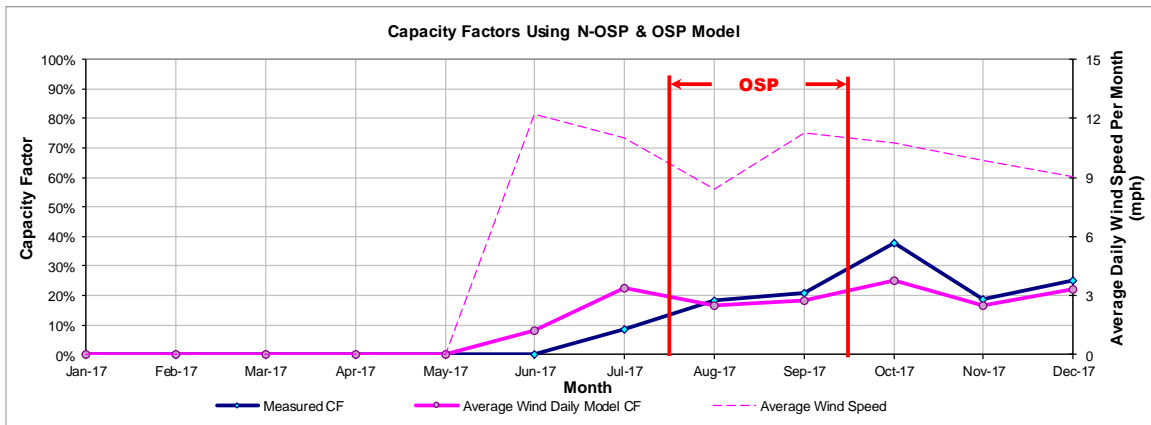


Figure 10-468: FERMI\_WIND1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.113.2 Val Verde Wind - FERMI\_WIND2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
FERMI_WIND2	Wind	-	VAL VERDE	Akuo Energy	Val Verde Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
16 GE 1.7 MW	ERCOT	S	Oct-17	West	FST	27.4

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

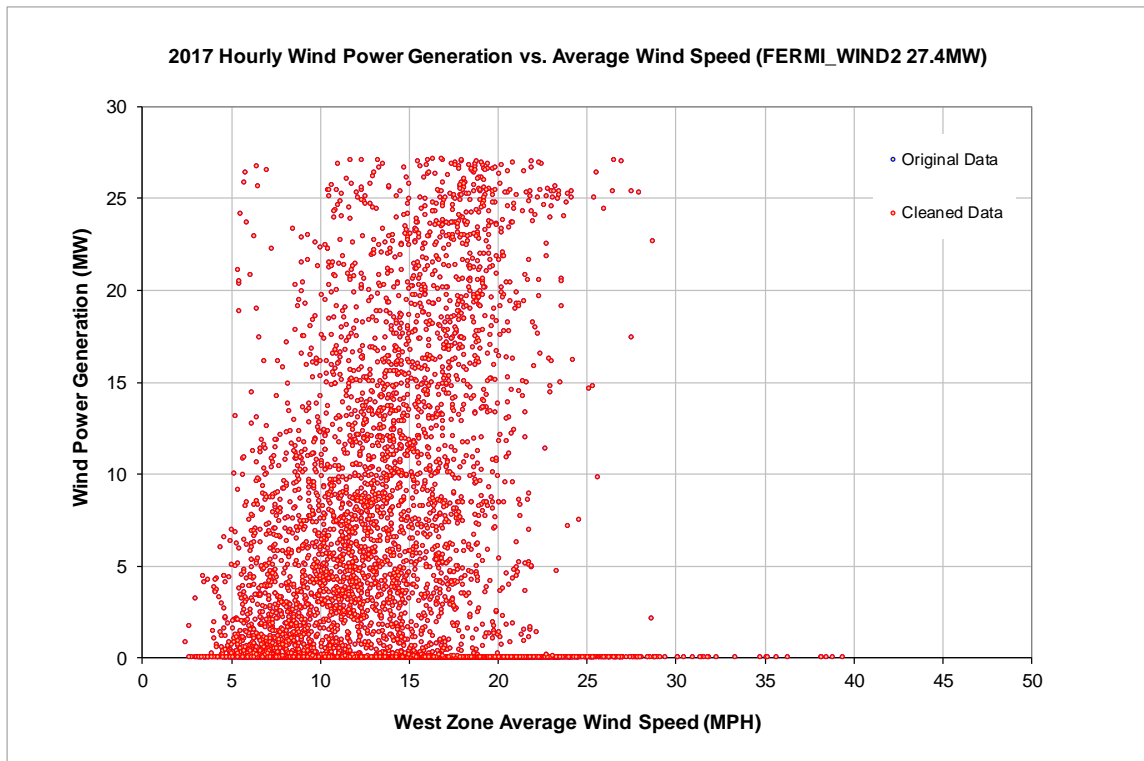


Figure 10-469: FERMI\_WIND2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

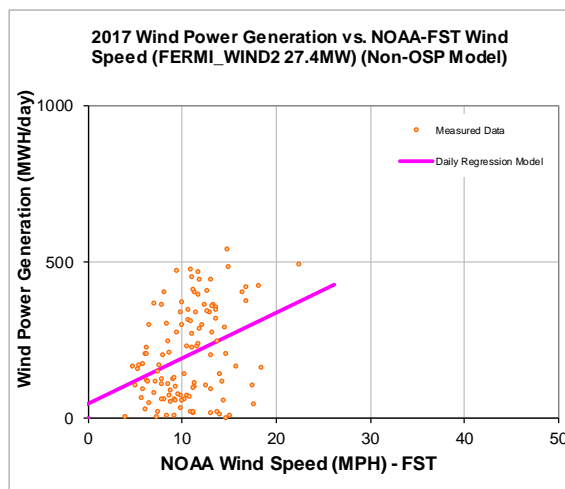
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	47.32
Left Slope (MWh/mph-day)	14.60
RMSE (MWh/day)	139.01
R2	0.11
CV-RMSE	68.5%
Daily Maximum (MWh/day)	658

**OSP Model:**

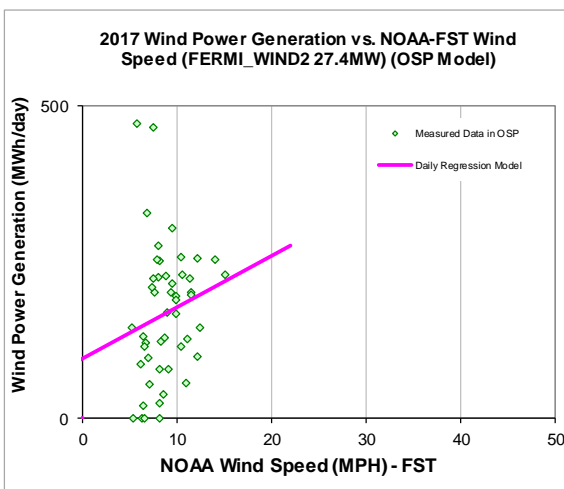
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	95.51
Left Slope (MWh/mph-day)	8.25
RMSE (MWh/day)	106.63
R2	0.03
CV-RMSE	63.5%
Daily Maximum (MWh/day)	658

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
74,639	31,960

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
169	171

Figure 10-470: FERMI\_WIND2 - Model Coefficients (Using Non-OSP and OSP Data)

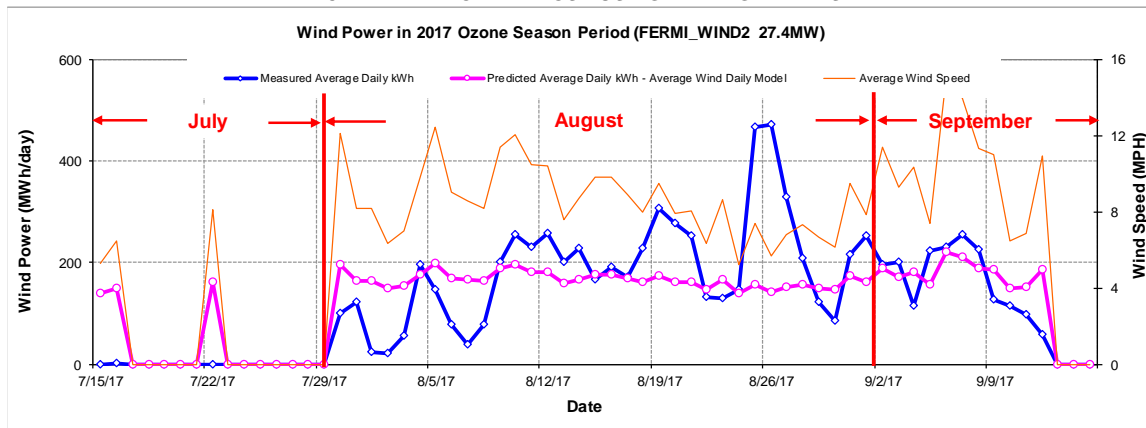


**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (FST) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	#DIV/0!	0	0	#DIV/0!	0%	0%
Feb-17	28	#DIV/0!	0	0	#DIV/0!	0%	0%
Mar-17	31	#DIV/0!	0	0	#DIV/0!	0%	0%
Apr-17	30	#DIV/0!	0	0	#DIV/0!	0%	0%
May-17	31	#DIV/0!	0	0	#DIV/0!	0%	0%
Jun-17	30	12.23	239	2,033	-751.85%	1%	10%
Jul-17	31	11.41	1,281	4,062	-217.09%	6%	20%
Aug-17	31	8.40	5,818	5,111	12.15%	29%	25%
Sep-17	30	11.23	4,928	4,863	1.32%	25%	25%
Oct-17	31	10.75	9,208	6,333	31.23%	45%	31%
Nov-17	30	9.84	4,495	4,010	10.80%	23%	20%
Dec-17	31	9.02	5,991	5,549	7.39%	29%	27%
<b>Total</b>	<b>365</b>	<b>10.10</b>	<b>31,960</b>	<b>31,960</b>	<b>0.00%</b>	<b>13%</b>	<b>13%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>49</b>	<b>8.78</b>	<b>8,230</b>	<b>8,230</b>	<b>0.00%</b>	<b>26%</b>	<b>26%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

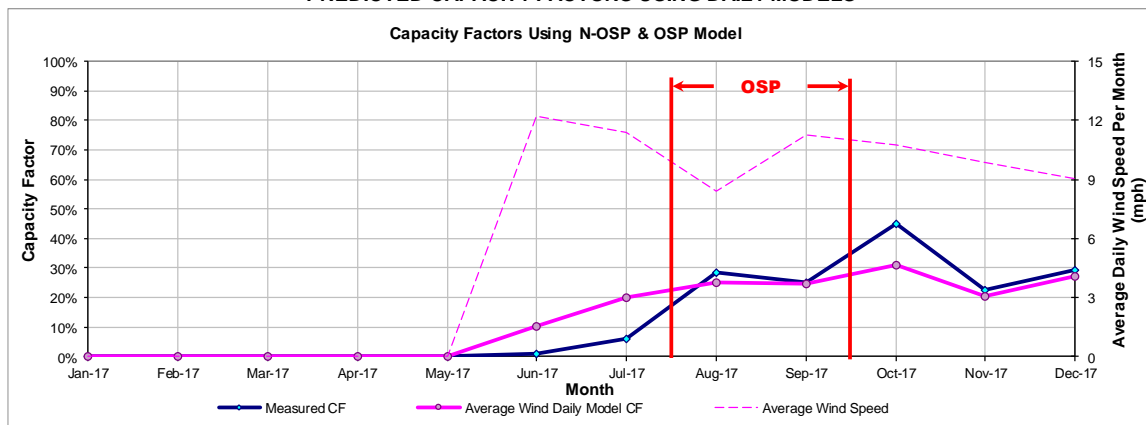


Figure 10-471: FERMI\_WIND2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.114 Wake Wind

10.114.1 Wake Wind - WAKEWE\_G1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
WAKEWE_G1	Wind	Floydada	DICKENS	Invenergy	Wake Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
67 GE 1.7 MW	ERCOT	W	Oct-16	Panhandle	LBB	114.9

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

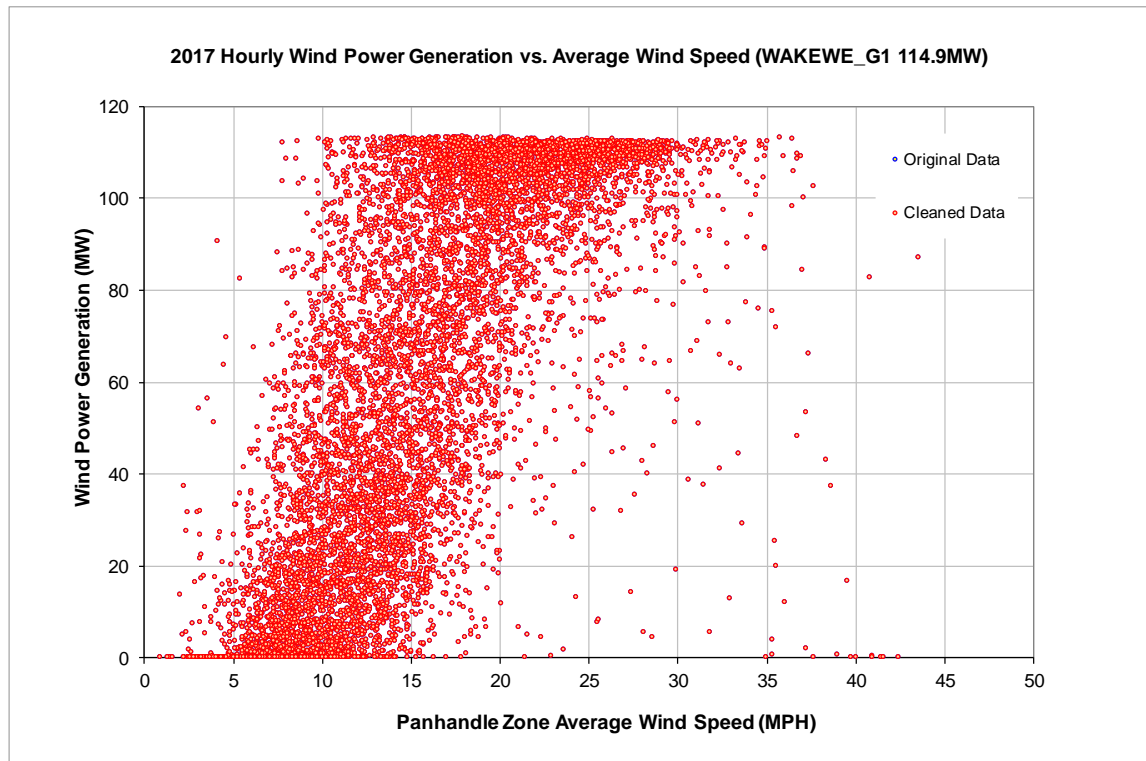


Figure 10-472: WAKEWE\_G1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

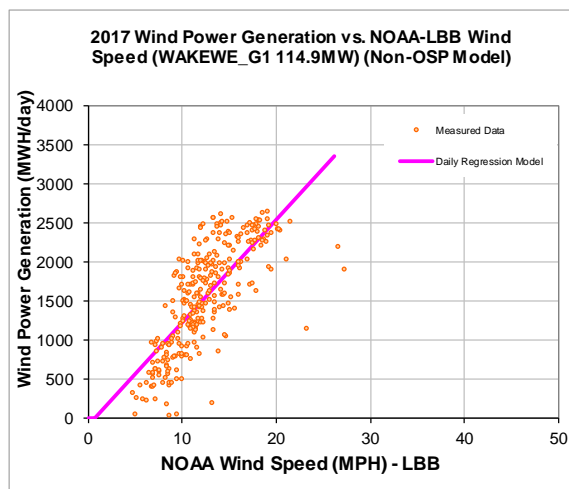
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-98.75
Left Slope (MWh/mph-day)	132.31
RMSE (MWh/day)	434.10
R2	0.57
CV-RMSE	28.1%
Daily Maximum (MWh/day)	2758

**OSP Model:**

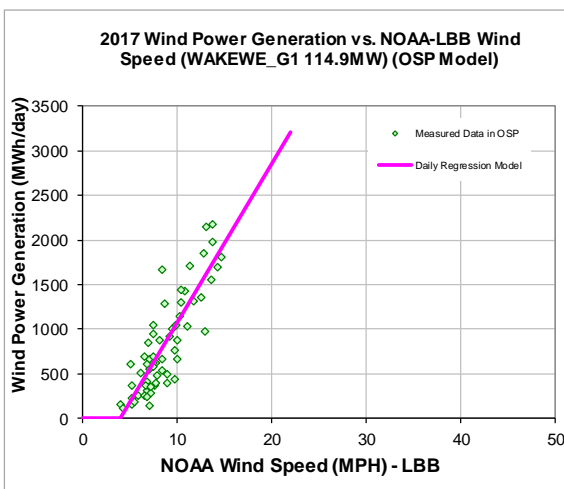
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-715.70
Left Slope (MWh/mph-day)	178.39
RMSE (MWh/day)	285.21
R2	0.73
CV-RMSE	34.5%
Daily Maximum (MWh/day)	2758

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
526,271	519,298

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
896	848

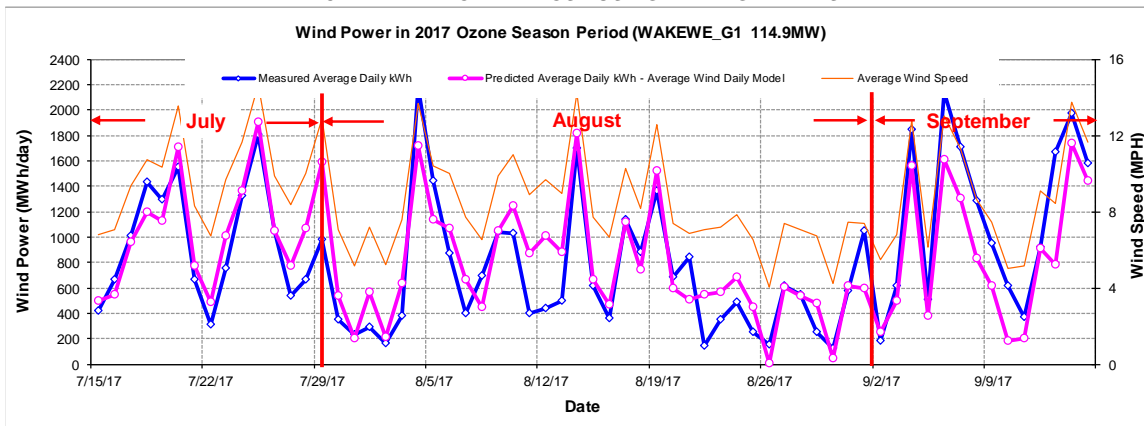
Figure 10-473: WAKEWE\_G1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	47,360	46,081	2.70%	55%	54%
Feb-17	28	12.91	48,645	45,065	7.36%	63%	58%
Mar-17	31	13.57	54,605	51,182	6.27%	64%	60%
Apr-17	30	14.59	51,756	54,747	-5.78%	63%	66%
May-17	31	13.77	49,386	53,408	-8.14%	58%	62%
Jun-17	30	12.33	38,520	45,965	-19.33%	47%	56%
Jul-17	31	10.03	29,269	35,099	-19.92%	34%	41%
Aug-17	31	8.19	20,605	23,117	-12.19%	24%	27%
Sep-17	30	10.41	38,821	35,001	9.84%	47%	42%
Oct-17	31	11.80	52,487	45,342	13.61%	61%	53%
Nov-17	30	11.45	47,911	42,491	11.31%	58%	51%
Dec-17	31	10.54	39,934	40,182	-0.62%	47%	47%
<b>Total</b>	<b>365</b>	<b>11.78</b>	<b>519,298</b>	<b>517,679</b>	<b>0.31%</b>	<b>52%</b>	<b>51%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>52,126</b>	<b>52,126</b>	<b>0.00%</b>	<b>30%</b>	<b>30%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

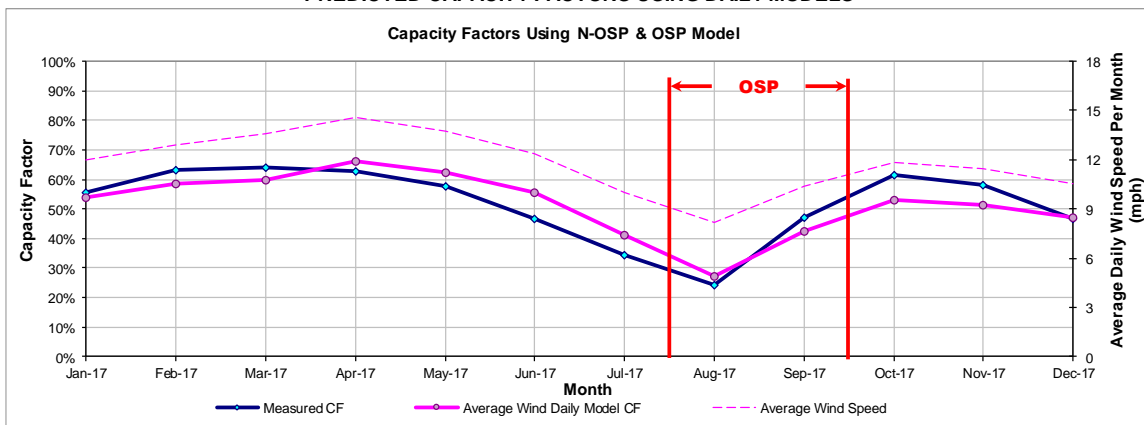


Figure 10-474: WAKEWE\_G1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.114.2 Wake Wind - WAKEWE\_G2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
WAKEWE_G2	Wind	Floydada	DICKENS	Invenergy	Wake Wind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
83 GE 1.7 MW	ERCOT	W	Oct-16	Panhandle	LBB	142.3

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

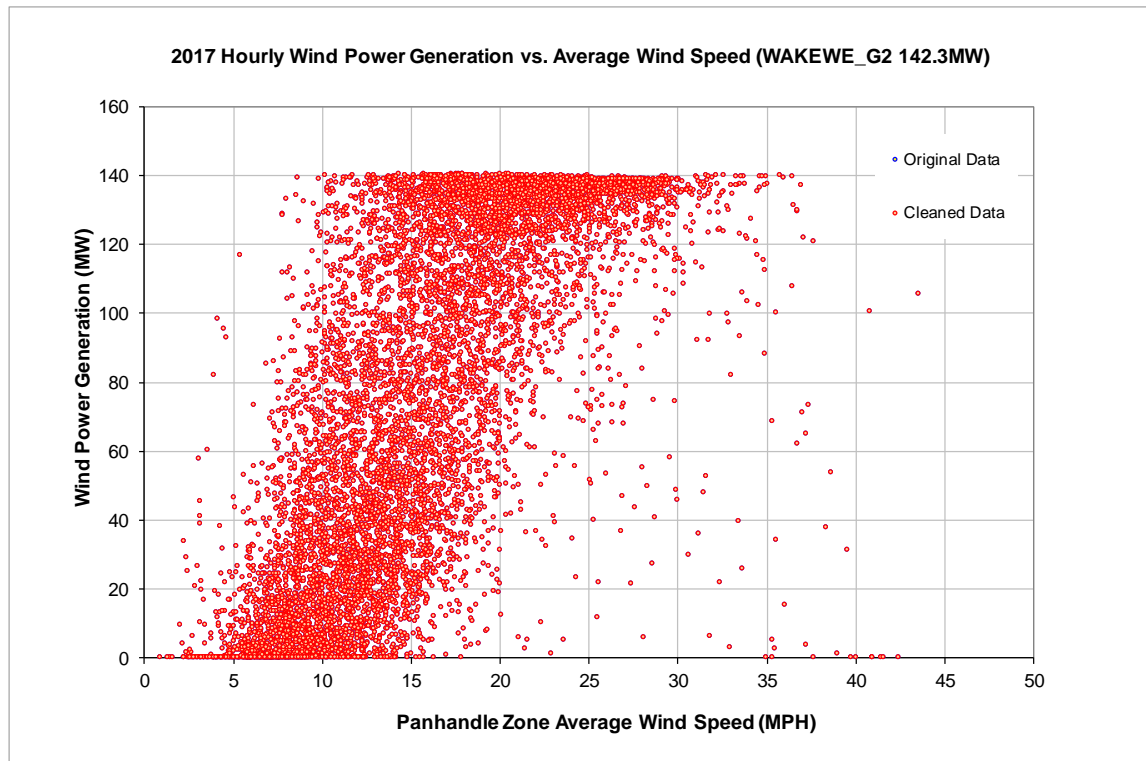


Figure 10-475: WAKEWE\_G2 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

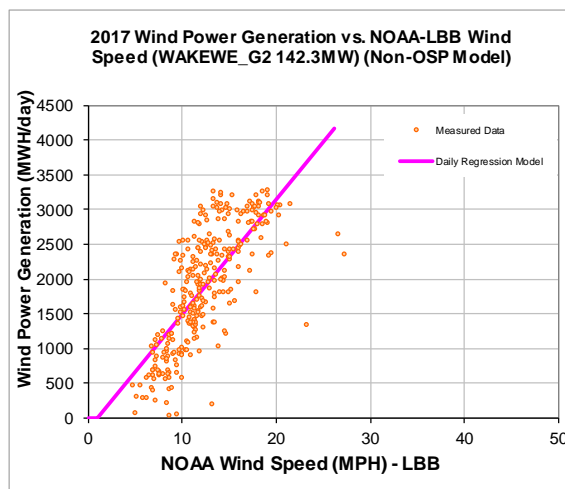
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-166.30
Left Slope (MWh/mph-day)	165.95
RMSE (MWh/day)	559.28
R2	0.55
CV-RMSE	29.5%
Daily Maximum (MWh/day)	3415

**OSP Model:**

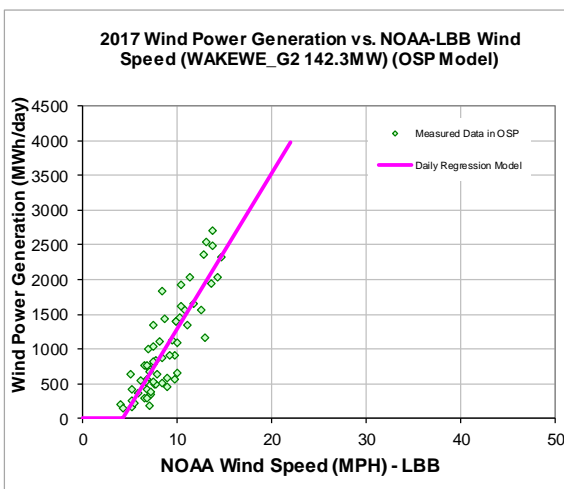
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-931.92
Left Slope (MWh/mph-day)	223.08
RMSE (MWh/day)	343.71
R2	0.75
CV-RMSE	34.4%
Daily Maximum (MWh/day)	3415

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
644,718	635,995

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
1,084	1,025

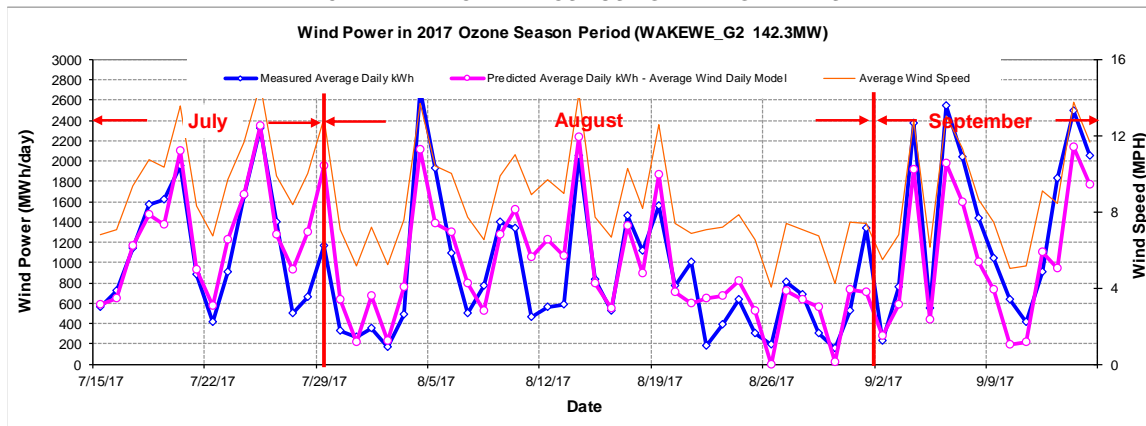
Figure 10-476: WAKEWE\_G2 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	59,389	56,481	4.90%	56%	53%
Feb-17	28	12.91	60,137	55,335	7.99%	63%	58%
Mar-17	31	13.57	66,482	62,877	5.42%	63%	59%
Apr-17	30	14.59	62,933	67,393	-7.09%	61%	66%
May-17	31	13.77	58,772	65,671	-11.74%	56%	62%
Jun-17	30	12.33	47,149	56,378	-19.57%	46%	55%
Jul-17	31	10.03	35,208	42,739	-21.39%	33%	40%
Aug-17	31	8.19	25,595	27,795	-8.60%	24%	26%
Sep-17	30	10.41	46,696	42,665	8.63%	46%	42%
Oct-17	31	11.80	64,476	55,555	13.84%	61%	52%
Nov-17	30	11.45	59,627	52,022	12.75%	58%	51%
Dec-17	31	10.54	49,533	49,083	0.91%	47%	46%
<b>Total</b>	<b>365</b>	<b>11.78</b>	<b>635,995</b>	<b>633,992</b>	<b>0.31%</b>	<b>51%</b>	<b>51%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>62,861</b>	<b>62,891</b>	<b>-0.05%</b>	<b>29%</b>	<b>29%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

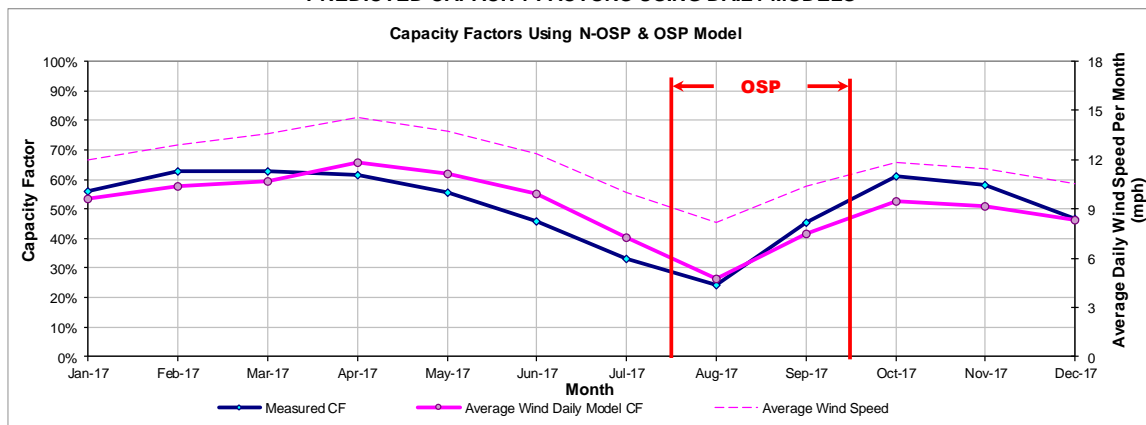


Figure 10-477: WAKEWE\_G2 - Predicted Wind Power and Capacity Factor Using Daily Models

10.115 Whirlwind Energy

10.115.1 Whirlwind Energy - WEC\_WECG1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
WEC_WECG1	Wind	-	FLOYD	Renewable Energy Systems	Whirlwind

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
26 Siemens 2.3 MW	ERCOT	W	Dec-07	Panhandle	LBB	60

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

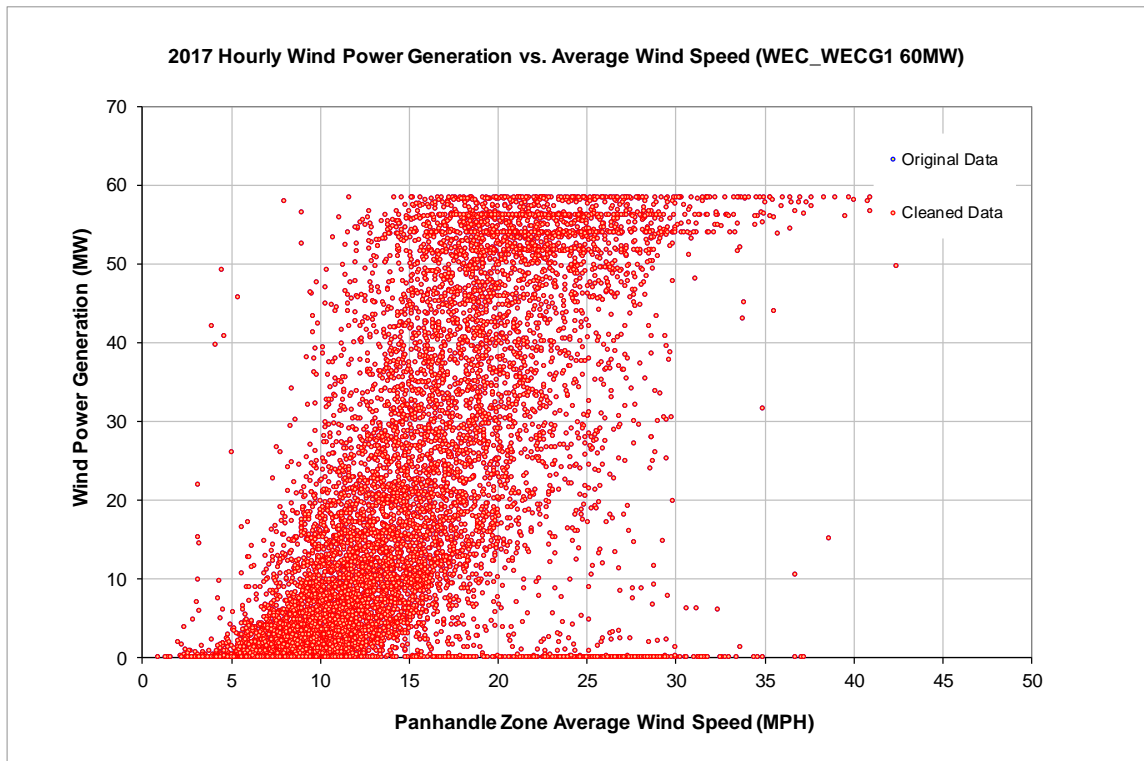


Figure 10-478: WEC\_WECG1 - Hourly Wind Power vs. ERCOT Average Wind Speed



**MODEL COEFFICIENTS**

**Non-OSP Model:**

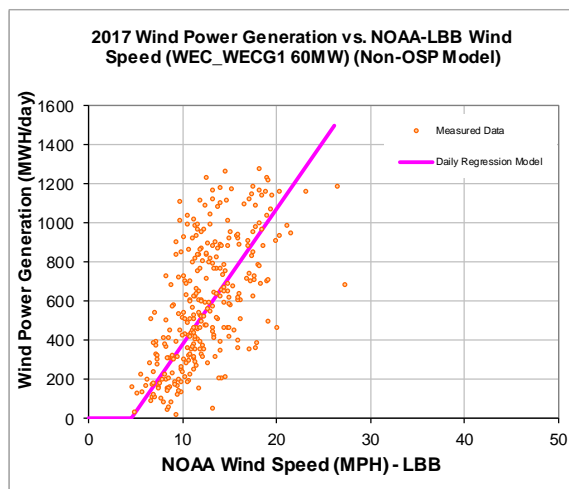
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-63.12
Left Slope (MWh/mph-day)	51.90
RMSE (MWh/day)	248.52
R2	0.38
CV-RMSE	42.6%
Daily Maximum (MWh/day)	1440

**OSP Model:**

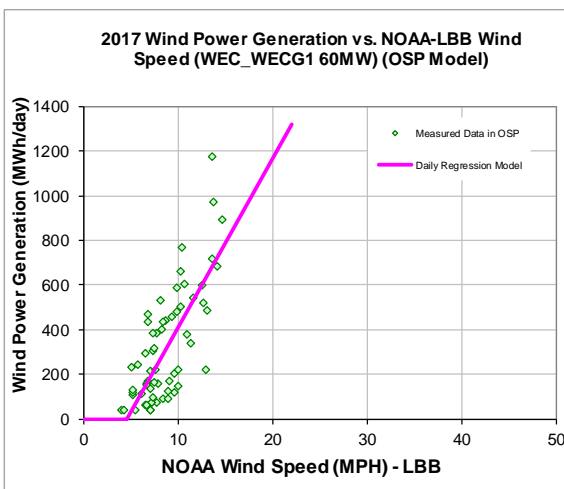
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-310.98
Left Slope (MWh/mph-day)	72.62
RMSE (MWh/day)	170.73
R2	0.56
CV-RMSE	53.8%
Daily Maximum (MWh/day)	1440

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
198,667	194,887

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
346	327

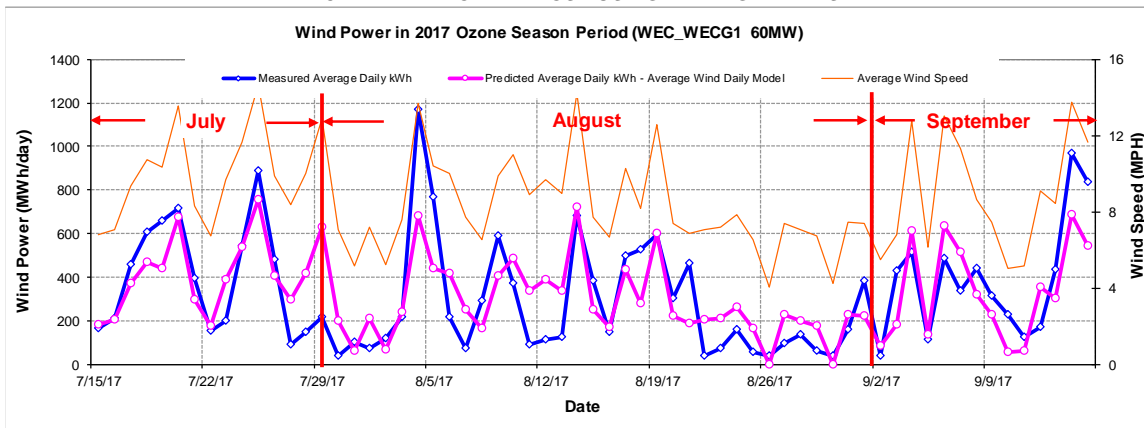
Figure 10-479: WEC\_WECG1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (LBB) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.98	16,367	17,321	-5.83%	37%	39%
Feb-17	28	12.91	17,388	16,996	2.26%	43%	42%
Mar-17	31	13.57	19,165	19,873	-3.70%	43%	45%
Apr-17	30	14.59	18,308	20,829	-13.77%	42%	48%
May-17	31	13.77	16,083	20,195	-25.57%	36%	45%
Jun-17	30	12.33	15,364	17,300	-12.60%	36%	40%
Jul-17	31	10.03	12,249	13,345	-8.95%	27%	30%
Aug-17	31	8.19	8,628	8,823	-2.26%	19%	20%
Sep-17	30	10.41	13,722	13,250	3.44%	32%	31%
Oct-17	31	11.80	21,833	17,031	21.99%	49%	38%
Nov-17	30	11.45	20,404	15,937	21.89%	47%	37%
Dec-17	31	10.52	15,378	14,007	8.92%	34%	31%
<b>Total</b>	<b>365</b>	<b>11.79</b>	<b>194,887</b>	<b>194,907</b>	<b>-0.01%</b>	<b>37%</b>	<b>37%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.65</b>	<b>19,986</b>	<b>20,005</b>	<b>-0.10%</b>	<b>22%</b>	<b>22%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

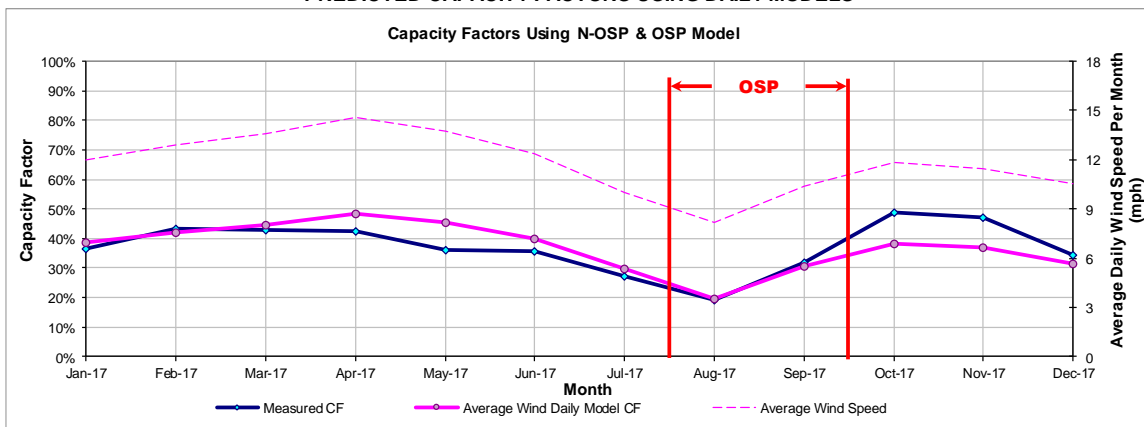


Figure 10-480: WEC\_WECG1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.116 Whitetail Wind Project

10.116.1 Whitetail Wind Project - EXGNWTL\_WIND\_1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
EXGNWTL_WIND_1	Wind	-	WEBB	Exelon	Whitetail Wind Project

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
57 GE	ERCOT	S	Dec-12	South	CRP	92

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

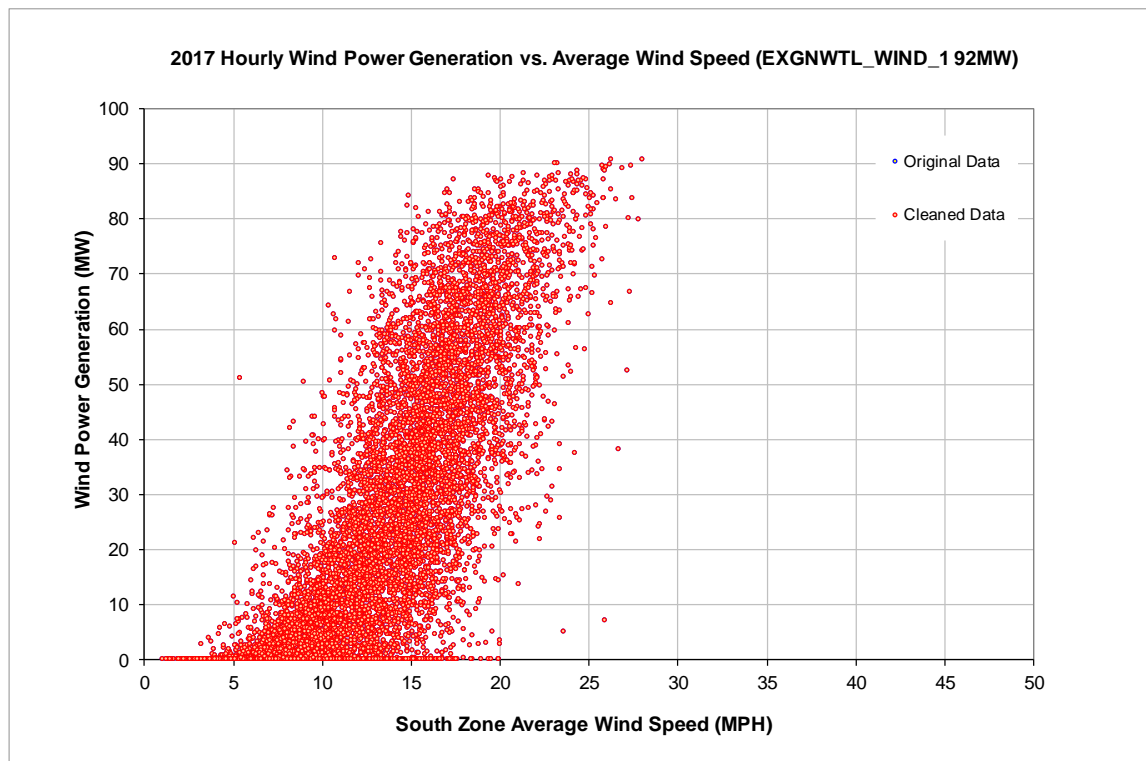


Figure 10-481: EXGNWTL\_WIND\_1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

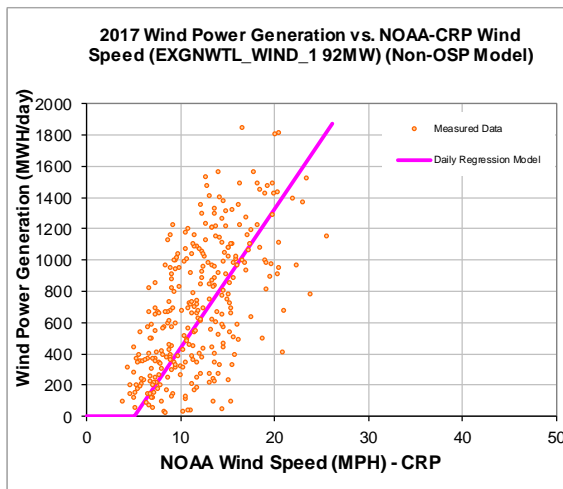
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-14.25
Left Slope (MWh/mph-day)	59.21
RMSE (MWh/day)	329.47
R2	0.37
CV-RMSE	47.6%
Daily Maximum (MWh/day)	2208

**OSP Model:**

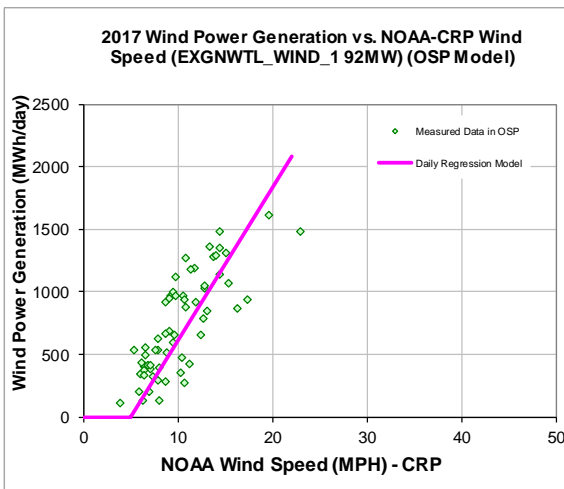
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-138.95
Left Slope (MWh/mph-day)	85.42
RMSE (MWh/day)	242.99
R2	0.63
CV-RMSE	33.2%
Daily Maximum (MWh/day)	2208

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
248,084	252,275

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
633	743

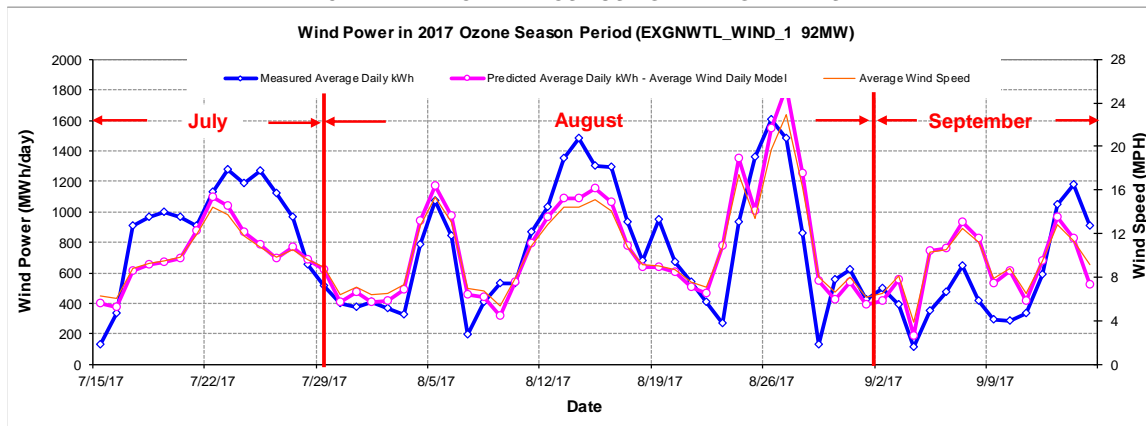
Figure 10-482: EXGNWTL\_WIND\_1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (CRP) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	13.22	22,951	23,820	-3.79%	34%	35%
Feb-17	28	13.29	17,997	21,628	-20.18%	29%	35%
Mar-17	31	14.29	24,313	25,791	-6.08%	36%	38%
Apr-17	30	14.70	27,456	25,680	6.47%	41%	39%
May-17	31	12.81	27,325	23,066	15.59%	40%	34%
Jun-17	30	9.21	20,736	15,923	23.21%	31%	24%
Jul-17	31	9.39	26,848	18,967	29.36%	39%	28%
Aug-17	31	11.11	24,503	25,109	-2.47%	36%	37%
Sep-17	30	10.25	20,038	19,413	3.12%	30%	29%
Oct-17	31	9.56	15,935	17,101	-7.32%	23%	25%
Nov-17	30	10.81	13,045	17,526	-34.35%	20%	26%
Dec-17	31	10.87	11,128	18,251	-64.01%	16%	27%
<b>Total</b>	<b>365</b>	<b>11.62</b>	<b>252,275</b>	<b>252,275</b>	<b>0.00%</b>	<b>31%</b>	<b>31%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>10.19</b>	<b>46,079</b>	<b>46,079</b>	<b>0.00%</b>	<b>33%</b>	<b>33%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

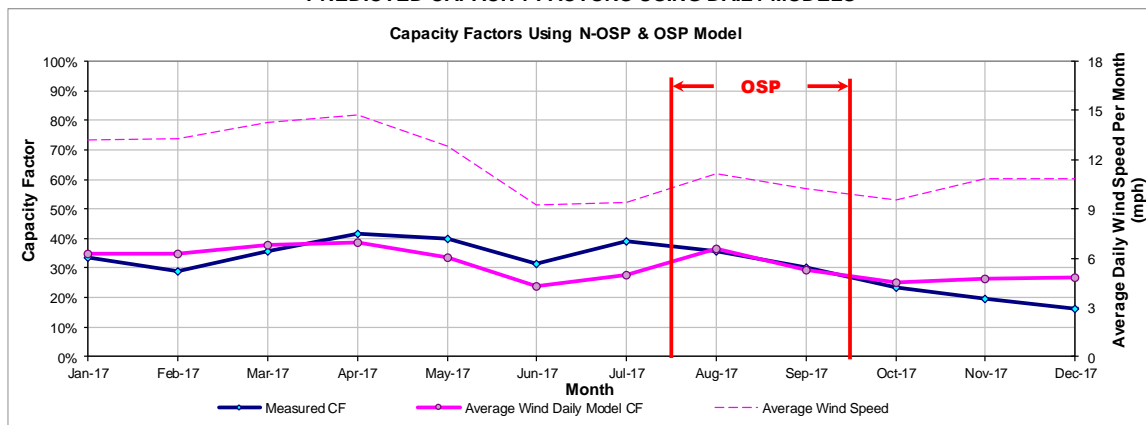


Figure 10-483: EXGNWTL\_WIND\_1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.117 Windthorst 2

10.117.1 Windthorst 2 - WNDTHST2\_UNIT1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
WNDTHST2_UNIT1	Wind	-	ARCHER	OwnEnergy	Windthorst 2

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
30 Siemens 2.3 MW	ERCOT	W	Dec-14	West	ABI	67.6

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

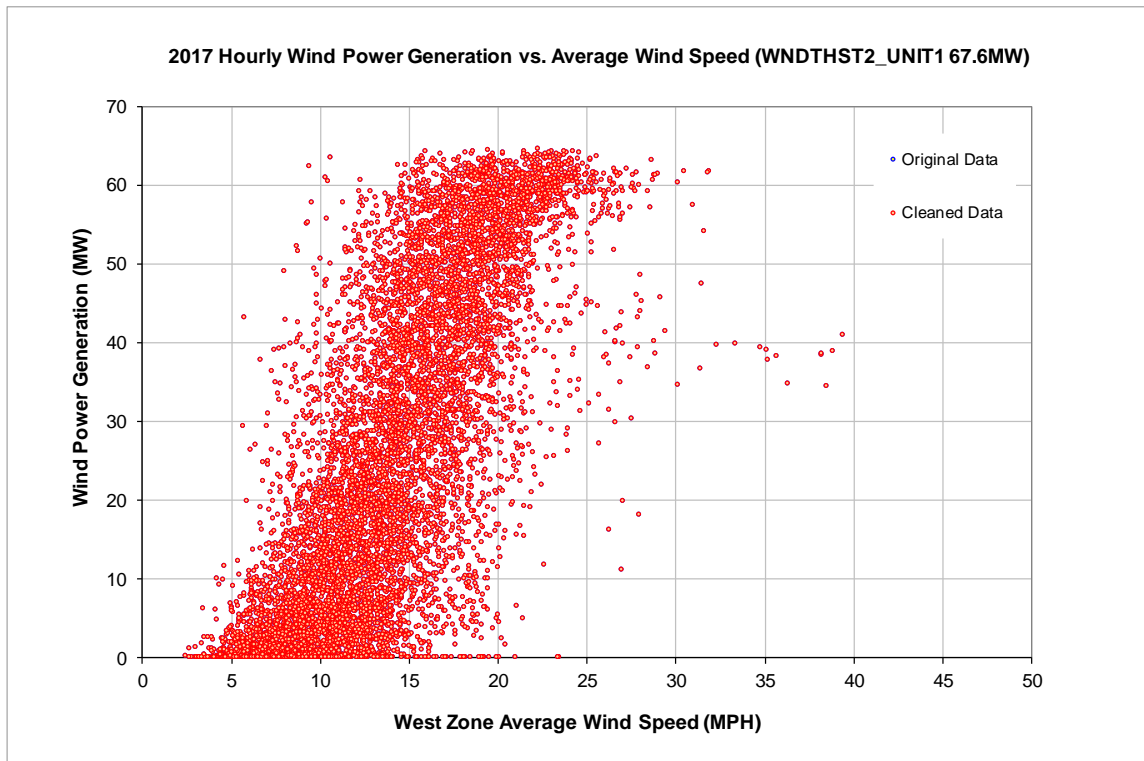


Figure 10-484: WNDTHST2\_UNIT1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

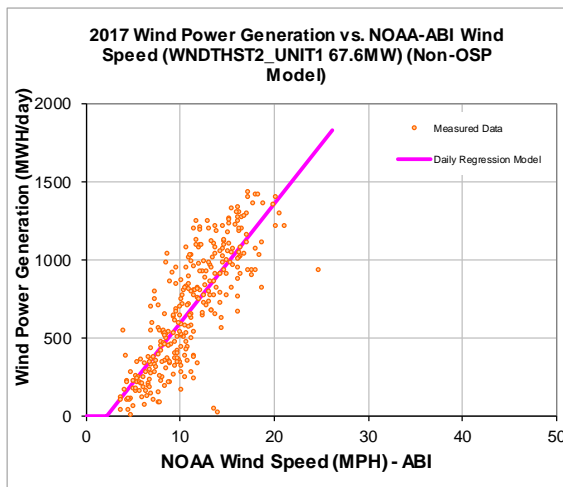
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-166.56
Left Slope (MWh/mph-day)	76.61
RMSE (MWh/day)	216.71
R2	0.66
CV-RMSE	31.8%
Daily Maximum (MWh/day)	1622

**OSP Model:**

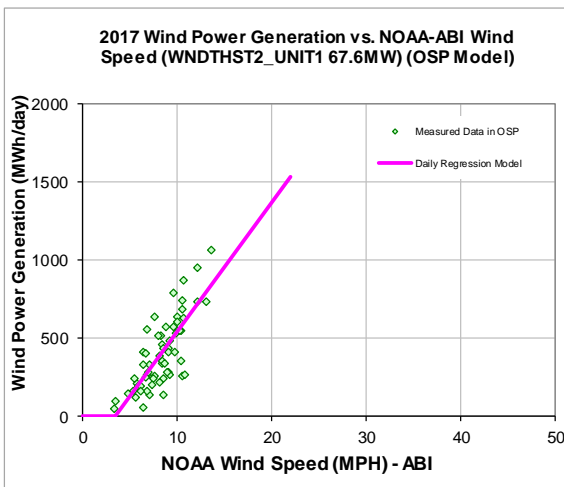
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-283.04
Left Slope (MWh/mph-day)	82.49
RMSE (MWh/day)	144.64
R2	0.60
CV-RMSE	35.9%
Daily Maximum (MWh/day)	1622

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
255,269	231,418

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
438	412

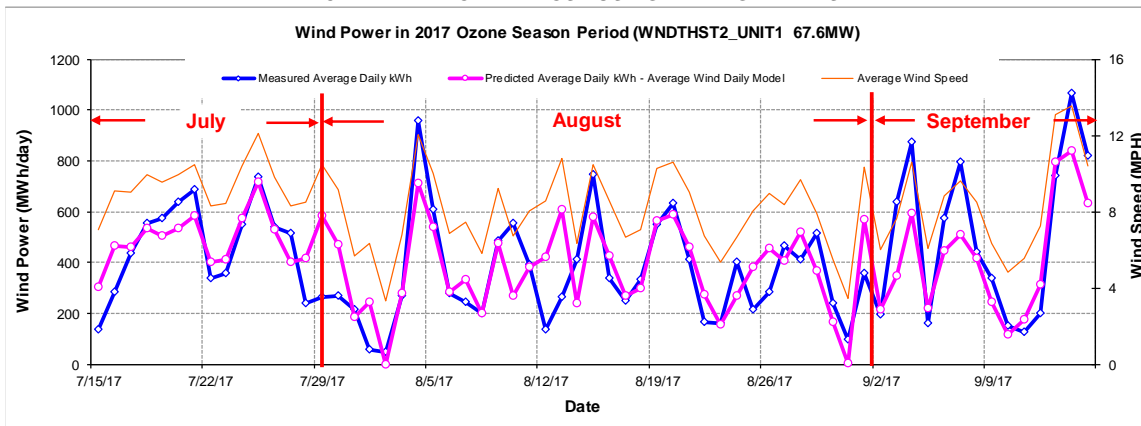
Figure 10-485: WNDTHST2\_UNIT1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (ABI) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.43	21,161	19,616	7.30%	42%	39%
Feb-17	28	11.23	21,260	19,417	8.67%	47%	43%
Mar-17	31	12.96	23,478	25,507	-8.64%	47%	51%
Apr-17	30	13.49	24,489	26,001	-6.17%	50%	53%
May-17	31	11.55	22,522	22,272	1.11%	45%	44%
Jun-17	30	10.72	18,153	19,639	-8.19%	37%	40%
Jul-17	31	9.17	13,305	15,568	-17.01%	26%	31%
Aug-17	31	7.87	11,245	11,350	-0.93%	22%	23%
Sep-17	30	9.51	16,368	15,818	3.36%	34%	32%
Oct-17	31	11.07	24,284	21,123	13.02%	48%	42%
Nov-17	30	10.21	19,834	18,471	6.87%	41%	38%
Dec-17	31	9.14	15,319	16,542	-7.98%	30%	33%
<b>Total</b>	<b>365</b>	<b>10.60</b>	<b>231,418</b>	<b>231,322</b>	<b>0.04%</b>	<b>39%</b>	<b>39%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.31</b>	<b>25,377</b>	<b>25,386</b>	<b>-0.03%</b>	<b>25%</b>	<b>25%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

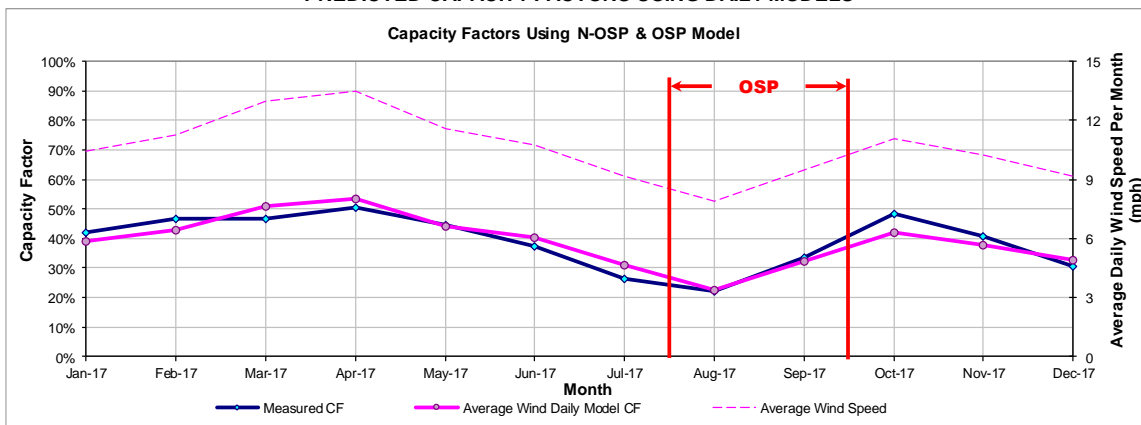


Figure 10-486: WNDTHST2\_UNIT1 - Predicted Wind Power and Capacity Factor Using Daily Models



10.118 Wolf Ridge Windfarm

10.118.1 Wolf Ridge Windfarm - WHTTAIL\_WR1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
WHTTAIL_WR1	Wind	-	COOKE	NextEra	Wolf Ridge Windfarm

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
75 GE 1.5 MW	ERCOT	N	Oct-08	North	DFW	112.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

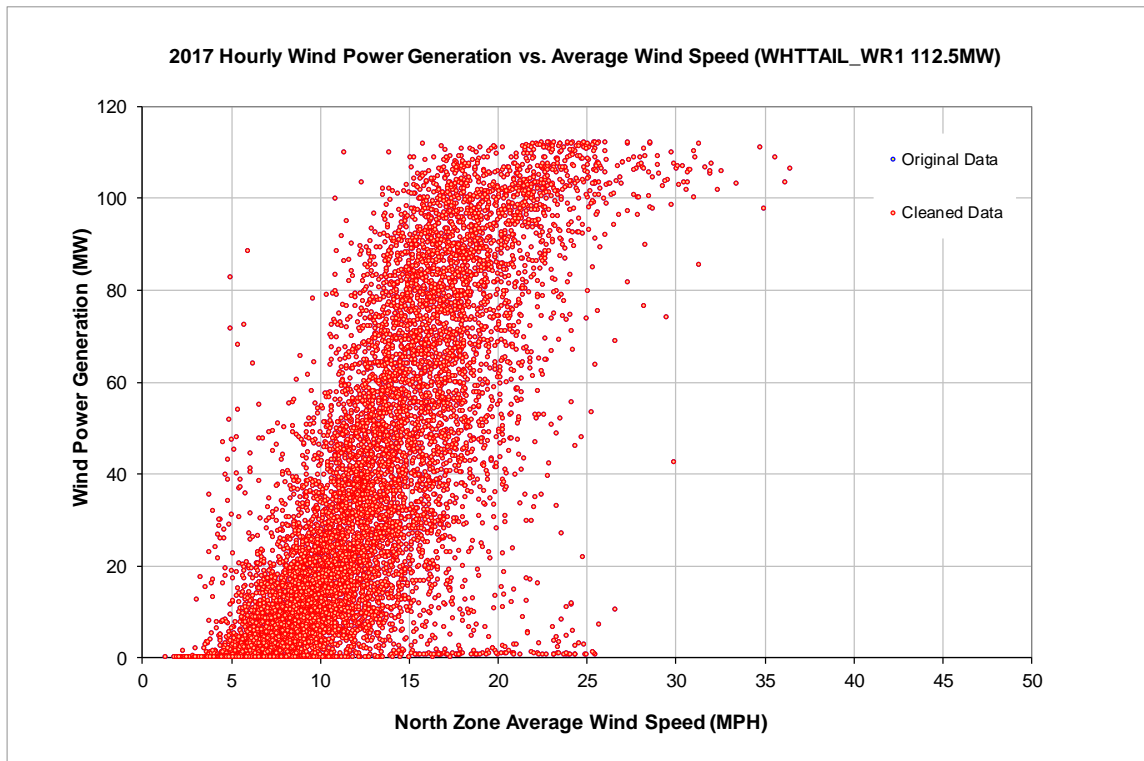


Figure 10-487: WHTTAIL\_WR1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

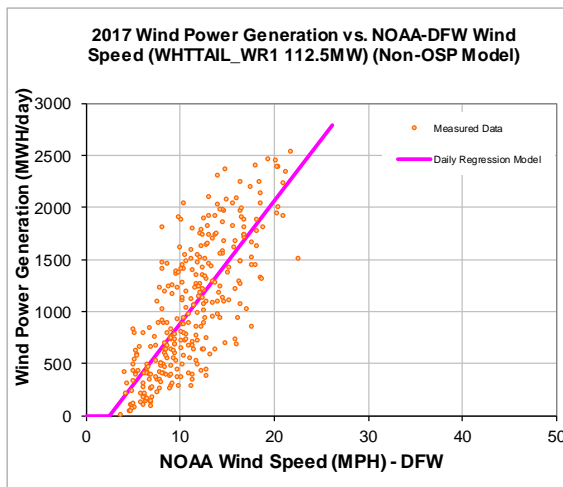
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-279.27
Left Slope (MWh/mph-day)	117.73
RMSE (MWh/day)	396.09
R2	0.59
CV-RMSE	38.3%
Daily Maximum (MWh/day)	2700

**OSP Model:**

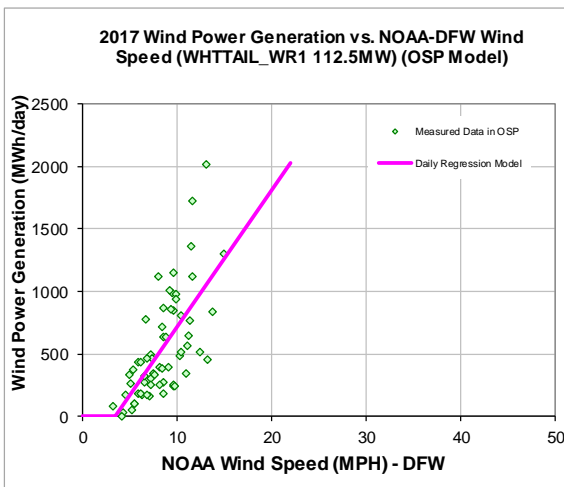
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-371.76
Left Slope (MWh/mph-day)	109.31
RMSE (MWh/day)	307.90
R2	0.46
CV-RMSE	56.6%
Daily Maximum (MWh/day)	2700

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

Annual		OSD	
2008 Estimated MWh/yr	2017 Measured MWh/yr	2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
375,769	346,772	594	564

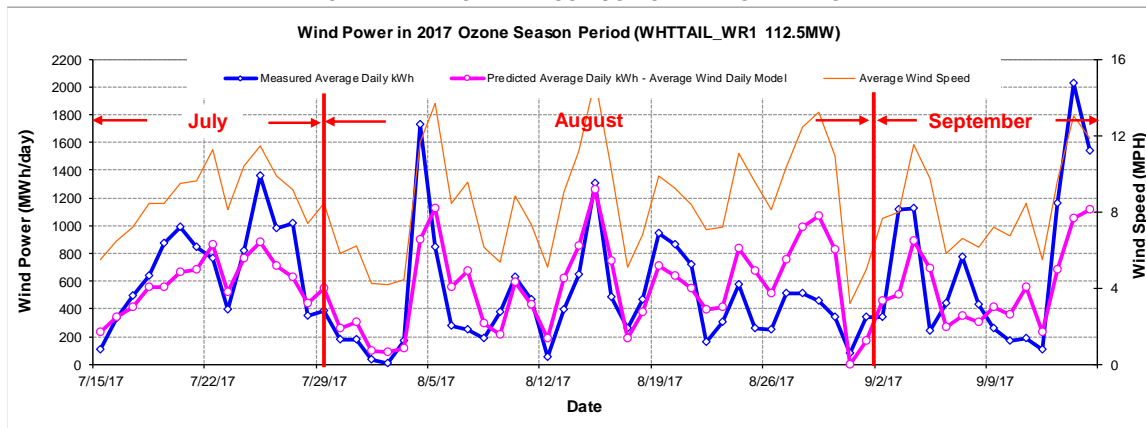
Figure 10-488: WHTTAIL\_WR1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (DFW) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	11.24	32,701	32,367	1.02%	39%	39%
Feb-17	28	12.70	29,167	34,058	-16.77%	39%	45%
Mar-17	31	12.60	38,374	37,316	2.76%	46%	45%
Apr-17	30	13.20	38,684	38,258	1.10%	48%	47%
May-17	31	12.08	35,133	35,442	-0.88%	42%	42%
Jun-17	30	10.33	28,259	28,123	0.48%	35%	35%
Jul-17	31	8.66	19,842	20,152	-1.56%	24%	24%
Aug-17	31	8.71	14,660	17,975	-22.61%	18%	21%
Sep-17	30	8.87	21,892	20,625	5.79%	27%	25%
Oct-17	31	10.28	35,936	28,845	19.73%	43%	34%
Nov-17	30	10.17	27,889	27,530	1.29%	34%	34%
Dec-17	31	9.53	24,236	26,107	-7.72%	29%	31%
<b>Total</b>	<b>365</b>	<b>10.68</b>	<b>346,772</b>	<b>346,798</b>	<b>-0.01%</b>	<b>35%</b>	<b>35%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>8.37</b>	<b>34,248</b>	<b>34,274</b>	<b>-0.07%</b>	<b>20%</b>	<b>20%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

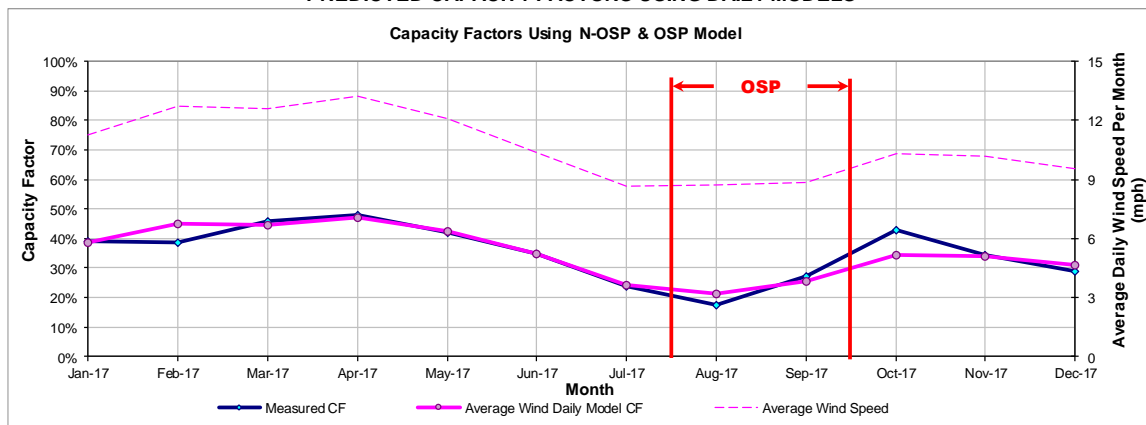


Figure 10-489: WHTTAIL\_WR1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.119 Woodward Mountain Ranch

10.119.1 Woodward Mountain Ranch - WOODWRD1\_WOODWRD1

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
WOODWRD1_WOODWRD1	Wind	McCamey	PECOS	NextEra	Woodward Mountain Ranch

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
125 Vestas 0.66 MW	ERCOT	W	Jul-01	West	FST	82.5

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

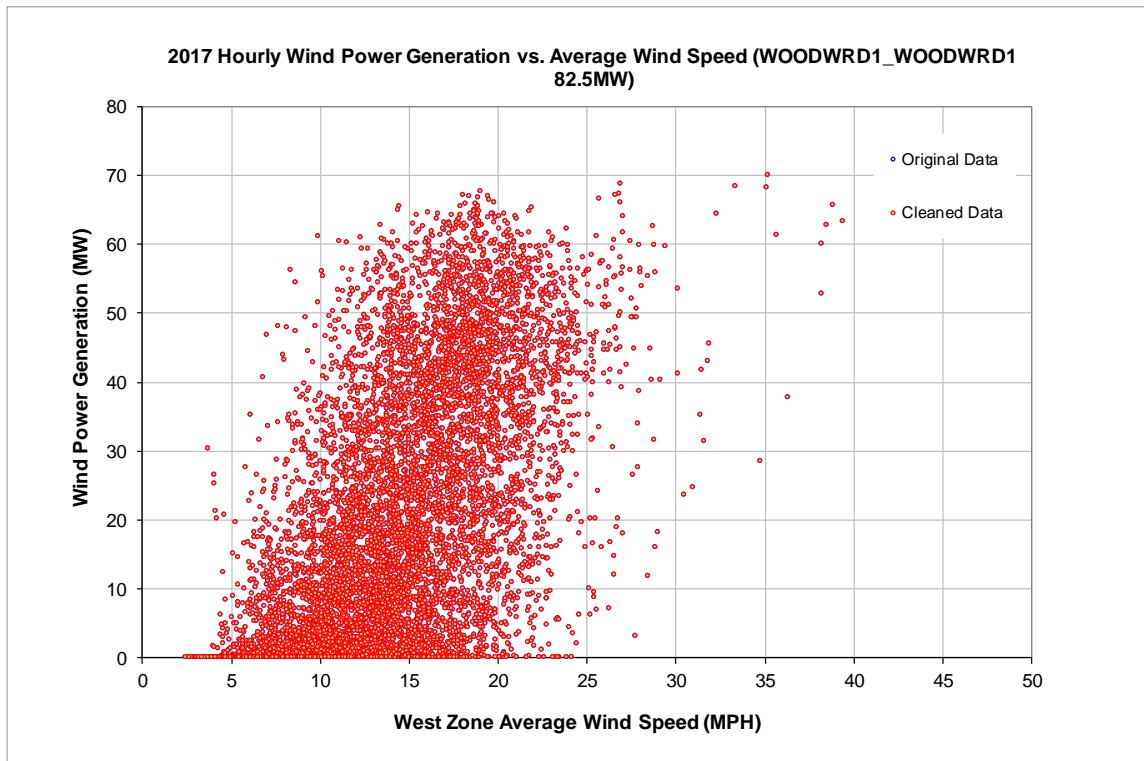


Figure 10-490: WOODWRD1\_WOODWRD1 - Hourly Wind Power vs. ERCOT Average Wind Speed

**MODEL COEFFICIENTS**

**Non-OSP Model:**

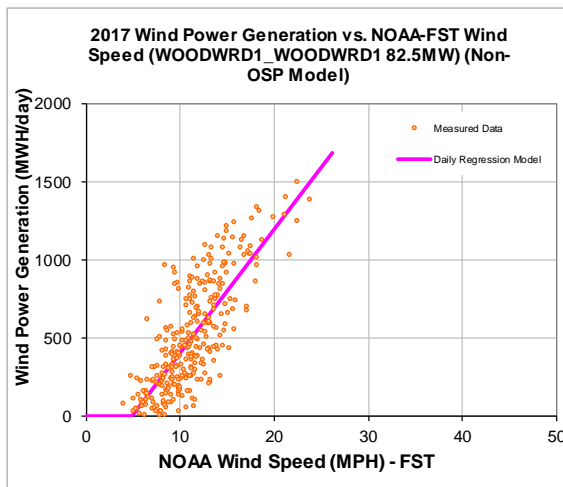
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-377.20
Left Slope (MWh/mph-day)	78.94
RMSE (MWh/day)	214.94
R2	0.61
CV-RMSE	42.3%
Daily Maximum (MWh/day)	1980

**OSP Model:**

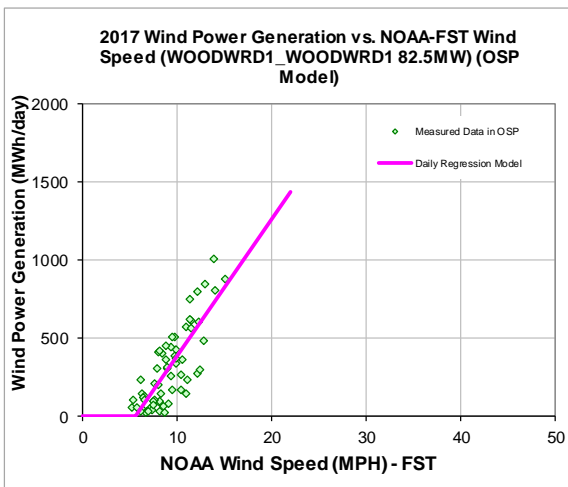
IMT Coefficient	Average Wind Daily Model
YCP (MWh/day)	-495.23
Left Slope (MWh/mph-day)	88.03
RMSE (MWh/day)	148.99
R2	0.65
CV-RMSE	48.9%
Daily Maximum (MWh/day)	1980

**DAILY WIND POWER VS. AVERAGE WIND SPEED  
(Using OSP and Non OSP Model)**

**Non-OSP Model:**



**OSP Model:**



**POWER PRODUCTION (2008 Estimated Vs. 2017 Measured)**

**Annual**

2008 Estimated MWh/yr	2017 Measured MWh/yr
172,665	171,498

**OSD**

2008 OSD Estimated MWh/day	2017 OSD Measured MWh/day
287	308

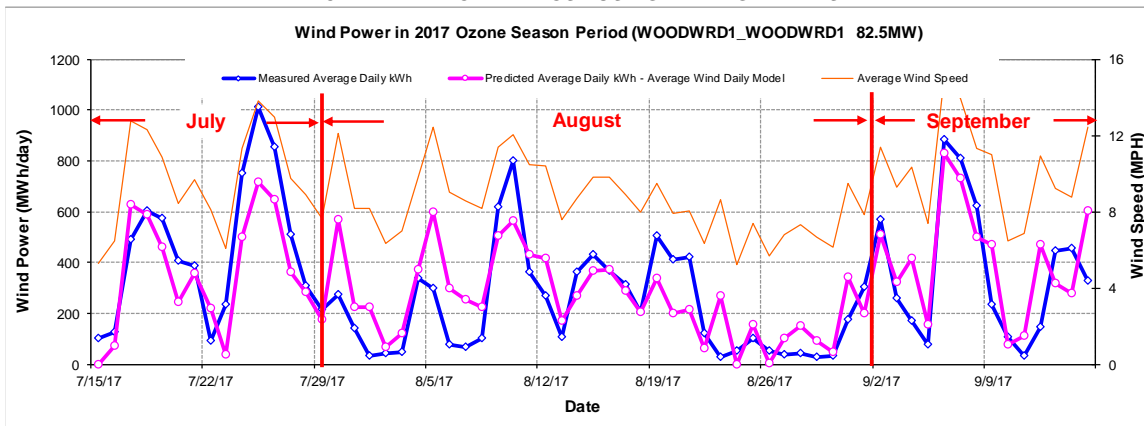
Figure 10-491: WOODWRD1\_WOODWRD1 - Model Coefficients (Using Non-OSP and OSP Data)

**COMPARISON OF PREDICTED POWER VS. MEASURED POWER**

Average Wind Speed (FST) Zone

Month	No. Of Days	Average Daily Wind Speed (MPH)	Measured Power Generation (MWh)	Predicted Power Generation Using Daily Model (MWh)	Diff.	Measured Capacity Factor	Capacity Factor Using Daily Model
Jan-17	31	10.81	10,857	14,273	-31.47%	18%	23%
Feb-17	28	11.24	13,374	14,284	-6.80%	24%	26%
Mar-17	31	11.81	21,046	17,217	18.19%	34%	28%
Apr-17	30	13.08	20,556	19,657	4.37%	35%	33%
May-17	31	12.22	17,447	18,220	-4.43%	28%	30%
Jun-17	30	11.10	15,358	14,967	2.55%	26%	25%
Jul-17	31	11.01	16,525	14,746	10.76%	27%	24%
Aug-17	31	8.40	6,838	7,612	-11.32%	11%	12%
Sep-17	30	11.19	14,448	14,769	-2.22%	24%	25%
Oct-17	31	10.91	16,233	14,509	10.62%	26%	24%
Nov-17	30	9.40	10,608	10,940	-3.12%	18%	18%
Dec-17	31	9.02	8,209	10,444	-27.22%	13%	17%
<b>Total</b>	<b>365</b>	<b>10.84</b>	<b>171,498</b>	<b>171,638</b>	<b>-0.08%</b>	<b>24%</b>	<b>24%</b>
<b>Total in OSP (07/15-09/15)</b>	<b>63</b>	<b>9.09</b>	<b>19,208</b>	<b>19,274</b>	<b>-0.34%</b>	<b>15%</b>	<b>15%</b>

**PREDICTED WIND POWER IN OSP USING AVERAGE WIND SPEED**



**PREDICTED CAPACITY FACTORS USING DAILY MODELS**

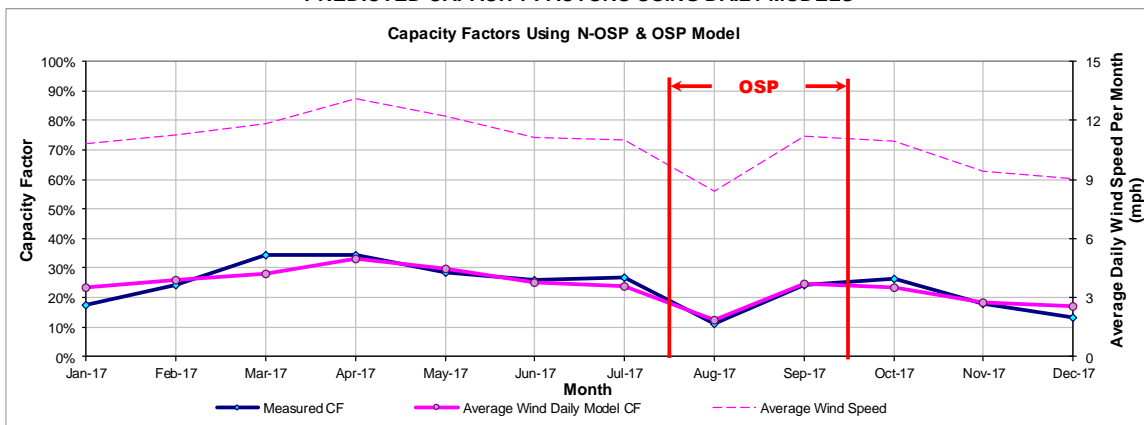


Figure 10-492: WOODWRD1\_WOODWRD1 - Predicted Wind Power and Capacity Factor Using Daily Models

10.119.2 Woodward Mountain Ranch - WOODWRD2\_WOODWRD2

**SITE INFORMATION**

GENSITECODE_ERCOT	Renewable Energy	City	County	Company	Facility
WOODWRD2_WOODWRD2	Wind	McCamey	PECOS	NextEra	Woodward Mountain Ranch

Wind Turbine Information	Region	CM Zones	Date in Service	ERCOT Wind Zone	NOAA Wind Zone	Capacity (MW)
117 Vestas 0.66 MW	ERCOT	W	Jul-01	West	FST	77.2

**HOURLY WIND POWER VS. ERCOT AVERAGE WIND SPEED**

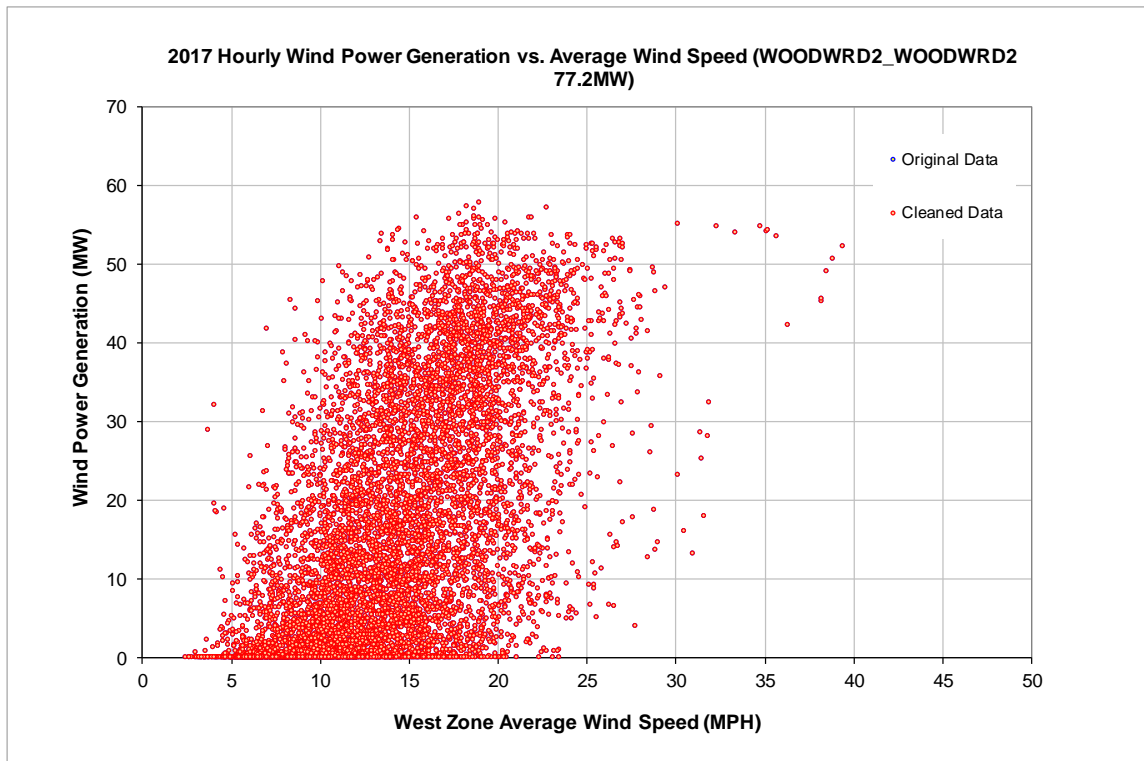


Figure 10-493: WOODWRD2\_WOODWRD2 - Hourly Wind Power vs. ERCOT Average Wind Speed

## 11 APPENDIX C

This appendix includes lists of the identified solar PV projects, solar thermal projects, geothermal projects, and landfill gas-fired projects.

- Solar PV projects: a total of 4,786 solar PV projects were reported in the present report and all of the identified solar PV projects can be found in Table 11-1.
- Solar thermal projects: unfortunately, none of new solar thermal projects was found for the present report. As a result, the present report has the same number of solar thermal projects with the previous report, which was 38 projects. The list of all the projects is shown in Table 11-3
- Geothermal projects: unfortunately, none of new geothermal projects was found for the present report. As a result, the present report has the same number of geothermal projects with the previous report, which was 286. Table 11-4 shows the list of the geothermal projects
- Landfill gas-fired projects: 38 operational, 50 candidate, 38 potential, 3 construction, 14 shutdown, 4 planned, and 1 other landfill gas-fired projects were identified in the present report. All of the operational, candidate, potential, construction, shutdown, planned, and other projects are listed in Table 11-5 through Table 11-11, respectively.



Table 11-1: Solar Photovoltaic Projects: Data and Information up to 2017

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
1	Travis	Travis	78704	TX	1.26	7611	6/9/2004	30.24	-97.77
2	Travis	Travis	78756	TX	2.51	15667	8/2/2004	30.32	-97.74
3	Travis	Travis	78746	TX	3.01	18456	8/4/2004	30.31	-97.82
4	Travis	Travis	78704	TX	3.36	22173	8/9/2004	30.24	-97.77
5	Travis	Travis	78756	TX	2.67	14348	8/25/2004	30.32	-97.74
6	Travis	Travis	78745	TX	2.97	18930	8/27/2004	30.21	-97.80
7	Travis	Travis	78704	TX	2.88	20252	9/13/2004	30.24	-97.77
8	Travis	Travis	78753	TX	3.00	19800	9/20/2004	30.39	-97.67
9	Travis	Travis	78751	TX	2.97	19528	9/20/2004	30.31	-97.73
10	Travis	Travis	78731	TX	3.00	20458	9/27/2004	30.35	-97.77
11	Travis	Travis	78753	TX	2.97	19315	10/1/2004	30.39	-97.67
12	Travis	Travis	78704	TX	3.15	20350	10/4/2004	30.24	-97.77
13	Travis	Travis	78746	TX	3.34	19825	10/4/2004	30.31	-97.82
14	Travis	Travis	78751	TX	3.00	19200	10/6/2004	30.31	-97.73
15	Travis	Travis	78731	TX	3.01	18973	10/8/2004	30.35	-97.77
16	Travis	Travis	78722	TX	2.88	20794	10/9/2004	30.30	-97.70
17	Travis	Travis	78704	TX	3.00	19800	10/13/2004	30.24	-97.77
18	Travis	Travis	78757	TX	3.30	21455	10/13/2004	30.35	-97.74
19	Travis	Travis	78731	TX	3.34	23704	10/22/2004	30.35	-97.77
20	Travis	Travis	78746	TX	3.01	19323	10/22/2004	30.31	-97.82
21	Travis	Travis	78751	TX	3.00	18253	10/22/2004	30.31	-97.73
22	Travis	Travis	78704	TX	3.00	18283	10/25/2004	30.24	-97.77
23	Travis	Travis	78754	TX	3.20	21000	10/25/2004	30.36	-97.65
24	Travis	Travis	78703	TX	2.88	20497	10/26/2004	30.29	-97.77
25	Travis	Travis	78756	TX	2.97	19875	10/27/2004	30.32	-97.74
26	Travis	Travis	78703	TX	3.01	18973	10/28/2004	30.29	-97.77
27	Travis	Travis	78704	TX	3.24	19800	11/1/2004	30.24	-97.77
28	Travis	Travis	78746	TX	3.00	18981	11/2/2004	30.31	-97.82
29	Travis	Travis	78723	TX	2.97	19529	11/4/2004	30.31	-97.68
30	Travis	Travis	78703	TX	3.01	18253	11/10/2004	30.29	-97.77
31	Travis	Travis	78750	TX	3.01	18973	11/10/2004	30.43	-97.80
32	Travis	Travis	78731	TX	3.00	20164	11/19/2004	30.35	-97.77
33	Travis	Travis	78759	TX	2.97	19490	11/22/2004	30.40	-97.75
34	Travis	Travis	78702	TX	3.30	20923	11/22/2004	30.26	-97.71
35	Travis	Travis	78731	TX	6.32	35531	11/29/2004	30.35	-97.77
36	Travis	Travis	78751	TX	3.01	19000	11/29/2004	30.31	-97.73
37	Travis	Travis	78703	TX	2.55	19578	12/3/2004	30.29	-97.77
38	Travis	Travis	78727	TX	2.97	19578	12/3/2004	30.43	-97.71
39	Travis	Travis	78745	TX	3.01	18973	12/10/2004	30.21	-97.80
40	Travis	Travis	78704	TX	2.04	14300	12/15/2004	30.24	-97.77

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
41	Travis	Travis	78704	TX	3.00	19000	12/15/2004	30.24	-97.77
42	Travis	Travis	78704	TX	2.97	20600	12/16/2004	30.24	-97.77
43	Travis	Travis	78704	TX	2.97	22780	12/16/2004	30.24	-97.77
44	Travis	Travis	78746	TX	1.36	12447	12/22/2004	30.31	-97.82
45	Travis	Travis	78723	TX	11.52	69684	12/22/2004	30.31	-97.68
46	Travis	Travis	78702	TX	4.80	29008	12/22/2004	30.26	-97.71
47	Travis	Travis	78701	TX	2.97	20405	12/27/2004	30.27	-97.74
48	Travis	Travis	78759	TX	3.36	22530	12/28/2004	30.40	-97.75
49	Travis	Travis	78703	TX	3.00	18470	12/29/2004	30.29	-97.77
50	Travis	Travis	78745	TX	2.97	20001	12/29/2004	30.21	-97.80
51	Travis	Travis	78703	TX	1.26	6962	1/4/2005	30.29	-97.77
52	Travis	Travis	78751	TX	3.01	18973	1/4/2005	30.31	-97.73
53	Travis	Travis	78756	TX	3.00	18981	1/13/2005	30.32	-97.74
54	Travis	Travis	78703	TX	1.98	15000	1/19/2005	30.29	-97.77
55	Travis	Travis	78731	TX	2.04	14300	1/21/2005	30.35	-97.77
56	Travis	Travis	78701	TX	3.01	18253	1/21/2005	30.27	-97.74
57	Travis	Travis	78750	TX	3.00	18981	1/24/2005	30.43	-97.80
58	Travis	Travis	78704	TX	3.00	18973	1/24/2005	30.24	-97.77
59	Travis	Travis	78746	TX	3.01	19583	1/26/2005	30.31	-97.82
60	Travis	Travis	78745	TX	21.12	125022	1/28/2005	30.21	-97.80
61	Travis	Travis	78746	TX	3.01	18973	1/31/2005	30.31	-97.82
62	Travis	Travis	78734	TX	3.15	21000	2/11/2005	30.37	-97.95
63	Travis	Travis	78731	TX	3.01	18253	2/11/2005	30.35	-97.77
64	Travis	Travis	78703	TX	3.01	18253	2/16/2005	30.29	-97.77
65	Travis	Travis	78703	TX	3.00	18253	2/16/2005	30.29	-97.77
66	Travis	Travis	78759	TX	3.00	18600	2/17/2005	30.40	-97.75
67	Travis	Travis	78748	TX	2.99	18492	2/24/2005	30.17	-97.82
68	Travis	Travis	78744	TX	24.00	136162	2/25/2005	30.20	-97.73
69	Travis	Travis	78732	TX	3.01	18253	3/1/2005	30.38	-97.90
70	Travis	Travis	78734	TX	3.15	21323	3/8/2005	30.37	-97.95
71	Travis	Travis	78752	TX	17.28	129612	3/9/2005	30.33	-97.70
72	Travis	Travis	78745	TX	21.12	125022	3/11/2005	30.20	-97.79
73	Travis	Travis	78756	TX	3.00	18973	3/15/2005	30.32	-97.74
74	Travis	Travis	78731	TX	3.15	22190	3/16/2005	30.35	-97.77
75	Travis	Travis	78731	TX	3.15	19000	3/16/2005	30.35	-97.77
76	Travis	Travis	78704	TX	0.70	9989	3/17/2005	30.24	-97.77
77	Travis	Travis	78704	TX	3.15	20528	3/17/2005	30.24	-97.77
78	Travis	Travis	78731	TX	3.00	18253	3/18/2005	30.35	-97.77
79	Travis	Travis	78738	TX	3.06	21668	3/24/2005	30.31	-97.98
80	Travis	Travis	78722	TX	3.34	20964	3/24/2005	30.30	-97.70

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
81	Travis	Travis	78731	TX	2.88	19707	3/24/2005	30.35	-97.77
82	Travis	Travis	78738	TX	3.15	20535	3/24/2005	30.31	-97.98
83	Travis	Travis	78734	TX	3.15	19805	3/30/2005	30.37	-97.95
84	Travis	Travis	78746	TX	2.97	19300	4/4/2005	30.31	-97.82
85	Travis	Travis	78730	TX	2.24	15792	4/4/2005	30.37	-97.84
86	Travis	Travis	78751	TX	3.15	19886	4/18/2005	30.31	-97.73
87	Travis	Travis	78704	TX	3.15	20663	4/21/2005	30.24	-97.77
88	Travis	Travis	78745	TX	3.15	20895	4/22/2005	30.21	-97.80
89	Travis	Travis	78704	TX	3.01	22374	4/22/2005	30.24	-97.77
90	Travis	Travis	78723	TX	3.34	21250	5/3/2005	30.31	-97.68
91	Travis	Travis	78731	TX	3.17	20615	5/6/2005	30.35	-97.77
92	Travis	Travis	78703	TX	3.01	19379	5/6/2005	30.29	-97.77
93	Travis	Travis	78703	TX	2.80	16450	5/11/2005	30.29	-97.77
94	Travis	Travis	78731	TX	3.00	21003	5/13/2005	30.35	-97.77
95	Travis	Travis	78757	TX	3.00	18973	5/31/2005	30.35	-97.74
96	Travis	Travis	78746	TX	3.00	19235	5/31/2005	30.31	-97.82
97	Travis	Travis	78733	TX	3.15	24276	6/1/2005	30.33	-97.87
98	Travis	Travis	78702	TX	2.88	22800	6/10/2005	30.26	-97.71
99	Travis	Travis	78723	TX	3.00	18047	6/15/2005	30.31	-97.68
100	Williamson	Williamson	78729	TX	2.00	14208	6/16/2005	30.45	-97.76
101	Travis	Travis	78704	TX	2.99	21000	6/17/2005	30.24	-97.77
102	Travis	Travis	78738	TX	3.06	19085	6/17/2005	30.31	-97.98
103	Travis	Travis	78756	TX	3.15	21202	6/17/2005	30.32	-97.74
104	Travis	Travis	78653	TX	3.01	18973	6/17/2005	30.34	-97.50
105	Travis	Travis	78703	TX	3.01	18973	6/17/2005	30.29	-97.77
106	Williamson	Williamson	78729	TX	3.40	22899	6/20/2005	30.45	-97.76
107	Travis	Travis	78747	TX	3.34	20969	6/21/2005	30.13	-97.73
108	Travis	Travis	78704	TX	3.34	19508	6/30/2005	30.24	-97.77
109	Travis	Travis	78751	TX	2.17	15175	6/30/2005	30.31	-97.73
110	Travis	Travis	78704	TX	3.06	18500	7/7/2005	30.24	-97.77
111	Travis	Travis	78735	TX	21.00	124600	7/7/2005	30.26	-97.86
112	Williamson	Williamson	78729	TX	3.00	21003	7/8/2005	30.45	-97.76
113	Travis	Travis	78703	TX	3.01	18973	7/8/2005	30.29	-97.77
114	Travis	Travis	78704	TX	1.75	12899	7/15/2005	30.24	-97.77
115	Travis	Travis	78731	TX	2.51	16520	7/26/2005	30.35	-97.77
116	Travis	Travis	78705	TX	2.70	18358	7/27/2005	30.30	-97.74
117	Travis	Travis	78748	TX	2.34	15184	7/27/2005	30.17	-97.82
118	Travis	Travis	78746	TX	20.88	123650	7/28/2005	30.31	-97.82
119	Travis	Travis	78734	TX	3.15	20873	7/29/2005	30.37	-97.95
120	Travis	Travis	78746	TX	3.20	18951	8/3/2005	30.31	-97.82

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
121	Travis	Travis	78744	TX	21.78	144122	8/3/2005	30.20	-97.73
122	Travis	Travis	78746	TX	2.70	18190	8/8/2005	30.31	-97.82
123	Travis	Travis	78703	TX	3.34	21377	8/8/2005	30.29	-97.77
124	Travis	Travis	78758	TX	21.12	123398	8/10/2005	30.39	-97.70
125	Travis	Travis	78704	TX	3.34	18740	8/11/2005	30.24	-97.77
126	Travis	Travis	78705	TX	3.15	19089	8/12/2005	30.30	-97.74
127	Travis	Travis	78731	TX	3.00	18859	8/17/2005	30.35	-97.77
128	Travis	Travis	78735	TX	2.34	15816	8/17/2005	30.26	-97.86
129	Travis	Travis	78748	TX	3.20	18920	8/17/2005	30.17	-97.82
130	Travis	Travis	78745	TX	3.30	18962	8/23/2005	30.21	-97.80
131	Travis	Travis	78735	TX	3.20	19500	8/24/2005	30.26	-97.86
132	Travis	Travis	78752	TX	2.97	18500	8/24/2005	30.33	-97.70
133	Travis	Travis	78751	TX	3.06	20453	8/30/2005	30.31	-97.73
134	Travis	Travis	78703	TX	2.97	18500	8/30/2005	30.29	-97.77
135	Travis	Travis	78744	TX	18.04	127183	8/30/2005	30.20	-97.73
136	Travis	Travis	78660	TX	3.20	19027	8/31/2005	30.46	-97.60
137	Travis	Travis	78727	TX	3.01	18988	8/31/2005	30.43	-97.71
138	Travis	Travis	78734	TX	2.97	18500	8/31/2005	30.37	-97.95
139	Travis	Travis	78758	TX	21.78	130000	8/31/2005	30.39	-97.70
140	Travis	Travis	78759	TX	3.34	19426	9/6/2005	30.40	-97.75
141	Travis	Travis	78746	TX	3.34	21307	9/7/2005	30.31	-97.82
142	Travis	Travis	78723	TX	3.01	18500	9/12/2005	30.31	-97.68
143	Travis	Travis	78733	TX	3.13	19000	9/14/2005	30.33	-97.87
144	Travis	Travis	78745	TX	2.97	18500	9/16/2005	30.21	-97.80
145	Travis	Travis	78703	TX	3.01	19738	9/20/2005	30.29	-97.77
146	Williamson	Williamson	78729	TX	2.72	18022	9/20/2005	30.45	-97.76
147	Travis	Travis	78704	TX	2.88	18540	9/28/2005	30.24	-97.77
148	Travis	Travis	78757	TX	3.00	19098	9/28/2005	30.35	-97.74
149	Travis	Travis	78745	TX	16.70	93521	9/28/2005	30.21	-97.80
150	Travis	Travis	78704	TX	3.30	19771	9/29/2005	30.24	-97.77
151	Travis	Travis	78703	TX	3.34	20011	9/29/2005	30.29	-97.77
152	Travis	Travis	78746	TX	4.01	23900	10/6/2005	30.31	-97.82
153	Travis	Travis	78727	TX	3.40	19894	10/6/2005	30.43	-97.71
154	Travis	Travis	78745	TX	3.15	20870	10/6/2005	30.21	-97.80
155	Travis	Travis	78734	TX	3.34	18620	10/13/2005	30.37	-97.95
156	Travis	Travis	78703	TX	3.01	18540	10/14/2005	30.29	-97.77
157	Travis	Travis	78745	TX	3.01	19379	10/18/2005	30.21	-97.80
158	Travis	Travis	78734	TX	3.15	19885	10/18/2005	30.37	-97.95
159	Travis	Travis	78727	TX	3.20	18500	10/19/2005	30.43	-97.71
160	Travis	Travis	78753	TX	3.15	22385	10/20/2005	30.39	-97.67

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
161	Travis	Travis	78722	TX	3.01	21040	10/25/2005	30.30	-97.70
162	Travis	Travis	78734	TX	3.34	19552	10/28/2005	30.37	-97.95
163	Travis	Travis	78756	TX	0.50	2556	10/31/2005	30.32	-97.74
164	Travis	Travis	78731	TX	3.30	20881	11/3/2005	30.35	-97.77
165	Travis	Travis	78751	TX	3.34	20296	11/3/2005	30.31	-97.73
166	Travis	Travis	78704	TX	3.01	22701	11/3/2005	30.24	-97.77
167	Travis	Travis	78751	TX	3.40	19630	11/3/2005	30.31	-97.73
168	Travis	Travis	78703	TX	2.10	16837	11/5/2005	30.29	-97.77
169	Travis	Travis	78731	TX	3.06	18902	11/7/2005	30.35	-97.77
170	Travis	Travis	78702	TX	2.67	17750	11/8/2005	30.26	-97.71
171	Travis	Travis	78754	TX	3.01	20004	11/9/2005	30.36	-97.65
172	Travis	Travis	78704	TX	2.70	18834	11/11/2005	30.24	-97.77
173	Travis	Travis	78731	TX	3.15	23431	11/15/2005	30.35	-97.77
174	Travis	Travis	78705	TX	2.04	15291	11/17/2005	30.30	-97.74
175	Travis	Travis	78704	TX	3.00	20770	11/17/2005	30.24	-97.77
176	Travis	Travis	78749	TX	3.01	19470	11/23/2005	30.22	-97.86
177	Travis	Travis	78741	TX	3.06	20750	11/28/2005	30.23	-97.71
178	Travis	Travis	78732	TX	3.30	21647	11/30/2005	30.38	-97.90
179	Travis	Travis	78752	TX	3.06	19751	11/30/2005	30.33	-97.70
180	Travis	Travis	78731	TX	3.40	21795	12/2/2005	30.35	-97.77
181	Travis	Travis	78723	TX	2.04	14810	12/6/2005	30.31	-97.68
182	Travis	Travis	78732	TX	3.06	18500	12/6/2005	30.38	-97.90
183	Travis	Travis	78757	TX	2.88	18500	12/6/2005	30.35	-97.74
184	Travis	Travis	78727	TX	3.40	20567	12/9/2005	30.43	-97.71
185	Travis	Travis	78751	TX	3.40	21647	12/13/2005	30.31	-97.73
186	Travis	Travis	78733	TX	3.40	20091	12/13/2005	30.33	-97.87
187	Travis	Travis	78731	TX	3.01	19735	12/14/2005	30.35	-97.77
188	Travis	Travis	78746	TX	3.06	20226	12/14/2005	30.31	-97.82
189	Travis	Travis	78731	TX	4.59	28957	12/14/2005	30.35	-97.77
190	Travis	Travis	78756	TX	3.28	21486	12/14/2005	30.32	-97.74
191	Travis	Travis	78745	TX	3.06	20376	12/20/2005	30.21	-97.80
192	Travis	Travis	78722	TX	3.20	20570	12/21/2005	30.30	-97.70
193	Travis	Travis	78704	TX	1.65	12368	12/22/2005	30.24	-97.77
194	Travis	Travis	78746	TX	3.06	19603	12/22/2005	30.31	-97.82
195	Travis	Travis	78703	TX	3.06	20305	12/22/2005	30.29	-97.77
196	Travis	Travis	78730	TX	3.40	20817	1/4/2006	30.37	-97.84
197	Travis	Travis	78746	TX	3.40	21381	1/10/2006	30.31	-97.82
198	Travis	Travis	78705	TX	21.76	125000	1/10/2006	30.30	-97.74
199	Travis	Travis	78704	TX	3.04	18500	1/17/2006	30.24	-97.77
200	Travis	Travis	78733	TX	3.06	18500	1/17/2006	30.33	-97.87

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
201	Travis	Travis	78733	TX	3.06	19000	1/17/2006	30.33	-97.87
202	Travis	Travis	78757	TX	2.72	17073	1/18/2006	30.35	-97.74
203	Travis	Travis	78738	TX	3.40	21441	1/20/2006	30.31	-97.98
204	Travis	Travis	78750	TX	3.40	21790	1/20/2006	30.43	-97.80
205	Travis	Travis	78704	TX	3.06	20401	1/20/2006	30.24	-97.77
206	Travis	Travis	78733	TX	3.40	21181	1/24/2006	30.33	-97.87
207	Travis	Travis	78749	TX	1.70	13687	1/26/2006	30.22	-97.86
208	Travis	Travis	78723	TX	3.06	19910	1/30/2006	30.31	-97.68
209	Travis	Travis	78704	TX	1.70	14548	1/30/2006	30.24	-97.77
210	Travis	Travis	78758	TX	3.40	20910	1/31/2006	30.39	-97.70
211	Travis	Travis	78752	TX	17.85	109036	2/1/2006	30.33	-97.71
212	Travis	Travis	78728	TX	3.06	19539	2/3/2006	30.46	-97.68
213	Travis	Travis	78731	TX	3.40	24837	2/3/2006	30.35	-97.77
214	Travis	Travis	78756	TX	3.40	20929	2/3/2006	30.32	-97.74
215	Travis	Travis	78752	TX	1.80	12507	2/6/2006	30.33	-97.70
216	Travis	Travis	78734	TX	3.40	22410	2/6/2006	30.37	-97.95
217	Travis	Travis	78733	TX	3.06	18700	2/6/2006	30.33	-97.87
218	Travis	Travis	78746	TX	3.20	18956	2/7/2006	30.31	-97.82
219	Travis	Travis	78722	TX	3.20	21490	2/7/2006	30.30	-97.70
220	Travis	Travis	78705	TX	3.20	22514	2/8/2006	30.30	-97.74
221	Travis	Travis	78752	TX	17.85	109037	2/8/2006	30.33	-97.70
222	Travis	Travis	78723	TX	3.30	24281	2/18/2006	30.31	-97.68
223	Travis	Travis	78704	TX	3.06	20380	2/22/2006	30.24	-97.77
224	Travis	Travis	78746	TX	3.00	18700	2/22/2006	30.31	-97.82
225	Travis	Travis	78731	TX	3.40	20978	2/24/2006	30.35	-97.77
226	Travis	Travis	78733	TX	2.91	19523	2/24/2006	30.33	-97.87
227	Travis	Travis	78730	TX	3.34	20842	2/24/2006	30.37	-97.84
228	Travis	Travis	78705	TX	3.00	20185	2/24/2006	30.30	-97.74
229	Travis	Travis	78731	TX	2.72	19211	3/1/2006	30.35	-97.77
230	Travis	Travis	78759	TX	3.06	21367	3/3/2006	30.40	-97.75
231	Travis	Travis	78731	TX	3.40	22897	3/7/2006	30.35	-97.77
232	Travis	Travis	78746	TX	3.00	20800	3/7/2006	30.31	-97.82
233	Travis	Travis	78759	TX	3.06	18700	3/7/2006	30.40	-97.75
234	Travis	Travis	78758	TX	3.34	20568	3/8/2006	30.39	-97.70
235	Travis	Travis	78735	TX	3.40	21217	3/13/2006	30.26	-97.86
236	Travis	Travis	78704	TX	3.40	20929	3/13/2006	30.24	-97.77
237	Travis	Travis	78704	TX	3.01	19814	3/14/2006	30.24	-97.77
238	Travis	Travis	78746	TX	3.06	22706	3/14/2006	30.31	-97.82
239	Travis	Travis	78746	TX	2.40	19550	3/15/2006	30.31	-97.82
240	Travis	Travis	78702	TX	1.53	12117	3/15/2006	30.26	-97.71

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
241	Travis	Travis	78753	TX	3.06	21752	3/15/2006	30.39	-97.67
242	Travis	Travis	78759	TX	3.06	23329	3/15/2006	30.40	-97.75
243	Travis	Travis	78748	TX	3.06	20965	3/15/2006	30.17	-97.82
244	Travis	Travis	78746	TX	3.15	20998	3/15/2006	30.31	-97.82
245	Travis	Travis	78731	TX	3.06	20191	3/24/2006	30.35	-97.77
246	Travis	Travis	78704	TX	3.20	19495	3/27/2006	30.24	-97.77
247	Travis	Travis	78733	TX	2.04	15102	3/27/2006	30.33	-97.87
248	Travis	Travis	78761	TX	3.40	23390	3/31/2006	30.33	-97.70
249	Travis	Travis	78757	TX	1.70	13347	4/3/2006	30.35	-97.74
250	Travis	Travis	78745	TX	3.06	20150	4/3/2006	30.21	-97.80
251	Travis	Travis	78730	TX	3.40	20729	4/4/2006	30.37	-97.84
252	Travis	Travis	78730	TX	3.08	18700	4/4/2006	30.37	-97.84
253	Travis	Travis	78734	TX	3.60	22296	4/4/2006	30.37	-97.95
254	Travis	Travis	78732	TX	3.12	18500	4/14/2006	30.38	-97.90
255	Travis	Travis	78750	TX	3.12	18700	4/14/2006	30.43	-97.80
256	Travis	Travis	78758	TX	3.12	19800	4/14/2006	30.39	-97.70
257	Travis	Travis	78727	TX	3.20	20486	4/18/2006	30.43	-97.71
258	Travis	Travis	78734	TX	5.18	35406	4/18/2006	30.37	-97.95
259	Travis	Travis	78731	TX	3.00	19847	4/19/2006	30.35	-97.77
260	Travis	Travis	78746	TX	3.12	19800	4/19/2006	30.31	-97.82
261	Travis	Travis	78757	TX	3.12	22281	4/25/2006	30.35	-97.74
262	Travis	Travis	78746	TX	3.06	20192	4/26/2006	30.31	-97.82
263	Travis	Travis	78749	TX	3.06	19830	4/26/2006	30.22	-97.86
264	Travis	Travis	78727	TX	3.15	20931	4/27/2006	30.43	-97.71
265	Travis	Travis	78703	TX	2.04	18066	4/27/2006	30.29	-97.77
266	Williamson	Williamson	78729	TX	2.60	19897	4/27/2006	30.45	-97.76
267	Travis	Travis	78734	TX	3.12	18700	5/1/2006	30.37	-97.95
268	Travis	Travis	78731	TX	3.15	22922	5/3/2006	30.35	-97.77
269	Travis	Travis	78722	TX	2.80	21371	5/4/2006	30.30	-97.70
270	Travis	Travis	78746	TX	3.40	25113	5/9/2006	30.31	-97.82
271	Travis	Travis	78732	TX	3.20	23932	5/9/2006	30.38	-97.90
272	Travis	Travis	78730	TX	5.10	26189	5/9/2006	30.37	-97.84
273	Travis	Travis	78701	TX	4.50	60086	5/10/2006	30.27	-97.74
274	Travis	Travis	78746	TX	3.12	18700	5/12/2006	30.31	-97.82
275	Travis	Travis	78748	TX	3.12	18950	5/12/2006	30.17	-97.82
276	Travis	Travis	78704	TX	3.12	18271	5/12/2006	30.24	-97.77
277	Travis	Travis	78733	TX	3.33	21411	5/18/2006	30.33	-97.87
278	Travis	Travis	78733	TX	2.72	19018	5/18/2006	30.33	-97.87
279	Travis	Travis	78704	TX	3.20	19532	5/19/2006	30.24	-97.77
280	Travis	Travis	78731	TX	3.50	21189	5/19/2006	30.35	-97.77

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
281	Travis	Travis	78704	TX	3.33	21977	5/25/2006	30.24	-97.77
282	Travis	Travis	78730	TX	3.12	18700	5/30/2006	30.37	-97.84
283	Travis	Travis	78747	TX	3.12	20418	5/30/2006	30.13	-97.73
284	Travis	Travis	78704	TX	3.01	19682	5/31/2006	30.24	-97.77
285	Travis	Travis	78757	TX	3.12	18826	6/1/2006	30.35	-97.74
286	Travis	Travis	78730	TX	3.34	19973	6/2/2006	30.37	-97.84
287	Travis	Travis	78746	TX	3.15	20217	6/16/2006	30.31	-97.82
288	Travis	Travis	78731	TX	3.06	20601	6/16/2006	30.35	-97.77
289	Travis	Travis	78746	TX	1.87	13566	6/20/2006	30.31	-97.82
290	Travis	Travis	78702	TX	3.40	22351	6/22/2006	30.26	-97.71
291	Travis	Travis	78746	TX	3.64	25966	6/22/2006	30.31	-97.82
292	Travis	Travis	78704	TX	2.67	19582	6/22/2006	30.24	-97.77
293	Travis	Travis	78731	TX	3.01	20853	6/22/2006	30.35	-97.77
294	Travis	Travis	78746	TX	2.63	17779	6/29/2006	30.31	-97.82
295	Travis	Travis	78750	TX	3.06	21416	6/29/2006	30.43	-97.80
296	Travis	Travis	78748	TX	3.15	23903	7/20/2006	30.17	-97.82
297	Travis	Travis	78746	TX	12.04	105031	7/21/2006	30.31	-97.82
298	Travis	Travis	78702	TX	3.50	21820	7/25/2006	30.26	-97.71
299	Travis	Travis	78702	TX	3.15	20461	7/25/2006	30.26	-97.71
300	Travis	Travis	78702	TX	3.15	20461	7/25/2006	30.26	-97.71
301	Travis	Travis	78746	TX	3.34	22345	7/26/2006	30.31	-97.82
302	Tarrant	Tarrant	76107	TX	1.80	7417	7/31/2006	32.74	-97.37
303	Travis	Travis	78746	TX	3.15	19142	8/6/2006	30.31	-97.82
304	Travis	Travis	78759	TX	3.40	19283	8/7/2006	30.40	-97.75
305	Travis	Travis	78727	TX	3.38	19283	8/7/2006	30.43	-97.71
306	Travis	Travis	78731	TX	23.30	166023	8/17/2006	30.35	-97.77
307	Travis	Travis	78704	TX	3.15	20016	8/18/2006	30.24	-97.77
308	Travis	Travis	78727	TX	3.12	19586	8/21/2006	30.43	-97.71
309	Travis	Travis	78704	TX	3.12	19500	8/21/2006	30.24	-97.77
310	Travis	Travis	78705	TX	3.00	18541	8/21/2006	30.30	-97.74
311	Travis	Travis	78722	TX	2.50	17124	8/22/2006	30.30	-97.70
312	Travis	Travis	78734	TX	3.15	20000	8/23/2006	30.37	-97.95
313	Travis	Travis	78759	TX	3.15	20367	8/23/2006	30.40	-97.75
314	Travis	Travis	78704	TX	2.04	15316	8/28/2006	30.24	-97.77
315	Travis	Travis	78746	TX	3.06	21557	8/31/2006	30.31	-97.82
316	Travis	Travis	78758	TX	3.15	20467	8/31/2006	30.39	-97.70
317	Travis	Travis	78757	TX	3.12	19280	9/5/2006	30.35	-97.74
318	Travis	Travis	78759	TX	3.12	19500	9/5/2006	30.40	-97.75
319	Travis	Travis	78727	TX	3.50	27852	9/8/2006	30.43	-97.71
320	Travis	Travis	78703	TX	8.40	51051	9/12/2006	30.29	-97.77



Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
321	Travis	Travis	78703	TX	2.91	21378	10/3/2006	30.29	-97.77
322	Travis	Travis	78703	TX	2.91	21378	10/3/2006	30.29	-97.77
323	Travis	Travis	78704	TX	1.04	11115	10/4/2006	30.24	-97.77
324	Travis	Travis	78705	TX	3.74	26002	10/4/2006	30.30	-97.74
325	Travis	Travis	78757	TX	3.15	21104	10/13/2006	30.35	-97.74
326	Travis	Travis	78704	TX	2.91	19855	10/16/2006	30.24	-97.77
327	Travis	Travis	78759	TX	3.33	22471	10/20/2006	30.40	-97.75
328	Travis	Travis	78704	TX	3.06	20948	10/20/2006	30.24	-97.77
329	Williamson	Williamson	78729	TX	3.15	20474	10/23/2006	30.45	-97.76
330	Travis	Travis	78732	TX	3.20	20152	10/24/2006	30.38	-97.90
331	Travis	Travis	78747	TX	3.06	20877	10/30/2006	30.13	-97.73
332	Travis	Travis	78759	TX	3.15	21345	11/1/2006	30.40	-97.75
333	Travis	Travis	78746	TX	3.74	25919	11/8/2006	30.31	-97.82
334	Travis	Travis	78703	TX	3.15	21926	11/13/2006	30.29	-97.77
335	Travis	Travis	78704	TX	3.06	25082	11/14/2006	30.24	-97.77
336	Travis	Travis	78745	TX	3.15	21224	11/20/2006	30.21	-97.80
337	Travis	Travis	78704	TX	3.15	20525	11/20/2006	30.24	-97.77
338	Travis	Travis	78702	TX	3.12	22385	11/21/2006	30.26	-97.71
339	Travis	Travis	78750	TX	3.50	29136	11/21/2006	30.43	-97.80
340	Travis	Travis	78746	TX	3.20	21508	11/28/2006	30.31	-97.82
341	Travis	Travis	78704	TX	3.06	21331	12/4/2006	30.24	-97.77
342	Travis	Travis	78735	TX	3.15	21595	12/11/2006	30.26	-97.86
343	Travis	Travis	78723	TX	2.91	19819	1/12/2007	30.31	-97.68
344	Travis	Travis	78749	TX	2.91	19855	1/12/2007	30.22	-97.86
345	Travis	Travis	78759	TX	3.33	22460	1/12/2007	30.40	-97.75
346	Travis	Travis	78759	TX	2.91	19657	1/12/2007	30.40	-97.75
347	Travis	Travis	78703	TX	3.33	22064	1/23/2007	30.29	-97.77
348	Travis	Travis	78731	TX	3.33	21624	1/25/2007	30.35	-97.77
349	Travis	Travis	78759	TX	3.33	21440	1/25/2007	30.40	-97.75
350	Travis	Travis	78704	TX	3.12	20982	1/29/2007	30.24	-97.77
351	Travis	Travis	78759	TX	3.33	22475	1/31/2007	30.40	-97.75
352	Travis	Travis	78727	TX	3.15	19800	1/31/2007	30.43	-97.71
353	Travis	Travis	78704	TX	3.33	22504	1/31/2007	30.24	-97.77
354	Travis	Travis	78734	TX	3.33	21898	2/1/2007	30.37	-97.95
355	Travis	Travis	78759	TX	3.15	20133	2/2/2007	30.40	-97.75
356	Travis	Travis	78702	TX	3.40	22875	2/5/2007	30.26	-97.71
357	Travis	Travis	78750	TX	3.15	21828	2/8/2007	30.43	-97.80
358	Travis	Travis	78705	TX	9.52	68213	2/9/2007	30.30	-97.74
359	Travis	Travis	78754	TX	16.66	157849	2/9/2007	30.36	-97.65
360	Travis	Travis	78754	TX	3.36		2/9/2007	30.36	-97.65

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
361	Travis	Travis	78704	TX	3.15	20554	2/13/2007	30.24	-97.77
362	Travis	Travis	78748	TX	18.90	115864	2/13/2007	30.17	-97.82
363	Travis	Travis	78704	TX	3.12	22683	2/20/2007	30.24	-97.77
364	Travis	Travis	78704	TX	3.12	22017	2/21/2007	30.24	-97.77
365	Travis	Travis	78731	TX	2.41	19306	2/21/2007	30.35	-97.77
366	Travis	Travis	78751	TX	2.45	13024	2/21/2007	30.31	-97.73
367	Travis	Travis	78703	TX	3.15	21992	2/23/2007	30.29	-97.77
368	Travis	Travis	78746	TX	2.99	21248	2/26/2007	30.31	-97.82
369	Travis	Travis	78746	TX	5.10	57396	2/26/2007	30.31	-97.82
370	Travis	Travis	78746	TX	3.12	20508	3/1/2007	30.31	-97.82
371	Travis	Travis	78746	TX	3.15	21000	3/5/2007	30.31	-97.82
372	Travis	Travis	78746	TX	3.06	24169	3/9/2007	30.31	-97.82
373	Travis	Travis	78735	TX	2.38	17116	3/9/2007	30.26	-97.86
374	Travis	Travis	78754	TX	3.15	21251	3/12/2007	30.36	-97.65
375	Travis	Travis	78701	TX	23.30	166551	3/12/2007	30.27	-97.74
376	Travis	Travis	78703	TX	3.15	21906	3/13/2007	30.29	-97.77
377	Travis	Travis	78702	TX	8.24	66505	3/15/2007	30.26	-97.71
378	Travis	Travis	78746	TX	3.15	20325	3/19/2007	30.31	-97.82
379	Travis	Travis	78746	TX	2.13	17956	3/27/2007	30.31	-97.82
380	Travis	Travis	78703	TX	3.06	21249	3/27/2007	30.29	-97.77
381	Travis	Travis	78758	TX	3.33	22998	3/27/2007	30.39	-97.70
382	Travis	Travis	78724	TX	3.20	19800	3/28/2007	30.29	-97.62
383	Collin	Collin	75173	TX	2.50	23500	3/31/2007	33.05	-96.42
384	Travis	Travis	78756	TX	2.38	17258	4/5/2007	30.32	-97.74
385	Travis	Travis	78704	TX	3.01	24013	4/5/2007	30.24	-97.77
386	Travis	Travis	78732	TX	4.12	42245	4/5/2007	30.38	-97.90
387	Travis	Travis	78735	TX	3.87	27911	4/5/2007	30.26	-97.86
388	Travis	Travis	78704	TX	3.40	23969	4/6/2007	30.24	-97.77
389	Travis	Travis	78746	TX	3.15	19515	4/10/2007	30.31	-97.82
390	Travis	Travis	78749	TX	3.20	20454	4/13/2007	30.22	-97.86
391	Travis	Travis	78722	TX	3.12	23394	4/16/2007	30.30	-97.70
392	Travis	Travis	78704	TX	2.80	17217	4/19/2007	30.24	-97.77
393	Travis	Travis	78741	TX	3.15	19827	4/19/2007	30.23	-97.71
394	Travis	Travis	78704	TX	3.15	20508	4/20/2007	30.24	-97.77
395	Travis	Travis	78759	TX	3.34	22941	4/24/2007	30.40	-97.75
396	Travis	Travis	78734	TX	3.15	20122	4/27/2007	30.37	-97.95
397	Travis	Travis	78731	TX	3.15	21016	4/27/2007	30.35	-97.77
398	Travis	Travis	78731	TX	3.33	24261	5/15/2007	30.35	-97.77
399	Travis	Travis	78746	TX	3.33	21169	5/15/2007	30.31	-97.82
400	Travis	Travis	78724	TX	3.15	20022	5/15/2007	30.29	-97.62

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
401	Travis	Travis	78731	TX	3.06	24020	5/24/2007	30.35	-97.77
402	Travis	Travis	78745	TX	2.98	20534	5/29/2007	30.21	-97.80
403	Travis	Travis	78746	TX	22.44	164315	5/29/2007	30.31	-97.82
404	Harris	Harris	77058	TX	28.00	400000	6/4/2007	29.56	-95.09
405	Travis	Travis	78730	TX	3.06	36450	6/5/2007	30.37	-97.84
406	Travis	Travis	78730	TX	2.55	30458	6/5/2007	30.37	-97.84
407	Travis	Travis	78703	TX	3.15	21741	6/12/2007	30.29	-97.77
408	Travis	Travis	78731	TX	3.50	27243	6/12/2007	30.35	-97.77
409	Travis	Travis	78705	TX	15.75	103357	6/14/2007	30.30	-97.74
410	Travis	Travis	78746	TX	3.01	22698	6/18/2007	30.31	-97.82
411	Travis	Travis	78733	TX	3.12	20761	6/19/2007	30.33	-97.87
412	Travis	Travis	78734	TX	3.15	19078	6/25/2007	30.37	-97.95
413	Travis	Travis	78723	TX	3.15	20583	6/29/2007	30.31	-97.68
414	Travis	Travis	78733	TX	3.15	20832	7/3/2007	30.33	-97.87
415	Travis	Travis	78758	TX	3.24	20179	7/9/2007	30.39	-97.70
416	Travis	Travis	78733	TX	2.50	19551	7/10/2007	30.33	-97.87
417	Travis	Travis	78759	TX	3.15	21172	7/11/2007	30.40	-97.75
418	Travis	Travis	78735	TX	3.33	23433	7/11/2007	30.26	-97.86
419	Williamson	Williamson	78729	TX	2.85	20071	7/12/2007	30.45	-97.76
420	Travis	Travis	78748	TX	5.61	43337	7/17/2007	30.17	-97.82
421	Travis	Travis	78746	TX	3.15	20331	7/18/2007	30.31	-97.82
422	Travis	Travis	78751	TX	3.50	22758	7/24/2007	30.31	-97.73
423	Travis	Travis	78759	TX	3.15	20771	7/24/2007	30.40	-97.75
424	Travis	Travis	78751	TX	3.40	23728	7/24/2007	30.31	-97.73
425	Travis	Travis	78704	TX	1.62	18219	7/31/2007	30.24	-97.77
426	Travis	Travis	78731	TX	1.00	7658	7/31/2007	30.35	-97.77
427	Travis	Travis	78731	TX	3.00	22973	8/1/2007	30.35	-97.77
428	Travis	Travis	78724	TX	11.40	242805	8/1/2007	30.29	-97.62
429	Travis	Travis	78758	TX	3.15	20620	8/6/2007	30.39	-97.70
430	Travis	Travis	78757	TX	3.15	19917	8/7/2007	30.35	-97.74
431	Travis	Travis	78730	TX	3.15	20011	8/7/2007	30.37	-97.84
432	Travis	Travis	78730	TX	2.80	17787	8/7/2007	30.37	-97.84
433	Travis	Travis	78703	TX	3.15	21116	8/7/2007	30.29	-97.77
434	Travis	Travis	78731	TX	3.12	21508	8/13/2007	30.35	-97.77
435	Travis	Travis	78748	TX	3.33	22500	8/13/2007	30.17	-97.82
436	Travis	Travis	78704	TX	3.10	20297	8/14/2007	30.24	-97.77
437	Travis	Travis	78704	TX	3.20	23778	8/14/2007	30.24	-97.77
438	Travis	Travis	78754	TX	3.42	21392	8/15/2007	30.36	-97.65
439	Travis	Travis	78703	TX	3.01	23461	8/21/2007	30.29	-97.77
440	Travis	Travis	78734	TX	3.15	21276	8/22/2007	30.37	-97.95

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
441	Travis	Travis	78746	TX	3.15	21089	8/22/2007	30.31	-97.82
442	Bexar	Bexar	78255	TX	4.55	32999	8/24/2007	29.67	-98.64
443	Travis	Travis	78734	TX	3.24	21961	8/28/2007	30.37	-97.95
444	Travis	Travis	78734	TX	3.15	22407	8/28/2007	30.37	-97.95
445	Travis	Travis	78746	TX	3.15	21430	8/28/2007	30.31	-97.82
446	Travis	Travis	78704	TX	3.50	28200	9/5/2007	30.24	-97.77
447	Travis	Travis	78746	TX	3.24	22061	9/11/2007	30.31	-97.82
448	Travis	Travis	78751	TX	3.15	21934	9/13/2007	30.31	-97.73
449	Travis	Travis	78759	TX	3.15	20937	9/13/2007	30.40	-97.75
450	Travis	Travis	78727	TX	3.15	21600	9/13/2007	30.43	-97.71
451	Bexar	Bexar	78231	TX	2.82		9/14/2007	29.58	-98.56
452	Travis	Travis	78722	TX	3.12	22702	9/18/2007	30.30	-97.70
453	Travis	Travis	78756	TX	3.15	23298	9/18/2007	30.32	-97.74
454	Travis	Travis	78704	TX	13.77	104652	9/18/2007	30.24	-97.77
455	Travis	Travis	78752	TX	3.15	21906	9/21/2007	30.33	-97.70
456	Travis	Travis	78733	TX	3.23	21555	9/25/2007	30.33	-97.87
457	Travis	Travis	78733	TX	3.04	20287	9/25/2007	30.33	-97.87
458	Travis	Travis	78732	TX	3.15	21508	9/25/2007	30.38	-97.90
459	Travis	Travis	78751	TX	3.12	20858	9/26/2007	30.31	-97.73
460	Travis	Travis	78746	TX	3.69	32308	9/27/2007	30.31	-97.82
461	Travis	Travis	78746	TX	3.15	20388	9/27/2007	30.31	-97.82
462	Travis	Travis	78747	TX	2.63	16990	9/27/2007	30.13	-97.73
463	Travis	Travis	78746	TX	3.15	20611	9/28/2007	30.31	-97.82
464	Travis	Travis	78731	TX	3.20	21625	10/1/2007	30.35	-97.77
465	Travis	Travis	78732	TX	3.20	21625	10/1/2007	30.38	-97.90
466	Travis	Travis	78746	TX	3.20	22160	10/1/2007	30.31	-97.82
467	Travis	Travis	78746	TX	3.20	22160	10/1/2007	30.31	-97.82
468	Travis	Travis	78753	TX	0.16	1446	10/2/2007	30.39	-97.67
469	Travis	Travis	78746	TX	3.42	28247	10/2/2007	30.31	-97.82
470	Travis	Travis	78703	TX	3.15	21898	10/2/2007	30.29	-97.77
471	Travis	Travis	78703	TX	2.45	21898	10/2/2007	30.29	-97.77
472	Travis	Travis	78730	TX	3.24	18623	10/2/2007	30.37	-97.84
473	Travis	Travis	78730	TX	3.24	18623	10/2/2007	30.37	-97.84
474	Travis	Travis	78704	TX	3.84	20799	10/2/2007	30.24	-97.77
475	Travis	Travis	78704	TX	0.58	3825	10/2/2007	30.24	-97.77
476	Travis	Travis	78733	TX	3.15	20299	10/9/2007	30.33	-97.87
477	Travis	Travis	78734	TX	2.80	18044	10/9/2007	30.37	-97.95
478	Travis	Travis	78746	TX	3.30	23700	10/9/2007	30.31	-97.82
479	Travis	Travis	78746	TX	3.42	23397	10/9/2007	30.31	-97.82
480	Travis	Travis	78704	TX	3.01	21501	10/9/2007	30.24	-97.77

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
481	Travis	Travis	78759	TX	2.45	17028	10/10/2007	30.40	-97.75
482	Travis	Travis	78750	TX	3.15	21322	10/10/2007	30.43	-97.80
483	Travis	Travis	78748	TX	3.15	20662	10/16/2007	30.17	-97.82
484	Bexar	Bexar	78231	TX	4.59		10/24/2007	29.59	-98.56
485	Travis	Travis	78756	TX	0.70	4732	10/24/2007	30.32	-97.74
486	Collin	Collin	75173	TX	1.50	18000	10/31/2007	33.06	-96.38
487	Travis	Travis	78758	TX	3.15	20720	11/4/2007	30.39	-97.70
488	Travis	Travis	78738	TX	14.00	94053	11/8/2007	30.31	-97.98
489	Travis	Travis	78703	TX	3.10	20086	11/15/2007	30.29	-97.77
490	Travis	Travis	78731	TX	3.20	23150	11/16/2007	30.35	-97.77
491	Travis	Travis	78727	TX	3.15	21636	11/21/2007	30.43	-97.71
492	Travis	Travis	78759	TX	3.15	22017	11/21/2007	30.40	-97.75
493	Travis	Travis	78746	TX	2.45	15402	11/21/2007	30.31	-97.82
494	Travis	Travis	78703	TX	3.15	22828	11/21/2007	30.29	-97.77
495	Travis	Travis	78734	TX	3.15	22015	11/21/2007	30.37	-97.95
496	Travis	Travis	78704	TX	3.12	22702	11/26/2007	30.24	-97.77
497	Travis	Travis	78739	TX	3.15	20915	11/29/2007	30.19	-97.90
498	Travis	Travis	78704	TX	2.99	21310	12/4/2007	30.24	-97.77
499	Travis	Travis	78704	TX	3.40	22594	12/4/2007	30.24	-97.77
500	Travis	Travis	78702	TX	3.15	22369	12/4/2007	30.26	-97.71
501	Travis	Travis	78732	TX	3.34	23825	12/4/2007	30.38	-97.90
502	Travis	Travis	78723	TX	3.15	23446	12/4/2007	30.31	-97.68
503	Travis	Travis	78735	TX	3.33	28787	12/4/2007	30.26	-97.86
504	Travis	Travis	78704	TX	3.15	21279	12/6/2007	30.24	-97.77
505	Travis	Travis	78731	TX	3.15	20620	12/6/2007	30.35	-97.77
506	Travis	Travis	78751	TX	10.80	70258	12/12/2007	30.31	-97.73
507	Bexar	Bexar	78232	TX	4.01		12/13/2007	29.58	-98.47
508	Travis	Travis	78749	TX	3.20	21850	12/13/2007	30.22	-97.86
509	Travis	Travis	78745	TX	3.46	20050	12/14/2007	30.21	-97.80
510	Travis	Travis	78759	TX	3.15	21014	12/18/2007	30.40	-97.75
511	Travis	Travis	78748	TX	3.15	21013	12/18/2007	30.17	-97.82
512	Travis	Travis	78724	TX	3.15	21833	12/18/2007	30.29	-97.62
513	Bexar	Bexar	78232	TX	4.00		12/19/2007	29.60	-98.49
514	Travis	Travis	78746	TX	3.24	20814	12/19/2007	30.31	-97.82
515	Travis	Travis	78758	TX	3.33	23573	12/20/2007	30.39	-97.70
516	Travis	Travis	78759	TX	3.28	27073	12/20/2007	30.40	-97.75
517	Travis	Travis	78702	TX	3.34	23527	12/20/2007	30.26	-97.71
518	Travis	Travis	78734	TX	3.50	30661	12/26/2007	30.37	-97.95
519	Travis	Travis	78733	TX	3.15	21071	12/27/2007	30.33	-97.87
520	Travis	Travis	78734	TX	3.15	21701	12/28/2007	30.37	-97.95

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
521	Travis	Travis	78735	TX	3.28	27774	1/4/2008	30.26	-97.86
522	Travis	Travis	78703	TX	2.00	18456	1/8/2008	30.29	-97.77
523	Travis	Travis	78746	TX	3.02	22230	1/8/2008	30.31	-97.82
524	Travis	Travis	78746	TX	2.81	22107	1/8/2008	30.31	-97.82
525	Travis	Travis	78757	TX	3.33	150672	1/10/2008	30.35	-97.74
526	Travis	Travis	78759	TX	3.15	20668	1/15/2008	30.40	-97.75
527	Bexar	Bexar	78248	TX	2.15		1/16/2008	29.57	-98.52
528	Travis	Travis	78748	TX	2.91	20595	1/17/2008	30.17	-97.82
529	Travis	Travis	78759	TX	3.34	23771	1/17/2008	30.40	-97.75
530	Travis	Travis	78751	TX	3.28	28091	1/18/2008	30.31	-97.73
531	Travis	Travis	78734	TX	3.33	24808	1/18/2008	30.37	-97.95
532	Travis	Travis	78660	TX	3.02	21188	1/18/2008	30.46	-97.60
533	Travis	Travis	78730	TX	3.02	21141	1/18/2008	30.37	-97.84
534	Travis	Travis	78730	TX	2.81	21042	1/18/2008	30.37	-97.84
535	Travis	Travis	78741	TX	3.15	21169	1/29/2008	30.23	-97.71
536	Travis	Travis	78735	TX	3.15	20662	1/29/2008	30.26	-97.86
537	Travis	Travis	78702	TX	3.37	20361	1/31/2008	30.26	-97.71
538	Travis	Travis	78758	TX	2.56	19815	2/1/2008	30.39	-97.70
539	Travis	Travis	78746	TX	3.50	32834	2/6/2008	30.31	-97.82
540	Travis	Travis	78734	TX	3.15	21287	2/6/2008	30.37	-97.95
541	Travis	Travis	78751	TX	3.12	20966	2/7/2008	30.31	-97.73
542	Travis	Travis	78704	TX	3.13	22872	2/12/2008	30.24	-97.77
543	Travis	Travis	78749	TX	3.15	21192	2/13/2008	30.22	-97.86
544	Travis	Travis	78746	TX	2.45	19383	2/13/2008	30.31	-97.82
545	Travis	Travis	78704	TX	3.15	22076	2/19/2008	30.24	-97.77
546	Travis	Travis	78703	TX	3.34	24847	2/25/2008	30.29	-97.77
547	Travis	Travis	78746	TX	3.15	21396	2/25/2008	30.31	-97.82
548	Travis	Travis	78724	TX	3.20	21246	2/25/2008	30.29	-97.62
549	Travis	Travis	78759	TX	3.15	20995	2/25/2008	30.40	-97.75
550	Travis	Travis	78731	TX	3.15	25210	2/26/2008	30.35	-97.77
551	Travis	Travis	78746	TX	3.15	46392	2/26/2008	30.31	-97.82
552	Travis	Travis	78746	TX	1.89	17397	2/26/2008	30.31	-97.82
553	Travis	Travis	78731	TX	3.28	25892	2/26/2008	30.35	-97.77
554	Travis	Travis	78727	TX	3.20	20875	2/26/2008	30.43	-97.71
555	Travis	Travis	78738	TX	3.15	23977	2/26/2008	30.31	-97.98
556	Travis	Travis	78705	TX	23.10	174726	2/27/2008	30.30	-97.74
557	Travis	Travis	78738	TX	2.25	17127	2/28/2008	30.31	-97.98
558	Travis	Travis	78731	TX	3.12	25274	2/29/2008	30.35	-97.77
559	Travis	Travis	78746	TX	1.58	11549	3/4/2008	30.31	-97.82
560	Tarrant	Tarrant	76107	TX	1.04	7680	3/5/2008	32.74	-97.37

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
561	Travis	Travis	78704	TX	2.94	25514	3/5/2008	30.24	-97.77
562	Travis	Travis	78702	TX	3.02	21603	3/10/2008	30.26	-97.71
563	Travis	Travis	78747	TX	3.15	21216	3/12/2008	30.13	-97.73
564	Travis	Travis	78727	TX	1.58	9421	3/12/2008	30.43	-97.71
565	Travis	Travis	78722	TX	1.71	17656	3/21/2008	30.30	-97.70
566	Travis	Travis	78741	TX	3.15	18316	3/21/2008	30.23	-97.71
567	Travis	Travis	78751	TX	23.10	173532	3/24/2008	30.31	-97.73
568	Travis	Travis	78701	TX	1.23	9180	3/24/2008	30.27	-97.74
569	Travis	Travis	78705	TX	2.80	18621	3/24/2008	30.30	-97.74
570	Travis	Travis	78748	TX	3.15	32794	3/26/2008	30.17	-97.82
571	Travis	Travis	78748	TX	1.05	8199	3/26/2008	30.17	-97.82
572	Travis	Travis	78752	TX	3.20	24073	3/26/2008	30.33	-97.70
573	Travis	Travis	78703	TX	3.20	21520	3/26/2008	30.29	-97.77
574	Travis	Travis	78702	TX	3.20	21443	3/31/2008	30.26	-97.71
575	Travis	Travis	78746	TX	3.15	21000	3/31/2008	30.31	-97.82
576	Travis	Travis	78750	TX	3.15	21234	3/31/2008	30.43	-97.80
577	Travis	Travis	78750	TX	3.15	20905	3/31/2008	30.43	-97.80
578	Travis	Travis	78746	TX	3.69	30164	4/8/2008	30.31	-97.82
579	Travis	Travis	78745	TX	23.10	175341	4/8/2008	30.21	-97.80
580	Travis	Travis	78730	TX	3.15	36176	4/9/2008	30.37	-97.84
581	Travis	Travis	78756	TX	3.33	26408	4/10/2008	30.32	-97.74
582	Travis	Travis	78705	TX	3.15	21249	4/17/2008	30.30	-97.74
583	Travis	Travis	78731	TX	3.13	25366	4/17/2008	30.35	-97.77
584	Travis	Travis	78734	TX	3.06	23164	4/22/2008	30.37	-97.95
585	Travis	Travis	78749	TX	3.20	22741	4/22/2008	30.22	-97.86
586	Travis	Travis	78723	TX	3.20	22275	4/22/2008	30.31	-97.68
587	Travis	Travis	78759	TX	3.04	21984	4/23/2008	30.40	-97.75
588	Travis	Travis	78759	TX	3.15	21127	4/24/2008	30.40	-97.75
589	Travis	Travis	78704	TX	3.15	24326	4/30/2008	30.24	-97.77
590	Travis	Travis	78751	TX	3.50	23422	4/30/2008	30.31	-97.73
591	Travis	Travis	78704	TX	3.33	23400	5/2/2008	30.24	-97.77
592	Travis	Travis	78745	TX	23.63	147099	5/2/2008	30.21	-97.80
593	Travis	Travis	78705	TX	23.10	164150	5/2/2008	30.30	-97.74
594	Travis	Travis	78735	TX	3.40	20650	5/7/2008	30.26	-97.86
595	Travis	Travis	78750	TX	3.15	21176	5/7/2008	30.43	-97.80
596	Travis	Travis	78727	TX	10.50	76495	5/14/2008	30.43	-97.71
597	Travis	Travis	78701	TX	2.80	26667	5/16/2008	30.27	-97.74
598	Kendall	Bexar	78006	TX	3.06		5/20/2008	29.78	-98.73
599	Kendall	Bexar	78006	TX	2.28		5/20/2008	29.69	-98.65
600	Travis	Travis	78747	TX	3.15	20970	5/21/2008	30.13	-97.73

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
601	Travis	Travis	78751	TX	3.15	21360	5/22/2008	30.31	-97.73
602	Travis	Travis	78660	TX	3.24	24226	5/29/2008	30.46	-97.60
603	Travis	Travis	78703	TX	3.00	23759	5/29/2008	30.29	-97.77
604	Travis	Travis	78703	TX	3.15	20700	6/2/2008	30.29	-97.77
605	Travis	Travis	78704	TX	3.15	23340	6/2/2008	30.24	-97.77
606	Travis	Travis	78732	TX	3.00	22889	6/3/2008	30.38	-97.90
607	Travis	Travis	78746	TX	3.50	28096	6/5/2008	30.31	-97.82
608	Travis	Travis	78750	TX	3.24	21803	6/9/2008	30.43	-97.80
609	Bexar	Bexar	78248	TX	4.90	24682	6/9/2008	29.59	-98.52
610	Travis	Travis	78734	TX	3.04	22558	6/10/2008	30.37	-97.95
611	Travis	Travis	78735	TX	3.04	22558	6/10/2008	30.26	-97.86
612	Travis	Travis	78724	TX	3.15	21538	6/10/2008	30.29	-97.62
613	Travis	Travis	78756	TX	3.12	20966	6/16/2008	30.32	-97.74
614	Travis	Travis	78704	TX	3.15	23328	6/16/2008	30.24	-97.77
615	Travis	Travis	78746	TX	23.27	201824	6/16/2008	30.31	-97.82
616	Travis	Travis	78759	TX	3.15	24887	6/17/2008	30.40	-97.75
617	Travis	Travis	78758	TX	23.63	175415	6/17/2008	30.39	-97.70
618	Travis	Travis	78757	TX	8.75	69325	6/18/2008	30.35	-97.74
619	Travis	Travis	78746	TX	3.24	21544	6/19/2008	30.31	-97.82
620	Travis	Travis	78733	TX	3.15	22840	6/19/2008	30.33	-97.87
621	Williamson	Williamson	78729	TX	3.15	20991	6/19/2008	30.45	-97.76
622	Bexar	Bexar	78221	TX	10.50		6/30/2008	29.35	-98.53
623	Bexar	Bexar	78023	TX	3.96		6/30/2008	29.56	-98.71
624	Travis	Travis	78723	TX	3.28	25483	6/30/2008	30.31	-97.68
625	Travis	Travis	78704	TX	7.00	54885	6/30/2008	30.24	-97.77
626	Travis	Travis	78759	TX	3.15	21182	7/1/2008	30.40	-97.75
627	Travis	Travis	78746	TX	3.20	22175	7/1/2008	30.31	-97.82
628	Travis	Travis	78733	TX	3.06	20156	7/3/2008	30.33	-97.87
629	Travis	Travis	78731	TX	3.15	21242	7/8/2008	30.35	-97.77
630	Travis	Travis	78733	TX	3.24	21613	7/8/2008	30.33	-97.87
631	Travis	Travis	78746	TX	3.15	22845	7/8/2008	30.31	-97.82
632	Travis	Travis	78727	TX	17.50	129954	7/18/2008	30.43	-97.71
633	Travis	Travis	78733	TX	3.04	24898	7/21/2008	30.33	-97.87
634	Travis	Travis	78746	TX	3.24	20864	7/21/2008	30.31	-97.82
635	Travis	Travis	78746	TX	3.34	25850	7/22/2008	30.31	-97.82
636	Travis	Travis	78722	TX	1.38	15929	7/22/2008	30.30	-97.70
637	Travis	Travis	78727	TX	0.70	9161	7/23/2008	30.43	-97.71
638	Travis	Travis	78724	TX	3.15	21094	7/28/2008	30.29	-97.62
639	Travis	Travis	78757	TX	3.24	21514	7/28/2008	30.35	-97.74
640	Travis	Travis	78734	TX	3.15	20992	7/28/2008	30.37	-97.95



Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
641	Travis	Travis	78724	TX	3.24	21406	7/29/2008	30.29	-97.62
642	Travis	Travis	78705	TX	14.00	106917	7/29/2008	30.30	-97.74
643	Travis	Travis	78746	TX	3.20	24332	8/4/2008	30.31	-97.82
644	Travis	Travis	78746	TX	3.20	21421	8/4/2008	30.31	-97.82
645	Travis	Travis	78746	TX	3.42	29193	8/4/2008	30.31	-97.82
646	Travis	Travis	78746	TX	3.14	23686	8/4/2008	30.31	-97.82
647	Travis	Travis	78745	TX	3.34	25204	8/6/2008	30.21	-97.80
648	Travis	Travis	78759	TX	3.14	23826	8/6/2008	30.40	-97.75
649	Travis	Travis	78741	TX	3.06	24000	8/7/2008	30.23	-97.71
650	Travis	Travis	78731	TX	3.14	24226	8/11/2008	30.35	-97.77
651	Travis	Travis	78746	TX	3.14	20231	8/11/2008	30.31	-97.82
652	Travis	Travis	78746	TX	2.69	20047	8/11/2008	30.31	-97.82
653	Williamson	Williamson	78729	TX	23.68	164142	8/12/2008	30.45	-97.76
654	Travis	Travis	78745	TX	3.20	21380	8/13/2008	30.21	-97.80
655	Travis	Travis	78759	TX	8.75	69325	8/13/2008	30.40	-97.75
656	Travis	Travis	78748	TX	3.15	23782	8/13/2008	30.17	-97.82
657	Travis	Travis	78733	TX	2.24	17366	8/15/2008	30.33	-97.87
658	Travis	Travis	78703	TX	3.24	22567	8/18/2008	30.29	-97.77
659	Travis	Travis	78734	TX	3.14	22455	8/18/2008	30.37	-97.95
660	Travis	Travis	78734	TX	3.14	22455	8/18/2008	30.37	-97.95
661	Travis	Travis	78734	TX	3.17	26935	8/18/2008	30.37	-97.95
662	Travis	Travis	78746	TX	3.15	25565	8/18/2008	30.31	-97.82
663	Travis	Travis	78758	TX	3.15	21033	8/18/2008	30.39	-97.70
664	Travis	Travis	78758	TX	3.15	21033	8/18/2008	30.39	-97.70
665	Travis	Travis	78653	TX	3.15	19053	8/18/2008	30.34	-97.50
666	Travis	Travis	78751	TX	2.56	20323	8/20/2008	30.31	-97.73
667	Travis	Travis	78746	TX	3.42	26847	8/25/2008	30.31	-97.82
668	Travis	Travis	78757	TX	3.15	20869	8/25/2008	30.35	-97.74
669	Travis	Travis	78739	TX	3.15	21601	8/25/2008	30.19	-97.90
670	Travis	Travis	78704	TX	2.10	17385	8/27/2008	30.24	-97.77
671	Bexar	Bexar	78261	TX	4.00		9/5/2008	29.70	-98.44
672	Bexar	Bexar	78232	TX	5.34		9/5/2008	29.58	-98.47
673	Travis	Travis	78757	TX	3.14	24000	9/8/2008	30.35	-97.74
674	Travis	Travis	78704	TX	25.20	169926	9/9/2008	30.24	-97.77
675	Travis	Travis	78749	TX	3.00	21056	9/10/2008	30.22	-97.86
676	Travis	Travis	78749	TX	1.80	21056	9/10/2008	30.22	-97.86
677	Travis	Travis	78723	TX	3.50	23782	9/10/2008	30.31	-97.68
678	Travis	Travis	78734	TX	5.33	40105	9/10/2008	30.37	-97.95
679	Travis	Travis	78749	TX	3.10		9/12/2008	30.23	-97.84
680	Travis	Travis	78733	TX	3.15	21837	9/12/2008	30.33	-97.87

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
681	Travis	Travis	78732	TX	3.00	24851	9/12/2008	30.38	-97.90
682	Travis	Travis	78732	TX	3.00	24851	9/12/2008	30.38	-97.90
683	Travis	Travis	78759	TX	3.04	20994	9/15/2008	30.40	-97.75
684	Travis	Travis	78759	TX	2.72	20420	9/15/2008	30.40	-97.75
685	Travis	Travis	78746	TX	3.15	24306	9/15/2008	30.31	-97.82
686	Bexar	Bexar	78201	TX	4.32		9/18/2008	29.48	-98.55
687	Travis	Travis	78756	TX	2.52	17663	9/22/2008	30.32	-97.74
688	Travis	Travis	78704	TX	3.06	22810	9/22/2008	30.24	-97.77
689	Travis	Travis	78734	TX	3.17	22516	9/22/2008	30.37	-97.95
690	Travis	Travis	78734	TX	3.17	22516	9/22/2008	30.37	-97.95
691	Travis	Travis	78732	TX	3.17	21200	9/22/2008	30.38	-97.90
692	Travis	Travis	78732	TX	3.17	21200	9/22/2008	30.38	-97.90
693	Travis	Travis	78746	TX	3.08	37547	9/23/2008	30.31	-97.82
694	Travis	Travis	78746	TX	1.85	14080	9/23/2008	30.31	-97.82
695	Travis	Travis	78759	TX	2.97	21190	9/23/2008	30.40	-97.75
696	Travis	Travis	78759	TX	0.99	7200	9/23/2008	30.40	-97.75
697	Travis	Travis	78759	TX	3.24	20567	9/24/2008	30.40	-97.75
698	Travis	Travis	78703	TX	3.00	23148	9/24/2008	30.29	-97.77
699	Travis	Travis	78703	TX	3.00	23148	9/24/2008	30.29	-97.77
700	Travis	Travis	78703	TX	10.82	73581	9/25/2008	30.29	-97.77
701	Travis	Travis	78703	TX	15.60	106126	9/25/2008	30.29	-97.77
702	Travis	Travis	78733	TX	3.00	23059	9/25/2008	30.33	-97.87
703	Travis	Travis	78733	TX	3.00	23059	9/25/2008	30.33	-97.87
704	Travis	Travis	78733	TX	6.29	30000	9/25/2008	30.33	-97.87
705	Travis	Travis	78704	TX	3.14	22455	9/29/2008	30.24	-97.77
706	Travis	Travis	78704	TX	3.14	22455	9/29/2008	30.24	-97.77
707	Travis	Travis	78759	TX	3.17	24202	9/29/2008	30.40	-97.75
708	Travis	Travis	78730	TX	3.15	45042	9/29/2008	30.37	-97.84
709	Travis	Travis	78730	TX	3.15	22521	9/29/2008	30.37	-97.84
710	Travis	Travis	78702	TX	1.80	13756	9/29/2008	30.26	-97.71
711	Travis	Travis	78733	TX	4.00	34821	9/29/2008	30.33	-97.87
712	Travis	Travis	78704	TX	3.15	22582	9/30/2008	30.24	-97.77
713	Travis	Travis	78704	TX	3.15	22582	9/30/2008	30.24	-97.77
714	Travis	Travis	78703	TX	2.52	20826	9/30/2008	30.29	-97.77
715	Travis	Travis	78704	TX	3.00	23758	9/30/2008	30.24	-97.77
716	Travis	Travis	78704	TX	3.00	23758	9/30/2008	30.24	-97.77
717	Travis	Travis	78703	TX	3.15	25856	9/30/2008	30.29	-97.77
718	Travis	Travis	78731	TX	2.66	19907	9/30/2008	30.35	-97.77
719	Travis	Travis	78731	TX	2.66	19907	9/30/2008	30.35	-97.77
720	Travis	Travis	78746	TX	2.80	26744	9/30/2008	30.31	-97.82

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
721	Travis	Travis	78746	TX	2.80	22609	9/30/2008	30.31	-97.82
722	Travis	Travis	78746	TX	2.52	18601	9/30/2008	30.31	-97.82
723	Travis	Travis	78746	TX	2.52	18601	9/30/2008	30.31	-97.82
724	Travis	Travis	78732	TX	3.17	23500	10/1/2008	30.38	-97.90
725	Travis	Travis	78732	TX	3.17	20000	10/1/2008	30.38	-97.90
726	Travis	Travis	78724	TX	3.24	20768	10/1/2008	30.29	-97.62
727	Travis	Travis	78724	TX	3.24	20738	10/1/2008	30.29	-97.62
728	Bexar	Bexar	78023	TX	3.71		10/3/2008	29.57	-98.67
729	Bexar	Bexar	78213	TX	3.60		10/6/2008	29.53	-98.51
730	Bexar	Bexar	78258	TX	16.00		10/6/2008	29.61	-98.49
731	Bexar	Bexar	78253	TX	4.81		10/8/2008	29.43	-98.76
732	Travis	Travis	78722	TX	3.50	27334	10/8/2008	30.30	-97.70
733	Travis	Travis	78733	TX	2.34	12883	10/8/2008	30.33	-97.87
734	Travis	Travis	78704	TX	2.28	26504	10/12/2008	30.24	-97.77
735	Travis	Travis	78704	TX	2.10	17786	10/13/2008	30.24	-97.77
736	Travis	Travis	78734	TX	2.67	21803	10/13/2008	30.37	-97.95
737	Travis	Travis	78727	TX	3.42	21426	10/14/2008	30.43	-97.71
738	Travis	Travis	78731	TX	3.42	22233	10/14/2008	30.35	-97.77
739	Travis	Travis	78723	TX	3.42	21196	10/20/2008	30.31	-97.68
740	Travis	Travis	78744	TX	3.20	21538	10/20/2008	30.20	-97.73
741	Travis	Travis	78703	TX	3.15	27312	10/21/2008	30.29	-97.77
742	Travis	Travis	78741	TX	3.15	26376	10/21/2008	30.23	-97.71
743	Bexar	Bexar	78229	TX	3.96		10/22/2008	29.51	-98.56
744	Travis	Travis	78653	TX	3.15	19053	10/22/2008	30.34	-97.50
745	Travis	Travis	78727	TX	10.50	91152	10/24/2008	30.43	-97.71
746	Travis	Travis	78731	TX	2.28	21019	11/3/2008	30.35	-97.77
747	Travis	Travis	78751	TX	3.15	26354	11/3/2008	30.31	-97.73
748	Travis	Travis	78731	TX	3.15	24489	11/3/2008	30.35	-97.77
749	Travis	Travis	78745	TX	7.56	64864	11/3/2008	30.21	-97.80
750	Travis	Travis	78746	TX	3.24	21245	11/4/2008	30.31	-97.82
751	Travis	Travis	78757	TX	3.15	21091	11/4/2008	30.35	-97.74
752	Travis	Travis	78759	TX	3.15	22132	11/4/2008	30.40	-97.75
753	Travis	Travis	78747	TX	3.24	21622	11/4/2008	30.13	-97.73
754	Travis	Travis	78746	TX	3.15	26422	11/5/2008	30.31	-97.82
755	Travis	Travis	78704	TX	3.06	22810	11/5/2008	30.24	-97.77
756	Travis	Travis	78734	TX	3.15	23506	11/5/2008	30.37	-97.95
757	Travis	Travis	78746	TX	3.15	25565	11/10/2008	30.31	-97.82
758	Travis	Travis	78752	TX	3.15	26847	11/17/2008	30.33	-97.70
759	Travis	Travis	78734	TX	3.20	20957	11/17/2008	30.37	-97.95
760	Travis	Travis	78704	TX	3.15	18427	11/17/2008	30.24	-97.77

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
761	Travis	Travis	78753	TX	3.36	23839	11/17/2008	30.39	-97.67
762	Travis	Travis	78756	TX	3.15	21900	11/17/2008	30.32	-97.74
763	Bexar	Bexar	78249	TX	4.32		11/20/2008	29.58	-98.57
764	Travis	Travis	78746	TX	3.06	21320	11/24/2008	30.31	-97.82
765	Travis	Travis	78746	TX	3.04	24263	11/24/2008	30.31	-97.82
766	Travis	Travis	78751	TX	6.66	48589	11/24/2008	30.31	-97.73
767	Travis	Travis	78746	TX	4.32	24290	11/25/2008	30.31	-97.82
768	Travis	Travis	78746	TX	1.08	5300	11/25/2008	30.31	-97.82
769	Travis	Travis	78750	TX	3.15	20928	11/25/2008	30.43	-97.80
770	Travis	Travis	78750	TX	3.15	20928	11/25/2008	30.43	-97.80
771	Travis	Travis	78722	TX	3.15	21745	11/25/2008	30.30	-97.70
772	Travis	Travis	78727	TX	3.15	21774	11/25/2008	30.43	-97.71
773	Travis	Travis	78745	TX	3.06	19082	11/26/2008	30.21	-97.80
774	Travis	Travis	78746	TX	23.63	149233	11/26/2008	30.31	-97.82
775	Bexar	Bexar	78212	TX	2.78		12/5/2008	29.46	-98.49
776	Travis	Travis	78745	TX	3.17	22700	12/8/2008	30.21	-97.80
777	Travis	Travis	78732	TX	3.17	23500	12/8/2008	30.38	-97.90
778	Travis	Travis	78750	TX	3.15	21295	12/10/2008	30.43	-97.80
779	Travis	Travis	78751	TX	3.36	29769	12/11/2008	30.31	-97.73
780	Travis	Travis	78730	TX	3.01	21637	12/12/2008	30.37	-97.84
781	Travis	Travis	78749	TX	3.24	21898	12/12/2008	30.22	-97.86
782	Travis	Travis	78746	TX	3.15	20901	12/12/2008	30.31	-97.82
783	Hays	Hays	78737	TX	6.00	36000	12/15/2008	30.23	-98.00
784	Travis	Travis	78759	TX	3.17	24380	12/15/2008	30.40	-97.75
785	Travis	Travis	78731	TX	3.17	28093	12/15/2008	30.35	-97.77
786	Travis	Travis	78748	TX	2.85	21412	12/15/2008	30.17	-97.82
787	Travis	Travis	78704	TX	3.15	23834	12/15/2008	30.24	-97.77
788	Travis	Travis	78734	TX	2.63	15850	12/17/2008	30.37	-97.95
789	Travis	Travis	78702	TX	3.74	22471	12/19/2008	30.26	-97.71
790	Travis	Travis	78758	TX	3.24	21961	12/22/2008	30.39	-97.70
791	Travis	Travis	78750	TX	3.15	19995	12/23/2008	30.43	-97.80
792	Travis	Travis	78750	TX	3.15	19245	12/23/2008	30.43	-97.80
793	Travis	Travis	78750	TX	2.88	19378	12/23/2008	30.43	-97.80
794	Travis	Travis	78750	TX	2.88	19378	12/23/2008	30.43	-97.80
795	Travis	Travis	78704	TX	23.63	163060	12/23/2008	30.24	-97.77
796	Bexar	Bexar	78209	TX	1.02		12/30/2008	29.50	-98.46
797	Travis	Travis	78746	TX	3.15	22394	12/31/2008	30.31	-97.82
798	Hays	Hays	78737	TX	6.00	36000	1/1/2009	30.23	-98.00
799	Bexar	Bexar	78148	TX	2.80		1/8/2009	29.57	-98.31
800	Bexar	Bexar	78249	TX	3.99		1/8/2009	29.56	-98.61

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
801	Bexar	Bexar	78249	TX	2.09		1/8/2009	29.56	-98.61
802	Travis	Travis	78746	TX	3.15	22541	1/9/2009	30.31	-97.82
803	Travis	Travis	78746	TX	1.05	7513	1/9/2009	30.31	-97.82
804	Travis	Travis	78731	TX	3.17	23065	1/9/2009	30.35	-97.77
805	Travis	Travis	78732	TX	3.17	23500	1/9/2009	30.38	-97.90
806	Travis	Travis	78746	TX	5.25	34448	1/9/2009	30.31	-97.82
807	Travis	Travis	78703	TX	6.12	41249	1/9/2009	30.29	-97.77
808	Travis	Travis	78733	TX	3.15	23941	1/12/2009	30.33	-97.87
809	Williamson	Williamson	78729	TX	3.15	22189	1/13/2009	30.45	-97.76
810	Travis	Travis	78745	TX	3.15	28708	1/14/2009	30.21	-97.80
811	Travis	Travis	78735	TX	3.28	29803	1/14/2009	30.26	-97.86
812	Travis	Travis	78722	TX	3.15	22332	1/21/2009	30.30	-97.70
813	Travis	Travis	78745	TX	3.15	25949	1/23/2009	30.21	-97.80
814	Bexar	Bexar	78261	TX	3.60		1/30/2009	29.70	-98.42
815	Bexar	Bexar	78212	TX	6.80		1/30/2009	29.47	-98.48
816	Bexar	Bexar	78232	TX	4.86		1/30/2009	29.58	-98.51
817	Travis	Travis	78703	TX	3.15	22782	2/2/2009	30.29	-97.77
818	Travis	Travis	78703	TX	3.15	22782	2/2/2009	30.29	-97.77
819	Travis	Travis	78733	TX	3.24	21488	2/3/2009	30.33	-97.87
820	Travis	Travis	78723	TX	3.15	20710	2/3/2009	30.31	-97.68
821	Travis	Travis	78746	TX	3.15	30914	2/4/2009	30.31	-97.82
822	Travis	Travis	78747	TX	3.02	22271	2/4/2009	30.13	-97.73
823	Travis	Travis	78747	TX	3.02	22271	2/4/2009	30.13	-97.73
824	Travis	Travis	78733	TX	3.15	20412	2/5/2009	30.33	-97.87
825	Travis	Travis	78733	TX	6.09	39610	2/5/2009	30.33	-97.87
826	Travis	Travis	78759	TX	3.15	28354	2/6/2009	30.40	-97.75
827	Travis	Travis	78727	TX	3.15	27000	2/6/2009	30.43	-97.71
828	Travis	Travis	78734	TX	1.84	16084	2/6/2009	30.37	-97.95
829	Travis	Travis	78751	TX	3.15	24162	2/6/2009	30.31	-97.73
830	Travis	Travis	78749	TX	3.15	25050	2/12/2009	30.22	-97.86
831	Travis	Travis	78745	TX	3.14	21775	2/12/2009	30.21	-97.80
832	Travis	Travis	78704	TX	3.15	28568	2/12/2009	30.24	-97.77
833	Travis	Travis	78724	TX	1.58	15023	2/18/2009	30.29	-97.62
834	Travis	Travis	78703	TX	3.15	22376	2/19/2009	30.29	-97.77
835	Travis	Travis	78704	TX	12.18	91282	2/19/2009	30.24	-97.77
836	Bexar	Bexar	78254	TX	4.00		2/20/2009	29.53	-98.66
837	Travis	Travis	78732	TX	3.14	23794	2/23/2009	30.38	-97.90
838	Travis	Travis	78759	TX	3.12	22631	2/23/2009	30.40	-97.75
839	Travis	Travis	78735	TX	3.15	20520	2/24/2009	30.26	-97.86
840	Travis	Travis	78731	TX	3.15	21745	2/24/2009	30.35	-97.77

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
841	Travis	Travis	78734	TX	3.24	22620	2/24/2009	30.37	-97.95
842	Travis	Travis	78734	TX	3.15	21431	2/24/2009	30.37	-97.95
843	Travis	Travis	78731	TX	3.15	26385	2/25/2009	30.35	-97.77
844	Travis	Travis	78704	TX	3.15	27300	2/25/2009	30.24	-97.77
845	Travis	Travis	78746	TX	22.91	201352	2/25/2009	30.31	-97.82
846	Travis	Travis	78730	TX	3.20	23174	2/27/2009	30.37	-97.84
847	Travis	Travis	78746	TX	3.20	24230	2/27/2009	30.31	-97.82
848	Travis	Travis	78728	TX	3.15	19924	2/27/2009	30.46	-97.68
849	Travis	Travis	78704	TX	3.20	22720	2/27/2009	30.24	-97.77
850	Williamson	Williamson	78729	TX	3.85	35925	2/27/2009	30.45	-97.76
851	Travis	Travis	78756	TX	11.65	87516	3/2/2009	30.32	-97.74
852	Travis	Travis	78727	TX	6.05	53859	3/2/2009	30.43	-97.71
853	Travis	Travis	78702	TX	3.12	20882	3/6/2009	30.26	-97.71
854	Travis	Travis	78732	TX	3.17	23500	3/9/2009	30.38	-97.90
855	Travis	Travis	78746	TX	3.15	22743	3/10/2009	30.31	-97.82
856	Travis	Travis	78703	TX	3.15	21405	3/10/2009	30.29	-97.77
857	Travis	Travis	78734	TX	3.15	29421	3/11/2009	30.37	-97.95
858	Tarrant	Tarrant	76020	TX	2.70	24300	3/11/2009	32.99	-97.55
859	Travis	Travis	78704	TX	23.10	166798	3/16/2009	30.24	-97.77
860	Travis	Travis	78746	TX	3.60	26321	3/17/2009	30.31	-97.82
861	Travis	Travis	78746	TX	3.60	26321	3/17/2009	30.31	-97.82
862	Travis	Travis	78751	TX	3.15	22518	3/17/2009	30.31	-97.73
863	Travis	Travis	78724	TX	3.24	21961	3/17/2009	30.29	-97.62
864	Travis	Travis	78757	TX	6.30	89938	3/24/2009	30.35	-97.74
865	Lamar	Hunt	75421	TX	2.46	19862	3/26/2009	33.65	-95.72
866	Grayson	Collin	75090	TX	4.32	24367	3/27/2009	33.60	-96.56
867	Grayson	Collin	75021	TX	2.10	16792	3/27/2009	33.74	-96.47
868	Harris	Harris	77401	TX	2.87	17238	3/28/2009	29.71	-95.46
869	Harris	Harris	77401	TX	2.87	19871	3/28/2009	29.71	-95.46
870	Travis	Travis	78734	TX	3.15	21810	3/30/2009	30.37	-97.95
871	Travis	Travis	78704	TX	3.15	20749	4/1/2009	30.24	-97.77
872	Travis	Travis	78731	TX	3.15	25987	4/6/2009	30.35	-97.77
873	Travis	Travis	78756	TX	3.85	42462	4/6/2009	30.32	-97.74
874	Travis	Travis	78727	TX	2.80	26708	4/6/2009	30.43	-97.71
875	Travis	Travis	78734	TX	9.45	65887	4/8/2009	30.37	-97.95
876	Travis	Travis	78736	TX	3.15	24845	4/10/2009	30.25	-97.95
877	Travis	Travis	78745	TX	3.15	23121	4/10/2009	30.21	-97.80
878	Travis	Travis	78752	TX	23.40	125124	4/10/2009	30.33	-97.70
879	Travis	Travis	78703	TX	2.04	15711	4/14/2009	30.29	-97.77
880	Dallas	Dallas	75214	TX	3.50	3652	4/15/2009	32.82	-96.74

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
881	Bexar	Bexar	78201	TX	13.37		4/15/2009	29.46	-98.52
882	Travis	Travis	78734	TX	3.17	25673	4/15/2009	30.37	-97.95
883	Grayson	Collin	75090	TX	4.32	34994	4/21/2009	33.60	-96.56
884	Bexar	Bexar	78212	TX	3.68		4/21/2009	29.46	-98.50
885	Grayson	Collin	75020	TX	2.10	16792	4/21/2009	33.78	-96.60
886	Hood	Hood	76035	TX	6.53	48820	4/24/2009	32.55	-97.63
887	Comal	Comal	78163	TX	3.96		4/30/2009	29.77	-98.43
888	Travis	Travis	78759	TX	1.58	11010	4/30/2009	30.40	-97.75
889	Travis	Travis	78741	TX	11.55	71343	4/30/2009	30.23	-97.71
890	Travis	Travis	78703	TX	4.20	34860	4/30/2009	30.29	-97.77
891	Travis	Travis	78701	TX	3.15	20378	5/1/2009	30.27	-97.74
892	Travis	Travis	78746	TX	3.15	21242	5/1/2009	30.31	-97.82
893	Travis	Travis	78731	TX	6.30	39000	5/1/2009	30.35	-97.77
894	Travis	Travis	78733	TX	4.20	27554	5/1/2009	30.33	-97.87
895	Travis	Travis	78749	TX	3.15	22466	5/4/2009	30.22	-97.86
896	Travis	Travis	78723	TX	3.02	23579	5/4/2009	30.31	-97.68
897	Travis	Travis	78756	TX	2.59	21678	5/4/2009	30.32	-97.74
898	Travis	Travis	78704	TX	24.48	198246	5/4/2009	30.24	-97.77
899	Bexar	Bexar	78216	TX	4.40		5/5/2009	29.56	-98.52
900	Travis	Travis	78752	TX	23.40	166495	5/5/2009	30.33	-97.70
901	Smith	Smith	75703	TX	2.31	20790	5/9/2009	32.24	-95.36
902	Bexar	Bexar	78210	TX	1.05		5/11/2009	29.40	-98.47
903	Dallas	Dallas	75214	TX	3.50	26894	5/12/2009	32.82	-96.74
904	Travis	Travis	78750	TX	7.00	43616	5/13/2009	30.43	-97.80
905	Travis	Travis	78741	TX	6.60	37311	5/14/2009	30.23	-97.71
906	Travis	Travis	78750	TX	2.16	21859	5/15/2009	30.43	-97.80
907	Travis	Travis	78727	TX	3.20	24695	5/19/2009	30.43	-97.71
908	Travis	Travis	78701	TX	3.20	24300	5/19/2009	30.27	-97.74
909	Travis	Travis	78731	TX	3.20	23748	5/19/2009	30.35	-97.77
910	Denton	Denton	75007	TX	2.10	18522	5/20/2009	33.01	-96.89
911	Bexar	Bexar	78216	TX	3.20		5/20/2009	29.57	-98.51
912	Smith	Smith	75771	TX	5.00	42500	5/20/2009	32.56	-95.44
913	Smith	Smith	75771	TX	5.38	39600	5/20/2009	32.56	-95.44
914	Travis	Travis	78731	TX	4.20	27519	5/21/2009	30.35	-97.77
915	Travis	Travis	78703	TX	4.38	33313	5/21/2009	30.29	-97.77
916	Travis	Travis	78710	TX	5.25	44738	5/21/2009	30.34	-97.66
917	Travis	Travis	78751	TX	5.78	49629	5/21/2009	30.31	-97.73
918	Smith	Smith	75703	TX	2.00	26460	5/22/2009	32.25	-95.41
919	Travis	Travis	78758	TX	3.15	21477	5/25/2009	30.39	-97.70
920	Travis	Travis	78749	TX	3.78	28049	5/26/2009	30.22	-97.86

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
921	Travis	Travis	78733	TX	5.60	38374	5/26/2009	30.33	-97.87
922	Travis	Travis	78731	TX	6.30	39774	5/26/2009	30.35	-97.77
923	Travis	Travis	78759	TX	3.15	22154	5/26/2009	30.40	-97.75
924	Travis	Travis	78734	TX	3.15	20130	5/26/2009	30.37	-97.95
925	Tarrant	Tarrant	76034	TX	3.02	24849	5/27/2009	32.89	-97.15
926	Travis	Travis	78731	TX	3.15	22660	5/27/2009	30.35	-97.77
927	Bexar	Bexar	78210	TX	2.45		5/28/2009	29.41	-98.45
928	Bexar	Bexar	78209	TX	2.60		5/28/2009	29.48	-98.47
929	Tarrant	Tarrant	76180	TX	5.76	41000	6/1/2009	32.84	-97.23
930	Travis	Travis	78723	TX	3.17	23000	6/1/2009	30.31	-97.68
931	Dallas	Dallas	75063	TX	6.00	45979	6/3/2009	32.91	-96.98
932	Dallas	Dallas	75231	TX	6.27	47922	6/3/2009	32.88	-96.75
933	Collin	Collin	75070	TX	3.50	29094	6/3/2009	33.18	-96.70
934	Travis	Travis	78745	TX	2.38	16656	6/8/2009	30.21	-97.80
935	Travis	Travis	78748	TX	3.24	21534	6/8/2009	30.17	-97.82
936	Bexar	Bexar	78215	TX	200.00	1350000	6/9/2009	29.44	-98.48
937	Hill	Ellis	76645	TX	10.08	71580	6/9/2009	32.02	-97.14
938	Travis	Travis	78704	TX	4.20	26139	6/10/2009	30.24	-97.77
939	Travis	Travis	78751	TX	4.20	26559	6/10/2009	30.31	-97.73
940	Travis	Travis	78723	TX	7.80	51847	6/10/2009	30.31	-97.68
941	Travis	Travis	78746	TX	6.12	45360	6/12/2009	30.31	-97.82
942	Panola	Rusk	75633	TX	32.00	288679	6/15/2009	32.15	-94.27
943	Travis	Travis	78746	TX	3.15	27646	6/16/2009	30.31	-97.82
944	Travis	Travis	78746	TX	4.05	32874	6/16/2009	30.31	-97.82
945	Lamar	Hunt	75421	TX	2.46	19862	6/18/2009	33.64	-95.71
946	Travis	Travis	78701	TX	3.20	24300	6/18/2009	30.27	-97.74
947	Tarrant	Tarrant	76040	TX	3.24	25722	6/19/2009	32.82	-97.10
948	Tarrant	Tarrant	76131	TX	2.87	25311	6/19/2009	32.90	-97.36
949	Travis	Travis	78745	TX	3.15	22945	6/19/2009	30.21	-97.80
950	Travis	Travis	78757	TX	3.15	19308	6/19/2009	30.35	-97.74
951	Grayson	Collin	75092	TX	4.50	35590	6/20/2009	33.68	-96.73
952	Bell	Williamson	76543	TX	3.15	21232	6/23/2009	31.14	-97.67
953	Bell	Williamson	76542	TX	2.10	18810	6/23/2009	31.01	-97.72
954	Bell	Williamson	76542	TX	5.04	32799	6/23/2009	31.01	-97.72
955	Travis	Travis	78754	TX	3.24	21304	6/23/2009	30.36	-97.65
956	Travis	Travis	78751	TX	3.50	23876	6/24/2009	30.31	-97.73
957	Travis	Travis	78723	TX	3.15	22421	6/24/2009	30.31	-97.68
958	Travis	Travis	78735	TX	2.00	15827	6/24/2009	30.26	-97.86
959	Travis	Travis	78757	TX	3.15	22956	6/24/2009	30.35	-97.74
960	Travis	Travis	78704	TX	4.32	26848	6/24/2009	30.24	-97.77



Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
961	Smith	Smith	75703	TX	2.94	26894	6/25/2009	32.27	-95.33
962	Smith	Smith	75703	TX	2.31	20790	6/25/2009	32.27	-95.33
963	Travis	Travis	78733	TX	7.80	56000	6/25/2009	30.33	-97.87
964	Travis	Travis	78749	TX	7.70	53274	6/26/2009	30.22	-97.86
965	Travis	Travis	78750	TX	6.83	44578	6/26/2009	30.43	-97.80
966	Travis	Travis	78703	TX	4.80	39769	6/29/2009	30.29	-97.77
967	Travis	Travis	78730	TX	7.00	44343	6/29/2009	30.37	-97.84
968	Travis	Travis	78746	TX	8.00	57708	6/30/2009	30.31	-97.82
969	Dallas	Dallas	75234	TX	3.10	30934	7/1/2009	32.92	-96.86
970	Rockwall	Rockwall	75087	TX	4.69	26650	7/1/2009	32.95	-96.44
971	Travis	Travis	78746	TX	3.24	33055	7/2/2009	30.31	-97.82
972	Ellis	Ellis	75125	TX	10.08	66800	7/4/2009	32.52	-96.64
973	Tarrant	Tarrant	76179	TX	2.05	12880	7/7/2009	32.92	-97.46
974	Tarrant	Tarrant	76164	TX	236.13	1471931	7/7/2009	32.78	-97.35
975	Nacogdoches	Rusk	75964	TX	10.08	75089	7/7/2009	31.59	-94.77
976	Collin	Collin	75002	TX	4.00	42196	7/8/2009	33.09	-96.61
977	Williamson	Williamson	78665	TX	8.20	52036	7/8/2009	30.35	-98.53
978	Smith	Smith	75771	TX	9.86	78900	7/10/2009	32.56	-95.44
979	Tarrant	Tarrant	76180	TX	5.76	42169	7/10/2009	32.86	-97.21
980	Ellis	Ellis	75125	TX	3.15	22000	7/10/2009	32.52	-96.64
981	Travis	Travis	78749	TX	7.70	54000	7/13/2009	30.21	-97.86
982	Travis	Travis	78727	TX	2.16	14060	7/13/2009	30.43	-97.71
983	Travis	Travis	78703	TX	4.68	31533	7/13/2009	30.29	-97.77
984	Travis	Travis	78751	TX	23.63	179500	7/13/2009	30.31	-97.73
985	Travis	Travis	78751	TX	23.63	177876	7/13/2009	30.31	-97.73
986	Travis	Travis	78745	TX	23.33	206224	7/13/2009	30.21	-97.80
987	Collin	Collin	75098	TX	4.50	31860	7/14/2009	33.02	-96.51
988	Travis	Travis	78759	TX	3.85	23110	7/14/2009	30.40	-97.75
989	Travis	Travis	78746	TX	3.08	22887	7/14/2009	30.31	-97.82
990	Travis	Travis	78746	TX	9.75	60520	7/14/2009	30.31	-97.82
991	Collin	Collin	75093	TX	1.13	8195	7/15/2009	33.04	-96.82
992	Travis	Travis	78702	TX	3.15	22499	7/15/2009	30.26	-97.71
993	Travis	Travis	78725	TX	3.15	22512	7/15/2009	30.23	-97.62
994	Travis	Travis	78727	TX	5.76	37811	7/15/2009	30.43	-97.71
995	Travis	Travis	78750	TX	3.96	25018	7/17/2009	30.43	-97.80
996	Travis	Travis	78749	TX	7.70	54000	7/18/2009	30.18	-97.86
997	Travis	Travis	78723	TX	3.42	21398	7/21/2009	30.31	-97.68
998	Travis	Travis	78704	TX	3.24	20714	7/21/2009	30.24	-97.77
999	Travis	Travis	78728	TX	2.52	17246	7/21/2009	30.46	-97.68
1000	Travis	Travis	78727	TX	3.24	20714	7/21/2009	30.43	-97.71

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1001	Travis	Travis	78732	TX	11.16	74435	7/21/2009	30.38	-97.90
1002	Travis	Travis	78724	TX	3.24	26515	7/22/2009	30.29	-97.62
1003	Travis	Travis	78730	TX	3.24	20714	7/22/2009	30.37	-97.84
1004	Travis	Travis	78749	TX	1.48	19500	7/22/2009	30.22	-97.86
1005	Tarrant	Tarrant	76051	TX	6.00	44000	7/23/2009	32.95	-97.09
1006	Travis	Travis	78746	TX	3.50	30728	7/23/2009	30.31	-97.82
1007	Travis	Travis	78759	TX	3.15	26274	7/23/2009	30.40	-97.75
1008	Travis	Travis	78733	TX	13.65	112773	7/23/2009	30.33	-97.87
1009	Travis	Travis	78704	TX	4.20	30538	7/23/2009	30.24	-97.77
1010	Travis	Travis	78704	TX	5.52	39344	7/23/2009	30.24	-97.77
1011	Bexar	Bexar	78213	TX	1.80	14188	7/23/2009	29.50	-98.52
1012	Collin	Collin	75023	TX	3.00	24933	7/24/2009	33.06	-96.71
1013	Travis	Travis	78747	TX	3.85	22626	7/27/2009	30.13	-97.73
1014	Travis	Travis	78704	TX	6.24	48547	7/27/2009	30.24	-97.77
1015	Travis	Travis	78754	TX	7.70	46435	7/28/2009	30.36	-97.65
1016	Travis	Travis	78730	TX	3.85	26196	7/28/2009	30.37	-97.84
1017	Travis	Travis	78734	TX	3.15	23305	7/29/2009	30.37	-97.95
1018	Williamson	Williamson	78729	TX	4.20	26050	7/29/2009	30.45	-97.76
1019	Travis	Travis	78753	TX	6.15	36002	7/29/2009	30.39	-97.67
1020	Travis	Travis	78728	TX	5.35	33000	7/29/2009	30.46	-97.68
1021	Travis	Travis	78723	TX	19.38	111264	7/29/2009	30.31	-97.68
1022	Travis	Travis	78746	TX	3.15	25565	8/1/2009	30.31	-97.82
1023	Henderson	Henderson	75156	TX	2.80		8/3/2009	32.31	-96.14
1024	Denton	Denton	76249	TX	2.46	19170	8/3/2009	33.29	-97.29
1025	Denton	Denton	76249	TX	2.87	19560	8/3/2009	33.29	-97.29
1026	McLennan	Ellis	76708	TX	47.25	363310	8/3/2009	31.64	-97.21
1027	Tarrant	Tarrant	76116	TX	3.36	25455	8/3/2009	32.71	-97.43
1028	Travis	Travis	78731	TX	3.15	20264	8/4/2009	30.35	-97.77
1029	Travis	Travis	78723	TX	6.30	36361	8/5/2009	30.31	-97.68
1030	Travis	Travis	78746	TX	4.40	31900	8/5/2009	30.31	-97.82
1031	Travis	Travis	78745	TX	11.03	69090	8/6/2009	30.21	-97.80
1032	Travis	Travis	78745	TX	3.15	20000	8/6/2009	30.21	-97.80
1033	Travis	Travis	78746	TX	4.92	28913	8/6/2009	30.31	-97.82
1034	Travis	Travis	78723	TX	15.39	91000	8/6/2009	30.31	-97.68
1035	Anderson	Henderson	75801	TX	10.08	61152	8/7/2009	31.76	-95.54
1036	Bexar	Bexar	78254	TX	8.40	45792	8/7/2009	29.53	-98.78
1037	Jefferson	Jefferson	77706	TX	9.63	80171	8/10/2009	30.10	-94.17
1038	Ellis	Ellis	75125	TX	4.05	27720	8/10/2009	32.52	-96.64
1039	Travis	Travis	78759	TX	7.18	45212	8/10/2009	30.40	-97.75
1040	Travis	Travis	78727	TX	5.40	35985	8/10/2009	30.43	-97.71

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1041	Dallas	Dallas	75247	TX	101.64		8/11/2009	32.82	-96.88
1042	Navarro	Ellis	76681	TX	7.02	59718	8/15/2009	31.91	-96.52
1043	Dallas	Dallas	75006	TX	4.20	33218	8/15/2009	32.97	-96.89
1044	Travis	Travis	78746	TX	9.45	73043	8/18/2009	30.31	-97.82
1045	Travis	Travis	78746	TX	5.60	39209	8/18/2009	30.31	-97.82
1046	Travis	Travis	78731	TX	10.85	70851	8/18/2009	30.35	-97.77
1047	Travis	Travis	78723	TX	23.36	167758	8/18/2009	30.31	-97.68
1048	Hamilton	Hood	76531	TX	9.75	71858	8/19/2009	31.68	-98.18
1049	Tarrant	Tarrant	76051	TX	6.00	44581	8/19/2009	32.95	-97.07
1050	Dallas	Dallas	75228	TX	4.68	46800	8/19/2009	32.83	-96.68
1051	Collin	Collin	75093	TX	8.10	63273	8/19/2009	33.04	-96.80
1052	Tarrant	Tarrant	76107	TX	3.85	33746	8/19/2009	32.74	-97.38
1053	Bell	Williamson	76502	TX	2.71	20987	8/19/2009	31.11	-97.41
1054	Bastrop	Bastrop	78621	TX	2.38	18445	8/19/2009	30.34	-97.37
1055	Navarro	Ellis	76681	TX	7.20	59718	8/19/2009	31.90	-96.43
1056	Dallas	Dallas	75043	TX	4.60	31955	8/19/2009	32.85	-96.59
1057	Tarrant	Tarrant	76179	TX	9.60	67634	8/19/2009	32.92	-97.46
1058	Hopkins	Hunt	75482	TX	2.85	40670	8/19/2009	33.18	-95.60
1059	Bell	Williamson	76579	TX	10.00	51106	8/19/2009	31.18	-97.20
1060	Travis	Travis	78730	TX	3.12	21103	8/19/2009	30.37	-97.84
1061	Travis	Travis	78722	TX	4.29	35435	8/19/2009	30.30	-97.70
1062	Travis	Travis	78746	TX	5.70	35066	8/20/2009	30.31	-97.82
1063	Tarrant	Tarrant	76020	TX	6.30	47725	8/21/2009	32.92	-97.55
1064	Travis	Travis	78727	TX	7.00	40921	8/21/2009	30.43	-97.71
1065	Travis	Travis	78750	TX	4.20	25794	8/21/2009	30.43	-97.80
1066	Travis	Travis	78738	TX	8.75	46619	8/21/2009	30.31	-97.98
1067	Travis	Travis	78721	TX	4.73	26204	8/21/2009	30.27	-97.68
1068	Travis	Travis	78744	TX	3.15	20227	8/21/2009	30.20	-97.73
1069	Travis	Travis	78731	TX	3.15	19794	8/21/2009	30.35	-97.77
1070	Nacogdoches	Rusk	75961	TX	10.80	67188	8/22/2009	31.59	-94.60
1071	Travis	Travis	78733	TX	5.20	30330	8/24/2009	30.33	-97.87
1072	Travis	Travis	78749	TX	2.78	17271	8/24/2009	30.22	-97.86
1073	Travis	Travis	78704	TX	3.33	18714	8/24/2009	30.24	-97.77
1074	Travis	Travis	78758	TX	3.46	22257	8/26/2009	30.39	-97.70
1075	Travis	Travis	78727	TX	3.14	21897	8/31/2009	30.43	-97.71
1076	Travis	Travis	78733	TX	5.78	34307	8/31/2009	30.33	-97.87
1077	Hill	Ellis	76645	TX	10.08	71580	9/1/2009	32.02	-97.14
1078	Denton	Denton	75007	TX	5.85	38420	9/1/2009	33.01	-96.89
1079	Travis	Travis	78745	TX	4.36	31201	9/1/2009	30.21	-97.80
1080	Travis	Travis	78746	TX	4.50	37255	9/1/2009	30.31	-97.82

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1081	Travis	Travis	78745	TX	3.46	27064	9/1/2009	30.21	-97.80
1082	Travis	Travis	78721	TX	2.72	18019	9/1/2009	30.27	-97.68
1083	Travis	Travis	78721	TX	3.15	20231	9/1/2009	30.27	-97.68
1084	Travis	Travis	78721	TX	3.15	20231	9/1/2009	30.27	-97.68
1085	Bell	Williamson	76513	TX	10.00	64825	9/4/2009	31.07	-97.50
1086	Travis	Travis	78723	TX	0.79	6500	9/6/2009	30.31	-97.68
1087	Travis	Travis	78732	TX	3.15	22082	9/8/2009	30.38	-97.90
1088	Bexar	Bexar	78253	TX	7.20	58222	9/8/2009	29.47	-98.81
1089	Travis	Travis	78727	TX	5.76	31735	9/9/2009	30.43	-97.71
1090	Travis	Travis	78733	TX	6.65	39890	9/9/2009	30.33	-97.87
1091	Travis	Travis	78759	TX	6.65	41962	9/9/2009	30.40	-97.75
1092	Travis	Travis	78728	TX	3.15	20732	9/9/2009	30.46	-97.68
1093	Travis	Travis	78749	TX	6.30	37144	9/9/2009	30.22	-97.86
1094	Travis	Travis	78748	TX	7.56	41424	9/9/2009	30.17	-97.82
1095	Travis	Travis	78749	TX	3.15	19644	9/9/2009	30.22	-97.86
1096	Travis	Travis	78702	TX	3.17	22589	9/11/2009	30.26	-97.71
1097	Travis	Travis	78754	TX	5.78	34998	9/11/2009	30.36	-97.65
1098	Travis	Travis	78731	TX	7.00	49877	9/11/2009	30.35	-97.77
1099	Comal	Comal	78132	TX	3.96	30000	9/14/2009	29.74	-98.20
1100	Bell	Williamson	76513	TX	6.11	42212	9/15/2009	31.07	-97.50
1101	Bell	Williamson	76502	TX	10.00	67981	9/15/2009	31.11	-97.41
1102	Collin	Collin	75069	TX	2.10	25631	9/15/2009	33.16	-96.59
1103	Collin	Collin	75013	TX	7.20	59529	9/15/2009	33.11	-96.70
1104	Travis	Travis	78747	TX	23.99	135100	9/15/2009	30.13	-97.73
1105	Travis	Travis	78746	TX	23.63	141845	9/15/2009	30.31	-97.82
1106	Collin	Collin	75098	TX	4.50	31500	9/16/2009	33.02	-96.51
1107	Leon	Montgomery	77865	TX	1.08	10260	9/16/2009	31.22	-96.30
1108	Denton	Denton	75007	TX	5.40	35050	9/16/2009	33.01	-96.89
1109	Travis	Travis	78749	TX	6.34	37760	9/16/2009	30.22	-97.86
1110	Travis	Travis	78746	TX	7.00	39063	9/18/2009	30.31	-97.82
1111	Travis	Travis	78733	TX	10.08	54250	9/18/2009	30.33	-97.87
1112	Travis	Travis	78728	TX	5.95	31803	9/18/2009	30.46	-97.68
1113	Travis	Travis	78705	TX	4.10	22923	9/21/2009	30.30	-97.74
1114	Travis	Travis	78753	TX	10.37	52823	9/21/2009	30.39	-97.67
1115	Travis	Travis	78750	TX	8.19	41658	9/21/2009	30.43	-97.80
1116	Travis	Travis	78749	TX	2.88	21932	9/21/2009	30.22	-97.86
1117	Collin	Collin	75075	TX	2.25	16675	9/23/2009	33.02	-96.74
1118	Travis	Travis	78746	TX	14.00	68567	9/23/2009	30.31	-97.82
1119	Travis	Travis	78759	TX	8.41	45246	9/23/2009	30.40	-97.75
1120	Travis	Travis	78747	TX	3.33	47352	9/23/2009	30.13	-97.73

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1121	Ellis	Ellis	75165	TX	5.25	37500	9/24/2009	32.40	-96.79
1122	Ellis	Ellis	75125	TX	10.08	66800	9/24/2009	32.52	-96.64
1123	Tarrant	Tarrant	76016	TX	7.20	54000	9/24/2009	32.69	-97.18
1124	Parker	Parker	76008	TX	8.19	53889	9/24/2009	32.69	-97.63
1125	Dallas	Dallas	75081	TX	7.84	36924	9/24/2009	32.96	-96.70
1126	Travis	Travis	78730	TX	5.58	48757	9/25/2009	30.37	-97.84
1127	Travis	Travis	78757	TX	7.40	42577	9/25/2009	30.35	-97.74
1128	Travis	Travis	78745	TX	3.33	19157	9/25/2009	30.21	-97.80
1129	Travis	Travis	78704	TX	22.94	137761	9/25/2009	30.24	-97.77
1130	Travis	Travis	78746	TX	7.20	55379	9/28/2009	30.31	-97.82
1131	Cherokee	Smith	75766	TX	4.92	52100	9/29/2009	31.93	-95.35
1132	Collin	Collin	75093	TX	1.13	8195	9/29/2009	33.04	-96.80
1133	Smith	Smith	75762	TX	10.00	74000	9/29/2009	32.21	-95.40
1134	Travis	Travis	78704	TX	5.78	36777	9/29/2009	30.24	-97.77
1135	Travis	Travis	78744	TX	4.20	26212	9/29/2009	30.20	-97.73
1136	Travis	Travis	78732	TX	6.30	34358	10/1/2009	30.38	-97.90
1137	Travis	Travis	78732	TX	6.24	36658	10/1/2009	30.38	-97.90
1138	Travis	Travis	78732	TX	4.20	23009	10/1/2009	30.38	-97.90
1139	Travis	Travis	78730	TX	8.40	47977	10/1/2009	30.37	-97.84
1140	Travis	Travis	78731	TX	3.08	22027	10/2/2009	30.35	-97.77
1141	Travis	Travis	78702	TX	4.56	29278	10/2/2009	30.26	-97.71
1142	Dallas	Dallas	75230	TX	6.44	37640	10/4/2009	32.90	-96.80
1143	Hood	Hood	76035	TX	6.27	45785	10/5/2009	32.57	-97.62
1144	Cameron	Nueces	78523	TX	4.10	23380	10/5/2009	26.00	-97.57
1145	Bexar	Bexar	78253	TX	6.30	36058	10/5/2009	29.47	-98.81
1146	Tarrant	Tarrant	76051	TX	2.70	27701	10/6/2009	32.95	-97.07
1147	Travis	Travis	78746	TX	7.77	48163	10/7/2009	30.31	-97.82
1148	Travis	Travis	78704	TX	13.39	101284	10/7/2009	30.24	-97.77
1149	Anderson	Henderson	75801	TX	10.08	61152	10/9/2009	31.76	-95.54
1150	Denton	Denton	75007	TX	4.20	26480	10/9/2009	33.01	-96.89
1151	Travis	Travis	78759	TX	2.45	14191	10/9/2009	30.40	-97.75
1152	Travis	Travis	78746	TX	3.15	18959	10/9/2009	30.31	-97.82
1153	Bexar	Bexar	78253	TX	3.73	18072	10/9/2009	29.47	-98.81
1154	Smith	Smith	75762	TX	3.15	28350	10/10/2009	32.21	-95.37
1155	Smith	Smith	75703	TX	3.50	24500	10/12/2009	32.27	-95.33
1156	Parker	Parker	76087	TX	2.40	30448	10/12/2009	32.61	-97.83
1157	Travis	Travis	78746	TX	2.73	20789	10/12/2009	30.31	-97.82
1158	Travis	Travis	78727	TX	2.45	12397	10/12/2009	30.43	-97.71
1159	Travis	Travis	78733	TX	12.95	70017	10/12/2009	30.33	-97.87
1160	Travis	Travis	78759	TX	3.15	17482	10/12/2009	30.40	-97.75

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1161	Dallas	Dallas	75229	TX	3.08	19583	10/13/2009	32.90	-96.86
1162	Collin	Collin	75287	TX	1.75	10500	10/13/2009	33.00	-96.84
1163	Williamson	Williamson	78665	TX	2.63	21056	10/13/2009	30.35	-98.53
1164	Travis	Travis	78746	TX	2.45	14940	10/13/2009	30.31	-97.82
1165	Travis	Travis	78702	TX	3.33	18478	10/14/2009	30.26	-97.71
1166	Collin	Collin	75074	TX	10.80		10/15/2009	33.02	-96.67
1167	Williamson	Williamson	78682	TX	100.62	655813	10/15/2009	30.52	-97.67
1168	Travis	Travis	78759	TX	9.00	64027	10/15/2009	30.40	-97.75
1169	Travis	Travis	78731	TX	8.80	50200	10/16/2009	30.35	-97.77
1170	Travis	Travis	78748	TX	3.15	20779	10/19/2009	30.17	-97.82
1171	Travis	Travis	78732	TX	3.15	19486	10/19/2009	30.38	-97.90
1172	Travis	Travis	78734	TX	13.48	72896	10/19/2009	30.37	-97.95
1173	Travis	Travis	78759	TX	7.18	37055	10/19/2009	30.40	-97.75
1174	Travis	Travis	78748	TX	5.25	29690	10/19/2009	30.17	-97.82
1175	Travis	Travis	78730	TX	8.19	54203	10/20/2009	30.37	-97.84
1176	Dallas	Dallas	75234	TX	3.01	20000	10/21/2009	32.92	-96.89
1177	Collin	Collin	75075	TX	2.25	16675	10/22/2009	33.02	-96.74
1178	Ellis	Ellis	75125	TX	4.05	27720	10/22/2009	32.52	-96.64
1179	Nacogdoches	Rusk	75961	TX	10.80	67188	10/22/2009	31.57	-94.54
1180	Travis	Travis	78753	TX	6.05	30059	10/22/2009	30.39	-97.67
1181	Travis	Travis	78704	TX	17.48	130940	10/22/2009	30.24	-97.77
1182	Williamson	Williamson	78729	TX	4.55	30986	10/23/2009	30.45	-97.76
1183	Travis	Travis	78704	TX	4.32	28892	10/27/2009	30.24	-97.77
1184	Tarrant	Tarrant	76020	TX	6.30	45000	10/28/2009	32.96	-97.55
1185	Travis	Travis	78723	TX	7.00	34595	10/28/2009	30.31	-97.68
1186	Travis	Travis	78733	TX	14.00	80740	11/2/2009	30.33	-97.87
1187	Travis	Travis	78750	TX	8.80	44877	11/3/2009	30.43	-97.80
1188	Williamson	Williamson	78729	TX	4.73	27181	11/4/2009	30.45	-97.76
1189	Travis	Travis	78746	TX	7.88	39155	11/5/2009	30.31	-97.82
1190	Travis	Travis	78747	TX	3.68	20599	11/5/2009	30.13	-97.73
1191	Bell	Williamson	76513	TX	3.12	21210	11/6/2009	31.07	-97.50
1192	Dallas	Dallas	75248	TX	3.89	28432	11/6/2009	32.97	-96.78
1193	Bell	Williamson	76571	TX	5.25	31372	11/6/2009	30.93	-97.59
1194	Collin	Collin	75023	TX	3.03	24933	11/6/2009	33.05	-96.70
1195	Travis	Travis	78756	TX	4.50	28125	11/9/2009	30.32	-97.74
1196	Travis	Travis	78731	TX	7.35	36729	11/9/2009	30.35	-97.77
1197	Travis	Travis	78746	TX	23.63	147233	11/9/2009	30.31	-97.82
1198	Travis	Travis	78758	TX	3.78	25621	11/10/2009	30.39	-97.70
1199	Travis	Travis	78746	TX	3.15	21784	11/10/2009	30.31	-97.82
1200	Collin	Collin	75074	TX	10.08	89700	11/11/2009	33.02	-96.67

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1201	Tom Green	Williamson	76935	TX	5.18	29289	11/11/2009	30.99	-100.30
1202	Eastland	Hood	76470	TX	3.15	22780	11/11/2009	32.49	-98.64
1203	Rockwall	Rockwall	75087	TX	7.20	55500	11/11/2009	32.95	-96.44
1204	Johnson	Johnson	76033	TX	3.00	23205	11/11/2009	32.29	-97.50
1205	Bell	Williamson	76513	TX	7.48	51986	11/11/2009	31.07	-97.50
1206	Bell	Williamson	76513	TX	7.59	53130	11/12/2009	31.07	-97.50
1207	Winkler	El Paso	79745	TX	1.12	7339	11/12/2009	31.84	-102.85
1208	Dallas	Dallas	75214	TX	2.16	19262	11/12/2009	32.82	-96.74
1209	Smith	Smith	75706	TX	10.80	54627	11/14/2009	32.41	-95.28
1210	Tarrant	Tarrant	76107	TX	1.10	8320	11/15/2009	32.74	-97.38
1211	Tarrant	Tarrant	76017	TX	2.10	15750	11/15/2009	32.66	-97.15
1212	Tarrant	Tarrant	76108	TX	3.60	31010	11/15/2009	32.79	-97.50
1213	Denton	Denton	76209	TX	3.30	27579	11/15/2009	33.23	-97.11
1214	Ellis	Ellis	75119	TX	6.30	78750	11/15/2009	32.32	-96.62
1215	Somervell	Hood	76043	TX	8.20	97920	11/15/2009	32.19	-97.76
1216	Travis	Travis	78746	TX	6.30	38250	11/16/2009	30.31	-97.82
1217	Bexar	Bexar	78261	TX	20.80	124000	11/16/2009	29.70	-98.41
1218	Collin	Collin	75002	TX	4.40	34776	11/17/2009	33.09	-96.61
1219	Dallas	Dallas	75006	TX	4.20	33218	11/17/2009	32.97	-96.89
1220	Williamson	Williamson	78664	TX	3.76	21244	11/17/2009	30.50	-97.64
1221	Tarrant	Tarrant	76051	TX	5.54	33803	11/17/2009	32.95	-97.07
1222	Dallas	Dallas	75275	TX	15.30		11/18/2009	32.84	-96.78
1223	Travis	Travis	78750	TX	4.62	24486	11/18/2009	30.43	-97.80
1224	Dallas	Dallas	75234	TX	24.30	198502	11/19/2009	32.92	-96.89
1225	Grayson	Collin	75021	TX	2.46	29520	11/19/2009	33.74	-96.47
1226	Dallas	Dallas	75050	TX	7.39	53311	11/19/2009	32.78	-97.02
1227	Dallas	Dallas	75216	TX	4.38	27138	11/20/2009	32.70	-96.80
1228	Tarrant	Tarrant	76020	TX	6.30	47725	11/20/2009	32.96	-97.55
1229	Bell	Williamson	76571	TX	5.25	31197	11/20/2009	30.93	-97.59
1230	McLennan	Ellis	76705	TX	10.00	90000	11/20/2009	31.59	-97.07
1231	Travis	Travis	78759	TX	3.15	18664	11/23/2009	30.40	-97.75
1232	Travis	Travis	78760	TX	0.70	4148	11/23/2009	30.21	-97.73
1233	Travis	Travis	78727	TX	2.16	14507	11/23/2009	30.43	-97.71
1234	Comal	Comal	78132	TX	0.60	3250	11/23/2009	29.74	-98.20
1235	Bexar	Bexar	78251	TX	4.68	27138	11/23/2009	29.47	-98.68
1236	Bexar	Bexar	78209	TX	2.80	24200	11/23/2009	29.49	-98.45
1237	Travis	Travis	78732	TX	9.66	56074	11/24/2009	30.38	-97.90
1238	Smith	Smith	75762	TX	3.15	28350	11/25/2009	32.21	-95.40
1239	Collin	Collin	75023	TX	7.88	45815	11/25/2009	33.06	-96.71
1240	Dallas	Dallas	75220	TX	10.50	68250	11/25/2009	32.86	-96.87

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1241	Collin	Collin	75002	TX	5.40	55532	11/25/2009	33.09	-96.61
1242	Travis	Travis	78723	TX	12.43	56535	11/25/2009	30.31	-97.68
1243	Travis	Travis	78703	TX	3.15	25289	11/25/2009	30.29	-97.77
1244	El Paso	El Paso	79934	TX	2.05	13424	11/28/2009	31.94	-106.45
1245	Travis	Travis	78723	TX	4.73	22825	11/30/2009	30.31	-97.68
1246	Travis	Travis	78738	TX	7.18	38740	11/30/2009	30.31	-97.98
1247	Tarrant	Tarrant	76123	TX	1.62	9720	12/1/2009	32.62	-97.39
1248	Dallas	Dallas	75150	TX	4.32	48000	12/1/2009	32.82	-96.63
1249	Travis	Travis	78759	TX	5.25	27438	12/1/2009	30.40	-97.75
1250	Travis	Travis	78759	TX	5.60	29963	12/1/2009	30.40	-97.75
1251	Somervell	Hood	76043	TX	8.28	54324	12/2/2009	32.16	-97.83
1252	Collin	Collin	75023	TX	3.02	24933	12/2/2009	33.06	-96.71
1253	Travis	Travis	78745	TX	3.33	19409	12/2/2009	30.21	-97.80
1254	Travis	Travis	78734	TX	3.15	16882	12/2/2009	30.37	-97.95
1255	Travis	Travis	78723	TX	5.78	28887	12/3/2009	30.31	-97.68
1256	Denton	Denton	76247	TX	8.28	47840	12/4/2009	33.11	-97.33
1257	Bell	Williamson	76559	TX	4.92	31415	12/4/2009	31.09	-97.62
1258	Travis	Travis	78732	TX	7.14	48025	12/4/2009	30.38	-97.90
1259	Dallas	Dallas	75001	TX	4.20	29947	12/5/2009	32.97	-96.83
1260	Tarrant	Tarrant	76179	TX	8.80	53967	12/7/2009	32.92	-97.46
1261	Galveston	Galveston	77546	TX	3.15	23256	12/7/2009	29.51	-95.20
1262	McLennan	Ellis	76708	TX	5.10	53570	12/7/2009	31.64	-97.21
1263	Bell	Williamson	76543	TX	1.58	8062	12/8/2009	31.14	-97.67
1264	Dallas	Dallas	75248	TX	4.20	31550	12/8/2009	32.97	-96.78
1265	Denton	Denton	75022	TX	5.06	32894	12/8/2009	33.02	-97.13
1266	Dallas	Dallas	75214	TX	2.10	16238	12/8/2009	32.82	-96.74
1267	Travis	Travis	78733	TX	5.00	28400	12/8/2009	30.33	-97.87
1268	Bell	Williamson	76542	TX	2.00	18810	12/9/2009	31.01	-97.72
1269	Travis	Travis	78723	TX	8.75	39248	12/10/2009	30.31	-97.68
1270	Williamson	Williamson	78681	TX	7.00	35151	12/11/2009	30.54	-97.73
1271	Lampasas	Williamson	76539	TX	5.25	26511	12/11/2009	31.04	-97.98
1272	Collin	Collin	75173	TX	8.05	45100	12/11/2009	33.06	-96.38
1273	Ellis	Ellis	75154	TX	10.12	58448	12/11/2009	32.51	-96.77
1274	Liberty	Liberty	77575	TX	10.15	50540	12/11/2009	30.05	-94.75
1275	Dallas	Dallas	75230	TX	3.04	23945	12/11/2009	32.90	-96.80
1276	Travis	Travis	78705	TX	1.58	8155	12/11/2009	30.30	-97.74
1277	Travis	Travis	78721	TX	2.80	18975	12/11/2009	30.27	-97.68
1278	Bexar	Bexar	78230	TX	5.25	32084	12/11/2009	29.54	-98.56
1279	Bexar	Bexar	78254	TX	3.78	21012	12/11/2009	29.53	-98.78
1280	Montgomery	Montgomery	77304	TX	2.80	20728	12/13/2009	30.33	-95.51



Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1281	Montgomery	Montgomery	77381	TX	5.00	36136	12/13/2009	30.17	-95.51
1282	Denton	Denton	75067	TX	9.03	38562	12/13/2009	33.01	-97.00
1283	Smith	Smith	75703	TX	5.40	34284	12/13/2009	32.27	-95.33
1284	Montgomery	Montgomery	77357	TX	5.60	34562	12/13/2009	30.18	-95.04
1285	Dallas	Dallas	75116	TX	2.64	14520	12/14/2009	32.66	-96.92
1286	Dallas	Dallas	75205	TX	5.52	31350	12/14/2009	32.83	-96.80
1287	Dallas	Dallas	75204	TX	2.70	17318	12/14/2009	32.80	-96.79
1288	Denton	Denton	76208	TX	10.08	54927	12/15/2009	33.20	-97.06
1289	Dallas	Dallas	75019	TX	2.70	25074	12/15/2009	32.96	-97.00
1290	Angelina	Rusk	75904	TX	5.85	35275	12/15/2009	31.33	-94.83
1291	Dallas	Dallas	75116	TX	1.05	17840	12/15/2009	32.66	-96.92
1292	Tarrant	Tarrant	76107	TX	1.05	17840	12/15/2009	32.74	-97.38
1293	Dallas	Dallas	75048	TX	3.04	29049	12/15/2009	32.96	-96.58
1294	Collin	Collin	75009	TX	1.05	17840	12/15/2009	33.32	-96.77
1295	Somervell	Hood	76043	TX	8.28	54324	12/16/2009	32.19	-97.76
1296	Galveston	Galveston	77546	TX	4.20	26800	12/16/2009	29.51	-95.20
1297	Travis	Travis	78723	TX	8.75	39586	12/16/2009	30.31	-97.68
1298	Travis	Travis	78723	TX	6.91	39313	12/16/2009	30.31	-97.68
1299	McLennan	Ellis	76705	TX	0.37	3000	12/17/2009	31.59	-97.07
1300	Collin	Collin	75074	TX	0.72	5000	12/17/2009	33.02	-96.67
1301	Dallas	Dallas	75217	TX	3.28	54152	12/17/2009	32.71	-96.67
1302	Tarrant	Tarrant	76108	TX	9.80	70153	12/17/2009	32.79	-97.50
1303	Williamson	Williamson	78665	TX	9.45	66506	12/17/2009	30.35	-98.53
1304	Tarrant	Tarrant	76051	TX	10.50	53901	12/17/2009	32.95	-97.07
1305	Tarrant	Tarrant	76022	TX	1.60	13151	12/18/2009	32.83	-97.14
1306	Travis	Travis	78660	TX	6.30	29319	12/18/2009	30.46	-97.60
1307	Ellis	Ellis	75165	TX	4.73	34358	12/18/2009	32.40	-96.79
1308	Ellis	Ellis	75165	TX	5.25	35000	12/18/2009	32.40	-96.79
1309	Smith	Smith	75706	TX	10.80	55000	12/19/2009	32.41	-95.28
1310	Travis	Travis	78750	TX	3.15	16685	12/21/2009	30.43	-97.80
1311	Travis	Travis	78750	TX	10.32	60607	12/21/2009	30.43	-97.80
1312	Travis	Travis	78730	TX	7.36	43736	12/21/2009	30.37	-97.84
1313	Collin	Collin	75023	TX	4.56	34800	12/22/2009	33.06	-96.73
1314	Midland	El Paso	79707	TX	5.46	34500	12/23/2009	32.06	-102.23
1315	Midland	El Paso	79707	TX	5.98	35500	12/23/2009	32.06	-102.23
1316	Travis	Travis	78756	TX	3.85	19212	12/23/2009	30.32	-97.74
1317	Tarrant	Tarrant	76051	TX	2.16	12806	12/28/2009	32.90	-97.12
1318	Smith	Smith	75706	TX	10.80	54627	12/29/2009	32.45	-95.33
1319	Collin	Collin	75074	TX	49.14	276828	12/29/2009	33.02	-96.67
1320	Bell	Williamson	76571	TX	12.25	96032	12/29/2009	30.93	-97.59

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1321	Travis	Travis	78617	TX	8.40	40559	12/29/2009	30.15	-97.59
1322	Travis	Travis	78754	TX	7.70	37780	12/29/2009	30.36	-97.65
1323	Travis	Travis	78759	TX	3.78	17387	12/29/2009	30.40	-97.75
1324	Travis	Travis	78731	TX	6.30	26788	12/29/2009	30.35	-97.77
1325	Travis	Travis	78704	TX	3.15	13965	12/29/2009	30.24	-97.77
1326	Tarrant	Tarrant	76012	TX	5.25	48550	12/30/2009	32.76	-97.14
1327	Tarrant	Tarrant	76117	TX	5.04	34020	12/30/2009	32.81	-97.28
1328	Bell	Williamson	76513	TX	21.60	117825	12/30/2009	31.07	-97.50
1329	Jim Wells	Nueces	78332	TX	5.18	36200	12/30/2009	27.74	-98.09
1330	Travis	Travis	78759	TX	4.62	18235	12/30/2009	30.40	-97.75
1331	Travis	Travis	78732	TX	5.25	22494	12/30/2009	30.38	-97.90
1332	Travis	Travis	78704	TX	10.50	33000	12/30/2009	30.24	-97.77
1333	Travis	Travis	78732	TX	6.30	25843	12/30/2009	30.38	-97.90
1334	Travis	Travis	78704	TX	3.33	21341	12/30/2009	30.24	-97.77
1335	Travis	Travis	78735	TX	2.80	19942	12/30/2009	30.26	-97.86
1336	Travis	Travis	78723	TX	5.00	23196	12/30/2009	30.31	-97.68
1337	Williamson	Williamson	78729	TX	3.85	18674	12/30/2009	30.45	-97.76
1338	Travis	Travis	78723	TX	3.89	17680	12/30/2009	30.31	-97.68
1339	Travis	Travis	78660	TX	14.69	79827	12/30/2009	30.46	-97.60
1340	Travis	Travis	78731	TX	28.00	150289	12/30/2009	30.35	-97.77
1341	Bell	Williamson	76505	TX	5.52	48836	12/31/2009	31.10	-97.34
1342	Gregg	Gregg	75605	TX	5.52	48836	12/31/2009	32.56	-94.71
1343	Harris	Harris	77447	TX	215.60	1300000	12/31/2009	30.02	-95.86
1344	Johnson	Johnson	76033	TX	2.76		1/1/2010	32.29	-97.50
1345	Denton	Denton	75007	TX	0.45	3000	1/1/2010	33.01	-96.89
1346	Travis	Travis	78731	TX	7.00	34361	1/4/2010	30.35	-97.77
1347	Bexar	Bexar	78260	TX	4.20	22649	1/4/2010	29.69	-98.50
1348	Bexar	Bexar	78216	TX	8.75	45523	1/4/2010	29.55	-98.50
1349	Comal	Comal	78266	TX	6.30	41236	1/4/2010	29.63	-98.32
1350	Smith	Smith	75706	TX	10.80	56189	1/6/2010	32.45	-95.33
1351	Travis	Travis	78723	TX	5.00	23196	1/6/2010	30.29	-97.70
1352	Travis	Travis	78704	TX	3.33	18714	1/7/2010	30.24	-97.77
1353	Travis	Travis	78704	TX	3.33	18714	1/7/2010	30.24	-97.77
1354	Travis	Travis	78703	TX	2.22	12840	1/7/2010	30.29	-97.77
1355	Travis	Travis	78703	TX	2.22	12840	1/7/2010	30.29	-97.77
1356	Travis	Travis	78703	TX	2.22	12840	1/7/2010	30.29	-97.77
1357	Travis	Travis	78703	TX	2.22	12840	1/7/2010	30.29	-97.77
1358	Travis	Travis	78703	TX	2.22	12840	1/7/2010	30.29	-97.77
1359	Travis	Travis	78703	TX	2.22	12840	1/7/2010	30.29	-97.77
1360	Travis	Travis	78703	TX	2.22	12840	1/7/2010	30.29	-97.77

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1361	Travis	Travis	78703	TX	2.22	12840	1/7/2010	30.29	-97.77
1362	Travis	Travis	78703	TX	2.22	12840	1/7/2010	30.29	-97.77
1363	Travis	Travis	78703	TX	2.96	17120	1/7/2010	30.29	-97.77
1364	Travis	Travis	78703	TX	2.96	17120	1/7/2010	30.29	-97.77
1365	Travis	Travis	78703	TX	2.22	12840	1/7/2010	30.29	-97.77
1366	Travis	Travis	78703	TX	2.22	12840	1/7/2010	30.29	-97.77
1367	Travis	Travis	78703	TX	2.22	12840	1/7/2010	30.29	-97.77
1368	Travis	Travis	78703	TX	2.96	17120	1/7/2010	30.29	-97.77
1369	Travis	Travis	78703	TX	2.96	17120	1/7/2010	30.29	-97.77
1370	Travis	Travis	78703	TX	2.96	17120	1/7/2010	30.29	-97.77
1371	Travis	Travis	78703	TX	2.22	12840	1/7/2010	30.29	-97.77
1372	Travis	Travis	78703	TX	2.22	12840	1/7/2010	30.29	-97.77
1373	Travis	Travis	78703	TX	2.96	17120	1/7/2010	30.29	-97.77
1374	Travis	Travis	78703	TX	7.44	45000	1/7/2010	30.29	-97.77
1375	Travis	Travis	78703	TX	2.22	14000	1/7/2010	30.29	-97.77
1376	Travis	Travis	78703	TX	2.22	14000	1/7/2010	30.29	-97.77
1377	Hunt	Hunt	75428	TX	10.20	100000	1/8/2010	33.28	-95.92
1378	Hunt	Hunt	75422	TX	10.20	100000	1/8/2010	33.14	-95.92
1379	Travis	Travis	78703	TX	14.40	69936	1/8/2010	30.29	-97.77
1380	Travis	Travis	78703	TX	3.81	31494	1/8/2010	30.29	-97.77
1381	Henderson	Henderson	75758	TX	10.80	58808	1/9/2010	32.30	-95.47
1382	Jefferson	Jefferson	77706	TX	10.08	61002	1/10/2010	30.10	-94.17
1383	Dallas	Dallas	75229	TX	2.10	20459	1/10/2010	32.90	-96.86
1384	Dallas	Dallas	75006	TX	1.41	27648	1/10/2010	32.97	-96.89
1385	Johnson	Johnson	76033	TX	5.98	43154	1/11/2010	32.29	-97.50
1386	Dallas	Dallas	75019	TX	2.03	14175	1/11/2010	32.96	-97.00
1387	Tarrant	Tarrant	76182	TX	4.60	36354	1/11/2010	32.73	-97.32
1388	Denton	Denton	76247	TX	8.28	47840	1/11/2010	33.11	-97.33
1389	Collin	Collin	75074	TX	10.08	56980	1/11/2010	33.02	-96.67
1390	Hidalgo	Nueces	78539	TX	37.80	179250	1/12/2010	26.42	-98.18
1391	Hidalgo	Nueces	78539	TX	67.50	300750	1/12/2010	26.42	-98.18
1392	Angelina	Rusk	75904	TX	5.85	35275	1/12/2010	31.33	-94.83
1393	Williamson	Williamson	78665	TX	5.46	26648	1/13/2010	30.35	-98.53
1394	Dallas	Dallas	75248	TX	4.32	33055	1/13/2010	32.97	-96.78
1395	Denton	Denton	76247	TX	3.50	23038	1/13/2010	33.11	-97.33
1396	Hunt	Hunt	75422	TX	9.60	100000	1/13/2010	33.14	-95.92
1397	Williamson	Williamson	76574	TX	7.18	37075	1/13/2010	30.57	-97.37
1398	Williamson	Williamson	78664	TX	102.00	693924	1/13/2010	30.50	-97.64
1399	Travis	Travis	78723	TX	3.50	15540	1/13/2010	30.31	-97.68
1400	Ellis	Ellis	75154	TX	10.12	58177	1/14/2010	32.52	-96.80

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1401	Midland	El Paso	79707	TX	5.46	34800	1/14/2010	32.06	-102.23
1402	Dallas	Dallas	75248	TX	6.15	44900	1/14/2010	32.97	-96.78
1403	Collin	Collin	75173	TX	8.05	45100	1/14/2010	33.06	-96.38
1404	Collin	Collin	75070	TX	4.23	34500	1/14/2010	33.18	-96.70
1405	Rockwall	Rockwall	75087	TX	3.96	32374	1/14/2010	32.95	-96.44
1406	Bexar	Bexar	78230	TX	5.40	23847	1/15/2010	29.57	-98.57
1407	Collin	Collin	75252	TX	7.00	38286	1/15/2010	33.00	-96.80
1408	Denton	Denton	75065	TX	4.60	26169	1/15/2010	33.12	-97.02
1409	Dallas	Dallas	75205	TX	8.40	43113	1/15/2010	32.83	-96.80
1410	Tarrant	Tarrant	76135	TX	7.92	38584	1/15/2010	32.84	-97.47
1411	Comal	Comal	78163	TX	8.40	56445	1/15/2010	29.77	-98.51
1412	Comal	Comal	78132	TX	8.05	42422	1/15/2010	29.74	-98.20
1413	Comal	Comal	78163	TX	10.50	68485	1/15/2010	29.77	-98.51
1414	Tarrant	Tarrant	76116	TX	3.85	25000	1/15/2010	32.73	-97.42
1415	Tarrant	Tarrant	76179	TX	5.95	38664	1/19/2010	32.92	-97.46
1416	Smith	Smith	75709	TX	7.88	52500	1/19/2010	32.32	-95.38
1417	Travis	Travis	78723	TX	3.50	15540	1/19/2010	30.29	-97.70
1418	Denton	Denton	76262	TX	4.00	25639	1/19/2010	33.02	-97.23
1419	Midland	El Paso	79707	TX	5.38	31512	1/20/2010	32.06	-102.23
1420	Dallas	Dallas	75243	TX	3.44	61161	1/20/2010	32.91	-96.74
1421	Dallas	Dallas	75229	TX	5.25	37861	1/20/2010	32.90	-96.86
1422	Travis	Travis	78704	TX	3.33	18714	1/20/2010	30.24	-97.77
1423	Travis	Travis	78702	TX	11.90	65030	1/20/2010	30.26	-97.71
1424	Travis	Travis	78731	TX	5.00	25972	1/20/2010	30.35	-97.77
1425	Williamson	Williamson	76574	TX	4.48	22000	1/21/2010	30.57	-97.37
1426	Tarrant	Tarrant	76116	TX	3.85	25349	1/21/2010	32.71	-97.43
1427	Travis	Travis	78731	TX	3.15	26020	1/21/2010	30.35	-97.77
1428	Travis	Travis	78759	TX	6.30	25853	1/21/2010	30.40	-97.75
1429	Travis	Travis	78734	TX	4.20	22020	1/21/2010	30.37	-97.95
1430	Kendall	Bexar	78015	TX	3.96	32635	1/21/2010	29.75	-98.65
1431	Bexar	Bexar	78253	TX	5.25	17432	1/22/2010	29.47	-98.81
1432	Mclennan	Ellis	76710	TX	3.15	17745	1/25/2010	31.53	-97.20
1433	Tarrant	Tarrant	76051	TX	2.24	13280	1/28/2010	32.95	-97.07
1434	Dallas	Dallas	75048	TX	3.04	29033	1/28/2010	32.96	-96.57
1435	Collin	Collin	75025	TX	1.00	8817	1/28/2010	33.09	-96.76
1436	Tarrant	Tarrant	76021	TX	3.64	21912	1/28/2010	32.85	-97.13
1437	Tarrant	Tarrant	76107	TX	2.16	18450	1/28/2010	32.74	-97.38
1438	Tarrant	Tarrant	76034	TX	11.76	40700	1/28/2010	32.89	-97.15
1439	Dallas	Dallas	75225	TX	2.80	23184	1/29/2010	32.87	-96.79
1440	Tarrant	Tarrant	76132	TX	1.80	14312	1/29/2010	32.66	-97.42

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1441	Tarrant	Tarrant	76036	TX	3.12	12362	1/29/2010	32.58	-97.43
1442	Travis	Travis	78763	TX	25.80	143528	1/29/2010	30.30	-97.77
1443	Bexar	Bexar	78218	TX	25.80	143528	1/29/2010	29.49	-98.39
1444	Bexar	Bexar	78249	TX	5.94	33558	1/29/2010	29.57	-98.61
1445	Webb	Nueces	78043	TX	8.40	42722	1/31/2010	27.51	-99.48
1446	Travis	Travis	78734	TX	3.17	21127	2/1/2010	30.37	-97.95
1447	Tarrant	Tarrant	76131	TX	2.80	23698	2/2/2010	32.90	-97.36
1448	Travis	Travis	78723	TX	6.30	28292	2/2/2010	30.31	-97.68
1449	Denton	Denton	76249	TX	10.50	59531	2/3/2010	33.29	-97.29
1450	Denton	Denton	76249	TX	9.80	54614	2/3/2010	33.29	-97.29
1451	Travis	Travis	78746	TX	3.15	16480	2/3/2010	30.31	-97.82
1452	Travis	Travis	78759	TX	9.80	62611	2/3/2010	30.40	-97.75
1453	Travis	Travis	78704	TX	3.33	17485	2/4/2010	30.24	-97.77
1454	Travis	Travis	78723	TX	3.50	15911	2/4/2010	30.31	-97.68
1455	Travis	Travis	78731	TX	3.33	22024	2/4/2010	30.35	-97.77
1456	Travis	Travis	78705	TX	24.32	175278	2/4/2010	30.30	-97.74
1457	Hill	Ellis	76055	TX	2.45	16400	2/5/2010	32.13	-97.20
1458	Travis	Travis	78734	TX	6.30	34071	2/5/2010	30.37	-97.95
1459	Bexar	Bexar	78233	TX	5.16	26588	2/5/2010	29.56	-98.36
1460	Dallas	Dallas	75275	TX	15.30	86445	2/8/2010	32.78	-96.80
1461	Grayson	Collin	75495	TX	5.28	29400	2/8/2010	33.43	-96.55
1462	Dallas	Dallas	75228	TX	3.60	29520	2/8/2010	32.83	-96.68
1463	Grayson	Collin	75092	TX	3.01	26827	2/8/2010	33.64	-96.73
1464	Tarrant	Tarrant	76051	TX	5.06	23158	2/8/2010	32.95	-97.07
1465	Montgomery	Montgomery	77384	TX	8.46	45595	2/9/2010	30.24	-95.49
1466	Bell	Williamson	76502	TX	4.36	32654	2/9/2010	31.11	-97.41
1467	Bell	Williamson	76502	TX	2.69	19680	2/9/2010	31.11	-97.41
1468	Montgomery	Montgomery	77384	TX	8.46	44087	2/9/2010	30.24	-95.49
1469	Collin	Collin	75074	TX	3.24	24658	2/10/2010	33.02	-96.67
1470	Denton	Denton	75007	TX	1.26	11151	2/12/2010	33.01	-96.89
1471	Dallas	Dallas	75104	TX	5.20	35500	2/12/2010	32.59	-96.99
1472	Collin	Collin	75252	TX	10.20	49939	2/12/2010	33.00	-96.80
1473	Collin	Collin	75074	TX	8.10	48600	2/15/2010	33.04	-96.68
1474	Denton	Denton	76210	TX	95.04	462641	2/16/2010	33.14	-97.08
1475	Collin	Collin	75025	TX	2.80	17717	2/16/2010	33.09	-96.76
1476	Travis	Travis	78746	TX	3.20	22000	2/16/2010	30.31	-97.82
1477	Travis	Travis	78736	TX	6.30	29051	2/16/2010	30.25	-97.95
1478	Ector	El Paso	79762	TX	10.58	82944	2/17/2010	31.91	-102.45
1479	Bexar	Bexar	78209	TX	8.40	48080	2/17/2010	29.49	-98.45
1480	Bexar	Bexar	78023	TX	3.15	18946	2/17/2010	29.62	-98.73

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
1481	Denton	Denton	75022	TX	4.73	28086	2/18/2010	33.02	-97.13
1482	Rockwall	Rockwall	75087	TX	2.30		2/18/2010	32.95	-96.44
1483	Williamson	Williamson	78665	TX	3.85	19308	2/18/2010	30.35	-98.53
1484	Bexar	Bexar	78256	TX	6.00	51850	2/18/2010	29.62	-98.62
1485	Kendall	Bexar	78006	TX	3.15	17042	2/18/2010	29.92	-98.70
1486	Travis	Travis	78721	TX	3.15	20231	2/19/2010	30.27	-97.68
1487	Travis	Travis	78762	TX	2.20	14627	2/19/2010	30.26	-97.72
1488	Travis	Travis	78721	TX	1.58	11731	2/19/2010	30.27	-97.68
1489	Travis	Travis	78721	TX	2.80	18464	2/19/2010	30.27	-97.68
1490	Travis	Travis	78721	TX	2.80	15819	2/19/2010	30.27	-97.68
1491	Travis	Travis	78762	TX	3.15	16962	2/19/2010	30.26	-97.72
1492	Travis	Travis	78762	TX	5.20	27383	2/19/2010	30.26	-97.72
1493	Bexar	Bexar	78230	TX	5.06	23847	2/19/2010	29.54	-98.56
1494	Grayson	Collin	75076	TX	2.00	12567	2/22/2010	33.77	-96.73
1495	Collin	Collin	75098	TX	1.00	34000	2/22/2010	33.02	-96.51
1496	Travis	Travis	78759	TX	5.60	28172	2/22/2010	30.40	-97.75
1497	Travis	Travis	78745	TX	2.99	19435	2/22/2010	30.21	-97.80
1498	Bexar	Bexar	78245	TX	8.40	43453	2/22/2010	29.40	-98.74
1499	Collin	Collin	75002	TX	5.40	31376	2/23/2010	33.09	-96.61
1500	Denton	Denton	75007	TX	3.24	25784	2/23/2010	33.01	-96.89
1501	Collin	Collin	75002	TX	8.40	44533	2/23/2010	33.09	-96.61
1502	Tarrant	Tarrant	76108	TX	5.60	28820	2/23/2010	32.78	-97.55
1503	Tarrant	Tarrant	76034	TX	4.20	32581	2/23/2010	32.89	-97.15
1504	Travis	Travis	78703	TX	13.33	112251	2/23/2010	30.29	-97.77
1505	Cameron	Nueces	78566	TX	10.00	53636	2/24/2010	26.11	-97.42
1506	Taylor	Hood	79605	TX	3.50	23026	2/24/2010	32.44	-99.78
1507	Tarrant	Tarrant	76107	TX	10.20	73244	2/24/2010	32.74	-97.38
1508	Dallas	Dallas	75238	TX	7.00	42559	2/24/2010	32.88	-96.71
1509	Cooke	Denton	76240	TX	21.00	151200	2/25/2010	33.64	-97.14
1510	Cooke	Denton	76240	TX	25.60	134816	2/25/2010	33.64	-97.14
1511	Dallas	Dallas	75248	TX	10.50	58116	2/26/2010	32.97	-96.80
1512	Dallas	Dallas	75214	TX	2.25	22000	2/28/2010	32.82	-96.74
1513	Dallas	Dallas	75214	TX	1.10	8872	2/28/2010	32.82	-96.74
1514	Travis	Travis	78704	TX	9.66	73346	3/1/2010	30.24	-97.77
1515	Travis	Travis	78723	TX	8.75	39248	3/1/2010	30.31	-97.68
1516	Travis	Travis	78746	TX	6.30	26711	3/1/2010	30.31	-97.82
1517	Hardin	Hardin	77659	TX	5.00	30000	3/2/2010	30.15	-94.46
1518	Denton	Denton	75007	TX	7.43	41695	3/2/2010	33.01	-96.89
1519	Midland	El Paso	79707	TX	5.46	38763	3/2/2010	32.06	-102.23
1520	Travis	Travis	78759	TX	6.30	30020	3/2/2010	30.40	-97.75

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1521	Travis	Travis	78704	TX	6.30	32174	3/2/2010	30.24	-97.77
1522	Travis	Travis	78704	TX	3.33	17485	3/3/2010	30.24	-97.77
1523	Dallas	Dallas	75214	TX	2.31	15573	3/3/2010	32.84	-96.75
1524	Smith	Smith	75701	TX	1.05	17640	3/4/2010	32.32	-95.30
1525	Dallas	Dallas	75248	TX	9.45	46022	3/4/2010	32.97	-96.80
1526	Travis	Travis	78746	TX	5.18	29217	3/4/2010	30.31	-97.82
1527	Tarrant	Tarrant	76137	TX	9.98	58669	3/5/2010	32.85	-97.30
1528	Tarrant	Tarrant	76036	TX	3.50	27845	3/5/2010	32.58	-97.43
1529	Dallas	Dallas	75220	TX	4.40	24531	3/5/2010	32.86	-96.87
1530	Denton	Denton	75034	TX	9.72	50438	3/5/2010	33.15	-96.87
1531	Travis	Travis	78660	TX	2.31	14063	3/5/2010	30.46	-97.60
1532	Travis	Travis	78704	TX	3.33	17485	3/5/2010	30.24	-97.77
1533	Travis	Travis	78702	TX	3.50	15110	3/5/2010	30.26	-97.71
1534	Travis	Travis	78754	TX	3.24	16617	3/8/2010	30.36	-97.65
1535	Bexar	Bexar	78213	TX	3.80	20175	3/8/2010	29.50	-98.52
1536	Bexar	Bexar	78259	TX	10.30	57147	3/8/2010	29.62	-98.43
1537	Travis	Travis	78728	TX	11.70	45396	3/9/2010	30.46	-97.68
1538	Williamson	Williamson	78681	TX	6.65	33613	3/9/2010	30.52	-97.71
1539	Montgomery	Montgomery	77301	TX	5.25	31902	3/10/2010	30.31	-95.43
1540	Tarrant	Tarrant	76012	TX	5.25	37318	3/10/2010	32.76	-97.14
1541	Smith	Smith	75703	TX	4.50	27000	3/10/2010	32.27	-95.33
1542	Williamson	Williamson	78626	TX	6.16	27342	3/10/2010	30.70	-97.59
1543	Travis	Travis	78704	TX	5.98	31938	3/10/2010	30.24	-97.77
1544	Travis	Travis	78746	TX	3.17	25744	3/10/2010	30.31	-97.82
1545	Travis	Travis	78723	TX	1.28	11043	3/10/2010	30.31	-97.68
1546	Denton	Denton	75022	TX	10.12	38011	3/11/2010	33.03	-97.10
1547	Dallas	Dallas	75229	TX	42.50	250000	3/11/2010	32.90	-96.86
1548	Denton	Denton	75022	TX	10.12	39960	3/11/2010	33.02	-97.13
1549	Montgomery	Montgomery	77365	TX	1.05	10500	3/12/2010	30.12	-95.29
1550	Montgomery	Montgomery	77365	TX	1.10	10500	3/12/2010	30.12	-95.29
1551	Angelina	Rusk	75901	TX	6.94	34284	3/12/2010	31.29	-94.67
1552	Angelina	Rusk	75904	TX	7.17	34284	3/12/2010	31.33	-94.83
1553	Bexar	Bexar	78258	TX	5.60	37979	3/12/2010	29.65	-98.47
1554	Comal	Comal	78266	TX	3.50	22685	3/12/2010	29.63	-98.32
1555	Bexar	Bexar	78217	TX	14.80	87171	3/13/2010	29.54	-98.42
1556	Collin	Collin	75023	TX	4.56	33850	3/15/2010	33.05	-96.73
1557	Grayson	Collin	75076	TX	10.12	42058	3/16/2010	33.77	-96.73
1558	Travis	Travis	78660	TX	7.20	34046	3/16/2010	30.46	-97.60
1559	Tarrant	Tarrant	76060	TX	8.51	56837	3/16/2010	32.64	-97.22
1560	Travis	Travis	78703	TX	4.46	35079	3/16/2010	30.29	-97.77

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1561	Bexar	Bexar	78249	TX	10.08	57658	3/16/2010	29.57	-98.61
1562	Bexar	Bexar	78209	TX	3.85	20269	3/16/2010	29.49	-98.45
1563	Denton	Denton	76262	TX	4.20	14700	3/17/2010	33.02	-97.23
1564	Travis	Travis	78732	TX	9.20	45540	3/17/2010	30.38	-97.90
1565	Travis	Travis	78733	TX	6.30	32853	3/17/2010	30.33	-97.87
1566	Travis	Travis	78745	TX	3.68	16573	3/19/2010	30.21	-97.80
1567	Travis	Travis	78759	TX	3.33	17120	3/19/2010	30.40	-97.75
1568	Bexar	Bexar	78250	TX	3.50	16004	3/19/2010	29.50	-98.67
1569	Jim Wells	Nueces	78332	TX	2.59	11895	3/23/2010	27.74	-98.09
1570	Dallas	Dallas	75248	TX	6.93	53708	3/23/2010	32.97	-96.80
1571	Dallas	Dallas	75062	TX	5.52	23263	3/25/2010	32.85	-96.97
1572	Travis	Travis	78759	TX	5.25	29999	3/25/2010	30.40	-97.75
1573	Williamson	Williamson	78664	TX	8.19	49688	3/26/2010	30.50	-97.66
1574	Travis	Travis	78731	TX	6.21	44601	3/26/2010	30.35	-97.77
1575	Dallas	Dallas	75214	TX	3.87	36000	3/28/2010	32.82	-96.74
1576	Cooke	Denton	76252	TX	5.88	30000	3/29/2010	33.69	-97.42
1577	Dallas	Dallas	75205	TX	2.00	19073	3/29/2010	32.83	-96.80
1578	Tarrant	Tarrant	76054	TX	6.67	35910	3/30/2010	32.86	-97.18
1579	Jim Wells	Nueces	78332	TX	2.00	12000	4/1/2010	27.74	-98.09
1580	Travis	Travis	78749	TX	5.64	29789	4/2/2010	30.22	-97.86
1581	Taylor	Hood	79601	TX	10.08		4/5/2010	32.57	-99.68
1582	Bowie	Upshur	75570	TX	10.08	53600	4/5/2010	33.49	-94.44
1583	Dallas	Dallas	75229	TX	5.40	36336	4/5/2010	32.90	-96.86
1584	Travis	Travis	78727	TX	3.15	24901	4/5/2010	30.43	-97.71
1585	Travis	Travis	78738	TX	6.30	29316	4/5/2010	30.31	-97.98
1586	Bexar	Bexar	78261	TX	1.48	22980	4/5/2010	29.70	-98.41
1587	Bexar	Bexar	78212	TX	5.25	21638	4/5/2010	29.46	-98.50
1588	Bexar	Bexar	78245	TX	23.10	111572	4/5/2010	29.40	-98.74
1589	Bexar	Bexar	78259	TX	5.88	33588	4/5/2010	29.62	-98.43
1590	Tarrant	Tarrant	76052	TX	2.16	17152	4/6/2010	32.97	-97.37
1591	Bexar	Bexar	78245	TX	5.40	25774	4/7/2010	29.43	-98.66
1592	Galveston	Galveston	77546	TX	11.20	61985	4/7/2010	29.51	-95.20
1593	Travis	Travis	78753	TX	5.60	25964	4/7/2010	30.39	-97.67
1594	Travis	Travis	78703	TX	5.25	33651	4/7/2010	30.29	-97.77
1595	Travis	Travis	78660	TX	4.73	24035	4/8/2010	30.46	-97.60
1596	Travis	Travis	78660	TX	8.93	40859	4/8/2010	30.46	-97.60
1597	Travis	Travis	78762	TX	1.58	12244	4/8/2010	30.26	-97.72
1598	Travis	Travis	78723	TX	4.73	21169	4/8/2010	30.31	-97.68
1599	Smith	Smith	75704	TX	6.15	26064	4/9/2010	32.40	-95.41
1600	Denton	Denton	76226	TX	5.76	39979	4/9/2010	33.12	-97.16



Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1601	Collin	Collin	75002	TX	10.15	51688	4/9/2010	33.09	-96.61
1602	Williamson	Williamson	78665	TX	1.75	10649	4/9/2010	30.55	-97.62
1603	Bexar	Bexar	78260	TX	7.00	60707	4/9/2010	29.69	-98.50
1604	Bexar	Bexar	78213	TX	1.10	5338	4/9/2010	29.50	-98.52
1605	Hidalgo	Nueces	78573	TX	10.75	62359	4/12/2010	26.29	-98.30
1606	Travis	Travis	78753	TX	2.52	11858	4/13/2010	30.39	-97.67
1607	Travis	Travis	78757	TX	5.25	22979	4/13/2010	30.35	-97.74
1608	Taylor	Hood	79601	TX	10.08	68040	4/14/2010	32.55	-99.66
1609	Denton	Denton	75022	TX	10.80	58870	4/14/2010	33.02	-97.13
1610	Travis	Travis	78702	TX	3.15	18792	4/14/2010	30.26	-97.71
1611	Travis	Travis	78735	TX	2.46	16800	4/14/2010	30.26	-97.86
1612	Bexar	Bexar	78258	TX	5.25	29565	4/14/2010	29.65	-98.47
1613	Bexar	Bexar	78254	TX	7.00	39182	4/14/2010	29.53	-98.78
1614	Bexar	Bexar	78248	TX	7.00	34259	4/14/2010	29.59	-98.53
1615	Bexar	Bexar	78232	TX	3.50	23230	4/14/2010	29.59	-98.46
1616	Bexar	Bexar	78255	TX	5.25	25687	4/14/2010	29.66	-98.67
1617	Bexar	Bexar	78212	TX	4.60	26780	4/14/2010	29.46	-98.50
1618	Bexar	Bexar	78249	TX	7.00	37713	4/15/2010	29.57	-98.61
1619	El Paso	El Paso	79934	TX	2.87	15613	4/17/2010	31.94	-106.45
1620	Collin	Collin	75093	TX	12.15		4/19/2010	33.04	-96.82
1621	Travis	Travis	78702	TX	3.15	22089	4/19/2010	30.26	-97.71
1622	Bexar	Bexar	78209	TX	2.40	29194	4/20/2010	29.49	-98.45
1623	Bexar	Bexar	78245	TX	5.40	25774	4/20/2010	29.40	-98.74
1624	Bexar	Bexar	78231	TX	3.85	23062	4/20/2010	29.58	-98.54
1625	Dallas	Dallas	75224	TX	6.90	39775	4/21/2010	32.71	-96.84
1626	Comal	Comal	78266	TX	42.30	423000	4/21/2010	29.63	-98.32
1627	Williamson	Williamson	78626	TX	2.30	11960	4/22/2010	30.70	-97.59
1628	Collin	Collin	75075	TX	5.52	34320	4/23/2010	33.02	-96.74
1629	Archer	Parker	76351	TX	9.50	37193	4/23/2010	33.60	-98.68
1630	Henderson	Henderson	75156	TX	10.12	86020	4/26/2010	32.24	-96.08
1631	Travis	Travis	78762	TX	2.80	15752	4/26/2010	30.26	-97.72
1632	Travis	Travis	78704	TX	4.97	34776	4/26/2010	30.24	-97.77
1633	Travis	Travis	78733	TX	5.64	32994	4/26/2010	30.33	-97.87
1634	Travis	Travis	78704	TX	4.20	22924	4/26/2010	30.24	-97.77
1635	Travis	Travis	78758	TX	1.38	9315	4/26/2010	30.39	-97.70
1636	Travis	Travis	78721	TX	2.52	14793	4/27/2010	30.27	-97.68
1637	Travis	Travis	78704	TX	3.33	19000	4/28/2010	30.24	-97.77
1638	Travis	Travis	78704	TX	3.33	19000	4/28/2010	30.24	-97.77
1639	Travis	Travis	78704	TX	3.33	19000	4/28/2010	30.24	-97.77
1640	Travis	Travis	78704	TX	3.33	19000	4/28/2010	30.24	-97.77

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1641	Travis	Travis	78704	TX	3.33	19000	4/28/2010	30.24	-97.77
1642	Travis	Travis	78704	TX	3.33	19000	4/28/2010	30.24	-97.77
1643	Travis	Travis	78704	TX	3.33	19000	4/28/2010	30.24	-97.77
1644	Travis	Travis	78704	TX	3.33	19000	4/28/2010	30.24	-97.77
1645	Travis	Travis	78704	TX	3.33	19000	4/28/2010	30.24	-97.77
1646	Travis	Travis	78704	TX	3.33	19000	4/28/2010	30.24	-97.77
1647	Travis	Travis	78704	TX	3.33	19000	4/28/2010	30.24	-97.77
1648	Travis	Travis	78731	TX	4.44	21712	4/28/2010	30.35	-97.77
1649	Bell	Williamson	76502	TX	2.82	19035	4/30/2010	31.11	-97.41
1650	Tarrant	Tarrant	76051	TX	3.01	29498	4/30/2010	32.95	-97.07
1651	Collin	Collin	75075	TX	5.52	33520	5/3/2010	33.02	-96.74
1652	Smith	Smith	75789	TX	10.00	55995	5/3/2010	32.14	-95.08
1653	Dallas	Dallas	75062	TX	3.40	17170	5/3/2010	32.85	-96.97
1654	Travis	Travis	78745	TX	4.38	21989	5/3/2010	30.21	-97.80
1655	Dallas	Dallas	75224	TX	4.09	46924	5/4/2010	32.71	-96.84
1656	Dallas	Dallas	75050	TX	50.40	272700	5/5/2010	32.76	-96.96
1657	Bexar	Bexar	78253	TX	20.64	157500	5/5/2010	29.49	-98.71
1658	Bexar	Bexar	78259	TX	5.46	27871	5/5/2010	29.63	-98.44
1659	Dallas	Dallas	75051	TX	100.80	511100	5/5/2010	32.74	-97.02
1660	Tarrant	Tarrant	76148	TX	5.10	25755	5/5/2010	32.86	-97.25
1661	Travis	Travis	78749	TX	3.15	25007	5/5/2010	30.22	-97.86
1662	Travis	Travis	78727	TX	4.93	26473	5/5/2010	30.43	-97.71
1663	Bexar	Bexar	78255	TX	4.72	25059	5/5/2010	29.66	-98.67
1664	Bexar	Bexar	78230	TX	5.80	36874	5/5/2010	29.54	-98.56
1665	Webb	Nueces	78043	TX	30.45	146690	5/6/2010	27.58	-99.15
1666	Bell	Williamson	76502	TX	5.98	42813	5/6/2010	31.11	-97.41
1667	Grimes	Montgomery	77868	TX	10.50	77734	5/7/2010	30.34	-96.03
1668	Bexar	Bexar	78247	TX	2.45	13727	5/7/2010	29.59	-98.41
1669	Medina	Bexar	78056	TX	4.20	22337	5/7/2010	29.51	-98.99
1670	Webb	Nueces	78043	TX	30.45	146690	5/9/2010	27.51	-99.48
1671	Kendall	Bexar	78015	TX	10.80	51001	5/10/2010	29.73	-98.63
1672	Tarrant	Tarrant	76021	TX	251.50		5/10/2010	32.85	-97.14
1673	Nueces	Nueces	78373	TX	6.36	32580	5/10/2010	27.67	-97.18
1674	Travis	Travis	78703	TX	3.15	19466	5/10/2010	30.29	-97.77
1675	Travis	Travis	78758	TX	6.30	28791	5/10/2010	30.39	-97.70
1676	Travis	Travis	78703	TX	4.65	43655	5/10/2010	30.29	-97.77
1677	Johnson	Johnson	76028	TX	7.88	42061	5/11/2010	32.53	-97.29
1678	Smith	Smith	75703	TX	8.10	52650	5/11/2010	32.27	-95.33
1679	Dallas	Dallas	75230	TX	5.52	34500	5/12/2010	32.90	-96.80
1680	Collin	Collin	75025	TX	6.97	46351	5/12/2010	33.09	-96.76

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
1681	Travis	Travis	78746	TX	5.03	29009	5/12/2010	30.31	-97.82
1682	Travis	Travis	78741	TX	2.80	9592	5/12/2010	30.23	-97.71
1683	Bexar	Bexar	78258	TX	5.25	28000	5/13/2010	29.65	-98.47
1684	Bexar	Bexar	78209	TX	5.25	27792	5/13/2010	29.49	-98.45
1685	Dallas	Dallas	75214	TX	7.36	41584	5/14/2010	32.82	-96.74
1686	McLennan	Ellis	76712	TX	10.12	48447	5/14/2010	31.53	-97.25
1687	Bexar	Bexar	78259	TX	5.46	28871	5/14/2010	29.62	-98.43
1688	Hidalgo	Nueces	78596	TX	5.16	35393	5/17/2010	26.17	-97.98
1689	Travis	Travis	78617	TX	2.80	12291	5/18/2010	30.15	-97.59
1690	Bexar	Bexar	78232	TX	4.86	21892	5/19/2010	29.56	-98.47
1691	Travis	Travis	78735	TX	5.46	26220	5/19/2010	30.26	-97.86
1692	Bell	Williamson	76549	TX	9.60	64345	5/20/2010	31.00	-97.81
1693	Collin	Collin	75035	TX	6.93	52282	5/24/2010	33.15	-96.76
1694	Travis	Travis	78730	TX	5.78	28411	5/24/2010	30.37	-97.84
1695	Travis	Travis	78748	TX	2.52	14282	5/26/2010	30.17	-97.82
1696	Travis	Travis	78732	TX	5.88	27935	5/26/2010	30.38	-97.90
1697	Smith	Smith	75704	TX	6.48	42120	5/27/2010	32.40	-95.41
1698	McLennan	Ellis	76710	TX	2.37	13950	5/28/2010	31.53	-97.20
1699	Williamson	Williamson	78626	TX	7.92	34411	5/28/2010	30.70	-97.59
1700	Travis	Travis	78703	TX	5.07	43217	5/28/2010	30.29	-97.77
1701	Travis	Travis	78746	TX	6.44	43470	5/28/2010	30.31	-97.82
1702	Brewster	El Paso	79830	TX	3.15	20957	6/1/2010	29.93	-103.45
1703	Travis	Travis	78730	TX	5.55	29634	6/1/2010	30.37	-97.84
1704	Tarrant	Tarrant	76010	TX	2.64	17261	6/2/2010	32.73	-97.08
1705	Dallas	Dallas	75214	TX	7.48	41584	6/2/2010	32.82	-96.74
1706	Bexar	Bexar	78253	TX	20.64	157500	6/2/2010	29.47	-98.81
1707	Bexar	Bexar	78148	TX	4.00	26000	6/2/2010	29.55	-98.30
1708	Bexar	Bexar	78217	TX	3.00	20774	6/2/2010	29.54	-98.42
1709	Bexar	Bexar	78233	TX	4.20	21148	6/2/2010	29.56	-98.36
1710	Kendall	Bexar	78015	TX	10.00	27911	6/2/2010	29.75	-98.65
1711	Bexar	Bexar	78232	TX	4.86	22206	6/2/2010	29.59	-98.46
1712	Williamson	Williamson	78665	TX	2.82	19035	6/3/2010	30.55	-97.62
1713	Williamson	Williamson	78665	TX	5.64	38634	6/3/2010	30.55	-97.62
1714	Collin	Collin	75024	TX	9.66	33810	6/4/2010	33.08	-96.81
1715	Johnson	Johnson	76028	TX	9.86	51757	6/4/2010	32.53	-97.29
1716	Travis	Travis	78732	TX	4.62	19964	6/4/2010	30.38	-97.90
1717	Comal	Comal	78266	TX	42.30	423000	6/4/2010	29.63	-98.32
1718	Tarrant	Tarrant	76012	TX	3.52	19585	6/5/2010	32.76	-97.14
1719	Collin	Collin	75024	TX	4.05	37265	6/5/2010	33.08	-96.81
1720	Brewster	El Paso	79830	TX	3.53	19173	6/7/2010	29.93	-103.45

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1721	Dallas	Dallas	75229	TX	6.90	41400	6/7/2010	32.90	-96.86
1722	Travis	Travis	78741	TX	4.90	29890	6/8/2010	30.23	-97.71
1723	Travis	Travis	78748	TX	5.94	54039	6/8/2010	30.17	-97.82
1724	Bell	Williamson	76513	TX	7.92	45540	6/9/2010	31.07	-97.50
1725	Coryell	Williamson	76522	TX	2.80	17095	6/10/2010	31.22	-97.94
1726	Travis	Travis	78723	TX	6.30	28261	6/10/2010	30.31	-97.68
1727	Wichita	Denton	76305	TX	10.08	54985	6/11/2010	34.00	-98.35
1728	El Paso	El Paso	79932	TX	4.84	33611	6/14/2010	31.89	-106.62
1729	Montgomery	Montgomery	77318	TX	3.15	20612	6/14/2010	30.43	-95.54
1730	Wichita	Denton	76305	TX	10.08	52174	6/14/2010	34.00	-98.35
1731	Midland	El Paso	79705	TX	10.12	101120	6/14/2010	32.06	-102.06
1732	Travis	Travis	78721	TX	2.80	14947	6/14/2010	30.27	-97.68
1733	Bexar	Bexar	78209	TX	7.60	64255	6/14/2010	29.49	-98.45
1734	El Paso	El Paso	79912	TX	1.84	12880	6/15/2010	31.86	-106.52
1735	Wichita	Denton	76309	TX	10.00	31573	6/15/2010	33.90	-98.54
1736	Brewster	El Paso	79831	TX	10.56	67785	6/16/2010	30.41	-103.74
1737	Bexar	Bexar	78260	TX	7.90	39022	6/17/2010	29.69	-98.50
1738	Cooke	Denton	76240	TX	19.46	136500	6/18/2010	33.64	-97.14
1739	Bell	Williamson	76542	TX	6.48	29813	6/18/2010	31.01	-97.72
1740	Limestone	Ellis	76642	TX	10.08	34600	6/18/2010	31.53	-96.56
1741	Comal	Comal	78266	TX	6.21	45000	6/21/2010	29.63	-98.32
1742	El Paso	El Paso	79912	TX	4.40	35689	6/21/2010	31.86	-106.52
1743	Collin	Collin	75074	TX	4.32	24389	6/21/2010	33.02	-96.67
1744	Archer	Parker	76366	TX	10.08	52174	6/21/2010	33.71	-98.79
1745	Travis	Travis	78754	TX	24.00	114100	6/21/2010	30.36	-97.65
1746	Bexar	Bexar	78204	TX	4.14	21371	6/21/2010	29.40	-98.50
1747	Bexar	Bexar	78023	TX	11.00	61366	6/21/2010	29.62	-98.73
1748	Bexar	Bexar	78216	TX	5.60	26870	6/21/2010	29.55	-98.50
1749	Travis	Travis	78727	TX	6.30	45413	6/22/2010	30.43	-97.71
1750	Travis	Travis	78723	TX	6.48	27785	6/22/2010	30.31	-97.68
1751	Tarrant	Tarrant	76063	TX	3.12	15565	6/23/2010	32.58	-97.16
1752	Tarrant	Tarrant	76108	TX	6.30	37142	6/28/2010	32.78	-97.55
1753	Orange	Orange	77632	TX	5.04	34550	6/29/2010	30.22	-93.80
1754	Collin	Collin	75093	TX	12.15	64550	6/29/2010	33.04	-96.80
1755	Travis	Travis	78733	TX	5.52	30150	6/29/2010	30.33	-97.87
1756	Bexar	Bexar	78245	TX	1.08	3704	7/1/2010	29.40	-98.74
1757	Bexar	Bexar	78253	TX	5.94	25835	7/1/2010	29.47	-98.81
1758	El Paso	El Paso	79912	TX	3.96	27720	7/1/2010	31.86	-106.52
1759	Kaufman	Kaufman	75114	TX	6.30	37142	7/1/2010	32.61	-96.44
1760	Tarrant	Tarrant	76135	TX	7.00	38438	7/1/2010	32.84	-97.47

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1761	Denton	Denton	75068	TX	6.30	35630	7/7/2010	33.19	-96.95
1762	Bexar	Bexar	78233	TX	2.00	10621	7/8/2010	29.56	-98.36
1763	Bexar	Bexar	78258	TX	8.75	50449	7/8/2010	29.65	-98.47
1764	El Paso	El Paso	79912	TX	4.20	28896	7/8/2010	31.86	-106.52
1765	El Paso	El Paso	79912	TX	3.87	27090	7/8/2010	31.86	-106.52
1766	El Paso	El Paso	79907	TX	5.04	33667	7/8/2010	31.71	-106.33
1767	Orange	Orange	77632	TX	9.80	54566	7/8/2010	30.22	-93.80
1768	Henderson	Henderson	75163	TX	1.14	9000	7/8/2010	32.15	-96.08
1769	Bexar	Bexar	78233	TX	1.10	8244	7/12/2010	29.56	-98.36
1770	El Paso	El Paso	79925	TX	1.76	12320	7/12/2010	31.78	-106.36
1771	El Paso	El Paso	79821	TX	5.98	41664	7/12/2010	31.99	-106.59
1772	Tarrant	Tarrant	76118	TX	10.08	34600	7/12/2010	32.79	-97.17
1773	Travis	Travis	78730	TX	14.00	88130	7/13/2010	30.37	-97.84
1774	Hardin	Hardin	77659	TX	2.52	9938	7/14/2010	30.15	-94.46
1775	El Paso	El Paso	79925	TX	1.80	12000	7/14/2010	31.79	-106.34
1776	Dallas	Dallas	75206	TX	4.59	23180	7/15/2010	32.82	-96.78
1777	Galveston	Galveston	77546	TX	9.90	53000	7/18/2010	29.51	-95.20
1778	Denton	Denton	75010	TX	39.03	304395	7/19/2010	33.03	-96.93
1779	El Paso	El Paso	79912	TX	5.40	25000	7/20/2010	31.86	-106.52
1780	Dallas	Dallas	75060	TX	2.64	13264	7/20/2010	32.80	-96.95
1781	Brewster	El Paso	79830	TX	2.82	11721	7/21/2010	29.93	-103.45
1782	Comal	Comal	78266	TX	42.30	476300	7/22/2010	29.63	-98.32
1783	Bexar	Bexar	78253	TX	11.16	81382	7/22/2010	29.47	-98.81
1784	Tarrant	Tarrant	76179	TX	5.81	48646	7/22/2010	32.92	-97.46
1785	Dallas	Dallas	75228	TX	2.37	19819	7/22/2010	32.83	-96.68
1786	Dallas	Dallas	75248	TX	6.45	54051	7/22/2010	32.97	-96.80
1787	Collin	Collin	75074	TX	9.46	79275	7/22/2010	33.02	-96.67
1788	Ellis	Ellis	76065	TX	5.16	43241	7/22/2010	32.48	-96.96
1789	Tarrant	Tarrant	76063	TX	4.30	36034	7/22/2010	32.58	-97.16
1790	Johnson	Johnson	76028	TX	6.02	50478	7/22/2010	32.53	-97.29
1791	Tarrant	Tarrant	76116	TX	5.16	43241	7/22/2010	32.71	-97.43
1792	Collin	Collin	75025	TX	5.16	43241	7/22/2010	33.09	-96.76
1793	Dallas	Dallas	75229	TX	5.81	48646	7/22/2010	32.90	-96.86
1794	Tarrant	Tarrant	76051	TX	3.44	28827	7/22/2010	32.95	-97.07
1795	Collin	Collin	75002	TX	5.59	46844	7/22/2010	33.09	-96.61
1796	Denton	Denton	75028	TX	6.02	50448	7/22/2010	33.05	-97.06
1797	Dallas	Dallas	75229	TX	2.37	18819	7/22/2010	32.90	-96.86
1798	Tarrant	Tarrant	76001	TX	5.16	43241	7/22/2010	32.63	-97.15
1799	Tarrant	Tarrant	76132	TX	9.89	82878	7/22/2010	32.66	-97.42
1800	Travis	Travis	78731	TX	7.20	45000	7/22/2010	30.35	-97.77

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1801	Dallas	Dallas	75104	TX	6.56	54973	7/23/2010	32.59	-96.99
1802	Tarrant	Tarrant	76052	TX	8.61	72152	7/23/2010	32.97	-97.37
1803	Collin	Collin	75025	TX	9.89	82878	7/23/2010	33.09	-96.76
1804	Dallas	Dallas	75104	TX	5.81	48646	7/23/2010	32.59	-96.99
1805	Collin	Collin	75071	TX	6.02	50448	7/23/2010	33.24	-96.69
1806	Tarrant	Tarrant	76140	TX	7.74	64861	7/23/2010	32.63	-97.28
1807	Tarrant	Tarrant	76126	TX	3.44	28827	7/23/2010	32.65	-97.50
1808	Ellis	Ellis	75165	TX	6.02	73665	7/24/2010	32.40	-96.79
1809	Gregg	Gregg	75662	TX	11.28	57809	7/26/2010	32.38	-94.87
1810	Smith	Smith	75791	TX	7.20	40268	7/28/2010	32.23	-95.21
1811	Smith	Smith	75791	TX	1.07	6988	7/29/2010	32.23	-95.21
1812	Smith	Smith	75791	TX	3.15	17609	7/29/2010	32.23	-95.21
1813	Franklin	Hunt	75480	TX	4.00	24525	7/30/2010	33.04	-95.21
1814	Hidalgo	Nueces	78504	TX	2.10	10500	7/30/2010	26.39	-98.24
1815	Falls	Williamson	76570	TX	6.30	37142	7/30/2010	31.10	-96.90
1816	Henderson	Henderson	75778	TX	5.85	36134	7/30/2010	32.30	-95.71
1817	Leon	Montgomery	77871	TX	9.66	34031	8/2/2010	31.05	-96.13
1818	Bowie	Upshur	75503	TX	5.90	37626	8/2/2010	33.53	-94.13
1819	Dallas	Dallas	75220	TX	7.20	56592	8/2/2010	32.86	-96.87
1820	Smith	Smith	75703	TX	9.43	48384	8/2/2010	32.27	-95.33
1821	El Paso	El Paso	79915	TX	10.08	69250	8/3/2010	31.74	-106.38
1822	Kaufman	Kaufman	75114	TX	10.12	56257	8/3/2010	32.61	-96.44
1823	Tarrant	Tarrant	76092	TX	7.80	37963	8/3/2010	32.95	-97.15
1824	Tarrant	Tarrant	76140	TX	7.74	46550	8/3/2010	32.63	-97.28
1825	Bexar	Bexar	78229	TX	2.30	14145	8/5/2010	29.51	-98.58
1826	Bexar	Bexar	78222	TX	11.90	85510	8/5/2010	29.37	-98.39
1827	Bexar	Bexar	78260	TX	5.25	27537	8/5/2010	29.69	-98.50
1828	Bexar	Bexar	78240	TX	8.75	21671	8/5/2010	29.53	-98.61
1829	Tarrant	Tarrant	76034	TX	10.08	57977	8/5/2010	32.89	-97.15
1830	Hardin	Hardin	77625	TX	2.52	12000	8/9/2010	30.41	-94.36
1831	Johnson	Johnson	76009	TX	5.04	26121	8/9/2010	32.44	-97.20
1832	Howard	Hood	79720	TX	9.03	39988	8/9/2010	32.24	-101.48
1833	Bell	Williamson	76504	TX	8.97	40309	8/9/2010	31.11	-97.36
1834	Travis	Travis	78759	TX	3.24	15750	8/9/2010	30.40	-97.75
1835	Lamar	Hunt	75460	TX	25.60	127084	8/10/2010	33.60	-95.62
1836	Tarrant	Tarrant	76116	TX	6.38	27332	8/10/2010	32.71	-97.43
1837	Tarrant	Tarrant	76118	TX	10.40	79800	8/11/2010	32.79	-97.17
1838	Navarro	Ellis	75155	TX	5.40	32976	8/11/2010	32.21	-96.47
1839	Dallas	Dallas	75214	TX	2.26	15574	8/11/2010	32.82	-96.74
1840	Tarrant	Tarrant	76118	TX	1.00	82000	8/11/2010	32.79	-97.17

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1841	Mclennan	Ellis	76707	TX	5.04	28979	8/12/2010	31.56	-97.16
1842	Tarrant	Tarrant	76016	TX	3.69	26770	8/12/2010	32.69	-97.18
1843	Travis	Travis	78703	TX	4.44	25663	8/12/2010	30.29	-97.77
1844	Travis	Travis	78703	TX	4.44	25663	8/12/2010	30.29	-97.77
1845	Wichita	Denton	76310	TX	7.74	52646	8/13/2010	33.80	-98.46
1846	Bexar	Bexar	78221	TX	2.10	10386	8/16/2010	29.30	-98.50
1847	Bee	San Patricio	78102	TX	3.22	17574	8/16/2010	28.41	-97.74
1848	Collin	Collin	75093	TX	4.84	15040	8/16/2010	33.04	-96.80
1849	Collin	Collin	75074	TX	4.84	16488	8/16/2010	33.02	-96.67
1850	Van Zandt	Henderson	75790	TX	5.06	26000	8/17/2010	32.52	-95.62
1851	Henderson	Henderson	75148	TX	6.30	37142	8/17/2010	32.10	-96.00
1852	Dallas	Dallas	75247	TX	101.64	576440	8/17/2010	32.82	-96.88
1853	Ellis	Ellis	75152	TX	5.85	36134	8/18/2010	32.44	-96.70
1854	Navarro	Ellis	76641	TX	5.85	36134	8/18/2010	32.02	-96.77
1855	Travis	Travis	78746	TX	5.08	32558	8/18/2010	30.31	-97.82
1856	Dallas	Dallas	75138	TX	44.10		8/20/2010	32.66	-96.90
1857	Dallas	Dallas	75138	TX	88.20		8/20/2010	32.66	-96.90
1858	Dallas	Dallas	75138	TX	53.55		8/20/2010	32.66	-96.90
1859	Collin	Collin	75002	TX	101.66	448955	8/20/2010	33.09	-96.61
1860	Bexar	Bexar	78254	TX	1.75	8048	8/23/2010	29.53	-98.78
1861	Bexar	Bexar	78254	TX	3.00	25050	8/23/2010	29.53	-98.78
1862	Kendall	Bexar	78006	TX	12.76	59943	8/23/2010	29.92	-98.70
1863	Bexar	Bexar	78257	TX	12.10	94919	8/23/2010	29.66	-98.58
1864	Bexar	Bexar	78233	TX	8.36	45851	8/23/2010	29.56	-98.36
1865	Bexar	Bexar	78258	TX	8.40	43951	8/23/2010	29.65	-98.47
1866	Kendall	Bexar	78015	TX	3.15	18558	8/23/2010	29.75	-98.65
1867	El Paso	El Paso	79936	TX	2.20	15898	8/23/2010	31.80	-106.29
1868	Angelina	Rusk	75901	TX	6.90	32706	8/23/2010	31.29	-94.67
1869	Travis	Travis	78745	TX	3.01	24000	8/23/2010	30.21	-97.80
1870	Bexar	Bexar	78023	TX	3.08	17244	8/26/2010	29.62	-98.73
1871	El Paso	El Paso	79912	TX	5.04	34625	8/26/2010	31.86	-106.52
1872	Archer	Parker	76351	TX	30.08	160779	8/30/2010	33.60	-98.68
1873	Montgomery	Montgomery	77382	TX	4.40	21810	8/31/2010	30.20	-95.55
1874	Henderson	Henderson	75156	TX	10.32	61405	8/31/2010	32.24	-96.08
1875	Bell	Williamson	76543	TX	6.88	40244	9/1/2010	31.15	-97.68
1876	Bell	Williamson	76513	TX	5.94	27267	9/1/2010	31.07	-97.50
1877	Mclennan	Ellis	76712	TX	2.24	11850	9/1/2010	31.53	-97.25
1878	Collin	Collin	75002	TX	70.84	408357	9/1/2010	33.09	-96.61
1879	Bexar	Bexar	78211	TX	10.80	51001	9/3/2010	29.35	-98.57
1880	Bexar	Bexar	78254	TX	6.48	28184	9/3/2010	29.53	-98.78

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1881	Bell	Williamson	76513	TX	5.38	33600	9/3/2010	31.07	-97.50
1882	Bell	Williamson	76501	TX	71.52	307382	9/3/2010	31.08	-97.24
1883	Hidalgo	Nueces	78573	TX	10.32	58750	9/6/2010	26.29	-98.30
1884	Bexar	Bexar	78209	TX	4.20	26021	9/7/2010	29.49	-98.45
1885	Bexar	Bexar	78251	TX	3.24	15990	9/7/2010	29.47	-98.68
1886	Bexar	Bexar	78023	TX	11.50	68569	9/7/2010	29.62	-98.73
1887	Parker	Parker	76088	TX	10.08	106103	9/7/2010	32.85	-97.89
1888	Tarrant	Tarrant	76001	TX	4.30	30136	9/8/2010	32.63	-97.15
1889	Ellis	Ellis	75165	TX	10.08	106103	9/8/2010	32.40	-96.79
1890	Dallas	Dallas	75220	TX	30.36	133408	9/9/2010	32.87	-96.89
1891	Montgomery	Montgomery	77385	TX	4.62	18480	9/9/2010	30.20	-95.43
1892	Montgomery	Montgomery	77385	TX	4.20	16800	9/9/2010	30.20	-95.43
1893	Dallas	Dallas	75220	TX	30.36	133408	9/9/2010	32.86	-96.87
1894	Jefferson	Jefferson	77713	TX	6.30	47000	9/9/2010	30.13	-94.21
1895	Collin	Collin	75093	TX	3.68	20200	9/10/2010	33.04	-96.82
1896	Bexar	Bexar	78257	TX	8.28	49408	9/10/2010	29.66	-98.58
1897	Bexar	Bexar	78216	TX	7.92	48439	9/10/2010	29.55	-98.50
1898	Bexar	Bexar	78261	TX	2.03	12000	9/13/2010	29.70	-98.41
1899	Bell	Williamson	76543	TX	10.34	69795	9/13/2010	31.15	-97.68
1900	Tarrant	Tarrant	76116	TX	3.22	18565	9/13/2010	32.71	-97.43
1901	Cameron	Nueces	78575	TX	11.52	55400	9/15/2010	26.02	-97.54
1902	Collin	Collin	75025	TX	4.14	38600	9/16/2010	33.09	-96.76
1903	Denton	Denton	75007	TX	8.40	43595	9/16/2010	33.01	-96.89
1904	Maverick	Bexar	78852	TX	3.60	18114	9/17/2010	28.71	-100.46
1905	Tarrant	Tarrant	76013	TX	9.45	79191	9/17/2010	32.72	-97.15
1906	Denton	Denton	76210	TX	9.66	80951	9/17/2010	33.14	-97.08
1907	Wichita	Denton	76310	TX	5.40	32874	9/17/2010	33.80	-98.46
1908	Ellis	Ellis	75101	TX	6.44	37142	9/17/2010	32.27	-96.69
1909	Dallas	Dallas	75116	TX	53.55	437119	9/17/2010	32.65	-96.91
1910	Dallas	Dallas	75116	TX	44.10	399731	9/17/2010	32.65	-96.91
1911	Dallas	Dallas	75116	TX	88.20	564661	9/17/2010	32.65	-96.91
1912	Dallas	Dallas	75050	TX	10.80		9/20/2010	32.78	-97.02
1913	Dallas	Dallas	75080	TX	4.14	48650	9/20/2010	32.98	-96.74
1914	Collin	Collin	75023	TX	2.25	16830	9/20/2010	33.05	-96.73
1915	Dallas	Dallas	75019	TX	4.14	21907	9/20/2010	32.96	-97.00
1916	Tarrant	Tarrant	76114	TX	5.52	11610	9/21/2010	32.78	-97.40
1917	Tarrant	Tarrant	76126	TX	5.04	24450	9/21/2010	32.65	-97.50
1918	Wichita	Denton	76367	TX	5.40	32136	9/21/2010	33.98	-98.70
1919	Dallas	Dallas	75050	TX	10.37	70000	9/22/2010	32.78	-97.02
1920	Travis	Travis	78722	TX	2.40	17399	9/22/2010	30.30	-97.70



Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1921	Collin	Collin	75013	TX	101.66		9/23/2010	33.11	-96.70
1922	El Paso	El Paso	79912	TX	10.12	58092	9/23/2010	31.86	-106.52
1923	Bexar	Bexar	78230	TX	4.90	22915	9/24/2010	29.54	-98.56
1924	Bexar	Bexar	78246	TX	4.72	23108	9/24/2010	29.53	-98.48
1925	Bexar	Bexar	78209	TX	4.20	20364	9/24/2010	29.49	-98.45
1926	Bexar	Bexar	78259	TX	5.60	32560	9/24/2010	29.62	-98.43
1927	Bexar	Bexar	78240	TX	9.45	47420	9/24/2010	29.53	-98.61
1928	Dallas	Dallas	75230	TX	11.25	58335	9/24/2010	32.90	-96.79
1929	Dallas	Dallas	75050	TX	50.40		9/24/2010	32.78	-97.02
1930	El Paso	El Paso	79928	TX	2.20	16230	9/28/2010	31.66	-106.13
1931	Waller	Waller	77445	TX	9.66	43888	9/28/2010	30.09	-96.05
1932	Tarrant	Tarrant	76133	TX	3.08	15900	9/28/2010	32.65	-97.38
1933	Hidalgo	Nueces	78577	TX	5.52	37550	9/29/2010	26.15	-98.19
1934	Bell	Williamson	76502	TX	3.14	20384	9/29/2010	31.11	-97.41
1935	Travis	Travis	78704	TX	3.33	20300	9/29/2010	30.24	-97.77
1936	Travis	Travis	78733	TX	6.35	32137	9/29/2010	30.33	-97.87
1937	Rockwall	Rockwall	75087	TX	3.99	23540	9/30/2010	32.97	-96.46
1938	Dallas	Dallas	75062	TX	103.68	576405	9/30/2010	32.85	-96.97
1939	Denton	Denton	75007	TX	3.96	21306	9/30/2010	33.01	-96.89
1940	Travis	Travis	78745	TX	26.46	109704	10/1/2010	30.21	-97.80
1941	Travis	Travis	78752	TX	10.58	53405	10/1/2010	30.33	-97.70
1942	Travis	Travis	78756	TX	6.30	31665	10/1/2010	30.32	-97.74
1943	Dallas	Dallas	75137	TX	1.29	10000	10/3/2010	32.62	-96.94
1944	Bexar	Bexar	78261	TX	2.03	11539	10/4/2010	29.70	-98.41
1945	Montgomery	Montgomery	77380	TX	6.48	67657	10/5/2010	30.13	-95.47
1946	Hidalgo	Nueces	78596	TX	9.90	61256	10/5/2010	26.17	-97.98
1947	Bowie	Upshur	75503	TX	5.76	16838	10/5/2010	33.53	-94.13
1948	Van Zandt	Henderson	75103	TX	10.14	55666	10/5/2010	32.54	-95.86
1949	Williamson	Williamson	78665	TX	101.64	553661	10/5/2010	30.55	-97.62
1950	Dallas	Dallas	75253	TX	4.14	36800	10/5/2010	32.69	-96.59
1951	Williamson	Williamson	78664	TX	7.92	41958	10/5/2010	30.50	-97.66
1952	Travis	Travis	78759	TX	6.30	33732	10/7/2010	30.40	-97.75
1953	Travis	Travis	78735	TX	6.30	20976	10/7/2010	30.26	-97.86
1954	Travis	Travis	78746	TX	6.30	30694	10/7/2010	30.31	-97.82
1955	Rockwall	Rockwall	75087	TX	4.03	23540	10/8/2010	32.95	-96.44
1956	Collin	Collin	75025	TX	3.22	17458	10/8/2010	33.09	-96.76
1957	Dallas	Dallas	75228	TX	5.60	29748	10/11/2010	32.83	-96.68
1958	Collin	Collin	75098	TX	10.08	106103	10/11/2010	33.02	-96.51
1959	Dallas	Dallas	75248	TX	9.45	53258	10/12/2010	32.97	-96.80
1960	Collin	Collin	75025	TX	1.40	13750	10/13/2010	33.09	-96.76

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
1961	Tarrant	Tarrant	76179	TX	7.74	64861	10/14/2010	32.92	-97.46
1962	Denton	Denton	76210	TX	7.53	63060	10/14/2010	33.14	-97.08
1963	Collin	Collin	75075	TX	8.19	68632	10/14/2010	33.02	-96.74
1964	Collin	Collin	75287	TX	7.10	59456	10/14/2010	33.00	-96.84
1965	Tarrant	Tarrant	76110	TX	5.16	43241	10/14/2010	32.70	-97.34
1966	Dallas	Dallas	75230	TX	7.74	64861	10/14/2010	32.90	-96.80
1967	Tarrant	Tarrant	76040	TX	7.56	63353	10/14/2010	32.82	-97.10
1968	Ellis	Ellis	76065	TX	2.76	13883	10/14/2010	32.48	-96.96
1969	Tarrant	Tarrant	76052	TX	6.44	32200	10/14/2010	32.97	-97.37
1970	Bexar	Bexar	78230	TX	8.10	53800	10/15/2010	29.54	-98.56
1971	Bexar	Bexar	78258	TX	4.20	20178	10/15/2010	29.65	-98.47
1972	Bexar	Bexar	78260	TX	3.24	16910	10/15/2010	29.69	-98.50
1973	Bexar	Bexar	78148	TX	6.30	36000	10/15/2010	29.55	-98.30
1974	Bexar	Bexar	78256	TX	4.91	30871	10/15/2010	29.62	-98.62
1975	Bexar	Bexar	78255	TX	9.80	45088	10/15/2010	29.66	-98.67
1976	Bexar	Bexar	78023	TX	3.96	17902	10/15/2010	29.62	-98.73
1977	Bexar	Bexar	78258	TX	5.25	26881	10/15/2010	29.65	-98.47
1978	Wichita	Denton	76302	TX	49.40	232735	10/18/2010	33.87	-98.49
1979	Dallas	Dallas	75238	TX	8.39	70266	10/18/2010	32.88	-96.71
1980	Tarrant	Tarrant	76018	TX	5.81	48646	10/18/2010	32.67	-97.08
1981	Collin	Collin	75023	TX	4.30	36034	10/18/2010	33.05	-96.73
1982	Ellis	Ellis	75119	TX	7.56	63353	10/18/2010	32.32	-96.62
1983	Williamson	Williamson	78681	TX	5.16	25710	10/18/2010	30.52	-97.71
1984	Denton	Denton	76210	TX	10.08	34600	10/18/2010	33.14	-97.08
1985	Bexar	Bexar	78209	TX	6.65	36552	10/19/2010	29.49	-98.45
1986	Brewster	El Paso	79830	TX	3.68	24840	10/19/2010	29.93	-103.45
1987	Tarrant	Tarrant	76040	TX	6.93	58073	10/19/2010	32.82	-97.10
1988	Bexar	Bexar	78204	TX	2.23	13579	10/20/2010	29.40	-98.50
1989	Knox	Parker	76371	TX	45.83	311397	10/20/2010	33.49	-99.66
1990	Dallas	Dallas	75063	TX	9.40	57960	10/20/2010	32.91	-96.98
1991	Tarrant	Tarrant	76021	TX	251.32	1326849	10/20/2010	32.85	-97.13
1992	Travis	Travis	78750	TX	23.52	134652	10/20/2010	30.43	-97.80
1993	Williamson	Williamson	78664	TX	7.20	41075	10/21/2010	30.50	-97.66
1994	Wichita	Denton	76309	TX	5.60	52980	10/21/2010	33.90	-98.54
1995	Cherokee	Smith	75785	TX	1.54	9500	10/22/2010	31.75	-95.18
1996	Tarrant	Tarrant	76108	TX	5.88	49274	10/22/2010	32.78	-97.55
1997	Dallas	Dallas	75115	TX	66.24	150000	10/22/2010	32.60	-96.86
1998	Collin	Collin	75093	TX	3.68	20200	10/27/2010	33.04	-96.80
1999	Travis	Travis	78731	TX	8.51	43265	10/28/2010	30.35	-97.77
2000	Dallas	Dallas	75050	TX	100.80		10/29/2010	32.78	-97.02

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
2001	Tarrant	Tarrant	76109	TX	6.44	39975	11/1/2010	32.70	-97.38
2002	Bexar	Bexar	78240	TX	5.25	28694	11/1/2010	29.53	-98.61
2003	Bexar	Bexar	78251	TX	2.03	11539	11/1/2010	29.47	-98.68
2004	Bexar	Bexar	78236	TX	10.80	48549	11/1/2010	29.39	-98.61
2005	Comal	Comal	78163	TX	9.00	47458	11/1/2010	29.77	-98.51
2006	Gregg	Gregg	75601	TX	76.50	297655	11/1/2010	32.51	-94.72
2007	Travis	Travis	78723	TX	6.11	30542	11/1/2010	30.31	-97.68
2008	Bexar	Bexar	78217	TX	6.20	36907	11/2/2010	29.54	-98.42
2009	Bexar	Bexar	78211	TX	3.44	24403	11/2/2010	29.35	-98.57
2010	Bexar	Bexar	78109	TX	3.04	25600	11/2/2010	29.47	-98.30
2011	Bexar	Bexar	78209	TX	9.45	58150	11/2/2010	29.49	-98.45
2012	Brewster	El Paso	79830	TX	2.35	12820	11/2/2010	29.93	-103.45
2013	Collin	Collin	75002	TX	3.96	21712	11/2/2010	33.09	-96.61
2014	Dallas	Dallas	75230	TX	4.30	36034	11/3/2010	32.90	-96.80
2015	Collin	Collin	75287	TX	6.02	50448	11/3/2010	33.00	-96.84
2016	Denton	Denton	75007	TX	3.36	28157	11/3/2010	33.01	-96.89
2017	Denton	Denton	76262	TX	8.39	70266	11/3/2010	33.02	-97.23
2018	Tarrant	Tarrant	76179	TX	10.08	84471	11/3/2010	32.92	-97.46
2019	Parker	Parker	76008	TX	10.08	90504	11/3/2010	32.69	-97.63
2020	Tarrant	Tarrant	76054	TX	4.73	39637	11/5/2010	32.86	-97.18
2021	Tarrant	Tarrant	76034	TX	10.08	84470	11/5/2010	32.89	-97.15
2022	Tarrant	Tarrant	76137	TX	7.56	63353	11/5/2010	32.85	-97.30
2023	Dallas	Dallas	75052	TX	10.08	84470	11/5/2010	32.68	-97.03
2024	Tarrant	Tarrant	76123	TX	5.18	43442	11/5/2010	32.62	-97.40
2025	Bexar	Bexar	78209	TX	3.96	22123	11/8/2010	29.49	-98.45
2026	Bexar	Bexar	78255	TX	5.40	27052	11/8/2010	29.66	-98.67
2027	Bexar	Bexar	78223	TX	4.50	21797	11/8/2010	29.30	-98.41
2028	Bexar	Bexar	78261	TX	10.11	44513	11/9/2010	29.70	-98.41
2029	Collin	Collin	75002	TX	6.84	38870	11/9/2010	33.09	-96.61
2030	Collin	Collin	75075	TX	9.89	65039	11/10/2010	33.02	-96.74
2031	Collin	Collin	75075	TX	1.32	9729	11/10/2010	33.02	-96.74
2032	Erath	Hood	76401	TX	10.68	54710	11/11/2010	32.31	-98.27
2033	Dallas	Dallas	75234	TX	9.45	79191	11/11/2010	32.92	-96.89
2034	Tarrant	Tarrant	76054	TX	5.16	43241	11/11/2010	32.86	-97.18
2035	Dallas	Dallas	75081	TX	7.56	63353	11/11/2010	32.96	-96.70
2036	Tarrant	Tarrant	76018	TX	8.60	72068	11/11/2010	32.67	-97.08
2037	Tarrant	Tarrant	76112	TX	10.32	86482	11/11/2010	32.75	-97.21
2038	Dallas	Dallas	75149	TX	3.78	31676	11/11/2010	32.76	-96.59
2039	Dallas	Dallas	75205	TX	6.30	41641	11/11/2010	32.83	-96.80
2040	El Paso	El Paso	79925	TX	2.20	15400	11/12/2010	31.78	-106.36

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
2041	Tarrant	Tarrant	76001	TX	9.89	82878	11/12/2010	32.63	-97.15
2042	Collin	Collin	75002	TX	1.05	7751	11/12/2010	33.09	-96.61
2043	Wichita	Denton	76309	TX	7.84	49753	11/15/2010	33.90	-98.54
2044	Bell	Williamson	76513	TX	3.74	29985	11/15/2010	31.07	-97.50
2045	Travis	Travis	78727	TX	4.73	25114	11/16/2010	30.43	-97.71
2046	Comal	Comal	78132	TX	11.04	48342	11/17/2010	29.74	-98.20
2047	Comal	Comal	78266	TX	23.76	209773	11/17/2010	29.63	-98.32
2048	Bexar	Bexar	78258	TX	6.65	36425	11/17/2010	29.65	-98.47
2049	Bowie	Upshur	75501	TX	2.88	16958	11/17/2010	33.39	-94.13
2050	Dallas	Dallas	75051	TX	17.82	89100	11/18/2010	32.73	-96.99
2051	Tarrant	Tarrant	76126	TX	6.09	51034	11/18/2010	32.65	-97.50
2052	Collin	Collin	75023	TX	5.88	49274	11/18/2010	33.05	-96.73
2053	Tarrant	Tarrant	76148	TX	8.40	70392	11/18/2010	32.86	-97.25
2054	Dallas	Dallas	75051	TX	11.88	59400	11/18/2010	32.73	-96.99
2055	Dallas	Dallas	75051	TX	17.82	89100	11/19/2010	32.73	-96.99
2056	Dallas	Dallas	75019	TX	3.96	22596	11/23/2010	32.96	-97.00
2057	Bexar	Bexar	78245	TX	7.82	35593	11/24/2010	29.40	-98.74
2058	Bexar	Bexar	78217	TX	8.40	65594	11/24/2010	29.54	-98.42
2059	Bexar	Bexar	78261	TX	6.03	36000	11/24/2010	29.70	-98.41
2060	Bexar	Bexar	78261	TX	2.03	11539	11/24/2010	29.70	-98.41
2061	Denton	Denton	76210	TX	99.84	459955	11/24/2010	33.14	-97.08
2062	Parker	Parker	76087	TX	6.09	51034	11/29/2010	32.68	-97.81
2063	Presidio	El Paso	79843	TX	5.46	31000	11/30/2010	30.27	-104.47
2064	Nolan	Hood	79556	TX	10.12	53000	11/30/2010	32.42	-100.39
2065	Williamson	Williamson	78729	TX	10.80		11/30/2010	30.45	-97.76
2066	Montgomery	Montgomery	77304	TX	4.20	22590	12/1/2010	30.33	-95.53
2067	Tom Green	Williamson	76934	TX	9.66	38000	12/1/2010	31.61	-100.69
2068	Tom Green	Williamson	76901	TX	9.66	38000	12/1/2010	31.60	-100.57
2069	Travis	Travis	78735	TX	10.50	58681	12/2/2010	30.26	-97.86
2070	Bexar	Bexar	78244	TX	5.25	25183	12/3/2010	29.47	-98.35
2071	Bexar	Bexar	78255	TX	3.53	14801	12/3/2010	29.66	-98.67
2072	Comal	Comal	78266	TX	17.30	88597	12/3/2010	29.63	-98.32
2073	Bexar	Bexar	78244	TX	39.60	239002	12/3/2010	29.47	-98.35
2074	Bexar	Bexar	78216	TX	6.29	31945	12/3/2010	29.55	-98.50
2075	Clay	Parker	76357	TX	2.82	22900	12/3/2010	34.08	-98.20
2076	Hamilton	Hood	76531	TX	2.64	22550	12/4/2010	31.68	-98.18
2077	Bexar	Bexar	78023	TX	11.96	54556	12/6/2010	29.62	-98.73
2078	El Paso	El Paso	79932	TX	5.24	34622	12/6/2010	31.89	-106.62
2079	Tarrant	Tarrant	76021	TX	6.93	58073	12/6/2010	32.85	-97.13
2080	Travis	Travis	78745	TX	6.29	25573	12/6/2010	30.21	-97.80

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
2081	Dallas	Dallas	75048	TX	2.03	7955	12/6/2010	32.97	-96.59
2082	Johnson	Johnson	76084	TX	10.13	53303	12/7/2010	32.44	-97.10
2083	Collin	Collin	75023	TX	2.10	11525	12/7/2010	33.05	-96.73
2084	Travis	Travis	78738	TX	6.48	30803	12/8/2010	30.31	-97.98
2085	El Paso	El Paso	79932	TX	10.47	66400	12/8/2010	31.90	-106.64
2086	Tarrant	Tarrant	76248	TX	2.00	13395	12/9/2010	32.93	-97.23
2087	El Paso	El Paso	79912	TX	10.34	60749	12/10/2010	31.86	-106.52
2088	Dallas	Dallas	75019	TX	5.59	46844	12/10/2010	32.96	-97.00
2089	Tarrant	Tarrant	76034	TX	9.46	79275	12/10/2010	32.89	-97.15
2090	Dallas	Dallas	75060	TX	5.46	45755	12/10/2010	32.80	-96.95
2091	Tarrant	Tarrant	76021	TX	5.59	46844	12/10/2010	32.85	-97.13
2092	Bexar	Bexar	78247	TX	4.14	20493	12/13/2010	29.59	-98.41
2093	Bexar	Bexar	78201	TX	6.90	44110	12/13/2010	29.46	-98.52
2094	Bexar	Bexar	78247	TX	53.36	243984	12/17/2010	29.59	-98.41
2095	Travis	Travis	78756	TX	3.04	17300	12/21/2010	30.32	-97.74
2096	Rockwall	Rockwall	75189	TX	2.82	16900	12/22/2010	32.94	-96.30
2097	Parker	Parker	76087	TX	5.22	38200	12/22/2010	32.61	-97.83
2098	Bexar	Bexar	78255	TX	11.28	53917	12/23/2010	29.66	-98.67
2099	Comal	Comal	78163	TX	3.96	22383	12/23/2010	29.77	-98.51
2100	Bexar	Bexar	78259	TX	3.90	16866	12/23/2010	29.62	-98.43
2101	Bexar	Bexar	78232	TX	4.20	26235	12/27/2010	29.59	-98.46
2102	Travis	Travis	78732	TX	6.66	29980	12/27/2010	30.38	-97.90
2103	Bexar	Bexar	78216	TX	7.00	36532	12/28/2010	29.55	-98.50
2104	Titus	Upshur	75455	TX	80.50		12/28/2010	33.15	-94.97
2105	Bexar	Bexar	78212	TX	22.77	124641	12/28/2010	29.46	-98.50
2106	Denton	Denton	75007	TX	1.26	11151	12/28/2010	33.01	-96.89
2107	Orange	Orange	77632	TX	6.00	30000	12/28/2010	30.18	-93.76
2108	Bexar	Bexar	78232	TX	6.30	30355	12/29/2010	29.59	-98.46
2109	Bexar	Bexar	78209	TX	4.90	30147	12/29/2010	29.49	-98.45
2110	Bexar	Bexar	78209	TX	4.86	23204	12/29/2010	29.49	-98.45
2111	Bexar	Bexar	78148	TX	6.00	32704	12/30/2010	29.55	-98.30
2112	Bexar	Bexar	78109	TX	3.29	24500	12/30/2010	29.47	-98.30
2113	Bexar	Bexar	78109	TX	8.64	42149	12/30/2010	29.47	-98.30
2114	Travis	Travis	78736	TX	6.66	26403	1/3/2011	30.25	-97.95
2115	Travis	Travis	78748	TX	3.68	20082	1/4/2011	30.17	-97.82
2116	Brewster	El Paso	79830	TX	50.83	394507	1/7/2011	29.93	-103.45
2117	Brewster	El Paso	79830	TX	10.12	80780	1/7/2011	29.93	-103.45
2118	Travis	Travis	78704	TX	5.98	29003	1/7/2011	30.24	-97.77
2119	Brewster	El Paso	79830	TX	2.82	17500	1/10/2011	29.93	-103.45
2120	Travis	Travis	78746	TX	2.96	17574	1/10/2011	30.31	-97.82

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
2121	Travis	Travis	78736	TX	4.86	17038	1/10/2011	30.25	-97.95
2122	Travis	Travis	78723	TX	3.33	15473	1/10/2011	30.31	-97.68
2123	Bexar	Bexar	78238	TX	3.78	21618	1/11/2011	29.47	-98.62
2124	Bexar	Bexar	78238	TX	2.30	19354	1/11/2011	29.47	-98.62
2125	Bexar	Bexar	78251	TX	3.87	19988	1/11/2011	29.47	-98.68
2126	Bexar	Bexar	78148	TX	2.16	11408	1/11/2011	29.55	-98.30
2127	Travis	Travis	78723	TX	6.66	31028	1/11/2011	30.31	-97.68
2128	Bexar	Bexar	78223	TX	9.68	48808	1/13/2011	29.30	-98.41
2129	Bexar	Bexar	78223	TX	3.01	24500	1/13/2011	29.30	-98.41
2130	Bexar	Bexar	78260	TX	5.28	28608	1/13/2011	29.69	-98.50
2131	Orange	Orange	77632	TX	6.00	10000	1/13/2011	30.22	-93.80
2132	Henderson	Henderson	75770	TX	5.64	36050	1/17/2011	32.12	-95.67
2133	Jeff Davis	El Paso	79734	TX	9.90	52470	1/17/2011	30.77	-104.01
2134	Montgomery	Montgomery	77385	TX	4.62	18480	1/18/2011	30.20	-95.43
2135	Travis	Travis	78746	TX	6.11	33341	1/19/2011	30.31	-97.82
2136	Travis	Travis	78758	TX	6.35	32151	1/19/2011	30.39	-97.70
2137	El Paso	El Paso	79912	TX	2.30	13857	1/19/2011	31.86	-106.55
2138	Travis	Travis	78759	TX	6.50	30255	1/20/2011	30.40	-97.75
2139	Dallas	Dallas	75235	TX	75.46	349939	1/20/2011	32.83	-96.85
2140	El Paso	El Paso	79903	TX	2.35	14800	1/23/2011	31.79	-106.44
2141	Travis	Travis	78745	TX	6.44	27131	1/25/2011	30.21	-97.80
2142	Young	Parker	76450	TX	10.08	54339	1/27/2011	33.10	-98.62
2143	Bexar	Bexar	78248	TX	5.06	27577	1/31/2011	29.59	-98.53
2144	Comal	Comal	78132	TX	6.11	32591	1/31/2011	29.74	-98.20
2145	Bexar	Bexar	78217	TX	3.15	19693	1/31/2011	29.54	-98.42
2146	Bexar	Bexar	78233	TX	4.14	23050	1/31/2011	29.56	-98.36
2147	Bexar	Bexar	78242	TX	6.23	33051	1/31/2011	29.35	-98.61
2148	Bexar	Bexar	78230	TX	5.28	24266	1/31/2011	29.54	-98.56
2149	Bexar	Bexar	78023	TX	12.22	67155	1/31/2011	29.62	-98.73
2150	Travis	Travis	78704	TX	4.56	21651	1/31/2011	30.24	-97.77
2151	Travis	Travis	78731	TX	3.19	18726	1/31/2011	30.35	-97.77
2152	El Paso	El Paso	79925	TX	5.28	31627	1/31/2011	31.80	-106.36
2153	Travis	Travis	78746	TX	6.58	39480	2/1/2011	30.31	-97.82
2154	El Paso	El Paso	79915	TX	30.00	180000	2/1/2011	31.74	-106.35
2155	Dallas	Dallas	75063	TX	3.53	15525	2/1/2011	32.91	-96.99
2156	El Paso	El Paso	79912	TX	6.16	42134	2/1/2011	31.86	-106.55
2157	El Paso	El Paso	79930	TX	3.76	19910	2/1/2011	31.81	-106.47
2158	El Paso	El Paso	79912	TX	5.24	36278	2/2/2011	31.86	-106.55
2159	El Paso	El Paso	79904	TX	6.08	42525	2/2/2011	31.87	-106.48
2160	El Paso	El Paso	79912	TX	8.10	53865	2/2/2011	31.86	-106.55

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
2161	El Paso	El Paso	79932	TX	5.24	34622	2/2/2011	31.89	-106.62
2162	El Paso	El Paso	79934	TX	3.20	19800	2/2/2011	31.98	-106.42
2163	Collin	Collin	75075	TX	6.00	30300	2/4/2011	33.02	-96.74
2164	El Paso	El Paso	79912	TX	3.52	22719	2/7/2011	31.86	-106.55
2165	Bexar	Bexar	78222	TX	59.28	298178	2/8/2011	29.37	-98.39
2166	Bexar	Bexar	78232	TX	7.00	38465	2/8/2011	29.59	-98.46
2167	Dallas	Dallas	75220	TX	10.00	63555	2/8/2011	32.86	-96.87
2168	Bexar	Bexar	78210	TX	1.80	16193	2/10/2011	29.40	-98.47
2169	Bexar	Bexar	78254	TX	3.78	21168	2/10/2011	29.53	-98.78
2170	Bexar	Bexar	78112	TX	5.52	24485	2/10/2011	29.21	-98.39
2171	Bexar	Bexar	78260	TX	33.60	176098	2/10/2011	29.69	-98.50
2172	Bexar	Bexar	78232	TX	9.25	44700	2/10/2011	29.59	-98.46
2173	Bexar	Bexar	78216	TX	200.00	1586948	2/10/2011	29.55	-98.50
2174	Bexar	Bexar	78231	TX	4.14	34795	2/11/2011	29.58	-98.54
2175	Tarrant	Tarrant	76063	TX	5.94	30600	2/14/2011	32.56	-97.14
2176	Travis	Travis	78741	TX	3.80	19896	2/14/2011	30.23	-97.71
2177	Tarrant	Tarrant	76063	TX	5.94	30600	2/14/2011	32.56	-97.14
2178	Denton	Denton	76205	TX	11.13	31000	2/15/2011	33.20	-97.15
2179	Montgomery	Montgomery	77384	TX	5.04	19966	2/15/2011	30.24	-95.49
2180	El Paso	El Paso	79922	TX	4.40	28627	2/15/2011	31.83	-106.58
2181	Travis	Travis	78730	TX	8.05	39390	2/16/2011	30.37	-97.84
2182	El Paso	El Paso	79912	TX	3.96	25542	2/17/2011	31.86	-106.55
2183	Travis	Travis	78723	TX	2.76	15180	2/18/2011	30.31	-97.68
2184	Van Zandt	Henderson	75103	TX	5.16	31020	2/18/2011	32.54	-95.86
2185	El Paso	El Paso	79902	TX	2.14	15530	2/21/2011	31.79	-106.49
2186	El Paso	El Paso	79902	TX	2.64	17595	2/23/2011	31.79	-106.49
2187	Dallas	Dallas	75223	TX	5.40	27615	2/24/2011	32.79	-96.74
2188	Presidio	El Paso	79845	TX	9.80	63700	2/24/2011	29.92	-104.54
2189	McLennan	Ellis	76707	TX	80.08	332515	2/25/2011	31.56	-97.16
2190	Williamson	Williamson	78664	TX	100.80	485000	2/25/2011	30.50	-97.66
2191	El Paso	El Paso	79924	TX	4.14	21945	2/26/2011	31.90	-106.43
2192	Travis	Travis	78722	TX	200.00		2/28/2011	30.28	-97.72
2193	Dallas	Dallas	75253	TX	10.92	91510	2/28/2011	32.69	-96.59
2194	Cass	Upshur	75563	TX	22.05	85000	2/28/2011	33.02	-94.38
2195	Travis	Travis	78732	TX	6.21	33969	3/1/2011	30.38	-97.89
2196	El Paso	El Paso	79938	TX	5.72	34749	3/1/2011	31.84	-105.92
2197	Bexar	Bexar	78112	TX	7.92	39389	3/2/2011	29.21	-98.39
2198	Travis	Travis	78660	TX	23.04	93390	3/2/2011	30.43	-97.60
2199	Bexar	Bexar	78257	TX	6.90	33189	3/3/2011	29.66	-98.58
2200	Bexar	Bexar	78251	TX	5.98	29375	3/3/2011	29.47	-98.68

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
2201	Comal	Comal	78266	TX	8.46	41031	3/3/2011	29.63	-98.32
2202	Bexar	Bexar	78229	TX	5.39	41900	3/3/2011	29.51	-98.58
2203	Bexar	Bexar	78261	TX	11.28	61476	3/3/2011	29.70	-98.41
2204	Bexar	Bexar	78244	TX	2.94	16611	3/3/2011	29.47	-98.35
2205	Travis	Travis	78730	TX	4.56	27808	3/3/2011	30.37	-97.84
2206	Travis	Travis	78704	TX	6.27	27001	3/4/2011	30.25	-97.77
2207	Kendall	Bexar	78006	TX	0.62	2000	3/5/2011	29.84	-98.59
2208	Bexar	Bexar	78244	TX	4.05	27990	3/7/2011	29.47	-98.35
2209	Bexar	Bexar	78217	TX	4.50	22304	3/7/2011	29.54	-98.42
2210	Bexar	Bexar	78202	TX	2.76	15650	3/7/2011	29.43	-98.46
2211	Comal	Comal	78266	TX	7.76	42265	3/7/2011	29.63	-98.32
2212	Bexar	Bexar	78240	TX	4.60	26439	3/7/2011	29.53	-98.61
2213	Bexar	Bexar	78251	TX	3.29	28500	3/7/2011	29.47	-98.68
2214	Bexar	Bexar	78240	TX	9.20	50600	3/7/2011	29.53	-98.61
2215	Bexar	Bexar	78231	TX	2.53	24800	3/7/2011	29.58	-98.54
2216	Bexar	Bexar	78211	TX	4.14	22800	3/7/2011	29.35	-98.57
2217	Bexar	Bexar	78209	TX	7.20	35114	3/8/2011	29.49	-98.45
2218	Cameron	Nueces	78550	TX	72.40		3/10/2011	26.19	-97.70
2219	Travis	Travis	78759	TX	3.33	18072	3/10/2011	30.40	-97.75
2220	El Paso	El Paso	79932	TX	2.25	16928	3/10/2011	31.89	-106.62
2221	Bexar	Bexar	78211	TX	400.00	1615757	3/11/2011	29.35	-98.57
2222	Bexar	Bexar	78148	TX	28.20	134091	3/11/2011	29.55	-98.30
2223	Bexar	Bexar	78232	TX	12.21	58279	3/11/2011	29.59	-98.46
2224	Bexar	Bexar	78249	TX	6.24	32195	3/11/2011	29.57	-98.61
2225	Bexar	Bexar	78148	TX	4.60	21641	3/11/2011	29.55	-98.30
2226	Bexar	Bexar	78248	TX	6.75	29910	3/11/2011	29.59	-98.53
2227	Bexar	Bexar	78232	TX	6.21	38193	3/11/2011	29.59	-98.46
2228	Bexar	Bexar	78023	TX	5.94	32246	3/11/2011	29.62	-98.73
2229	Guadalupe	Guadalupe	78154	TX	21.60	107643	3/11/2011	29.59	-98.28
2230	Bexar	Bexar	78257	TX	8.64	52416	3/11/2011	29.66	-98.58
2231	Bexar	Bexar	78213	TX	6.58	36190	3/11/2011	29.50	-98.52
2232	Bexar	Bexar	78148	TX	6.24	32694	3/11/2011	29.55	-98.30
2233	Travis	Travis	78745	TX	6.48	30096	3/14/2011	30.22	-97.80
2234	El Paso	El Paso	79912	TX	5.28	31930	3/14/2011	31.86	-106.55
2235	Jim Wells	Nueces	78332	TX	10.13	51900	3/15/2011	27.74	-98.09
2236	Grayson	Collin	75021	TX	6.84		3/18/2011	33.74	-96.47
2237	Guadalupe	Guadalupe	78154	TX	74.06		3/21/2011	29.56	-98.27
2238	Denton	Denton	75068	TX	128.80		3/21/2011	33.17	-96.95
2239	Travis	Travis	78735	TX	4.32	20964	3/21/2011	30.26	-97.86
2240	Montgomery	Montgomery	77384	TX	1.26	4500	3/21/2011	30.24	-95.49



Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
2241	Bexar	Bexar	78251	TX	5.40	28759	3/22/2011	29.47	-98.68
2242	Bexar	Bexar	78217	TX	5.40	29318	3/22/2011	29.54	-98.42
2243	Bexar	Bexar	78260	TX	6.44	27010	3/22/2011	29.69	-98.50
2244	Atascosa	Wilson	78052	TX	9.66	51713	3/22/2011	29.20	-98.77
2245	Bexar	Bexar	78219	TX	16.30	107895	3/22/2011	29.45	-98.39
2246	Bexar	Bexar	78232	TX	33.60	236905	3/22/2011	29.59	-98.46
2247	Bexar	Bexar	78260	TX	11.96	62158	3/22/2011	29.69	-98.50
2248	El Paso	El Paso	79936	TX	6.44	43148	3/22/2011	31.76	-106.29
2249	El Paso	El Paso	79924	TX	4.14	25875	3/22/2011	31.90	-106.43
2250	Travis	Travis	78746	TX	3.50	19250	3/24/2011	30.31	-97.82
2251	Travis	Travis	78731	TX	5.13	27367	3/24/2011	30.35	-97.77
2252	Travis	Travis	78731	TX	5.00	30867	3/24/2011	30.35	-97.77
2253	Hopkins	Hunt	75482	TX	188.50	952739	3/25/2011	33.18	-95.60
2254	Bexar	Bexar	78260	TX	6.44	27010	3/28/2011	29.69	-98.50
2255	Williamson	Williamson	78613	TX	8.33	43548	3/28/2011	30.51	-97.82
2256	El Paso	El Paso	79938	TX	3.24	21000	3/28/2011	31.84	-105.92
2257	Guadalupe	Guadalupe	78154	TX	12.24	96387	3/29/2011	29.59	-98.28
2258	Angelina	Rusk	75901	TX	26.46	134050	3/29/2011	31.34	-94.67
2259	Tarrant	Tarrant	76137	TX	5.46	45755	3/29/2011	32.85	-97.30
2260	Bexar	Bexar	78213	TX	8.10	44500	3/30/2011	29.50	-98.52
2261	Bexar	Bexar	78209	TX	10.50	57712	3/30/2011	29.49	-98.45
2262	Bexar	Bexar	78214	TX	6.44	33810	3/30/2011	29.32	-98.47
2263	Kendall	Bexar	78006	TX	7.20	42469	3/30/2011	29.92	-98.70
2264	Kendall	Bexar	78015	TX	5.20	26884	3/30/2011	29.75	-98.65
2265	Bexar	Bexar	78240	TX	3.08	12147	3/30/2011	29.53	-98.61
2266	Travis	Travis	78744	TX	92.70	516648	3/30/2011	30.20	-97.73
2267	Denton	Denton	76226	TX	6.30	52794	3/30/2011	33.12	-97.16
2268	Dallas	Dallas	75230	TX	7.31	42853	3/30/2011	32.90	-96.79
2269	El Paso	El Paso	79836	TX	5.06	34155	3/30/2011	31.57	-106.19
2270	Bexar	Bexar	78209	TX	4.76	33750	3/31/2011	29.49	-98.45
2271	Bexar	Bexar	78245	TX	3.68	24950	3/31/2011	29.40	-98.74
2272	Atascosa	Wilson	78052	TX	5.40	24590	3/31/2011	29.20	-98.77
2273	Bexar	Bexar	78264	TX	3.60	18832	3/31/2011	29.17	-98.51
2274	Bexar	Bexar	78240	TX	6.24	32195	3/31/2011	29.53	-98.61
2275	Bexar	Bexar	78023	TX	5.24	29960	3/31/2011	29.62	-98.73
2276	Bexar	Bexar	78023	TX	5.22	26960	3/31/2011	29.62	-98.73
2277	Bexar	Bexar	78221	TX	4.32	22034	3/31/2011	29.30	-98.50
2278	Travis	Travis	78741	TX	2.96	12291	3/31/2011	30.23	-97.71
2279	Travis	Travis	78723	TX	3.33		3/31/2011	30.31	-97.68
2280	Travis	Travis	78746	TX	5.74	52240	3/31/2011	30.31	-97.82

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
2281	Dallas	Dallas	75041	TX	84.96	893235	3/31/2011	32.88	-96.65
2282	Travis	Travis	78723	TX	6.11	26502	4/1/2011	30.31	-97.68
2283	Dallas	Dallas	75247	TX	10.92	65577	4/1/2011	32.82	-96.88
2284	Hidalgo	Nueces	78596	TX	16.92	111489	4/4/2011	26.17	-97.98
2285	Bexar	Bexar	78249	TX	12.00	69250	4/6/2011	29.57	-98.61
2286	Bexar	Bexar	78209	TX	2.70	15609	4/6/2011	29.49	-98.45
2287	Bexar	Bexar	78251	TX	1.80	11380	4/6/2011	29.47	-98.68
2288	Bexar	Bexar	78242	TX	12.00	70000	4/6/2011	29.35	-98.61
2289	Bexar	Bexar	78209	TX	12.00	70200	4/6/2011	29.49	-98.45
2290	Bexar	Bexar	78254	TX	4.37	24469	4/6/2011	29.53	-98.78
2291	Bexar	Bexar	78240	TX	17.94	99926	4/6/2011	29.53	-98.61
2292	Bexar	Bexar	78216	TX	37.20	193510	4/6/2011	29.55	-98.50
2293	Bexar	Bexar	78209	TX	7.92	44249	4/6/2011	29.49	-98.45
2294	Webb	Nueces	78043	TX	10.12	47554	4/6/2011	27.55	-99.26
2295	El Paso	El Paso	79924	TX	4.52	38289	4/6/2011	31.90	-106.43
2296	El Paso	El Paso	79938	TX	2.07	14302	4/7/2011	31.84	-105.92
2297	El Paso	El Paso	79821	TX	5.32	26600	4/8/2011	31.99	-106.59
2298	Bexar	Bexar	78249	TX	14.58	98422	4/11/2011	29.57	-98.61
2299	Bexar	Bexar	78023	TX	9.45	47264	4/11/2011	29.62	-98.73
2300	El Paso	El Paso	79912	TX	5.06	34206	4/11/2011	31.86	-106.55
2301	Travis	Travis	78721	TX	2.85	14643	4/12/2011	30.27	-97.68
2302	Tarrant	Tarrant	76119	TX	101.66	473401	4/13/2011	32.68	-97.28
2303	Johnson	Johnson	76033	TX	3.68	25576	4/13/2011	32.29	-97.50
2304	Bexar	Bexar	78230	TX	7.38	36075	4/14/2011	29.54	-98.56
2305	Bexar	Bexar	78256	TX	8.28	40312	4/14/2011	29.62	-98.62
2306	Bexar	Bexar	78237	TX	5.40	25900	4/14/2011	29.41	-98.57
2307	Bexar	Bexar	78152	TX	6.90	34500	4/14/2011	29.42	-98.20
2308	Bexar	Bexar	78244	TX	5.76	30017	4/14/2011	29.47	-98.35
2309	Bexar	Bexar	78240	TX	6.12	31500	4/14/2011	29.53	-98.61
2310	Bexar	Bexar	78209	TX	10.80	53500	4/14/2011	29.49	-98.45
2311	Bexar	Bexar	78228	TX	4.60	33900	4/14/2011	29.46	-98.56
2312	Bexar	Bexar	78209	TX	12.42	60858	4/14/2011	29.49	-98.45
2313	Bexar	Bexar	78212	TX	5.50	30751	4/14/2011	29.46	-98.50
2314	Travis	Travis	78704	TX	16.70	71664	4/14/2011	30.25	-97.77
2315	Travis	Travis	78758	TX	1.67		4/14/2011	30.39	-97.70
2316	Travis	Travis	78732	TX	7.77	46233	4/14/2011	30.38	-97.89
2317	Hidalgo	Nueces	78539	TX	8.46	46530	4/14/2011	26.27	-98.19
2318	El Paso	El Paso	79912	TX	3.76	13912	4/15/2011	31.86	-106.55
2319	Bexar	Bexar	78239	TX	2.80	21276	4/18/2011	29.52	-98.36
2320	Bexar	Bexar	78232	TX	18.60	78559	4/19/2011	29.59	-98.46

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
2321	Travis	Travis	78733	TX	6.24	30410	4/19/2011	30.33	-97.87
2322	Travis	Travis	78738	TX	6.00	31763	4/19/2011	30.30	-97.97
2323	Bexar	Bexar	78023	TX	8.00	38146	4/20/2011	29.62	-98.73
2324	Bexar	Bexar	78258	TX	5.06	25775	4/20/2011	29.65	-98.47
2325	Bexar	Bexar	78245	TX	7.29	40811	4/20/2011	29.40	-98.74
2326	Bexar	Bexar	78255	TX	11.50	72299	4/20/2011	29.66	-98.67
2327	Bexar	Bexar	78217	TX	5.75	32167	4/20/2011	29.54	-98.42
2328	Montgomery	Montgomery	77365	TX	10.35	43332	4/20/2011	30.12	-95.29
2329	Bexar	Bexar	78263	TX	5.06	23145	4/21/2011	29.36	-98.32
2330	Travis	Travis	78704	TX	6.44	31118	4/21/2011	30.25	-97.77
2331	Travis	Travis	78723	TX	5.55	26365	4/22/2011	30.31	-97.68
2332	Travis	Travis	78723	TX	9.77	36708	4/22/2011	30.31	-97.68
2333	Travis	Travis	78723	TX	3.33	26365	4/22/2011	30.31	-97.68
2334	Comal	Comal	78132	TX	6.18	38405	4/25/2011	29.74	-98.20
2335	Comal	Comal	78163	TX	12.21	60647	4/25/2011	29.77	-98.51
2336	Bexar	Bexar	78258	TX	11.96	67012	4/26/2011	29.65	-98.47
2337	Kendall	Bexar	78015	TX	9.20	47338	4/26/2011	29.75	-98.65
2338	Travis	Travis	78723	TX	6.24	28980	4/26/2011	30.31	-97.68
2339	Bexar	Bexar	78218	TX	39.00	227555	4/27/2011	29.49	-98.39
2340	Travis	Travis	78723	TX	6.11	26365	4/28/2011	30.31	-97.68
2341	Johnson	Johnson	76028	TX	5.46	45755	4/28/2011	32.53	-97.29
2342	Cameron	Nueces	78550	TX	106.08	492492	4/28/2011	26.26	-97.65
2343	Bexar	Bexar	78261	TX	11.96	63110	4/29/2011	29.70	-98.41
2344	Bexar	Bexar	78069	TX	11.04	49901	4/29/2011	29.19	-98.67
2345	Bexar	Bexar	78255	TX	2.20	11485	4/29/2011	29.66	-98.67
2346	Kendall	Bexar	78015	TX	3.52	19139	4/29/2011	29.75	-98.65
2347	Johnson	Johnson	76028	TX	10.08	84470	4/29/2011	32.53	-97.29
2348	Johnson	Johnson	76028	TX	6.93	55301	4/29/2011	32.53	-97.29
2349	Tarrant	Tarrant	76102	TX	9.87		4/30/2011	32.76	-97.32
2350	Travis	Travis	78701	TX	105.28		4/30/2011	30.27	-97.74
2351	Travis	Travis	78701	TX	28.20		4/30/2011	30.27	-97.74
2352	Tarrant	Tarrant	76115	TX	552.72		5/1/2011	32.68	-97.34
2353	Bexar	Bexar	78217	TX	5.04	32500	5/2/2011	29.54	-98.42
2354	Travis	Travis	78745	TX	2.86	27539	5/2/2011	30.22	-97.80
2355	Bexar	Bexar	78261	TX	2.17	11539	5/3/2011	29.70	-98.41
2356	Bexar	Bexar	78209	TX	1.00	9658	5/3/2011	29.49	-98.45
2357	Medina	Bexar	78016	TX	11.20	54870	5/3/2011	29.19	-98.95
2358	Jim Wells	Nueces	78332	TX	10.13	51900	5/4/2011	27.74	-98.09
2359	El Paso	El Paso	79932	TX	5.28	36245	5/4/2011	31.89	-106.62
2360	Denton	Denton	76247	TX	8.28	46386	5/5/2011	33.11	-97.33

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
2361	Travis	Travis	78723	TX	4.56	20061	5/6/2011	30.31	-97.68
2362	Bexar	Bexar	78259	TX	4.86	25770	5/10/2011	29.62	-98.43
2363	Travis	Travis	78723	TX	6.11	26365	5/10/2011	30.31	-97.68
2364	Bexar	Bexar	78261	TX	3.68	15293	5/11/2011	29.70	-98.41
2365	Bexar	Bexar	78215	TX	39.00	203955	5/11/2011	29.44	-98.48
2366	Bexar	Bexar	78224	TX	4.60	23816	5/11/2011	29.32	-98.54
2367	Bexar	Bexar	78209	TX	1.00	9658	5/11/2011	29.49	-98.45
2368	Real	Bexar	78873	TX	9.60	33024	5/11/2011	29.85	-99.68
2369	El Paso	El Paso	79912	TX	8.97	57815	5/11/2011	31.86	-106.55
2370	El Paso	El Paso	79915	TX	19.68	112176	5/12/2011	31.74	-106.38
2371	Bexar	Bexar	78254	TX	5.28	27878	5/16/2011	29.53	-98.78
2372	Bexar	Bexar	78211	TX	3.43	25580	5/16/2011	29.35	-98.57
2373	Atascosa	Wilson	78052	TX	2.82	23900	5/16/2011	29.20	-98.77
2374	El Paso	El Paso	79902	TX	6.16	34603	5/16/2011	31.79	-106.49
2375	Bexar	Bexar	78258	TX	6.51	48750	5/17/2011	29.65	-98.47
2376	Orange	Orange	77611	TX	9.66	37258	5/18/2011	30.00	-93.81
2377	Bexar	Bexar	78259	TX	6.44	34112	5/19/2011	29.62	-98.43
2378	Bexar	Bexar	78216	TX	3.29	19700	5/19/2011	29.55	-98.50
2379	Bexar	Bexar	78249	TX	39.60	200000	5/19/2011	29.57	-98.61
2380	Bexar	Bexar	78232	TX	4.95	23601	5/19/2011	29.59	-98.46
2381	Travis	Travis	78744	TX	4.14	22750	5/20/2011	30.20	-97.73
2382	Bexar	Bexar	78247	TX	9.20	48259	5/23/2011	29.59	-98.41
2383	Bexar	Bexar	78152	TX	11.66	52426	5/23/2011	29.42	-98.20
2384	Bexar	Bexar	78210	TX	5.98	30777	5/23/2011	29.40	-98.47
2385	Bexar	Bexar	78247	TX	5.98	32107	5/23/2011	29.59	-98.41
2386	Travis	Travis	78723	TX	4.07		5/23/2011	30.31	-97.68
2387	Travis	Travis	78734	TX	6.36	46229	5/23/2011	30.37	-97.95
2388	Kendall	Bexar	78015	TX	41.20	264000	5/24/2011	29.75	-98.65
2389	Bexar	Bexar	78259	TX	4.60	26172	5/24/2011	29.62	-98.43
2390	Bexar	Bexar	78251	TX	3.15	21748	5/24/2011	29.47	-98.68
2391	Travis	Travis	78746	TX	6.44	28269	5/24/2011	30.31	-97.82
2392	Williamson	Williamson	78717	TX	6.72	31254	5/24/2011	30.49	-97.77
2393	Montague	Denton	76255	TX	3.85	23287	5/24/2011	33.78	-97.74
2394	Collin	Collin	75024	TX	16.20	129600	5/27/2011	33.08	-96.81
2395	El Paso	El Paso	79912	TX	3.29	18924	5/27/2011	31.86	-106.55
2396	Dallas	Dallas	75048	TX	1.18	4604	5/28/2011	32.97	-96.59
2397	Bexar	Bexar	78229	TX	181.30	871507	5/31/2011	29.51	-98.58
2398	Kendall	Bexar	78015	TX	4.60	29154	5/31/2011	29.75	-98.65
2399	Bexar	Bexar	78221	TX	7.20	36381	5/31/2011	29.30	-98.50
2400	Bexar	Bexar	78253	TX	4.60	27490	5/31/2011	29.47	-98.81

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
2401	Tarrant	Tarrant	76137	TX	5.06	40379	5/31/2011	32.85	-97.30
2402	Travis	Travis	78758	TX	200.00	1081081	6/2/2011	30.39	-97.72
2403	Travis	Travis	78704	TX	1.92	12028	6/2/2011	30.25	-97.77
2404	Travis	Travis	78745	TX	6.44	33086	6/2/2011	30.22	-97.80
2405	Bexar	Bexar	78232	TX	3.76	26800	6/3/2011	29.59	-98.46
2406	Bexar	Bexar	78245	TX	4.70	32900	6/3/2011	29.40	-98.74
2407	Bexar	Bexar	78239	TX	4.35	26910	6/3/2011	29.52	-98.36
2408	Bexar	Bexar	78259	TX	2.90	13786	6/3/2011	29.62	-98.43
2409	Bexar	Bexar	78240	TX	11.44	104610	6/3/2011	29.53	-98.61
2410	Bexar	Bexar	78216	TX	3.01	22800	6/3/2011	29.55	-98.50
2411	Montgomery	Montgomery	77302	TX	8.28	34162	6/5/2011	30.21	-95.33
2412	Bexar	Bexar	78218	TX	4.70	32900	6/6/2011	29.49	-98.39
2413	Bexar	Bexar	78208	TX	41.40	204102	6/7/2011	29.44	-98.46
2414	Travis	Travis	78745	TX	3.84		6/7/2011	30.22	-97.80
2415	Travis	Travis	78704	TX	7.68	53292	6/7/2011	30.25	-97.77
2416	Travis	Travis	78704	TX	4.08	19509	6/7/2011	30.25	-97.77
2417	Travis	Travis	78704	TX	4.17	19509	6/7/2011	30.25	-97.77
2418	Travis	Travis	78704	TX	4.17	18923	6/7/2011	30.25	-97.77
2419	Travis	Travis	78704	TX	5.04	23328	6/7/2011	30.25	-97.77
2420	Travis	Travis	78704	TX	5.04	23328	6/7/2011	30.25	-97.77
2421	Travis	Travis	78745	TX	7.15	45211	6/7/2011	30.22	-97.80
2422	El Paso	El Paso	79912	TX	16.95	161201	6/7/2011	31.86	-106.55
2423	El Paso	El Paso	79903	TX	9.88	57000	6/7/2011	31.79	-106.44
2424	Tyler	Hardin	77664	TX	10.80	54700	6/9/2011	30.59	-94.36
2425	Bexar	Bexar	78261	TX	6.11	32591	6/10/2011	29.70	-98.41
2426	Bexar	Bexar	78239	TX	6.90	33465	6/10/2011	29.52	-98.36
2427	Bexar	Bexar	78212	TX	2.00	12784	6/13/2011	29.46	-98.50
2428	Bexar	Bexar	78214	TX	5.76	30012	6/13/2011	29.32	-98.47
2429	Bexar	Bexar	78233	TX	3.45	14801	6/13/2011	29.56	-98.36
2430	El Paso	El Paso	79936	TX	2.35	12455	6/13/2011	31.76	-106.29
2431	Travis	Travis	78731	TX	6.66	30077	6/14/2011	30.35	-97.77
2432	Travis	Travis	78746	TX	6.16	37748	6/14/2011	30.31	-97.82
2433	El Paso	El Paso	79936	TX	2.82	16638	6/14/2011	31.76	-106.29
2434	Hidalgo	Nueces	78539	TX	3.06	15510	6/15/2011	26.27	-98.19
2435	Travis	Travis	78750	TX	3.01	20198	6/16/2011	30.43	-97.80
2436	Williamson	Williamson	78664	TX	5.00	19174	6/16/2011	30.50	-97.66
2437	Harrison	Harrison	75672	TX	7.59	36596	6/16/2011	32.42	-94.27
2438	Bexar	Bexar	78213	TX	8.28	42289	6/17/2011	29.50	-98.52
2439	Bexar	Bexar	78240	TX	4.32	33328	6/17/2011	29.53	-98.61
2440	Travis	Travis	78723	TX	4.80	20363	6/17/2011	30.31	-97.68

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
2441	Travis	Travis	78723	TX	4.17	16703	6/17/2011	30.31	-97.68
2442	El Paso	El Paso	79912	TX	7.59	53510	6/17/2011	31.86	-106.55
2443	Bexar	Bexar	78259	TX	5.55	28071	6/20/2011	29.62	-98.43
2444	Bexar	Bexar	78259	TX	2.80	27007	6/20/2011	29.62	-98.43
2445	Bexar	Bexar	78240	TX	4.32	33328	6/20/2011	29.53	-98.61
2446	Comal	Comal	78266	TX	2.76	19082	6/20/2011	29.63	-98.32
2447	Bexar	Bexar	78232	TX	4.70	28300	6/21/2011	29.59	-98.46
2448	Bexar	Bexar	78250	TX	4.60	23690	6/21/2011	29.50	-98.67
2449	Bexar	Bexar	78222	TX	5.75	28191	6/22/2011	29.37	-98.39
2450	Travis	Travis	78746	TX	6.66	31970	6/23/2011	30.31	-97.82
2451	Montgomery	Montgomery	77318	TX	10.00	51744	6/23/2011	30.43	-95.54
2452	Travis	Travis	78748	TX	3.53	17123	6/27/2011	30.17	-97.82
2453	Travis	Travis	78723	TX	19.40	205675	6/28/2011	30.31	-97.68
2454	Tarrant	Tarrant	76126	TX	9.72	50890	6/28/2011	32.65	-97.50
2455	Tarrant	Tarrant	76112	TX	5.06	36271	6/29/2011	32.75	-97.21
2456	Tarrant	Tarrant	76135	TX	5.06	38143	6/29/2011	32.84	-97.47
2457	Tarrant	Tarrant	76112	TX	50.83	300428	6/29/2011	32.75	-97.21
2458	Tarrant	Tarrant	76109	TX	50.83	309788	6/29/2011	32.70	-97.38
2459	Tarrant	Tarrant	76133	TX	5.06	35023	6/29/2011	32.65	-97.38
2460	Travis	Travis	78723	TX	5.00	21251	6/30/2011	30.31	-97.68
2461	Travis	Travis	78723	TX	3.33	15071	6/30/2011	30.31	-97.68
2462	Travis	Travis	78749	TX	4.80	20447	6/30/2011	30.22	-97.86
2463	Colorado	Fort Bend	77434	TX	6.44	32099	6/30/2011	29.52	-96.34
2464	Nolan	Hood	79556	TX	19.00		7/1/2011	32.42	-100.39
2465	El Paso	El Paso	79901	TX	20.13	114000	7/1/2011	31.76	-106.49
2466	El Paso	El Paso	79904	TX	20.13	114000	7/1/2011	31.83	-106.43
2467	Bexar	Bexar	78258	TX	6.44	32452	7/5/2011	29.65	-98.47
2468	Bexar	Bexar	78209	TX	5.52	32568	7/5/2011	29.49	-98.45
2469	Bexar	Bexar	78259	TX	4.28	24437	7/5/2011	29.62	-98.43
2470	Travis	Travis	78704	TX	6.37	28553	7/5/2011	30.25	-97.77
2471	Travis	Travis	78723	TX	5.00	20857	7/5/2011	30.31	-97.68
2472	Bexar	Bexar	78230	TX	5.28	31605	7/6/2011	29.54	-98.56
2473	Aransas	San Patricio	78382	TX	4.92	19328	7/6/2011	28.09	-97.07
2474	Travis	Travis	78721	TX	3.92	18311	7/6/2011	30.27	-97.68
2475	Lamar	Hunt	75460	TX	99.82	495685	7/7/2011	33.60	-95.62
2476	Cameron	Nueces	78550	TX	72.38	649904	7/7/2011	26.26	-97.65
2477	Cameron	Nueces	78586	TX	243.46	1826292	7/7/2011	26.10	-97.63
2478	Montgomery	Montgomery	77384	TX	9.66	54438	7/7/2011	30.24	-95.49
2479	El Paso	El Paso	79906	TX	20.13	363190	7/7/2011	31.81	-106.41
2480	El Paso	El Paso	79901	TX	20.13	361903	7/7/2011	31.76	-106.48

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
2481	Travis	Travis	78723	TX	5.92	26983	7/11/2011	30.31	-97.68
2482	Brewster	El Paso	79830	TX	1.84	12880	7/11/2011	29.72	-103.22
2483	Bexar	Bexar	78023	TX	5.17	45000	7/13/2011	29.62	-98.73
2484	Dallas	Dallas	75104	TX	152.80		7/13/2011	32.59	-96.95
2485	El Paso	El Paso	79938	TX	2.35	14805	7/13/2011	31.84	-105.92
2486	Travis	Travis	78723	TX	11.07	48048	7/14/2011	30.31	-97.68
2487	Travis	Travis	78723	TX	3.43	29677	7/14/2011	30.31	-97.68
2488	Travis	Travis	78723	TX	4.44	25373	7/14/2011	30.31	-97.68
2489	Travis	Travis	78723	TX	9.18	29373	7/14/2011	30.31	-97.68
2490	Travis	Travis	78723	TX	1.48		7/14/2011	30.31	-97.68
2491	Travis	Travis	78723	TX	6.37	29228	7/14/2011	30.31	-97.68
2492	Travis	Travis	78723	TX	6.66	29198	7/14/2011	30.31	-97.68
2493	Montgomery	Montgomery	77381	TX	4.14	15110	7/14/2011	30.17	-95.51
2494	Bexar	Bexar	78023	TX	4.70	43113	7/15/2011	29.62	-98.73
2495	Guadalupe	Guadalupe	78154	TX	5.55	29502	7/15/2011	29.59	-98.28
2496	Galveston	Galveston	77546	TX	4.60	18572	7/15/2011	29.54	-95.20
2497	Bexar	Bexar	78233	TX	22.77	107399	7/20/2011	29.56	-98.36
2498	Bexar	Bexar	78250	TX	1.08	4325	7/20/2011	29.50	-98.67
2499	Travis	Travis	78723	TX	6.37	15502	7/21/2011	30.31	-97.68
2500	Travis	Travis	78723	TX	3.19	29342	7/21/2011	30.31	-97.68
2501	Denton	Denton	75056	TX	10.64	69230	7/21/2011	33.08	-96.91
2502	El Paso	El Paso	79902	TX	4.14	28773	7/21/2011	31.79	-106.49
2503	Kendall	Bexar	78015	TX	82.30	575957	7/22/2011	29.75	-98.65
2504	Grayson	Collin	75092	TX	7.36	43245	7/22/2011	33.68	-96.73
2505	Travis	Travis	78741	TX	170.45		7/25/2011	30.23	-97.71
2506	Travis	Travis	78723	TX	9.44	26335	7/26/2011	30.31	-97.68
2507	Travis	Travis	78723	TX	6.37	28430	7/26/2011	30.31	-97.68
2508	Travis	Travis	78723	TX	1.48	22940	7/26/2011	30.31	-97.68
2509	Travis	Travis	78723	TX	6.13	23090	7/26/2011	30.31	-97.68
2510	Travis	Travis	78723	TX	6.11	27500	7/26/2011	30.31	-97.68
2511	Travis	Travis	78721	TX	5.15	23217	7/26/2011	30.27	-97.68
2512	Tarrant	Tarrant	76063	TX	10.29	105000	7/26/2011	32.56	-97.14
2513	Dallas	Dallas	75115	TX	10.29	105000	7/26/2011	32.60	-96.86
2514	Tarrant	Tarrant	76021	TX	10.29	105000	7/27/2011	32.85	-97.13
2515	Travis	Travis	78723	TX	5.76	25375	7/28/2011	30.31	-97.68
2516	Hidalgo	Nueces	78596	TX	9.20	57736	7/28/2011	26.17	-97.98
2517	Tarrant	Tarrant	76102	TX	98.70		7/31/2011	32.76	-97.32
2518	Travis	Travis	78723	TX	5.64	24828	8/2/2011	30.31	-97.68
2519	Travis	Travis	78723	TX	4.66	22397	8/2/2011	30.31	-97.68
2520	Travis	Travis	78723	TX	5.15	23722	8/2/2011	30.31	-97.68

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
2521	Bexar	Bexar	78254	TX	3.50	18673	8/3/2011	29.53	-98.78
2522	Bexar	Bexar	78023	TX	6.11	44569	8/3/2011	29.62	-98.73
2523	Bexar	Bexar	78211	TX	2.94	22080	8/3/2011	29.35	-98.57
2524	Travis	Travis	78723	TX	4.17	20024	8/4/2011	30.31	-97.68
2525	Travis	Travis	78723	TX	5.88	26818	8/4/2011	30.31	-97.68
2526	Travis	Travis	78723	TX	6.13	28260	8/4/2011	30.31	-97.68
2527	Travis	Travis	78723	TX	6.37	29031	8/4/2011	30.31	-97.68
2528	Bexar	Bexar	78253	TX	8.40	45540	8/5/2011	29.47	-98.81
2529	Bexar	Bexar	78023	TX	7.20	36000	8/9/2011	29.62	-98.73
2530	Bexar	Bexar	78222	TX	8.28	41262	8/9/2011	29.37	-98.39
2531	Bexar	Bexar	78209	TX	3.29	21097	8/9/2011	29.49	-98.45
2532	Bexar	Bexar	78233	TX	10.81	54567	8/9/2011	29.56	-98.36
2533	Comal	Comal	78266	TX	7.00	57359	8/9/2011	29.63	-98.32
2534	Bexar	Bexar	78255	TX	5.52	25890	8/9/2011	29.66	-98.67
2535	Orange	Orange	77611	TX	3.24	15000	8/9/2011	30.04	-93.81
2536	Travis	Travis	78723	TX	5.92	25373	8/9/2011	30.31	-97.68
2537	Travis	Travis	78723	TX	5.76	26335	8/9/2011	30.31	-97.68
2538	Dallas	Dallas	75180	TX	10.29	105000	8/9/2011	32.72	-96.62
2539	Dallas	Dallas	75230	TX	7.48	41794	8/9/2011	32.90	-96.79
2540	Tarrant	Tarrant	76248	TX	10.12		8/10/2011	32.93	-97.23
2541	Orange	Orange	77611	TX	3.24	11500	8/10/2011	30.00	-93.81
2542	El Paso	El Paso	79927	TX	7.13	45728	8/10/2011	31.64	-106.28
2543	Comal	Comal	78163	TX	5.55	35600	8/11/2011	29.77	-98.51
2544	Travis	Travis	78723	TX	5.13	28810	8/11/2011	30.31	-97.68
2545	Travis	Travis	78738	TX	15.19	73023	8/11/2011	30.30	-97.97
2546	Harris	Harris	77429	TX	1.11		8/15/2011	30.01	-95.67
2547	Dallas	Dallas	75235	TX	299.52	1813647	8/15/2011	32.83	-96.85
2548	Dallas	Dallas	75006	TX	3.60	24734	8/15/2011	32.97	-96.89
2549	Jeff Davis	El Paso	79734	TX	3.68	25760	8/17/2011	30.77	-104.01
2550	Montgomery	Montgomery	77357	TX	29.40	147311	8/17/2011	30.16	-95.20
2551	Montgomery	Montgomery	77301	TX	29.40	142766	8/17/2011	30.31	-95.43
2552	Travis	Travis	78733	TX	4.23	21786	8/18/2011	30.33	-97.87
2553	Tarrant	Tarrant	76051	TX	6.21	60934	8/18/2011	32.95	-97.07
2554	Collin	Collin	75069	TX	52.17		8/19/2011	33.16	-96.59
2555	Travis	Travis	78723	TX	7.11	26265	8/19/2011	30.31	-97.68
2556	Travis	Travis	78723	TX	2.94		8/19/2011	30.31	-97.68
2557	Travis	Travis	78723	TX	3.67	26931	8/19/2011	30.31	-97.68
2558	Travis	Travis	78723	TX	7.34	28810	8/19/2011	30.31	-97.68
2559	Travis	Travis	78723	TX	4.66	18360	8/19/2011	30.31	-97.68
2560	Travis	Travis	78723	TX	8.33	51143	8/19/2011	30.31	-97.68



Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
2561	Travis	Travis	78723	TX	6.13	28253	8/19/2011	30.31	-97.68
2562	Archer	Parker	76366	TX	10.12	57000	8/19/2011	33.71	-98.79
2563	Archer	Parker	76366	TX	10.12	58000	8/19/2011	33.71	-98.79
2564	Tom Green	Williamson	76904	TX	9.87	40750	8/19/2011	31.26	-100.30
2565	Travis	Travis	78723	TX	5.70	24379	8/22/2011	30.31	-97.68
2566	Travis	Travis	78723	TX	6.27	26853	8/22/2011	30.31	-97.68
2567	Dallas	Dallas	75104	TX	10.29	105000	8/23/2011	32.59	-96.99
2568	Webb	Nueces	78040	TX	35.00	245000	8/23/2011	27.52	-99.51
2569	Orange	Orange	77632	TX	6.58	41515	8/23/2011	30.22	-93.80
2570	Bexar	Bexar	78254	TX	5.52	24918	8/24/2011	29.53	-98.78
2571	Bexar	Bexar	78232	TX	5.52	25658	8/24/2011	29.59	-98.46
2572	Bexar	Bexar	78203	TX	20.60	124005	8/24/2011	29.41	-98.45
2573	Bexar	Bexar	78250	TX	4.10	21114	8/24/2011	29.50	-98.67
2574	Travis	Travis	78723	TX	5.13	27373	8/25/2011	30.31	-97.68
2575	Travis	Travis	78723	TX	6.37	28401	8/25/2011	30.31	-97.68
2576	Travis	Travis	78736	TX	6.21	36215	8/25/2011	30.25	-97.95
2577	Bosque	Hood	76634	TX	8.28	48171	8/25/2011	31.84	-97.55
2578	Grayson	Collin	75491	TX	5.64	33276	8/26/2011	33.48	-96.39
2579	Travis	Travis	78723	TX	5.76	25373	8/26/2011	30.31	-97.68
2580	Travis	Travis	78723	TX	3.19		8/26/2011	30.31	-97.68
2581	Travis	Travis	78723	TX	6.13	25836	8/26/2011	30.31	-97.68
2582	Travis	Travis	78723	TX	8.09	49841	8/26/2011	30.31	-97.68
2583	Travis	Travis	78723	TX	5.15	23578	8/26/2011	30.31	-97.68
2584	Travis	Travis	78723	TX	3.43	26819	8/29/2011	30.31	-97.68
2585	Travis	Travis	78723	TX	9.68	26423	8/29/2011	30.31	-97.68
2586	Travis	Travis	78723	TX	6.25	26062	8/29/2011	30.31	-97.68
2587	Kendall	Bexar	78015	TX	11.04	54600	8/30/2011	29.75	-98.65
2588	Travis	Travis	78723	TX	2.21	26365	8/30/2011	30.31	-97.68
2589	Travis	Travis	78723	TX	10.03	26983	8/30/2011	30.31	-97.68
2590	Travis	Travis	78723	TX	3.43	12693	8/30/2011	30.31	-97.68
2591	Travis	Travis	78723	TX	6.13	28428	8/30/2011	30.31	-97.68
2592	Travis	Travis	78723	TX	4.66	21127	8/30/2011	30.31	-97.68
2593	Travis	Travis	78723	TX	5.88	26637	8/30/2011	30.31	-97.68
2594	El Paso	El Paso	79927	TX	6.44	41860	8/30/2011	31.64	-106.28
2595	Bexar	Bexar	78235	TX	10.10	48939	8/31/2011	29.35	-98.44
2596	Bexar	Bexar	78251	TX	5.28	31680	8/31/2011	29.47	-98.68
2597	Bexar	Bexar	78255	TX	4.44	27436	8/31/2011	29.66	-98.67
2598	Bexar	Bexar	78258	TX	6.21	34340	8/31/2011	29.65	-98.47
2599	Travis	Travis	78723	TX	2.75	17253	8/31/2011	30.31	-97.68
2600	Tarrant	Tarrant	76016	TX	10.29	105000	8/31/2011	32.69	-97.18

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
2601	Travis	Travis	78746	TX	5.92	25572	9/1/2011	30.31	-97.82
2602	Travis	Travis	78756	TX	3.42	16539	9/1/2011	30.32	-97.74
2603	Bosque	Hood	76665	TX	9.00	51761	9/1/2011	31.92	-97.72
2604	Collin	Collin	75069	TX	52.17	386704	9/1/2011	33.17	-96.64
2605	Travis	Travis	78746	TX	3.70	17222	9/2/2011	30.31	-97.82
2606	Travis	Travis	78746	TX	4.90	26278	9/2/2011	30.31	-97.82
2607	Galveston	Galveston	77573	TX	7.82	46836	9/7/2011	29.49	-95.09
2608	Travis	Travis	78723	TX	5.25	21980	9/8/2011	30.31	-97.68
2609	Travis	Travis	78723	TX	1.50		9/8/2011	30.31	-97.68
2610	Travis	Travis	78723	TX	6.34	22330	9/8/2011	30.31	-97.68
2611	Travis	Travis	78734	TX	8.35	55245	9/8/2011	30.37	-97.95
2612	Travis	Travis	78723	TX	5.55	23310	9/8/2011	30.31	-97.68
2613	El Paso	El Paso	79930	TX	4.14	28773	9/8/2011	31.81	-106.47
2614	El Paso	El Paso	79912	TX	2.53	18950	9/8/2011	31.86	-106.55
2615	El Paso	El Paso	79912	TX	6.21	44091	9/8/2011	31.86	-106.55
2616	Bexar	Bexar	78023	TX	2.93	12595	9/9/2011	29.62	-98.73
2617	Bexar	Bexar	78023	TX	10.21	58670	9/9/2011	29.62	-98.73
2618	Bexar	Bexar	78230	TX	9.43	52144	9/9/2011	29.54	-98.56
2619	Bexar	Bexar	78258	TX	12.00	68484	9/9/2011	29.65	-98.47
2620	Bexar	Bexar	78023	TX	9.72	46371	9/9/2011	29.62	-98.73
2621	Bexar	Bexar	78260	TX	5.95	30885	9/9/2011	29.69	-98.50
2622	Travis	Travis	78723	TX	2.25		9/9/2011	30.31	-97.68
2623	Travis	Travis	78722	TX	4.47	24108	9/9/2011	30.29	-97.71
2624	Travis	Travis	78723	TX	7.50	26499	9/9/2011	30.31	-97.68
2625	Travis	Travis	78723	TX	5.25	26771	9/9/2011	30.31	-97.68
2626	Travis	Travis	78747	TX	10.24	57513	9/9/2011	30.13	-97.73
2627	Travis	Travis	78723	TX	5.75	24337	9/10/2011	30.31	-97.68
2628	Travis	Travis	78723	TX	6.50	26830	9/10/2011	30.31	-97.68
2629	Travis	Travis	78723	TX	6.00	25232	9/10/2011	30.31	-97.68
2630	Travis	Travis	78723	TX	8.25	43973	9/10/2011	30.31	-97.68
2631	Travis	Travis	78723	TX	2.25		9/10/2011	30.31	-97.68
2632	Travis	Travis	78723	TX	9.50	40194	9/10/2011	30.31	-97.68
2633	Travis	Travis	78723	TX	3.92	29036	9/10/2011	30.31	-97.68
2634	Travis	Travis	78723	TX	2.45		9/10/2011	30.31	-97.68
2635	Travis	Travis	78723	TX	6.25	25925	9/10/2011	30.31	-97.68
2636	Travis	Travis	78723	TX	5.64	25775	9/10/2011	30.31	-97.68
2637	Travis	Travis	78723	TX	5.64	25671	9/10/2011	30.31	-97.68
2638	Orange	Orange	77632	TX	6.56		9/11/2011	30.19	-93.81
2639	Travis	Travis	78732	TX	6.37	35614	9/11/2011	30.38	-97.89
2640	Travis	Travis	78723	TX	4.00	16720	9/11/2011	30.31	-97.68

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
2641	Travis	Travis	78723	TX	6.00	24832	9/11/2011	30.31	-97.68
2642	Bexar	Bexar	78254	TX	7.59	39876	9/12/2011	29.53	-98.78
2643	Travis	Travis	78738	TX	6.35	40791	9/13/2011	30.30	-97.97
2644	Travis	Travis	78746	TX	6.50	31503	9/13/2011	30.31	-97.82
2645	Bell	Williamson	76559	TX	3.68	21070	9/13/2011	31.08	-97.62
2646	Bexar	Bexar	78260	TX	5.52	26658	9/14/2011	29.69	-98.50
2647	Comal	Comal	78266	TX	1.60	17120	9/14/2011	29.63	-98.32
2648	Bexar	Bexar	78261	TX	5.98	30885	9/14/2011	29.70	-98.41
2649	Bexar	Bexar	78261	TX	5.98	34385	9/14/2011	29.70	-98.41
2650	Comal	Comal	78163	TX	6.10	31467	9/14/2011	29.77	-98.51
2651	Bexar	Bexar	78257	TX	38.64	238308	9/14/2011	29.66	-98.58
2652	Bexar	Bexar	78247	TX	26.91	154936	9/14/2011	29.59	-98.41
2653	Travis	Travis	78727	TX	4.60	20326	9/16/2011	30.43	-97.71
2654	Travis	Travis	78744	TX	9.58	45000	9/16/2011	30.20	-97.73
2655	Travis	Travis	78745	TX	6.35	29405	9/16/2011	30.22	-97.80
2656	Travis	Travis	78727	TX	6.35	26974	9/16/2011	30.43	-97.71
2657	Travis	Travis	78750	TX	6.11	27787	9/16/2011	30.43	-97.80
2658	Travis	Travis	78757	TX	6.21	23142	9/16/2011	30.35	-97.74
2659	Travis	Travis	78660	TX	3.36		9/16/2011	30.43	-97.60
2660	Travis	Travis	78746	TX	5.76	29610	9/16/2011	30.31	-97.82
2661	Travis	Travis	78660	TX	3.12	31232	9/16/2011	30.43	-97.60
2662	Travis	Travis	78723	TX	2.22	11654	9/17/2011	30.31	-97.68
2663	Travis	Travis	78723	TX	5.50	23900	9/17/2011	30.31	-97.68
2664	Travis	Travis	78723	TX	5.50	23510	9/17/2011	30.31	-97.68
2665	Travis	Travis	78723	TX	6.25	26412	9/17/2011	30.31	-97.68
2666	Travis	Travis	78723	TX	5.00	20767	9/17/2011	30.31	-97.68
2667	Travis	Travis	78723	TX	6.25	26416	9/17/2011	30.31	-97.68
2668	Travis	Travis	78723	TX	3.75		9/18/2011	30.31	-97.68
2669	Travis	Travis	78723	TX	4.50	21680	9/18/2011	30.31	-97.68
2670	Travis	Travis	78723	TX	2.25		9/18/2011	30.31	-97.68
2671	Travis	Travis	78723	TX	9.38	51905	9/18/2011	30.31	-97.68
2672	Travis	Travis	78723	TX	3.00		9/18/2011	30.31	-97.68
2673	Travis	Travis	78723	TX	8.00	47655	9/18/2011	30.31	-97.68
2674	Travis	Travis	78723	TX	4.00	26738	9/18/2011	30.31	-97.68
2675	Travis	Travis	78723	TX	7.75	18920	9/18/2011	30.31	-97.68
2676	Travis	Travis	78723	TX	8.15	51960	9/18/2011	30.31	-97.68
2677	Montgomery	Montgomery	77384	TX	6.21	25200	9/18/2011	30.24	-95.49
2678	Bexar	Bexar	78255	TX	4.70	24166	9/19/2011	29.66	-98.67
2679	Travis	Travis	78748	TX	5.06	24128	9/19/2011	30.17	-97.82
2680	Travis	Travis	78723	TX	6.25	26417	9/19/2011	30.31	-97.68

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
2681	Travis	Travis	78723	TX	5.75	26674	9/19/2011	30.31	-97.68
2682	Travis	Travis	78723	TX	2.25		9/19/2011	30.31	-97.68
2683	Travis	Travis	78723	TX	7.50	26580	9/19/2011	30.31	-97.68
2684	Travis	Travis	78751	TX	8.37	57084	9/19/2011	30.31	-97.73
2685	Travis	Travis	78723	TX	4.00		9/19/2011	30.31	-97.68
2686	Travis	Travis	78723	TX	8.50	52581	9/19/2011	30.31	-97.68
2687	Travis	Travis	78723	TX	4.41	20455	9/19/2011	30.31	-97.68
2688	Dallas	Dallas	75115	TX	5.04	24200	9/19/2011	32.60	-96.86
2689	Tyler	Hardin	77664	TX	5.64	39870	9/19/2011	30.59	-94.36
2690	Bexar	Bexar	78255	TX	3.50	18637	9/20/2011	29.66	-98.67
2691	Bexar	Bexar	78209	TX	3.29	20400	9/20/2011	29.49	-98.45
2692	Travis	Travis	78723	TX	4.07	16804	9/20/2011	30.31	-97.68
2693	Travis	Travis	78723	TX	3.33	14983	9/20/2011	30.31	-97.68
2694	Travis	Travis	78723	TX	6.16	26906	9/20/2011	30.31	-97.68
2695	Travis	Travis	78723	TX	7.40	45507	9/20/2011	30.31	-97.68
2696	Travis	Travis	78723	TX	3.99	26537	9/20/2011	30.31	-97.68
2697	Travis	Travis	78723	TX	1.48		9/20/2011	30.31	-97.68
2698	Travis	Travis	78723	TX	7.59	25373	9/20/2011	30.31	-97.68
2699	Travis	Travis	78723	TX	5.92	29506	9/20/2011	30.31	-97.68
2700	Travis	Travis	78723	TX	4.44	25373	9/20/2011	30.31	-97.68
2701	Travis	Travis	78723	TX	3.33	28292	9/20/2011	30.31	-97.68
2702	Travis	Travis	78723	TX	9.25	24450	9/20/2011	30.31	-97.68
2703	Travis	Travis	78723	TX	1.67	21646	9/20/2011	30.31	-97.68
2704	Travis	Travis	78723	TX	3.89	17474	9/20/2011	30.31	-97.68
2705	Travis	Travis	78723	TX	3.68	16198	9/20/2011	30.31	-97.68
2706	Grayson	Collin	75491	TX	5.64	33276	9/20/2011	33.48	-96.39
2707	El Paso	El Paso	79936	TX	25.38	108856	9/21/2011	31.76	-106.29
2708	Travis	Travis	78705	TX	5.06	24794	9/22/2011	30.30	-97.74
2709	Travis	Travis	78704	TX	2.50	12725	9/22/2011	30.25	-97.77
2710	Travis	Travis	78728	TX	4.80	23000	9/22/2011	30.46	-97.68
2711	Travis	Travis	78759	TX	5.29	24840	9/22/2011	30.40	-97.75
2712	Travis	Travis	78704	TX	2.82	13873	9/22/2011	30.25	-97.77
2713	Travis	Travis	78704	TX	5.25	27600	9/22/2011	30.25	-97.77
2714	Travis	Travis	78703	TX	3.64	21793	9/22/2011	30.29	-97.77
2715	Travis	Travis	78759	TX	9.10	42417	9/22/2011	30.40	-97.75
2716	Travis	Travis	78733	TX	6.48	30451	9/22/2011	30.33	-97.87
2717	Travis	Travis	78735	TX	6.11	35000	9/22/2011	30.26	-97.86
2718	Travis	Travis	78746	TX	3.44		9/23/2011	30.31	-97.82
2719	Travis	Travis	78723	TX	4.50	32820	9/23/2011	30.31	-97.68
2720	Travis	Travis	78723	TX	2.82	22583	9/23/2011	30.31	-97.68

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
2721	Travis	Travis	78723	TX	3.29		9/23/2011	30.31	-97.68
2722	Travis	Travis	78723	TX	5.98	25866	9/23/2011	30.31	-97.68
2723	Travis	Travis	78723	TX	6.24	28205	9/23/2011	30.31	-97.68
2724	Travis	Travis	78731	TX	12.65	55091	9/23/2011	30.35	-97.77
2725	Travis	Travis	78735	TX	9.17	49248	9/23/2011	30.26	-97.86
2726	Travis	Travis	78723	TX	6.85	19321	9/24/2011	30.31	-97.68
2727	Travis	Travis	78723	TX	2.00	18342	9/24/2011	30.31	-97.68
2728	Travis	Travis	78723	TX	2.25		9/24/2011	30.31	-97.68
2729	Travis	Travis	78723	TX	7.25	26380	9/24/2011	30.31	-97.68
2730	Travis	Travis	78723	TX	6.88	17143	9/24/2011	30.31	-97.68
2731	Travis	Travis	78723	TX	7.25	45232	9/24/2011	30.31	-97.68
2732	Travis	Travis	78723	TX	3.24	28787	9/24/2011	30.31	-97.68
2733	Travis	Travis	78723	TX	5.25	22332	9/25/2011	30.31	-97.68
2734	Travis	Travis	78723	TX	3.25		9/25/2011	30.31	-97.68
2735	Travis	Travis	78723	TX	6.25	26243	9/25/2011	30.31	-97.68
2736	Travis	Travis	78723	TX	2.50	21853	9/25/2011	30.31	-97.68
2737	Travis	Travis	78723	TX	4.95	20539	9/25/2011	30.31	-97.68
2738	Travis	Travis	78723	TX	7.75	46844	9/25/2011	30.31	-97.68
2739	Travis	Travis	78723	TX	2.50		9/25/2011	30.31	-97.68
2740	Travis	Travis	78723	TX	6.25	26492	9/25/2011	30.31	-97.68
2741	Travis	Travis	78723	TX	8.95	26159	9/25/2011	30.31	-97.68
2742	Travis	Travis	78723	TX	3.50	20804	9/25/2011	30.31	-97.68
2743	Travis	Travis	78723	TX	8.00	44055	9/25/2011	30.31	-97.68
2744	Travis	Travis	78723	TX	3.71	15879	9/25/2011	30.31	-97.68
2745	Travis	Travis	78723	TX	6.25	26763	9/25/2011	30.31	-97.68
2746	Travis	Travis	78723	TX	6.37	29045	9/25/2011	30.31	-97.68
2747	Travis	Travis	78752	TX	5.52	21482	9/26/2011	30.33	-97.71
2748	Travis	Travis	78734	TX	6.90	41193	9/26/2011	30.37	-97.95
2749	Travis	Travis	78745	TX	4.07	19324	9/26/2011	30.22	-97.80
2750	Travis	Travis	78749	TX	4.07	19392	9/26/2011	30.22	-97.86
2751	Travis	Travis	78704	TX	5.55	25351	9/26/2011	30.25	-97.77
2752	Travis	Travis	78747	TX	5.00	23485	9/26/2011	30.13	-97.73
2753	Travis	Travis	78731	TX	6.11	28504	9/26/2011	30.35	-97.77
2754	Travis	Travis	78759	TX	2.99	14044	9/26/2011	30.40	-97.75
2755	Travis	Travis	78744	TX	3.70	17278	9/26/2011	30.20	-97.73
2756	Travis	Travis	78732	TX	3.70	17363	9/26/2011	30.38	-97.89
2757	Travis	Travis	78731	TX	5.40	24850	9/26/2011	30.35	-97.77
2758	Wichita	Denton	76310	TX	9.80	54984	9/26/2011	33.79	-98.51
2759	Dallas	Dallas	75006	TX	3.22	44046	9/26/2011	32.97	-96.89
2760	Bexar	Bexar	78222	TX	5.52	25751	9/27/2011	29.37	-98.39

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
2761	Bexar	Bexar	78247	TX	6.11	32685	9/27/2011	29.59	-98.41
2762	Bexar	Bexar	78247	TX	8.14	42260	9/27/2011	29.59	-98.41
2763	Bexar	Bexar	78254	TX	1.05	5339	9/27/2011	29.53	-98.78
2764	Bexar	Bexar	78216	TX	5.64	26525	9/27/2011	29.55	-98.50
2765	Wise	Denton	76426	TX	170.02		9/27/2011	33.17	-97.85
2766	Travis	Travis	78704	TX	4.50	19220	9/27/2011	30.25	-97.77
2767	Travis	Travis	78723	TX	2.50	20155	9/27/2011	30.31	-97.68
2768	Travis	Travis	78723	TX	2.25		9/27/2011	30.31	-97.68
2769	Travis	Travis	78746	TX	8.50	51959	9/27/2011	30.31	-97.82
2770	Travis	Travis	78705	TX	1.75		9/27/2011	30.30	-97.74
2771	Travis	Travis	78723	TX	6.25	19282	9/27/2011	30.31	-97.68
2772	Travis	Travis	78746	TX	11.02	57085	9/27/2011	30.31	-97.82
2773	Travis	Travis	78702	TX	4.00	18346	9/27/2011	30.26	-97.71
2774	Travis	Travis	78753	TX	6.13	27584	9/27/2011	30.39	-97.67
2775	Travis	Travis	78703	TX	6.50	27742	9/27/2011	30.29	-97.77
2776	Travis	Travis	78723	TX	4.50	22601	9/27/2011	30.31	-97.68
2777	Grimes	Montgomery	77868	TX	3.76	17715	9/27/2011	30.34	-96.03
2778	El Paso	El Paso	79912	TX	9.89	67147	9/27/2011	31.86	-106.55
2779	Bexar	Bexar	78217	TX	4.23	25104	9/28/2011	29.54	-98.42
2780	Bexar	Bexar	78227	TX	4.14	20493	9/28/2011	29.41	-98.63
2781	Travis	Travis	78703	TX	4.14	23183	9/28/2011	30.29	-97.77
2782	Travis	Travis	78756	TX	1.38		9/28/2011	30.32	-97.74
2783	Travis	Travis	78704	TX	2.76	12420	9/28/2011	30.25	-97.77
2784	Travis	Travis	78756	TX	3.68	21252	9/28/2011	30.32	-97.74
2785	Travis	Travis	78703	TX	10.73	44405	9/28/2011	30.29	-97.77
2786	Travis	Travis	78746	TX	6.30	38208	9/28/2011	30.31	-97.82
2787	Dallas	Dallas	75150	TX	10.29	105000	9/28/2011	32.82	-96.63
2788	Tyler	Hardin	77664	TX	5.64		9/29/2011	30.59	-94.36
2789	Travis	Travis	78749	TX	1.41		9/29/2011	30.22	-97.86
2790	Travis	Travis	78736	TX	2.53	11511	9/29/2011	30.25	-97.95
2791	Travis	Travis	78749	TX	4.60	28166	9/29/2011	30.22	-97.86
2792	Travis	Travis	78749	TX	4.23	30674	9/29/2011	30.22	-97.86
2793	Travis	Travis	78749	TX	5.77	18113	9/29/2011	30.22	-97.86
2794	Travis	Travis	78749	TX	1.84		9/29/2011	30.22	-97.86
2795	Travis	Travis	78759	TX	11.47	53451	9/29/2011	30.40	-97.75
2796	Travis	Travis	78734	TX	6.96	45267	9/29/2011	30.37	-97.95
2797	Travis	Travis	78747	TX	6.12	29986	9/29/2011	30.13	-97.73
2798	Travis	Travis	78746	TX	6.11	29954	9/29/2011	30.31	-97.82
2799	Travis	Travis	78749	TX	1.67		9/29/2011	30.22	-97.86
2800	Travis	Travis	78660	TX	6.21	37123	9/29/2011	30.43	-97.60

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
2801	Travis	Travis	78752	TX	4.70	22810	9/29/2011	30.33	-97.71
2802	Travis	Travis	78757	TX	6.44	29243	9/29/2011	30.35	-97.74
2803	Bexar	Bexar	78249	TX	36.00		9/30/2011	29.57	-98.61
2804	Travis	Travis	78735	TX	3.76	22903	9/30/2011	30.26	-97.86
2805	Travis	Travis	78723	TX	3.96	17700	9/30/2011	30.31	-97.68
2806	Travis	Travis	78723	TX	1.08		9/30/2011	30.31	-97.68
2807	Travis	Travis	78723	TX	2.94		9/30/2011	30.31	-97.68
2808	Travis	Travis	78723	TX	6.21	26082	9/30/2011	30.31	-97.68
2809	Travis	Travis	78722	TX	9.81	34444	9/30/2011	30.29	-97.71
2810	Travis	Travis	78723	TX	1.62		9/30/2011	30.31	-97.68
2811	Travis	Travis	78723	TX	5.92	27461	9/30/2011	30.31	-97.68
2812	Travis	Travis	78723	TX	7.31	25658	9/30/2011	30.31	-97.68
2813	Travis	Travis	78756	TX	6.48	50097	9/30/2011	30.32	-97.74
2814	Travis	Travis	78723	TX	7.07	44463	9/30/2011	30.31	-97.68
2815	Travis	Travis	78723	TX	3.53	26944	9/30/2011	30.31	-97.68
2816	Travis	Travis	78723	TX	7.37	25118	9/30/2011	30.31	-97.68
2817	Travis	Travis	78722	TX	1.85	25385	9/30/2011	30.29	-97.71
2818	Travis	Travis	78723	TX	5.92	26064	9/30/2011	30.31	-97.68
2819	Travis	Travis	78723	TX	3.33	14666	9/30/2011	30.31	-97.68
2820	Travis	Travis	78723	TX	1.67	18190	9/30/2011	30.31	-97.68
2821	Travis	Travis	78723	TX	7.45	22058	9/30/2011	30.31	-97.68
2822	Travis	Travis	78723	TX	3.70	16291	9/30/2011	30.31	-97.68
2823	Travis	Travis	78759	TX	0.94		9/30/2011	30.40	-97.75
2824	Travis	Travis	78723	TX	6.11	25393	9/30/2011	30.31	-97.68
2825	Travis	Travis	78723	TX	6.62	28800	9/30/2011	30.31	-97.68
2826	Travis	Travis	78759	TX	4.23	28331	9/30/2011	30.40	-97.75
2827	Travis	Travis	78757	TX	6.35	30997	9/30/2011	30.35	-97.74
2828	Travis	Travis	78723	TX	6.35	25791	9/30/2011	30.31	-97.68
2829	Travis	Travis	78723	TX	14.75	66300	9/30/2011	30.31	-97.68
2830	Travis	Travis	78723	TX	6.37	26501	9/30/2011	30.31	-97.68
2831	Travis	Travis	78734	TX	8.14	22169	9/30/2011	30.37	-97.95
2832	Travis	Travis	78723	TX	5.55	24434	9/30/2011	30.31	-97.68
2833	Travis	Travis	78704	TX	1.60	8651	10/1/2011	30.25	-97.77
2834	Dallas	Dallas	75082	TX	5.85	40536	10/3/2011	33.00	-96.66
2835	Ellis	Ellis	75154	TX	10.29	105000	10/3/2011	32.51	-96.77
2836	Cherokee	Smith	75766	TX	10.25	56900	10/3/2011	31.93	-95.27
2837	Denton	Denton	75022	TX	10.12	28000	10/4/2011	33.03	-97.10
2838	Denton	Denton	75022	TX	10.12	35857	10/4/2011	33.02	-97.13
2839	Brewster	El Paso	79830	TX	4.90	29280	10/5/2011	29.72	-103.22
2840	Dallas	Dallas	75082	TX	4.83	25000	10/6/2011	33.00	-96.66

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
2841	Denton	Denton	76226	TX	1.26	8262	10/6/2011	33.12	-97.16
2842	Orange	Orange	77632	TX	5.40	26550	10/6/2011	30.22	-93.80
2843	Dallas	Dallas	75211	TX	3.53	19388	10/7/2011	32.74	-96.89
2844	Travis	Travis	78757	TX	6.44	33000	10/8/2011	30.35	-97.74
2845	Medina	Bexar	78059	TX	8.50	42300	10/10/2011	29.18	-98.85
2846	Walker	Montgomery	77320	TX	23.00	79524	10/10/2011	30.82	-95.52
2847	Clay	Parker	76365	TX	10.34	52925	10/11/2011	33.79	-98.22
2848	Travis	Travis	78746	TX	7.76	35002	10/11/2011	30.31	-97.82
2849	Travis	Travis	78723	TX	3.91		10/11/2011	30.31	-97.68
2850	Travis	Travis	78723	TX	8.28	54498	10/11/2011	30.31	-97.68
2851	Travis	Travis	78731	TX	5.76	34527	10/11/2011	30.35	-97.77
2852	Dallas	Dallas	75211	TX	5.16	41177	10/11/2011	32.74	-96.89
2853	Gregg	Gregg	75662	TX	11.12	59089	10/12/2011	32.38	-94.87
2854	Travis	Travis	78723	TX	3.33	14668	10/12/2011	30.31	-97.68
2855	Wichita	Denton	76310	TX	32.40	312775	10/12/2011	33.79	-98.51
2856	Travis	Travis	78746	TX	6.13	25042	10/13/2011	30.31	-97.82
2857	Montgomery	Montgomery	77306	TX	4.60	17560	10/13/2011	30.27	-95.32
2858	Montgomery	Montgomery	77306	TX	5.98	36840	10/13/2011	30.27	-95.32
2859	Bexar	Bexar	78258	TX	8.28	41234	10/14/2011	29.65	-98.47
2860	Bexar	Bexar	78260	TX	1.00	9180	10/14/2011	29.69	-98.50
2861	Dallas	Dallas	75088	TX	20.58	215250	10/14/2011	32.90	-96.55
2862	Comal	Comal	78266	TX	6.66	33896	10/17/2011	29.63	-98.32
2863	Bexar	Bexar	78230	TX	36.00	237787	10/17/2011	29.54	-98.56
2864	Bexar	Bexar	78259	TX	10.58	46890	10/17/2011	29.62	-98.43
2865	Dallas	Dallas	75052	TX	10.29	105000	10/17/2011	32.68	-97.03
2866	Dallas	Dallas	75052	TX	10.29	105000	10/17/2011	32.68	-97.03
2867	Van Zandt	Henderson	75790	TX	6.48	35400	10/17/2011	32.51	-95.64
2868	Comal	Comal	78266	TX	28.80	144000	10/18/2011	29.63	-98.32
2869	Bexar	Bexar	78258	TX	6.58	39480	10/18/2011	29.65	-98.47
2870	Dallas	Dallas	75052	TX	10.29	105000	10/18/2011	32.68	-97.03
2871	Dallas	Dallas	75052	TX	10.29	105000	10/18/2011	32.68	-97.03
2872	Dallas	Dallas	75019	TX	4.07	22156	10/18/2011	32.96	-97.00
2873	Harris	Harris	77055	TX	5.00	7500	10/19/2011	29.79	-95.49
2874	El Paso	El Paso	79902	TX	10.34	53251	10/20/2011	31.79	-106.49
2875	Collin	Collin	75013	TX	4.08	21431	10/21/2011	33.11	-96.70
2876	Travis	Travis	78733	TX	4.14	21126	10/21/2011	30.33	-97.87
2877	Travis	Travis	78723	TX	6.66	29500	10/21/2011	30.31	-97.68
2878	Parker	Parker	76087	TX	2.50	13800	10/21/2011	32.61	-97.83
2879	Travis	Travis	78660	TX	7.77	33455	10/21/2011	30.43	-97.60
2880	El Paso	El Paso	79938	TX	4.60	32430	10/21/2011	31.84	-105.92



Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
2881	Morris	Upshur	75571	TX	5.40	23500	10/23/2011	33.19	-94.75
2882	Dallas	Dallas	75051	TX	10.29	105000	10/24/2011	32.73	-96.99
2883	Dallas	Dallas	75051	TX	10.29	105000	10/24/2011	32.73	-96.99
2884	Jeff Davis	El Paso	79734	TX	2.69	20591	10/24/2011	30.77	-104.01
2885	Bexar	Bexar	78247	TX	5.98	35745	10/25/2011	29.59	-98.41
2886	Bexar	Bexar	78254	TX	18.48	101455	10/25/2011	29.53	-98.78
2887	Bexar	Bexar	78249	TX	36.00	237787	10/25/2011	29.57	-98.61
2888	Archer	Parker	76366	TX	10.80	104258	10/25/2011	33.71	-98.79
2889	Dallas	Dallas	75082	TX	5.85	40536	10/25/2011	33.00	-96.66
2890	Dallas	Dallas	75052	TX	73.92		10/26/2011	32.68	-97.03
2891	Dallas	Dallas	75243	TX	5.17		10/26/2011	32.91	-96.74
2892	Travis	Travis	78732	TX	6.44	30500	10/26/2011	30.38	-97.89
2893	Dallas	Dallas	75019	TX	2.40	8589	10/26/2011	32.96	-97.00
2894	Dallas	Dallas	75048	TX	5.52	24190	10/27/2011	32.96	-96.57
2895	Brown	Hood	76890	TX	5.22	28665	10/27/2011	31.71	-98.77
2896	Collin	Collin	75002	TX	5.28	27675	10/28/2011	33.10	-96.64
2897	Dallas	Dallas	75230	TX	2.99	44935	10/28/2011	32.90	-96.79
2898	El Paso	El Paso	79901	TX	10.80	140000	10/28/2011	31.76	-106.48
2899	El Paso	El Paso	79925	TX	3.76	18919	10/30/2011	31.80	-106.36
2900	Travis	Travis	78747	TX	3.52	21242	10/31/2011	30.13	-97.73
2901	Travis	Travis	78747	TX	3.50	21301	10/31/2011	30.13	-97.73
2902	Travis	Travis	78747	TX	3.50	20790	10/31/2011	30.13	-97.73
2903	Travis	Travis	78744	TX	3.50	20790	10/31/2011	30.20	-97.73
2904	Travis	Travis	78744	TX	3.52	21049	10/31/2011	30.20	-97.73
2905	Travis	Travis	78744	TX	3.52	21301	10/31/2011	30.20	-97.73
2906	Travis	Travis	78744	TX	3.50	21301	10/31/2011	30.20	-97.73
2907	Travis	Travis	78617	TX	3.50	20790	10/31/2011	30.15	-97.59
2908	Travis	Travis	78617	TX	3.52	21301	10/31/2011	30.15	-97.59
2909	Cherokee	Smith	75766	TX	20.50	77800	10/31/2011	31.93	-95.27
2910	Travis	Travis	78722	TX	7.59	50913	11/1/2011	30.29	-97.71
2911	Travis	Travis	78723	TX	3.68		11/1/2011	30.31	-97.68
2912	Travis	Travis	78723	TX	6.29	28680	11/1/2011	30.31	-97.68
2913	Dallas	Dallas	75082	TX	5.25	41895	11/1/2011	33.00	-96.66
2914	Tarrant	Tarrant	76018	TX	4.70	37506	11/1/2011	32.67	-97.08
2915	Rusk	Rusk	75654	TX	2.67	24241	11/1/2011	32.12	-94.94
2916	El Paso	El Paso	79912	TX	8.46	41454	11/1/2011	31.86	-106.55
2917	Clay	Parker	76365	TX	10.34	52925	11/2/2011	33.79	-98.22
2918	Denton	Denton	75056	TX	5.52	31063	11/3/2011	33.08	-96.91
2919	Bexar	Bexar	78230	TX	9.20	52440	11/4/2011	29.54	-98.56
2920	Bexar	Bexar	78209	TX	5.98	35804	11/4/2011	29.49	-98.45

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
2921	Bexar	Bexar	78222	TX	43.68	219710	11/4/2011	29.37	-98.39
2922	Bexar	Bexar	78209	TX	5.17	26392	11/4/2011	29.49	-98.45
2923	Bexar	Bexar	78209	TX	8.97	48199	11/4/2011	29.49	-98.45
2924	Bexar	Bexar	78209	TX	4.90	25119	11/4/2011	29.49	-98.45
2925	Bexar	Bexar	78244	TX	8.28	37708	11/4/2011	29.47	-98.35
2926	Collin	Collin	75002	TX	5.28	27675	11/4/2011	33.10	-96.64
2927	Bexar	Bexar	78227	TX	81.54	298205	11/7/2011	29.41	-98.63
2928	Bexar	Bexar	78251	TX	6.00	29048	11/7/2011	29.47	-98.68
2929	Kendall	Bexar	78015	TX	7.48	35515	11/7/2011	29.75	-98.65
2930	Bexar	Bexar	78253	TX	4.32	24480	11/7/2011	29.47	-98.81
2931	Bexar	Bexar	78264	TX	31.68	139350	11/7/2011	29.17	-98.51
2932	Bexar	Bexar	78249	TX	10.50	46850	11/7/2011	29.57	-98.61
2933	Travis	Travis	78756	TX	19.60		11/7/2011	30.32	-97.74
2934	Dallas	Dallas	75229	TX	3.29	18095	11/8/2011	32.90	-96.87
2935	Tarrant	Tarrant	76063	TX	41.16	432180	11/8/2011	32.56	-97.14
2936	Dallas	Dallas	75229	TX	3.29	18095	11/8/2011	32.90	-96.87
2937	Dallas	Dallas	75234	TX	5.52	31063	11/8/2011	32.92	-96.87
2938	Denton	Denton	75007	TX	2.53	13770	11/9/2011	33.01	-96.89
2939	Collin	Collin	75023	TX	10.29	105000	11/9/2011	33.06	-96.73
2940	Dallas	Dallas	75236	TX	3.91	23640	11/10/2011	32.69	-96.94
2941	Tarrant	Tarrant	76133	TX	5.29	31740	11/11/2011	32.65	-97.38
2942	Montgomery	Montgomery	77378	TX	5.40	30001	11/11/2011	30.49	-95.33
2943	Tarrant	Tarrant	76133	TX	2.30	13800	11/14/2011	32.65	-97.38
2944	Montgomery	Montgomery	77382	TX	5.17	17381	11/14/2011	30.20	-95.55
2945	Bexar	Bexar	78260	TX	5.98	18884	11/15/2011	29.69	-98.50
2946	Kendall	Bexar	78006	TX	5.98	18884	11/15/2011	29.92	-98.70
2947	Bexar	Bexar	78263	TX	8.46	29837	11/15/2011	29.36	-98.32
2948	Dallas	Dallas	75211	TX	3.76	19388	11/15/2011	32.74	-96.89
2949	Denton	Denton	75007	TX	2.53	12770	11/15/2011	33.01	-96.89
2950	El Paso	El Paso	79936	TX	6.21	41545	11/15/2011	31.76	-106.29
2951	Bexar	Bexar	78233	TX	5.98	25385	11/16/2011	29.56	-98.36
2952	Brown	Hood	76801	TX	27.73	199656	11/16/2011	31.81	-99.06
2953	El Paso	El Paso	79936	TX	1.41	7755	11/16/2011	31.76	-106.29
2954	Taylor	Hood	79602	TX	10.12		11/18/2011	32.32	-99.66
2955	Travis	Travis	78746	TX	5.61	26026	11/18/2011	30.31	-97.82
2956	Dallas	Dallas	75244	TX	6.90	40482	11/18/2011	32.93	-96.84
2957	Leon	Montgomery	75846	TX	10.12	43790	11/18/2011	31.32	-96.17
2958	Travis	Travis	78703	TX	150.00		11/20/2011	30.31	-97.77
2959	Panola	Rusk	75633	TX	21.60	111521	11/20/2011	32.15	-94.27
2960	Tarrant	Tarrant	76051	TX	5.81	46324	11/21/2011	32.95	-97.07

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
2961	Collin	Collin	75093	TX	6.45	51471	11/21/2011	33.04	-96.82
2962	Ellis	Ellis	75154	TX	9.03	72059	11/21/2011	32.51	-96.77
2963	Montgomery	Montgomery	77385	TX	4.08	27200	11/21/2011	30.20	-95.43
2964	Coryell	Williamson	76538	TX	6.90	44331	11/21/2011	31.63	-97.89
2965	Dallas	Dallas	75214	TX	7.20	37675	11/22/2011	32.82	-96.74
2966	Dallas	Dallas	75243	TX	5.17	34845	11/22/2011	32.91	-96.74
2967	Navarro	Ellis	75155	TX	7.36	42574	11/22/2011	32.21	-96.47
2968	Robertson	Williamson	76629	TX	4.86	14489	11/22/2011	31.16	-96.69
2969	El Paso	El Paso	79912	TX	7.99	33718	11/22/2011	31.86	-106.55
2970	El Paso	El Paso	79924	TX	5.40	34560	11/22/2011	31.90	-106.43
2971	Collin	Collin	75013	TX	4.08	21431	11/23/2011	33.11	-96.70
2972	El Paso	El Paso	79901	TX	26.91	135313	11/23/2011	31.76	-106.48
2973	El Paso	El Paso	79901	TX	9.88	54125	11/23/2011	31.76	-106.48
2974	Bexar	Bexar	78232	TX	33.60		11/27/2011	29.59	-98.46
2975	Bexar	Bexar	78244	TX	6.11	33094	11/28/2011	29.47	-98.35
2976	Dallas	Dallas	75218	TX	4.80	31950	11/28/2011	32.84	-96.70
2977	Smith	Smith	75771	TX	10.12	59634	11/28/2011	32.53	-95.41
2978	El Paso	El Paso	79922	TX	9.75	53743	11/28/2011	31.83	-106.58
2979	El Paso	El Paso	79928	TX	3.68	23920	11/28/2011	31.66	-106.13
2980	Bexar	Bexar	78239	TX	6.66	29357	11/29/2011	29.52	-98.36
2981	Smith	Smith	75703	TX	14.85	76726	11/29/2011	32.26	-95.32
2982	Cherokee	Smith	75766	TX	6.35	37100	11/29/2011	31.93	-95.27
2983	El Paso	El Paso	79912	TX	6.58	32242	11/29/2011	31.86	-106.55
2984	El Paso	El Paso	79902	TX	7.05	3660	11/29/2011	31.79	-106.49
2985	El Paso	El Paso	79936	TX	5.17	32500	11/29/2011	31.76	-106.29
2986	El Paso	El Paso	79936	TX	3.96	10600	11/29/2011	31.76	-106.29
2987	El Paso	El Paso	79936	TX	1.88	15040	11/29/2011	31.76	-106.29
2988	El Paso	El Paso	79912	TX	0.94	4888	11/29/2011	31.86	-106.55
2989	Comal	Comal	78163	TX	2.64	13945	11/30/2011	29.77	-98.51
2990	Bexar	Bexar	78209	TX	12.00	46802	11/30/2011	29.49	-98.45
2991	Gregg	Gregg	75603	TX	16.80	76300	11/30/2011	32.38	-94.71
2992	El Paso	El Paso	79922	TX	9.66	60625	11/30/2011	31.83	-106.58
2993	El Paso	El Paso	79932	TX	10.06	57683	11/30/2011	31.89	-106.62
2994	El Paso	El Paso	79925	TX	1.08	7895	11/30/2011	31.80	-106.36
2995	El Paso	El Paso	79936	TX	2.99	17818	11/30/2011	31.76	-106.29
2996	El Paso	El Paso	79925	TX	7.20	45360	11/30/2011	31.80	-106.36
2997	El Paso	El Paso	79902	TX	9.89	53864	11/30/2011	31.79	-106.49
2998	El Paso	El Paso	79932	TX	5.06	30049	11/30/2011	31.89	-106.62
2999	El Paso	El Paso	79912	TX	4.94	28898	11/30/2011	31.86	-106.55
3000	El Paso	El Paso	79912	TX	9.40	64017	11/30/2011	31.86	-106.55

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
3001	El Paso	El Paso	79912	TX	10.24	64500	11/30/2011	31.86	-106.55
3002	El Paso	El Paso	79932	TX	6.58	42770	11/30/2011	31.89	-106.62
3003	El Paso	El Paso	79912	TX	2.76	16747	11/30/2011	31.86	-106.55
3004	El Paso	El Paso	79912	TX	3.91	23560	11/30/2011	31.86	-106.55
3005	El Paso	El Paso	79911	TX	2.82	16615	11/30/2011	31.89	-106.54
3006	El Paso	El Paso	79821	TX	6.60	36300	11/30/2011	31.99	-106.59
3007	El Paso	El Paso	79932	TX	5.06	30461	11/30/2011	31.89	-106.62
3008	El Paso	El Paso	79912	TX	10.24	64500	11/30/2011	31.86	-106.55
3009	El Paso	El Paso	79932	TX	6.58	61060	11/30/2011	31.89	-106.62
3010	Travis	Travis	78705	TX	13.20	70825	12/1/2011	30.30	-97.74
3011	Travis	Travis	78759	TX	21.10	106623	12/1/2011	30.40	-97.75
3012	Travis	Travis	78744	TX	20.20	160512	12/1/2011	30.20	-97.73
3013	Ellis	Ellis	75165	TX	10.08	153770	12/1/2011	32.38	-96.77
3014	Ellis	Ellis	75154	TX	10.29	102900	12/1/2011	32.51	-96.77
3015	Ellis	Ellis	76065	TX	10.29	102900	12/1/2011	32.48	-96.96
3016	Tarrant	Tarrant	76054	TX	9.99	32054	12/1/2011	32.86	-97.18
3017	Dallas	Dallas	75235	TX	31.40		12/2/2011	32.83	-96.85
3018	Ellis	Ellis	76065	TX	9.03	72059	12/2/2011	32.48	-96.96
3019	Tarrant	Tarrant	76107	TX	2.58	20588	12/2/2011	32.74	-97.38
3020	Tarrant	Tarrant	76040	TX	9.89	78922	12/2/2011	32.82	-97.10
3021	Ellis	Ellis	76065	TX	10.08	102900	12/2/2011	32.48	-96.96
3022	Ellis	Ellis	75154	TX	10.29	102900	12/2/2011	32.51	-96.77
3023	Ellis	Ellis	75154	TX	10.29	102900	12/2/2011	32.51	-96.77
3024	Dallas	Dallas	75089	TX	5.15	51450	12/2/2011	32.94	-96.55
3025	McLennan	Ellis	76708	TX	5.28	39000	12/4/2011	31.62	-97.21
3026	Tarrant	Tarrant	76179	TX	10.08	100800	12/4/2011	32.92	-97.46
3027	Dallas	Dallas	75043	TX	10.29	102900	12/4/2011	32.85	-96.59
3028	Tarrant	Tarrant	76034	TX	9.66	46592	12/4/2011	32.89	-97.15
3029	Bexar	Bexar	78253	TX	4.60	26220	12/5/2011	29.47	-98.81
3030	Travis	Travis	78758	TX	3.29	17668	12/5/2011	30.39	-97.70
3031	Travis	Travis	78736	TX	2.16	8180	12/5/2011	30.25	-97.95
3032	Travis	Travis	78758	TX	3.29	17668	12/5/2011	30.39	-97.70
3033	Dallas	Dallas	75006	TX	11.04	72034	12/5/2011	32.97	-96.89
3034	Tarrant	Tarrant	76182	TX	9.17	73137	12/5/2011	32.88	-97.21
3035	Tarrant	Tarrant	76012	TX	6.02	48040	12/5/2011	32.76	-97.14
3036	Dallas	Dallas	75238	TX	4.31	34354	12/5/2011	32.88	-96.71
3037	Orange	Orange	77611	TX	17.28	57769	12/5/2011	30.00	-93.81
3038	El Paso	El Paso	79936	TX	5.06	12650	12/5/2011	31.76	-106.29
3039	Bexar	Bexar	78216	TX	23.20	204876	12/6/2011	29.55	-98.50
3040	Travis	Travis	78732	TX	2.31	7757	12/6/2011	30.38	-97.89

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3041	Travis	Travis	78745	TX	6.11	28996	12/6/2011	30.22	-97.80
3042	Travis	Travis	78723	TX	6.44	26315	12/6/2011	30.31	-97.68
3043	Dallas	Dallas	75062	TX	101.64	483437	12/6/2011	32.84	-96.98
3044	Tarrant	Tarrant	76052	TX	3.52	21565	12/6/2011	32.98	-97.38
3045	Tarrant	Tarrant	76036	TX	3.52	21565	12/6/2011	32.57	-97.42
3046	Ellis	Ellis	75165	TX	9.03	72059	12/6/2011	32.38	-96.77
3047	Tarrant	Tarrant	76148	TX	5.16	41177	12/6/2011	32.86	-97.25
3048	Denton	Denton	75007	TX	3.45	34500	12/6/2011	33.01	-96.89
3049	Williamson	Williamson	78674	TX	4.68	16280	12/6/2011	30.67	-97.59
3050	Dallas	Dallas	75214	TX	7.20	37675	12/6/2011	32.82	-96.74
3051	Dallas	Dallas	75220	TX	15.84	31600	12/7/2011	32.87	-96.89
3052	Dallas	Dallas	75220	TX	15.84	6000	12/7/2011	32.86	-96.87
3053	Tarrant	Tarrant	76053	TX	4.73	37745	12/7/2011	32.82	-97.19
3054	Collin	Collin	75287	TX	2.59	20628	12/7/2011	33.00	-96.84
3055	Bell	Williamson	76513	TX	10.80	64891	12/7/2011	31.07	-97.50
3056	Smith	Smith	75701	TX	19.44	83000	12/7/2011	32.32	-95.30
3057	Smith	Smith	75703	TX	7.92	33500	12/7/2011	32.26	-95.32
3058	Dallas	Dallas	75089	TX	10.29	102900	12/7/2011	32.94	-96.55
3059	Dallas	Dallas	75217	TX	10.29	102900	12/7/2011	32.71	-96.67
3060	Rockwall	Rockwall	75032	TX	11.28	48000	12/7/2011	32.86	-96.42
3061	Dallas	Dallas	75248	TX	11.00	44447	12/7/2011	32.97	-96.78
3062	Dallas	Dallas	75230	TX	5.76	48300	12/7/2011	32.90	-96.79
3063	Ellis	Ellis	76065	TX	12.22	41900	12/7/2011	32.48	-96.96
3064	Lamar	Hunt	75473	TX	9.89	52624	12/7/2011	33.82	-95.49
3065	Gregg	Gregg	75604	TX	9.60	49000	12/7/2011	32.50	-94.80
3066	Red River	Upshur	75554	TX	4.10	28175	12/7/2011	33.55	-94.79
3067	Bowie	Upshur	75501	TX	4.10	28175	12/7/2011	33.39	-94.13
3068	Bowie	Upshur	75503	TX	4.10	28175	12/7/2011	33.53	-94.13
3069	El Paso	El Paso	79922	TX	3.22	8850	12/7/2011	31.83	-106.58
3070	Travis	Travis	78746	TX	4.70	20235	12/8/2011	30.31	-97.82
3071	Tarrant	Tarrant	76054	TX	6.02	48040	12/8/2011	32.86	-97.18
3072	Williamson	Williamson	78681	TX	7.92	35640	12/8/2011	30.52	-97.71
3073	Tarrant	Tarrant	76108	TX	8.97	35505	12/8/2011	32.77	-97.51
3074	Bell	Williamson	76548	TX	7.32	30171	12/8/2011	31.07	-97.67
3075	El Paso	El Paso	79912	TX	2.40	5950	12/9/2011	31.86	-106.55
3076	El Paso	El Paso	79936	TX	30.36	192032	12/11/2011	31.76	-106.29
3077	Bexar	Bexar	78258	TX	6.11	31221	12/12/2011	29.65	-98.47
3078	Bexar	Bexar	78233	TX	1.00	6198	12/12/2011	29.56	-98.36
3079	Travis	Travis	78747	TX	6.30	25784	12/12/2011	30.13	-97.73
3080	Bexar	Bexar	78260	TX	4.62	20800	12/14/2011	29.69	-98.50

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3081	Bexar	Bexar	78232	TX	5.98	27508	12/14/2011	29.59	-98.46
3082	Bexar	Bexar	78255	TX	4.50	25560	12/14/2011	29.66	-98.67
3083	Matagorda	Brazoria	77404	TX	26.52		12/14/2011	28.96	-95.97
3084	Tarrant	Tarrant	76244	TX	4.16	21840	12/14/2011	32.95	-97.28
3085	Travis	Travis	78703	TX	2.88	11553	12/15/2011	30.29	-97.77
3086	Comal	Comal	78163	TX	4.00	21057	12/16/2011	29.77	-98.51
3087	Bexar	Bexar	78213	TX	5.94	28684	12/16/2011	29.50	-98.52
3088	Bexar	Bexar	78216	TX	8.46	39547	12/16/2011	29.55	-98.50
3089	Bexar	Bexar	78260	TX	9.20	51060	12/16/2011	29.69	-98.50
3090	Bexar	Bexar	78249	TX	5.76	30240	12/16/2011	29.57	-98.61
3091	Bexar	Bexar	78255	TX	5.06	27336	12/16/2011	29.66	-98.67
3092	Grayson	Collin	75491	TX	3.84	26110	12/16/2011	33.48	-96.39
3093	Parker	Parker	76087	TX	2.76	15800	12/16/2011	32.61	-97.83
3094	El Paso	El Paso	79912	TX	2.40	9341	12/17/2011	31.84	-106.53
3095	Bexar	Bexar	78023	TX	4.17	21000	12/19/2011	29.62	-98.73
3096	Bexar	Bexar	78240	TX	7.20	34861	12/19/2011	29.53	-98.61
3097	Bexar	Bexar	78023	TX	5.52	24597	12/19/2011	29.62	-98.73
3098	Dallas	Dallas	75081	TX	22.75		12/19/2011	32.96	-96.70
3099	Orange	Orange	77662	TX	7.10		12/19/2011	30.17	-94.01
3100	Travis	Travis	78731	TX	6.35	28369	12/19/2011	30.35	-97.77
3101	Williamson	Williamson	78681	TX	3.53	23400	12/19/2011	30.52	-97.71
3102	Bexar	Bexar	78250	TX	6.48	30772	12/21/2011	29.50	-98.67
3103	Callahan	Hood	79510	TX	10.80	79715	12/21/2011	32.22	-99.50
3104	Jefferson	Jefferson	77705	TX	8.46	61160	12/21/2011	29.96	-94.11
3105	Orange	Orange	77662	TX	7.05	34650	12/21/2011	30.17	-94.01
3106	Bexar	Bexar	78225	TX	18.00	85052	12/22/2011	29.39	-98.53
3107	El Paso	El Paso	79902	TX	76.38	422400	12/22/2011	31.78	-106.51
3108	El Paso	El Paso	79902	TX	108.42	557600	12/22/2011	31.78	-106.51
3109	Travis	Travis	78705	TX	8.00	26036	12/22/2011	30.30	-97.74
3110	Gregg	Gregg	75601	TX	14.40	65000	12/26/2011	32.51	-94.72
3111	Travis	Travis	78746	TX	6.11	24931	12/27/2011	30.31	-97.82
3112	Travis	Travis	78723	TX	2.04	8178	12/27/2011	30.31	-97.68
3113	El Paso	El Paso	79901	TX	36.96	241000	12/28/2011	31.76	-106.49
3114	Bell	Williamson	76513	TX	9.68	38695	12/28/2011	31.07	-97.50
3115	Jefferson	Jefferson	77710	TX	8.46		12/29/2011	30.05	-94.08
3116	Travis	Travis	78753	TX	6.24	21900	12/29/2011	30.39	-97.67
3117	Travis	Travis	78744	TX	1.48		12/29/2011	30.20	-97.73
3118	Travis	Travis	78744	TX	5.44	43878	12/29/2011	30.20	-97.73
3119	Travis	Travis	78727	TX	4.32		12/29/2011	30.43	-97.71
3120	Travis	Travis	78723	TX	5.28	33742	12/29/2011	30.31	-97.68

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3121	Travis	Travis	78747	TX	3.52	21242	12/29/2011	30.13	-97.73
3122	Wilbarger	Parker	76384	TX	10.80	104258	12/29/2011	34.20	-99.32
3123	Bexar	Bexar	78249	TX	33.10	157096	12/30/2011	29.57	-98.61
3124	Bexar	Bexar	78249	TX	139.70	616935	12/30/2011	29.57	-98.61
3125	Bexar	Bexar	78259	TX	3.60	18417	12/30/2011	29.62	-98.43
3126	Bexar	Bexar	78258	TX	5.52	30250	12/30/2011	29.65	-98.47
3127	Bexar	Bexar	78264	TX	12.42	49680	12/30/2011	29.17	-98.51
3128	Bexar	Bexar	78264	TX	6.11	20385	12/30/2011	29.17	-98.51
3129	Bexar	Bexar	78233	TX	4.86	19391	12/30/2011	29.56	-98.36
3130	Schleicher	Bexar	76936	TX	9.75	158115	12/31/2011	30.91	-100.71
3131	Schleicher	Bexar	76936	TX	9.75	158115	12/31/2011	30.91	-100.71
3132	Montgomery	Montgomery	77302	TX	10.12	58685	12/31/2011	30.21	-95.33
3133	Galveston	Galveston	77546	TX	10.12	52389	12/31/2011	29.54	-95.20
3134	Comal	Comal	78266	TX	15.66	53009	1/3/2012	29.63	-98.32
3135	Bexar	Bexar	78254	TX	4.05	18225	1/3/2012	29.53	-98.78
3136	Kendall	Bexar	78015	TX	5.76	31680	1/3/2012	29.75	-98.65
3137	Travis	Travis	78759	TX	6.08	25260	1/3/2012	30.40	-97.75
3138	Travis	Travis	78730	TX	6.09	29503	1/3/2012	30.37	-97.84
3139	Travis	Travis	78704	TX	6.08	23263	1/3/2012	30.25	-97.77
3140	Travis	Travis	78746	TX	5.16	21549	1/3/2012	30.31	-97.82
3141	Bexar	Bexar	78247	TX	4.14	15682	1/4/2012	29.59	-98.41
3142	Bexar	Bexar	78254	TX	3.50	18673	1/5/2012	29.53	-98.78
3143	Travis	Travis	78749	TX	5.96	24991	1/5/2012	30.22	-97.86
3144	Travis	Travis	78745	TX	3.09	12250	1/5/2012	30.22	-97.80
3145	Bexar	Bexar	78209	TX	26.88	124561	1/6/2012	29.49	-98.45
3146	Travis	Travis	78732	TX	6.19	24677	1/6/2012	30.38	-97.89
3147	Travis	Travis	78732	TX	2.78		1/6/2012	30.38	-97.89
3148	Travis	Travis	78732	TX	2.78	21296	1/6/2012	30.38	-97.89
3149	Travis	Travis	78731	TX	9.28	42016	1/6/2012	30.35	-97.77
3150	Travis	Travis	78723	TX	5.67	20783	1/6/2012	30.31	-97.68
3151	Bexar	Bexar	78023	TX	13.44	73920	1/9/2012	29.62	-98.73
3152	Travis	Travis	78703	TX	2.95		1/9/2012	30.29	-97.77
3153	Travis	Travis	78734	TX	6.19	25912	1/9/2012	30.37	-97.95
3154	Travis	Travis	78749	TX	7.27	50365	1/9/2012	30.22	-97.86
3155	Bexar	Bexar	78253	TX	4.60	27129	1/10/2012	29.47	-98.81
3156	Travis	Travis	78733	TX	10.30	63677	1/17/2012	30.33	-97.87
3157	Travis	Travis	78733	TX	5.33	19872	1/18/2012	30.33	-97.87
3158	Travis	Travis	78733	TX	5.20		1/18/2012	30.33	-97.87
3159	Travis	Travis	78733	TX	11.32	27386	1/18/2012	30.33	-97.87
3160	Travis	Travis	78733	TX	5.92	67652	1/18/2012	30.33	-97.87

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
3161	Travis	Travis	78746	TX	5.76	32062	1/18/2012	30.31	-97.82
3162	Travis	Travis	78759	TX	5.34	25908	1/19/2012	30.40	-97.75
3163	Travis	Travis	78753	TX	6.24	21900	1/19/2012	30.39	-97.67
3164	Travis	Travis	78703	TX	6.12	29100	1/19/2012	30.29	-97.77
3165	Travis	Travis	78727	TX	6.24	23088	1/19/2012	30.43	-97.71
3166	Travis	Travis	78704	TX	6.37	23263	1/19/2012	30.25	-97.77
3167	Travis	Travis	78723	TX	2.04	8178	1/19/2012	30.31	-97.68
3168	Travis	Travis	78731	TX	6.35	28369	1/19/2012	30.35	-97.77
3169	Travis	Travis	78746	TX	5.40	21549	1/19/2012	30.31	-97.82
3170	Travis	Travis	78732	TX	2.31	7757	1/19/2012	30.38	-97.89
3171	Travis	Travis	78723	TX	3.24	12952	1/19/2012	30.31	-97.68
3172	Travis	Travis	78723	TX	6.27	26983	1/19/2012	30.31	-97.68
3173	Bexar	Bexar	78233	TX	8.64	28952	1/20/2012	29.56	-98.36
3174	Bexar	Bexar	78233	TX	5.17	21456	1/20/2012	29.56	-98.36
3175	Comal	Comal	78070	TX	13.16	67493	1/20/2012	29.87	-98.42
3176	Bexar	Bexar	78259	TX	7.36	37801	1/20/2012	29.62	-98.43
3177	Bexar	Bexar	78023	TX	4.60	20240	1/20/2012	29.62	-98.73
3178	Travis	Travis	78731	TX	5.20	20495	1/20/2012	30.35	-97.77
3179	Bexar	Bexar	78258	TX	10.80	58895	1/24/2012	29.65	-98.47
3180	Bexar	Bexar	78213	TX	6.60	29700	1/24/2012	29.50	-98.52
3181	Bexar	Bexar	78112	TX	10.58	58394	1/24/2012	29.21	-98.39
3182	Bexar	Bexar	78112	TX	9.17	43804	1/24/2012	29.21	-98.39
3183	Travis	Travis	78702	TX	15.20	68394	1/24/2012	30.26	-97.71
3184	Travis	Travis	78702	TX	4.90	22063	1/24/2012	30.26	-97.71
3185	Montgomery	Montgomery	77382	TX	4.14	17497	1/24/2012	30.20	-95.55
3186	Montgomery	Montgomery	77382	TX	4.14	17497	1/24/2012	30.20	-95.55
3187	Bexar	Bexar	78260	TX	7.52	30005	1/27/2012	29.69	-98.50
3188	Bexar	Bexar	78212	TX	6.21	33388	1/27/2012	29.46	-98.50
3189	Bexar	Bexar	78247	TX	5.98	18885	1/27/2012	29.59	-98.41
3190	Bexar	Bexar	78260	TX	7.36	28460	1/27/2012	29.69	-98.50
3191	Travis	Travis	78733	TX	10.32	63677	1/27/2012	30.33	-97.87
3192	Bexar	Bexar	78256	TX	6.90	56140	1/30/2012	29.62	-98.62
3193	Bexar	Bexar	78263	TX	11.10	44841	1/30/2012	29.36	-98.32
3194	Bexar	Bexar	78212	TX	12.65	60793	1/30/2012	29.46	-98.50
3195	Bexar	Bexar	78209	TX	5.88	26891	1/30/2012	29.49	-98.45
3196	Bexar	Bexar	78261	TX	4.86	15917	2/2/2012	29.70	-98.41
3197	Bexar	Bexar	78230	TX	10.18	41981	2/2/2012	29.54	-98.56
3198	Bexar	Bexar	78244	TX	1.02	3464	2/2/2012	29.47	-98.35
3199	Bexar	Bexar	78256	TX	15.84	66186	2/2/2012	29.62	-98.62
3200	Bexar	Bexar	78256	TX	7.02	33134	2/2/2012	29.62	-98.62



Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3201	Travis	Travis	78763	TX	13.44	35702	2/2/2012	30.30	-97.77
3202	Travis	Travis	78763	TX	6.91		2/2/2012	30.30	-97.77
3203	Travis	Travis	78763	TX	5.50	98000	2/2/2012	30.30	-97.77
3204	Travis	Travis	78736	TX	6.37	27386	2/2/2012	30.25	-97.95
3205	Travis	Travis	78746	TX	6.11	24931	2/2/2012	30.31	-97.82
3206	Travis	Travis	78759	TX	6.30	25260	2/2/2012	30.40	-97.75
3207	Travis	Travis	78731	TX	5.39	20495	2/2/2012	30.35	-97.77
3208	Travis	Travis	78730	TX	6.34	29503	2/2/2012	30.37	-97.84
3209	Travis	Travis	78734	TX	6.48	25912	2/2/2012	30.37	-97.95
3210	Travis	Travis	78759	TX	5.50	25908	2/2/2012	30.40	-97.75
3211	Johnson	Johnson	76084	TX	5.88	30400	2/3/2012	32.44	-97.10
3212	Travis	Travis	78735	TX	6.02	23400	2/3/2012	30.26	-97.86
3213	Travis	Travis	78756	TX	5.99	26651	2/3/2012	30.32	-97.74
3214	Travis	Travis	78704	TX	2.43	10368	2/3/2012	30.25	-97.77
3215	Travis	Travis	78702	TX	4.90	22063	2/3/2012	30.26	-97.71
3216	Travis	Travis	78702	TX	15.19	68394	2/3/2012	30.26	-97.71
3217	El Paso	El Paso	79836	TX	2.46	16880	2/6/2012	31.57	-106.19
3218	Travis	Travis	78723	TX	6.27	24275	2/7/2012	30.31	-97.68
3219	Bexar	Bexar	78261	TX	7.52	43144	2/9/2012	29.70	-98.41
3220	Bexar	Bexar	78251	TX	5.28	23232	2/9/2012	29.47	-98.68
3221	Bexar	Bexar	78209	TX	6.58	30268	2/10/2012	29.49	-98.45
3222	Bexar	Bexar	78260	TX	6.90	35438	2/10/2012	29.69	-98.50
3223	Bexar	Bexar	78245	TX	4.32	15970	2/10/2012	29.40	-98.74
3224	Bexar	Bexar	78240	TX	28.75	128920	2/10/2012	29.53	-98.61
3225	Bexar	Bexar	78023	TX	6.00	30000	2/10/2012	29.62	-98.73
3226	Bexar	Bexar	78233	TX	6.60	31136	2/10/2012	29.56	-98.36
3227	Travis	Travis	78746	TX	7.63	20196	2/10/2012	30.31	-97.82
3228	Travis	Travis	78746	TX	4.00	27075	2/10/2012	30.31	-97.82
3229	Travis	Travis	78757	TX	6.08	26186	2/13/2012	30.35	-97.74
3230	Collin	Collin	75070	TX	6.11		2/13/2012	33.18	-96.70
3231	Comal	Comal	78163	TX	7.76	37224	2/14/2012	29.77	-98.51
3232	Bexar	Bexar	78239	TX	5.85	21324	2/14/2012	29.52	-98.36
3233	Bexar	Bexar	78239	TX	6.37	23846	2/14/2012	29.52	-98.36
3234	Bexar	Bexar	78261	TX	12.22	62322	2/14/2012	29.70	-98.41
3235	Bexar	Bexar	78233	TX	10.00	37021	2/14/2012	29.56	-98.36
3236	Bexar	Bexar	78247	TX	13.50	49046	2/14/2012	29.59	-98.41
3237	Bexar	Bexar	78215	TX	16.92	83754	2/14/2012	29.44	-98.48
3238	Bexar	Bexar	78215	TX	16.92	83754	2/14/2012	29.44	-98.48
3239	Bexar	Bexar	78215	TX	17.62	87243	2/14/2012	29.44	-98.48
3240	Bexar	Bexar	78215	TX	17.62	87243	2/14/2012	29.44	-98.48

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3241	Bexar	Bexar	78213	TX	5.28	25236	2/15/2012	29.50	-98.52
3242	Bexar	Bexar	78232	TX	8.10	48619	2/15/2012	29.59	-98.46
3243	Travis	Travis	78724	TX	5.61	20196	2/15/2012	30.29	-97.62
3244	Travis	Travis	78757	TX	6.30	26186	2/15/2012	30.35	-97.74
3245	Travis	Travis	78735	TX	6.24	23400	2/15/2012	30.26	-97.86
3246	Travis	Travis	78733	TX	2.16	11385	2/15/2012	30.33	-97.87
3247	Travis	Travis	78745	TX	3.22	12250	2/15/2012	30.22	-97.80
3248	Travis	Travis	78749	TX	4.50	21265	2/15/2012	30.22	-97.86
3249	Travis	Travis	78733	TX	5.52	19872	2/15/2012	30.33	-97.87
3250	Travis	Travis	78751	TX	6.12	24317	2/15/2012	30.31	-97.73
3251	Travis	Travis	78749	TX	6.21	24991	2/15/2012	30.22	-97.86
3252	Travis	Travis	78733	TX	14.46	56872	2/15/2012	30.33	-97.87
3253	Travis	Travis	78733	TX	2.45	10780	2/15/2012	30.33	-97.87
3254	Travis	Travis	78756	TX	6.24	26651	2/15/2012	30.32	-97.74
3255	Travis	Travis	78732	TX	6.48	23974	2/15/2012	30.38	-97.89
3256	Travis	Travis	78705	TX	8.00	26036	2/15/2012	30.30	-97.74
3257	Travis	Travis	78704	TX	2.53	10368	2/15/2012	30.25	-97.77
3258	Bexar	Bexar	78257	TX	2.76	16293	2/16/2012	29.66	-98.58
3259	Bexar	Bexar	78069	TX	9.60	41000	2/16/2012	29.19	-98.67
3260	Bexar	Bexar	78233	TX	2.76	11084	2/16/2012	29.56	-98.36
3261	Bexar	Bexar	78259	TX	6.24	26520	2/16/2012	29.62	-98.43
3262	Bexar	Bexar	78209	TX	3.29	18260	2/16/2012	29.49	-98.45
3263	Bexar	Bexar	78209	TX	5.98	26570	2/16/2012	29.49	-98.45
3264	Bexar	Bexar	78225	TX	33.80	143143	2/16/2012	29.39	-98.53
3265	Bexar	Bexar	78209	TX	5.06	20746	2/16/2012	29.49	-98.45
3266	Kendall	Bexar	78015	TX	6.44	24445	2/16/2012	29.75	-98.65
3267	Travis	Travis	78731	TX	1.27		2/16/2012	30.35	-97.77
3268	Travis	Travis	78745	TX	6.19	27332	2/16/2012	30.22	-97.80
3269	Travis	Travis	78745	TX	7.25	43530	2/16/2012	30.22	-97.80
3270	Bexar	Bexar	78217	TX	5.30	24288	2/17/2012	29.54	-98.42
3271	Bexar	Bexar	78209	TX	9.66	34182	2/17/2012	29.49	-98.45
3272	Galveston	Galveston	77546	TX	10.12	52389	2/20/2012	29.54	-95.20
3273	Travis	Travis	78734	TX	3.18	15558	2/21/2012	30.37	-97.95
3274	Travis	Travis	78734	TX	3.18	17661	2/21/2012	30.37	-97.95
3275	Travis	Travis	78749	TX	2.44	11146	2/21/2012	30.22	-97.86
3276	Travis	Travis	78754	TX	5.79	19500	2/22/2012	30.36	-97.65
3277	Travis	Travis	78724	TX	9.73	40560	2/22/2012	30.29	-97.62
3278	Travis	Travis	78728	TX	2.32		2/22/2012	30.46	-97.68
3279	Travis	Travis	78757	TX	5.52	23073	2/23/2012	30.35	-97.74
3280	Travis	Travis	78728	TX	6.24	20280	2/23/2012	30.46	-97.68

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3281	Travis	Travis	78724	TX	6.24	20280	2/23/2012	30.29	-97.62
3282	Travis	Travis	78745	TX	6.35	27332	2/23/2012	30.22	-97.80
3283	Travis	Travis	78734	TX	3.33	15558	2/23/2012	30.37	-97.95
3284	Travis	Travis	78745	TX	2.58	15490	2/23/2012	30.22	-97.80
3285	Travis	Travis	78734	TX	3.33	17661	2/23/2012	30.37	-97.95
3286	Travis	Travis	78731	TX	6.24	28040	2/23/2012	30.35	-97.77
3287	Travis	Travis	78746	TX	6.44	27075	2/23/2012	30.31	-97.82
3288	Travis	Travis	78746	TX	6.00	32062	2/23/2012	30.31	-97.82
3289	Travis	Travis	78731	TX	3.22	18041	2/23/2012	30.35	-97.77
3290	Travis	Travis	78733	TX	6.19	23974	2/24/2012	30.33	-97.87
3291	Bexar	Bexar	78216	TX	7.77	38694	2/27/2012	29.55	-98.50
3292	Bexar	Bexar	78255	TX	5.80	20880	2/27/2012	29.66	-98.67
3293	Travis	Travis	78732	TX	5.04	19435	2/27/2012	30.38	-97.89
3294	Travis	Travis	78745	TX	4.65	20600	2/27/2012	30.22	-97.80
3295	Travis	Travis	78745	TX	3.08	17757	2/27/2012	30.22	-97.80
3296	Bexar	Bexar	78254	TX	4.60	17127	2/28/2012	29.53	-98.78
3297	Montgomery	Montgomery	77302	TX	10.12	46267	2/29/2012	30.21	-95.33
3298	Dallas	Dallas	75006	TX	30.55		3/1/2012	32.97	-96.89
3299	Dallas	Dallas	75006	TX	30.55		3/1/2012	32.97	-96.89
3300	Travis	Travis	78727	TX	9.92	21874	3/1/2012	30.43	-97.71
3301	Travis	Travis	78727	TX	1.76	24640	3/1/2012	30.43	-97.71
3302	Travis	Travis	78754	TX	6.00	19500	3/1/2012	30.36	-97.65
3303	Travis	Travis	78757	TX	5.72	23073	3/1/2012	30.35	-97.74
3304	Travis	Travis	78732	TX	6.48	24677	3/1/2012	30.38	-97.89
3305	Travis	Travis	78732	TX	5.76	21296	3/1/2012	30.38	-97.89
3306	Travis	Travis	78749	TX	2.58	11146	3/1/2012	30.22	-97.86
3307	Travis	Travis	78733	TX	6.48	23974	3/1/2012	30.33	-97.87
3308	Bexar	Bexar	78261	TX	4.55	27941	3/2/2012	29.70	-98.41
3309	Bexar	Bexar	78260	TX	6.44	24276	3/2/2012	29.69	-98.50
3310	Tarrant	Tarrant	76248	TX	8.97		3/2/2012	32.93	-97.23
3311	Bexar	Bexar	78023	TX	9.87	37013	3/2/2012	29.62	-98.73
3312	Bexar	Bexar	78258	TX	5.64	22530	3/2/2012	29.65	-98.47
3313	Bexar	Bexar	78073	TX	5.52	24326	3/2/2012	29.24	-98.63
3314	Travis	Travis	78751	TX	5.79	20595	3/2/2012	30.31	-97.73
3315	Bexar	Bexar	78209	TX	7.29	32846	3/5/2012	29.49	-98.45
3316	Travis	Travis	78744	TX	5.67	22109	3/5/2012	30.20	-97.73
3317	Hidalgo	Nueces	78539	TX	3.06	14357	3/5/2012	26.27	-98.19
3318	El Paso	El Paso	79836	TX	217.10		3/5/2012	31.58	-106.23
3319	Bexar	Bexar	78207	TX	26.88	122991	3/6/2012	29.42	-98.52
3320	Travis	Travis	78744	TX	5.56	18720	3/6/2012	30.20	-97.73

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3321	Travis	Travis	78732	TX	7.48	27606	3/7/2012	30.38	-97.89
3322	Travis	Travis	78732	TX	1.68	16420	3/7/2012	30.38	-97.89
3323	Hidalgo	Nueces	78572	TX	11.28	51400	3/7/2012	26.20	-98.37
3324	Travis	Travis	78751	TX	6.00	20595	3/7/2012	30.31	-97.73
3325	Travis	Travis	78727	TX	6.30	24640	3/7/2012	30.43	-97.71
3326	Travis	Travis	78744	TX	5.88	22109	3/7/2012	30.20	-97.73
3327	Travis	Travis	78763	TX	18.72	98000	3/7/2012	30.30	-97.77
3328	Travis	Travis	78759	TX	5.78	23345	3/8/2012	30.40	-97.75
3329	Travis	Travis	78724	TX	4.63	15600	3/8/2012	30.29	-97.62
3330	Travis	Travis	78704	TX	5.00	27485	3/8/2012	30.25	-97.77
3331	Maverick	Bexar	78852	TX	6.48	31035	3/8/2012	28.80	-100.22
3332	Travis	Travis	78704	TX	2.55	11850	3/9/2012	30.25	-97.77
3333	Travis	Travis	78704	TX	3.69	16388	3/9/2012	30.25	-97.77
3334	Denton	Denton	76207	TX	5.64		3/12/2012	33.22	-97.19
3335	Bexar	Bexar	78253	TX	5.20	24856	3/14/2012	29.47	-98.81
3336	Bexar	Bexar	78233	TX	7.20	34560	3/14/2012	29.56	-98.36
3337	Bexar	Bexar	78239	TX	5.76	21072	3/14/2012	29.52	-98.36
3338	Bexar	Bexar	78232	TX	5.17	28435	3/14/2012	29.59	-98.46
3339	Bexar	Bexar	78230	TX	10.00	48377	3/14/2012	29.54	-98.56
3340	Bexar	Bexar	78249	TX	6.11	31000	3/14/2012	29.57	-98.61
3341	Bexar	Bexar	78230	TX	6.70	34608	3/14/2012	29.54	-98.56
3342	Bexar	Bexar	78261	TX	5.64	30722	3/14/2012	29.70	-98.41
3343	Bexar	Bexar	78255	TX	3.89	41623	3/15/2012	29.66	-98.67
3344	Bexar	Bexar	78245	TX	7.20	32838	3/15/2012	29.40	-98.74
3345	Travis	Travis	78744	TX	5.76	18720	3/15/2012	30.20	-97.73
3346	Travis	Travis	78732	TX	5.28	19435	3/15/2012	30.38	-97.89
3347	Travis	Travis	78732	TX	3.48	16420	3/15/2012	30.38	-97.89
3348	Travis	Travis	78732	TX	6.11	27606	3/15/2012	30.38	-97.89
3349	Travis	Travis	78745	TX	4.84	20600	3/15/2012	30.22	-97.80
3350	Travis	Travis	78703	TX	5.76	21874	3/15/2012	30.29	-97.77
3351	Bexar	Bexar	78223	TX	2.99	13103	3/20/2012	29.30	-98.41
3352	Bexar	Bexar	78207	TX	48.00	391634	3/22/2012	29.42	-98.52
3353	Bexar	Bexar	78229	TX	132.60	798617	3/22/2012	29.51	-98.58
3354	Bexar	Bexar	78207	TX	141.68	761459	3/22/2012	29.42	-98.52
3355	Bexar	Bexar	78263	TX	5.28	18976	3/22/2012	29.36	-98.32
3356	Travis	Travis	78724	TX	4.80	15600	3/22/2012	30.29	-97.62
3357	Travis	Travis	78704	TX	2.66	11850	3/22/2012	30.25	-97.77
3358	Bell	Williamson	76544	TX	684.00	3000000	3/27/2012	31.12	-97.79
3359	Bexar	Bexar	78209	TX	5.00	21697	3/27/2012	29.49	-98.45
3360	Bexar	Bexar	78217	TX	6.38	24244	3/27/2012	29.54	-98.42

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3361	Bexar	Bexar	78255	TX	4.32	24955	3/27/2012	29.66	-98.67
3362	Bexar	Bexar	78209	TX	4.70	26085	3/27/2012	29.49	-98.45
3363	El Paso	El Paso	79934	TX	10.24	62190	3/27/2012	31.98	-106.42
3364	Travis	Travis	78758	TX	6.00	19500	3/29/2012	30.39	-97.70
3365	Travis	Travis	78735	TX	5.25	20338	3/29/2012	30.26	-97.86
3366	Travis	Travis	78733	TX	6.48	24975	3/29/2012	30.33	-97.87
3367	Travis	Travis	78735	TX	6.24	23088	3/29/2012	30.26	-97.86
3368	Travis	Travis	78735	TX	6.25	20313	3/29/2012	30.26	-97.86
3369	Travis	Travis	78723	TX	4.07	12243	3/29/2012	30.31	-97.68
3370	Travis	Travis	78730	TX	6.24	22919	3/29/2012	30.37	-97.84
3371	Travis	Travis	78731	TX	6.30	21389	3/29/2012	30.35	-97.77
3372	Travis	Travis	78704	TX	3.80	17222	3/29/2012	30.25	-97.77
3373	Travis	Travis	78746	TX	1.52	5746	3/29/2012	30.31	-97.82
3374	Travis	Travis	78727	TX	6.76	24637	3/29/2012	30.43	-97.71
3375	Travis	Travis	78704	TX	3.42	14826	3/29/2012	30.25	-97.77
3376	Travis	Travis	78704	TX	4.56	19492	3/29/2012	30.25	-97.77
3377	Travis	Travis	78704	TX	2.66	11850	3/29/2012	30.25	-97.77
3378	Travis	Travis	78704	TX	4.18	17868	3/29/2012	30.25	-97.77
3379	Travis	Travis	78704	TX	4.18	17929	3/29/2012	30.25	-97.77
3380	Travis	Travis	78704	TX	2.66	11850	3/29/2012	30.25	-97.77
3381	Travis	Travis	78704	TX	4.56	20855	3/29/2012	30.25	-97.77
3382	Travis	Travis	78704	TX	2.66	11850	3/29/2012	30.25	-97.77
3383	Travis	Travis	78750	TX	5.94	21705	3/29/2012	30.43	-97.80
3384	Bexar	Bexar	78258	TX	24.03	79299	3/30/2012	29.65	-98.47
3385	Bexar	Bexar	78210	TX	25.76	99102	4/2/2012	29.40	-98.47
3386	Bexar	Bexar	78229	TX	9.12	44561	4/2/2012	29.51	-98.58
3387	Bexar	Bexar	78261	TX	3.48	15777	4/4/2012	29.70	-98.41
3388	Bexar	Bexar	78261	TX	6.67	25346	4/4/2012	29.70	-98.41
3389	Bexar	Bexar	78256	TX	5.00	22529	4/4/2012	29.62	-98.62
3390	Bexar	Bexar	78230	TX	3.50	15342	4/4/2012	29.54	-98.56
3391	Bexar	Bexar	78237	TX	3.50	15490	4/4/2012	29.41	-98.57
3392	Bexar	Bexar	78251	TX	3.05	12335	4/4/2012	29.47	-98.68
3393	Bexar	Bexar	78260	TX	6.11	31161	4/4/2012	29.69	-98.50
3394	Bexar	Bexar	78232	TX	4.81	19096	4/4/2012	29.59	-98.46
3395	Bexar	Bexar	78261	TX	4.35	19140	4/4/2012	29.70	-98.41
3396	Bexar	Bexar	78250	TX	5.80	26726	4/4/2012	29.50	-98.67
3397	Dallas	Dallas	75006	TX	3.15	20530	4/4/2012	32.97	-96.89
3398	El Paso	El Paso	79934	TX	4.31	26622	4/4/2012	31.98	-106.42
3399	El Paso	El Paso	79912	TX	10.34	42394	4/5/2012	31.86	-106.55
3400	Travis	Travis	78736	TX	6.00	19500	4/5/2012	30.25	-97.95

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3401	Travis	Travis	78732	TX	5.40	21120	4/5/2012	30.38	-97.89
3402	Travis	Travis	78732	TX	6.58	29434	4/5/2012	30.38	-97.89
3403	Travis	Travis	78704	TX	4.56	19492	4/5/2012	30.25	-97.77
3404	Travis	Travis	78731	TX	4.86	18977	4/5/2012	30.35	-97.77
3405	Bexar	Bexar	78258	TX	6.48	23198	4/6/2012	29.65	-98.47
3406	Bexar	Bexar	78213	TX	6.11	24588	4/9/2012	29.50	-98.52
3407	Bexar	Bexar	78261	TX	24.96	129792	4/9/2012	29.70	-98.41
3408	Collin	Collin	75070	TX	5.51	32333	4/10/2012	33.18	-96.70
3409	Dallas	Dallas	75211	TX	1.65	9050	4/11/2012	32.74	-96.89
3410	Comal	Comal	78266	TX	18.10	87103	4/11/2012	29.63	-98.32
3411	Comal	Comal	78266	TX	28.91	135350	4/11/2012	29.63	-98.32
3412	Bexar	Bexar	78209	TX	4.60	18501	4/12/2012	29.49	-98.45
3413	Bexar	Bexar	78233	TX	5.52	22818	4/12/2012	29.56	-98.36
3414	Bexar	Bexar	78240	TX	5.00	24600	4/13/2012	29.53	-98.61
3415	Gregg	Gregg	75605	TX	10.00	37000	4/13/2012	32.56	-94.71
3416	Travis	Travis	78748	TX	6.00	23880	4/13/2012	30.17	-97.82
3417	Travis	Travis	78746	TX	6.25	22500	4/13/2012	30.31	-97.82
3418	Travis	Travis	78748	TX	5.40	21086	4/13/2012	30.17	-97.82
3419	Travis	Travis	78759	TX	6.12	23345	4/13/2012	30.40	-97.75
3420	El Paso	El Paso	79904	TX	10.24	62190	4/17/2012	31.87	-106.48
3421	Dallas	Dallas	75082	TX	2.40	10700	4/18/2012	33.00	-96.66
3422	Travis	Travis	78753	TX	5.50	20625	4/19/2012	30.39	-97.67
3423	Travis	Travis	78753	TX	6.00	20600	4/19/2012	30.39	-97.67
3424	Jim Wells	Nueces	78332	TX	2.35	10700	4/19/2012	27.74	-98.09
3425	Dallas	Dallas	75211	TX	1.65	9050	4/19/2012	32.74	-96.89
3426	Travis	Travis	78747	TX	6.50	24500	4/19/2012	30.13	-97.73
3427	Travis	Travis	78744	TX	6.25	23438	4/19/2012	30.20	-97.73
3428	Travis	Travis	78735	TX	6.00	23225	4/19/2012	30.26	-97.86
3429	Travis	Travis	78744	TX	5.50	20750	4/19/2012	30.20	-97.73
3430	Travis	Travis	78732	TX	6.11	25482	4/19/2012	30.38	-97.89
3431	Dallas	Dallas	75212	TX	0.92	7820	4/20/2012	32.78	-96.88
3432	Dallas	Dallas	75212	TX	0.92	7820	4/20/2012	32.78	-96.88
3433	Dallas	Dallas	75212	TX	0.92	7820	4/20/2012	32.78	-96.88
3434	Dallas	Dallas	75212	TX	0.92	7820	4/20/2012	32.78	-96.88
3435	Dallas	Dallas	75212	TX	0.92	7820	4/20/2012	32.78	-96.88
3436	Dallas	Dallas	75212	TX	0.92	7820	4/20/2012	32.78	-96.88
3437	Dallas	Dallas	75212	TX	0.92	7820	4/20/2012	32.78	-96.88
3438	Dallas	Dallas	75212	TX	0.92	7820	4/20/2012	32.78	-96.88
3439	Dallas	Dallas	75212	TX	0.92	7820	4/20/2012	32.78	-96.88
3440	Dallas	Dallas	75212	TX	0.92	7820	4/20/2012	32.78	-96.88

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3441	Dallas	Dallas	75212	TX	0.92	7820	4/20/2012	32.78	-96.88
3442	Dallas	Dallas	75212	TX	0.92	7820	4/20/2012	32.78	-96.88
3443	Dallas	Dallas	75212	TX	0.92	7820	4/20/2012	32.78	-96.88
3444	Bexar	Bexar	78210	TX	5.94	22269	4/23/2012	29.40	-98.47
3445	Bexar	Bexar	78253	TX	10.32	39883	4/24/2012	29.47	-98.81
3446	Bexar	Bexar	78148	TX	35.72	190950	4/24/2012	29.55	-98.30
3447	Bexar	Bexar	78207	TX	6.58	36900	4/24/2012	29.42	-98.52
3448	Bexar	Bexar	78148	TX	6.58	35400	4/24/2012	29.55	-98.30
3449	Bexar	Bexar	78109	TX	6.58	33900	4/24/2012	29.47	-98.30
3450	Cameron	Nueces	78550	TX	5.64	25700	4/24/2012	26.26	-97.65
3451	Hidalgo	Nueces	78501	TX	11.28	51400	4/24/2012	26.22	-98.23
3452	Cameron	Nueces	78550	TX	5.64	25700	4/24/2012	26.26	-97.65
3453	Guadalupe	Guadalupe	78154	TX	46.08		4/25/2012	29.59	-98.28
3454	Travis	Travis	78747	TX	6.13	23275	4/25/2012	30.13	-97.73
3455	Travis	Travis	78745	TX	3.19	12103	4/25/2012	30.22	-97.80
3456	Travis	Travis	78727	TX	9.24	29990	4/25/2012	30.43	-97.71
3457	Travis	Travis	78723	TX	5.76	19095	4/25/2012	30.31	-97.68
3458	Hood	Hood	76049	TX	2.85	18269	4/30/2012	32.46	-97.72
3459	Bexar	Bexar	78258	TX	6.09	27405	5/2/2012	29.65	-98.47
3460	Bexar	Bexar	78249	TX	4.35	15008	5/2/2012	29.57	-98.61
3461	El Paso	El Paso	79907	TX	167.55	1080000	5/2/2012	31.71	-106.33
3462	Travis	Travis	78744	TX	6.00	22500	5/3/2012	30.20	-97.73
3463	Travis	Travis	78748	TX	6.00	23880	5/3/2012	30.17	-97.82
3464	Travis	Travis	78724	TX	3.50	12600	5/3/2012	30.29	-97.62
3465	Travis	Travis	78759	TX	5.94	22775	5/3/2012	30.40	-97.75
3466	Travis	Travis	78746	TX	3.75	14800	5/3/2012	30.31	-97.82
3467	Travis	Travis	78731	TX	5.64	21413	5/3/2012	30.35	-97.77
3468	Travis	Travis	78734	TX	6.00	22500	5/3/2012	30.37	-97.95
3469	Travis	Travis	78759	TX	2.75	9900	5/3/2012	30.40	-97.75
3470	Travis	Travis	78759	TX	5.76	23952	5/3/2012	30.40	-97.75
3471	Travis	Travis	78732	TX	6.38	27112	5/3/2012	30.38	-97.89
3472	Travis	Travis	78731	TX	5.00	21737	5/3/2012	30.35	-97.77
3473	Travis	Travis	78723	TX	6.50	24275	5/3/2012	30.31	-97.68
3474	Travis	Travis	78704	TX	3.80	16388	5/3/2012	30.25	-97.77
3475	Travis	Travis	78735	TX	6.48	22709	5/3/2012	30.26	-97.86
3476	Bexar	Bexar	78260	TX	7.59	28089	5/4/2012	29.69	-98.50
3477	Bexar	Bexar	78232	TX	9.87	39993	5/4/2012	29.59	-98.46
3478	Bexar	Bexar	78023	TX	4.35	21228	5/4/2012	29.62	-98.73
3479	Duval	Nueces	78341	TX	6.84	38451	5/4/2012	27.62	-98.53
3480	Bexar	Bexar	78231	TX	12.65	59016	5/7/2012	29.58	-98.54

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3481	Williamson	Williamson	78665	TX	8.50	32000	5/7/2012	30.55	-97.62
3482	El Paso	El Paso	79925	TX	3.53	17520	5/7/2012	31.80	-106.36
3483	El Paso	El Paso	79922	TX	7.05	19470	5/7/2012	31.83	-106.58
3484	El Paso	El Paso	79925	TX	20.68	84788	5/7/2012	31.80	-106.36
3485	Tarrant	Tarrant	76133	TX	2.76	16560	5/9/2012	32.65	-97.38
3486	Travis	Travis	78733	TX	6.24	25200	5/9/2012	30.33	-97.87
3487	Travis	Travis	78744	TX	3.52	20790	5/9/2012	30.20	-97.73
3488	Travis	Travis	78744	TX	3.52	20790	5/9/2012	30.20	-97.73
3489	Travis	Travis	78617	TX	3.52	21301	5/9/2012	30.15	-97.59
3490	Travis	Travis	78617	TX	3.50	20790	5/9/2012	30.15	-97.59
3491	Travis	Travis	78744	TX	3.52	21301	5/9/2012	30.20	-97.73
3492	Travis	Travis	78744	TX	3.50	20790	5/9/2012	30.20	-97.73
3493	Travis	Travis	78744	TX	3.52	21049	5/9/2012	30.20	-97.73
3494	Travis	Travis	78747	TX	3.50	20790	5/9/2012	30.13	-97.73
3495	Travis	Travis	78747	TX	3.52	21242	5/9/2012	30.13	-97.73
3496	Travis	Travis	78747	TX	3.52	21242	5/9/2012	30.13	-97.73
3497	Bexar	Bexar	78245	TX	5.28	27427	5/10/2012	29.40	-98.74
3498	Bexar	Bexar	78207	TX	5.06	20493	5/10/2012	29.42	-98.52
3499	Guadalupe	Guadalupe	78154	TX	16.30	84069	5/11/2012	29.59	-98.28
3500	Bexar	Bexar	78259	TX	25.92	57008	5/11/2012	29.62	-98.43
3501	El Paso	El Paso	79934	TX	5.64	21432	5/13/2012	31.98	-106.42
3502	Callahan	Hood	79510	TX	10.80	75600	5/16/2012	32.22	-99.50
3503	Callahan	Hood	79510	TX	10.80	75600	5/16/2012	32.22	-99.50
3504	Bexar	Bexar	78256	TX	23.35	157222	5/17/2012	29.62	-98.62
3505	Bexar	Bexar	78257	TX	6.53	29588	5/17/2012	29.66	-98.58
3506	Bexar	Bexar	78258	TX	4.35	20010	5/17/2012	29.65	-98.47
3507	Bexar	Bexar	78209	TX	6.67	26846	5/17/2012	29.49	-98.45
3508	Bexar	Bexar	78249	TX	4.35	15008	5/17/2012	29.57	-98.61
3509	Bexar	Bexar	78254	TX	4.60	19043	5/17/2012	29.53	-98.78
3510	Travis	Travis	78754	TX	6.25	23437	5/17/2012	30.36	-97.65
3511	Travis	Travis	78723	TX	6.00	22625	5/17/2012	30.31	-97.68
3512	Travis	Travis	78748	TX	4.66	18527	5/17/2012	30.17	-97.82
3513	Travis	Travis	78745	TX	3.19	12103	5/17/2012	30.22	-97.80
3514	Travis	Travis	78748	TX	4.66	18527	5/17/2012	30.17	-97.82
3515	Travis	Travis	78745	TX	3.00	11400	5/17/2012	30.22	-97.80
3516	Travis	Travis	78748	TX	5.39	20482	5/17/2012	30.17	-97.82
3517	Travis	Travis	78724	TX	6.25	22500	5/17/2012	30.29	-97.62
3518	Travis	Travis	78745	TX	5.04	21462	5/17/2012	30.22	-97.80
3519	Travis	Travis	78753	TX	3.06	14300	5/17/2012	30.39	-97.67
3520	Travis	Travis	78750	TX	6.58	26517	5/17/2012	30.43	-97.80



Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3521	Travis	Travis	78704	TX	4.37	19591	5/17/2012	30.25	-97.77
3522	Travis	Travis	78744	TX	3.52	21301	5/17/2012	30.20	-97.73
3523	Travis	Travis	78747	TX	3.52	21301	5/17/2012	30.13	-97.73
3524	Collin	Collin	75023	TX	2.55	15096	5/18/2012	33.06	-96.73
3525	El Paso	El Paso	79936	TX	15.84	75695	5/18/2012	31.76	-106.29
3526	Bell	Williamson	76549	TX	9.00	33750	5/22/2012	31.00	-97.81
3527	Bowie	Upshur	75501	TX	4.60	18000	5/23/2012	33.39	-94.13
3528	Taylor	Hood	79562	TX	10.80	75600	5/24/2012	32.25	-99.89
3529	Webb	Nueces	78045	TX	1.74	7000	5/24/2012	27.82	-99.68
3530	Travis	Travis	78748	TX	4.34	16110	5/24/2012	30.17	-97.82
3531	Travis	Travis	78732	TX	8.36	26794	5/24/2012	30.38	-97.89
3532	Travis	Travis	78732	TX	3.63	14467	5/24/2012	30.38	-97.89
3533	Travis	Travis	78753	TX	6.63	25352	5/24/2012	30.39	-97.67
3534	Travis	Travis	78749	TX	14.88	44760	5/27/2012	30.22	-97.86
3535	Cherokee	Smith	75766	TX	10.37	48000	5/28/2012	31.93	-95.27
3536	Bexar	Bexar	78261	TX	5.22	23686	5/29/2012	29.70	-98.41
3537	Bexar	Bexar	78217	TX	6.11	30352	5/29/2012	29.54	-98.42
3538	Bexar	Bexar	78247	TX	5.06	19270	5/29/2012	29.59	-98.41
3539	Bexar	Bexar	78255	TX	6.00	27681	5/29/2012	29.66	-98.67
3540	Williamson	Williamson	78665	TX	6.25	23438	5/29/2012	30.55	-97.62
3541	Ellis	Ellis	75154	TX	1.11	5915	5/29/2012	32.51	-96.77
3542	Nueces	Nueces	78412	TX	9.00	45214	5/29/2012	27.70	-97.35
3543	Bexar	Bexar	78023	TX	5.04	22447	5/30/2012	29.62	-98.73
3544	Tarrant	Tarrant	76002	TX	7.76	27500	5/30/2012	32.63	-97.09
3545	Collin	Collin	75023	TX	4.60	16560	5/30/2012	33.06	-96.73
3546	Travis	Travis	78748	TX	6.13	24378	5/30/2012	30.17	-97.82
3547	Bexar	Bexar	78247	TX	3.42	15390	6/1/2012	29.59	-98.41
3548	El Paso	El Paso	79935	TX	7.85	45102	6/1/2012	31.76	-106.33
3549	El Paso	El Paso	79912	TX	7.68	46830	6/1/2012	31.86	-106.55
3550	Bexar	Bexar	78255	TX	11.70	51716	6/4/2012	29.66	-98.67
3551	Comal	Comal	78266	TX	7.98	33256	6/4/2012	29.63	-98.32
3552	Bexar	Bexar	78261	TX	9.60	52800	6/4/2012	29.70	-98.41
3553	Dallas	Dallas	75243	TX	8.46		6/4/2012	32.91	-96.74
3554	El Paso	El Paso	79928	TX	9.24	55440	6/4/2012	31.66	-106.13
3555	Hidalgo	Nueces	78537	TX	11.28	49400	6/4/2012	26.16	-98.06
3556	El Paso	El Paso	79927	TX	6.11	18330	6/5/2012	31.64	-106.28
3557	Bexar	Bexar	78255	TX	4.35	20010	6/6/2012	29.66	-98.67
3558	Bexar	Bexar	78255	TX	6.67	32651	6/6/2012	29.66	-98.67
3559	Bexar	Bexar	78258	TX	4.35	20010	6/6/2012	29.65	-98.47
3560	Bexar	Bexar	78258	TX	8.33	35122	6/6/2012	29.65	-98.47

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3561	Bexar	Bexar	78152	TX	20.70	77550	6/6/2012	29.42	-98.20
3562	Bexar	Bexar	78023	TX	8.60	43027	6/6/2012	29.62	-98.73
3563	Bexar	Bexar	78249	TX	28.91	124900	6/6/2012	29.57	-98.61
3564	Bexar	Bexar	78254	TX	28.91	124900	6/6/2012	29.53	-98.78
3565	Comal	Comal	78266	TX	8.99	30926	6/6/2012	29.63	-98.32
3566	Bexar	Bexar	78251	TX	7.79	32622	6/7/2012	29.47	-98.68
3567	Travis	Travis	78735	TX	6.25	23438	6/7/2012	30.26	-97.86
3568	Johnson	Johnson	76031	TX	8.97	29566	6/7/2012	32.35	-97.33
3569	Dallas	Dallas	75244	TX	11.28	50760	6/7/2012	32.93	-96.84
3570	Dallas	Dallas	75244	TX	7.05	31725	6/7/2012	32.93	-96.84
3571	Dallas	Dallas	75244	TX	10.34	46530	6/7/2012	32.93	-96.84
3572	Dallas	Dallas	75244	TX	6.11	27495	6/7/2012	32.93	-96.84
3573	Dallas	Dallas	75244	TX	25.38	114210	6/7/2012	32.93	-96.84
3574	Dallas	Dallas	75244	TX	18.33	82485	6/7/2012	32.93	-96.84
3575	Dallas	Dallas	75244	TX	9.17	41243	6/7/2012	32.93	-96.84
3576	Dallas	Dallas	75244	TX	9.17	41243	6/7/2012	32.93	-96.84
3577	Travis	Travis	78744	TX	6.00	20625	6/7/2012	30.20	-97.73
3578	Travis	Travis	78759	TX	6.25	23563	6/7/2012	30.40	-97.75
3579	Travis	Travis	78748	TX	6.37	24525	6/7/2012	30.17	-97.82
3580	Travis	Travis	78735	TX	6.25	23563	6/7/2012	30.26	-97.86
3581	Travis	Travis	78732	TX	6.00	23334	6/7/2012	30.38	-97.89
3582	Travis	Travis	78735	TX	5.75	21688	6/7/2012	30.26	-97.86
3583	Travis	Travis	78732	TX	5.08	19437	6/7/2012	30.38	-97.89
3584	Travis	Travis	78703	TX	3.60	13847	6/7/2012	30.29	-97.77
3585	Travis	Travis	78759	TX	4.00	12400	6/7/2012	30.40	-97.75
3586	Travis	Travis	78701	TX	1.71	7487	6/7/2012	30.27	-97.74
3587	Travis	Travis	78701	TX	1.71	7487	6/7/2012	30.27	-97.74
3588	Travis	Travis	78701	TX	1.71	7487	6/7/2012	30.27	-97.74
3589	Travis	Travis	78701	TX	1.71	7487	6/7/2012	30.27	-97.74
3590	Dallas	Dallas	75229	TX	6.48	23680	6/8/2012	32.90	-96.87
3591	Dallas	Dallas	75052	TX	3.24	12540	6/8/2012	32.68	-97.03
3592	Dallas	Dallas	75089	TX	8.70	33189	6/8/2012	32.94	-96.55
3593	Bexar	Bexar	78261	TX	5.00	15335	6/11/2012	29.70	-98.41
3594	Bexar	Bexar	78261	TX	5.40	21576	6/11/2012	29.70	-98.41
3595	Bexar	Bexar	78239	TX	5.60	23124	6/11/2012	29.52	-98.36
3596	Bexar	Bexar	78216	TX	28.91	124900	6/11/2012	29.55	-98.50
3597	Bexar	Bexar	78216	TX	28.91	124900	6/11/2012	29.55	-98.50
3598	Bexar	Bexar	78251	TX	28.91	124900	6/11/2012	29.47	-98.68
3599	Bexar	Bexar	78251	TX	28.91	124900	6/11/2012	29.47	-98.68
3600	Denton	Denton	75056	TX	10.80	37177	6/11/2012	33.08	-96.91

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3601	Dallas	Dallas	75006	TX	1.84	11791	6/11/2012	32.97	-96.89
3602	Wichita	Denton	76367	TX	4.86	46916	6/12/2012	33.95	-98.73
3603	El Paso	El Paso	79936	TX	2.01	6225	6/12/2012	31.76	-106.29
3604	Bosque	Hood	76665	TX	1.44		6/13/2012	31.92	-97.72
3605	Dallas	Dallas	75218	TX	4.80	16000	6/13/2012	32.84	-96.70
3606	Palo Pinto	Parker	76067	TX	5.40	18900	6/13/2012	32.77	-98.18
3607	Aransas	San Patricio	78382	TX	3.76	22781	6/15/2012	28.09	-97.07
3608	Dallas	Dallas	75150	TX	4.13	33000	6/16/2012	32.82	-96.63
3609	Travis	Travis	78732	TX	8.40	36795	6/17/2012	30.38	-97.89
3610	El Paso	El Paso	79836	TX	10.56	47973	6/18/2012	31.57	-106.19
3611	Brazoria	Brazoria	77515	TX	7.11	15425	6/19/2012	29.17	-95.44
3612	Tarrant	Tarrant	76137	TX	5.50	16398	6/19/2012	32.85	-97.30
3613	Archer	Parker	76366	TX	10.80	104258	6/19/2012	33.71	-98.79
3614	Travis	Travis	78739	TX	7.00	23438	6/20/2012	30.19	-97.90
3615	Dallas	Dallas	75230	TX	9.90	66040	6/20/2012	32.90	-96.79
3616	Travis	Travis	78723	TX	6.25	23563	6/20/2012	30.31	-97.68
3617	Travis	Travis	78734	TX	6.25	23438	6/20/2012	30.37	-97.95
3618	Travis	Travis	78732	TX	6.00	23335	6/20/2012	30.38	-97.89
3619	Travis	Travis	78732	TX	9.25	20313	6/20/2012	30.38	-97.89
3620	Travis	Travis	78734	TX	6.25	23437	6/20/2012	30.37	-97.95
3621	Travis	Travis	78732	TX	4.50	17100	6/20/2012	30.38	-97.89
3622	Travis	Travis	78730	TX	6.24	26880	6/20/2012	30.37	-97.84
3623	Travis	Travis	78732	TX	6.00	23334	6/20/2012	30.38	-97.89
3624	Travis	Travis	78732	TX	4.35	16651	6/20/2012	30.38	-97.89
3625	Travis	Travis	78732	TX	5.80	23147	6/20/2012	30.38	-97.89
3626	Travis	Travis	78732	TX	4.64	18518	6/20/2012	30.38	-97.89
3627	Travis	Travis	78731	TX	6.25	26460	6/20/2012	30.35	-97.77
3628	Travis	Travis	78732	TX	9.50	39615	6/20/2012	30.38	-97.89
3629	Travis	Travis	78702	TX	1.71	7199	6/20/2012	30.26	-97.71
3630	Travis	Travis	78734	TX	4.56	18240	6/20/2012	30.37	-97.95
3631	Travis	Travis	78748	TX	6.30	25200	6/20/2012	30.17	-97.82
3632	Tarrant	Tarrant	76103	TX	4.14	26303	6/21/2012	32.75	-97.26
3633	Hunt	Hunt	75401	TX	6.44	25938	6/22/2012	33.17	-96.17
3634	Bexar	Bexar	78260	TX	6.11	24725	6/25/2012	29.69	-98.50
3635	Bexar	Bexar	78258	TX	6.96	24247	6/25/2012	29.65	-98.47
3636	Bexar	Bexar	78251	TX	5.40	19973	6/25/2012	29.47	-98.68
3637	Tarrant	Tarrant	76148	TX	8.46	30636	6/25/2012	32.86	-97.25
3638	McLennan	Ellis	76712	TX	100.80	500000	6/25/2012	31.53	-97.29
3639	Dallas	Dallas	75218	TX	8.28	43198	6/26/2012	32.84	-96.70
3640	Bexar	Bexar	78207	TX	27.26	108495	6/27/2012	29.42	-98.52

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3641	Bexar	Bexar	78023	TX	7.92	39525	6/27/2012	29.62	-98.73
3642	Bexar	Bexar	78249	TX	9.86	46072	6/27/2012	29.57	-98.61
3643	Nueces	Nueces	78412	TX	9.00	38264	6/27/2012	27.70	-97.35
3644	Bexar	Bexar	78254	TX	10.32	39800	6/28/2012	29.53	-98.78
3645	Ellis	Ellis	75119	TX	11.28	50552	6/28/2012	32.32	-96.62
3646	Brown	Hood	76801	TX	1.32	6270	6/29/2012	31.81	-99.06
3647	Brown	Hood	76801	TX	9.69	59280	6/29/2012	31.81	-99.06
3648	Taylor	Hood	79562	TX	9.72	46456	6/29/2012	32.25	-99.89
3649	Cameron	Nueces	78550	TX	5.64	25700	7/2/2012	26.26	-97.65
3650	Kendall	Bexar	78015	TX	14.25	54538	7/3/2012	29.75	-98.65
3651	Bexar	Bexar	78253	TX	8.70	36105	7/3/2012	29.47	-98.81
3652	Bexar	Bexar	78253	TX	5.76	21600	7/3/2012	29.47	-98.81
3653	Bexar	Bexar	78209	TX	10.80	59885	7/3/2012	29.49	-98.45
3654	Bexar	Bexar	78260	TX	3.19	8944	7/5/2012	29.69	-98.50
3655	Bexar	Bexar	78023	TX	4.80	28800	7/5/2012	29.62	-98.73
3656	Nueces	Nueces	78418	TX	4.50	22414	7/5/2012	27.62	-97.29
3657	Bexar	Bexar	78148	TX	7.99	28914	7/5/2012	29.55	-98.30
3658	Travis	Travis	78733	TX	5.88	21600	7/5/2012	30.33	-97.87
3659	Travis	Travis	78747	TX	6.00	22500	7/5/2012	30.13	-97.73
3660	Travis	Travis	78724	TX	6.00	22500	7/5/2012	30.29	-97.62
3661	Travis	Travis	78758	TX	5.50	20750	7/5/2012	30.39	-97.70
3662	Travis	Travis	78732	TX	6.00	24300	7/5/2012	30.38	-97.89
3663	Travis	Travis	78753	TX	4.00	15000	7/5/2012	30.39	-97.67
3664	Travis	Travis	78727	TX	6.25	23438	7/5/2012	30.43	-97.71
3665	Travis	Travis	78738	TX	6.72	29232	7/5/2012	30.30	-97.97
3666	Travis	Travis	78745	TX	3.00	11400	7/5/2012	30.22	-97.80
3667	Travis	Travis	78747	TX	6.24	25800	7/5/2012	30.13	-97.73
3668	Travis	Travis	78753	TX	5.87	22119	7/5/2012	30.39	-97.67
3669	Travis	Travis	78724	TX	5.25	19688	7/5/2012	30.29	-97.62
3670	Travis	Travis	78732	TX	5.50	21390	7/5/2012	30.38	-97.89
3671	Travis	Travis	78748	TX	7.92	26534	7/5/2012	30.17	-97.82
3672	Travis	Travis	78732	TX	6.25	24923	7/5/2012	30.38	-97.89
3673	Travis	Travis	78732	TX	6.25	24168	7/5/2012	30.38	-97.89
3674	Travis	Travis	78746	TX	6.25	23750	7/5/2012	30.31	-97.82
3675	Bexar	Bexar	78217	TX	3.84	19200	7/5/2012	29.54	-98.42
3676	Bexar	Bexar	78261	TX	4.50	20858	7/5/2012	29.70	-98.41
3677	Bexar	Bexar	78258	TX	5.22	23686	7/5/2012	29.65	-98.47
3678	Rockwall	Rockwall	75032	TX	10.12	42435	7/6/2012	32.86	-96.42
3679	Dallas	Dallas	75063	TX	5.52	23246	7/6/2012	32.91	-96.99
3680	Cherokee	Smith	75766	TX	9.63	42950	7/7/2012	31.93	-95.27

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3681	Harris	Harris	77024	TX	813.00		7/9/2012	29.78	-95.47
3682	Williamson	Williamson	78634	TX	9.00	34900	7/9/2012	30.56	-97.55
3683	Dallas	Dallas	75080	TX	9.36		7/10/2012	32.95	-96.73
3684	Parker	Parker	76008	TX	6.44	24828	7/10/2012	32.69	-97.63
3685	Tarrant	Tarrant	76132	TX	10.56		7/11/2012	32.66	-97.42
3686	Williamson	Williamson	78665	TX	6.25	22118	7/11/2012	30.55	-97.62
3687	McLennan	Ellis	76712	TX	9.75	30930	7/12/2012	31.53	-97.29
3688	Bell	Williamson	76542	TX	9.24	32192	7/12/2012	31.01	-97.72
3689	Travis	Travis	78617	TX	6.63	24850	7/12/2012	30.15	-97.59
3690	Travis	Travis	78732	TX	6.00	24300	7/12/2012	30.38	-97.89
3691	Travis	Travis	78732	TX	4.35	17360	7/12/2012	30.38	-97.89
3692	Travis	Travis	78748	TX	5.15	16721	7/12/2012	30.17	-97.82
3693	Travis	Travis	78732	TX	6.00	23147	7/12/2012	30.38	-97.89
3694	Travis	Travis	78738	TX	6.25	25279	7/12/2012	30.30	-97.97
3695	Travis	Travis	78730	TX	6.24	23000	7/12/2012	30.37	-97.84
3696	Travis	Travis	78745	TX	6.24	25081	7/12/2012	30.22	-97.80
3697	Travis	Travis	78732	TX	5.22	23335	7/12/2012	30.38	-97.89
3698	Travis	Travis	78727	TX	6.00	22500	7/12/2012	30.43	-97.71
3699	Travis	Travis	78732	TX	6.25	24307	7/12/2012	30.38	-97.89
3700	Travis	Travis	78732	TX	5.75	23147	7/12/2012	30.38	-97.89
3701	Travis	Travis	78731	TX	8.75	28875	7/12/2012	30.35	-97.77
3702	Travis	Travis	78745	TX	6.24	23914	7/12/2012	30.22	-97.80
3703	Travis	Travis	78723	TX	5.70	21456	7/12/2012	30.31	-97.68
3704	Travis	Travis	78723	TX	6.90	24730	7/12/2012	30.31	-97.68
3705	Travis	Travis	78731	TX	6.25	29372	7/12/2012	30.35	-97.77
3706	Guadalupe	Guadalupe	78154	TX	28.91	124900	7/13/2012	29.59	-98.28
3707	Tarrant	Tarrant	76126	TX	11.28	47199	7/13/2012	32.65	-97.50
3708	Bexar	Bexar	78232	TX	28.91	124900	7/13/2012	29.59	-98.46
3709	Tarrant	Tarrant	76016	TX	5.06	18216	7/15/2012	32.69	-97.18
3710	Dallas	Dallas	75233	TX	5.06	20791	7/16/2012	32.70	-96.87
3711	McLennan	Ellis	76708	TX	9.00	48500	7/16/2012	31.62	-97.21
3712	El Paso	El Paso	79922	TX	3.84	14976	7/16/2012	31.83	-106.58
3713	Wichita	Denton	76310	TX	11.88	95040	7/16/2012	33.79	-98.51
3714	Bexar	Bexar	78228	TX	5.20	23524	7/17/2012	29.46	-98.56
3715	Bexar	Bexar	78207	TX	49.92	254713	7/17/2012	29.42	-98.52
3716	Williamson	Williamson	76530	TX	8.88	30271	7/17/2012	30.71	-97.42
3717	Bexar	Bexar	78259	TX	1.40	22896	7/17/2012	29.62	-98.43
3718	Bexar	Bexar	78230	TX	7.99	39601	7/17/2012	29.54	-98.56
3719	Bexar	Bexar	78261	TX	20.88	81432	7/17/2012	29.70	-98.41
3720	Bexar	Bexar	78258	TX	7.83	31535	7/17/2012	29.65	-98.47

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3721	Bexar	Bexar	78240	TX	25.00	98850	7/17/2012	29.53	-98.61
3722	Bexar	Bexar	78259	TX	6.48	20252	7/17/2012	29.62	-98.43
3723	Bexar	Bexar	78257	TX	4.10	20692	7/17/2012	29.66	-98.58
3724	Bexar	Bexar	78263	TX	8.10	26723	7/17/2012	29.36	-98.32
3725	Bexar	Bexar	78259	TX	5.22	23686	7/17/2012	29.62	-98.43
3726	Bexar	Bexar	78023	TX	3.06	14353	7/18/2012	29.62	-98.73
3727	Bexar	Bexar	78258	TX	8.16	32503	7/18/2012	29.65	-98.47
3728	Dallas	Dallas	75236	TX	6.00		7/18/2012	32.69	-96.94
3729	Bexar	Bexar	78216	TX	4.99	32922	7/18/2012	29.55	-98.50
3730	El Paso	El Paso	79902	TX	9.60	57390	7/18/2012	31.79	-106.49
3731	Bexar	Bexar	78230	TX	11.75	45825	7/18/2012	29.54	-98.56
3732	Tarrant	Tarrant	76120	TX	51.94	233708	7/19/2012	32.77	-97.18
3733	Dallas	Dallas	75061	TX	14.57	65565	7/19/2012	32.82	-96.96
3734	Travis	Travis	78745	TX	6.63	23250	7/19/2012	30.22	-97.80
3735	Travis	Travis	78734	TX	6.25	23563	7/19/2012	30.37	-97.95
3736	Travis	Travis	78732	TX	6.00	24300	7/19/2012	30.38	-97.89
3737	Travis	Travis	78732	TX	5.00	20000	7/19/2012	30.38	-97.89
3738	Travis	Travis	78732	TX	6.00	23147	7/19/2012	30.38	-97.89
3739	Travis	Travis	78732	TX	5.80	23147	7/19/2012	30.38	-97.89
3740	Travis	Travis	78723	TX	6.24	25045	7/19/2012	30.31	-97.68
3741	Travis	Travis	78732	TX	6.25	22500	7/19/2012	30.38	-97.89
3742	Travis	Travis	78732	TX	6.00	21000	7/19/2012	30.38	-97.89
3743	Travis	Travis	78732	TX	6.25	22500	7/19/2012	30.38	-97.89
3744	Travis	Travis	78732	TX	4.75	17548	7/19/2012	30.38	-97.89
3745	Travis	Travis	78746	TX	6.24	29238	7/19/2012	30.31	-97.82
3746	Travis	Travis	78749	TX	4.95	31165	7/19/2012	30.22	-97.86
3747	Travis	Travis	78750	TX	6.24	29427	7/19/2012	30.43	-97.80
3748	Travis	Travis	78732	TX	6.24	24572	7/19/2012	30.38	-97.89
3749	Tarrant	Tarrant	76120	TX	24.44	109980	7/23/2012	32.77	-97.18
3750	Collin	Collin	75407	TX	3.68	19362	7/23/2012	33.16	-96.47
3751	Bosque	Hood	76689	TX	8.10	18351	7/23/2012	31.66	-97.55
3752	Tarrant	Tarrant	76132	TX	10.56	52536	7/23/2012	32.66	-97.42
3753	Dallas	Dallas	75052	TX	5.52	21341	7/23/2012	32.68	-97.03
3754	Denton	Denton	76210	TX	3.06	12500	7/23/2012	33.14	-97.08
3755	Tarrant	Tarrant	76120	TX	56.64	254858	7/23/2012	32.77	-97.18
3756	Tarrant	Tarrant	76120	TX	7.05	31725	7/23/2012	32.77	-97.18
3757	Tarrant	Tarrant	76120	TX	22.56	101520	7/23/2012	32.77	-97.18
3758	Tarrant	Tarrant	76120	TX	11.28	50760	7/23/2012	32.77	-97.18
3759	Tarrant	Tarrant	76120	TX	6.11	27495	7/23/2012	32.77	-97.18
3760	Bexar	Bexar	78260	TX	10.15	43645	7/24/2012	29.69	-98.50

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3761	Bexar	Bexar	78247	TX	4.64	23200	7/24/2012	29.59	-98.41
3762	Bexar	Bexar	78240	TX	6.50	31320	7/24/2012	29.53	-98.61
3763	Galveston	Galveston	77573	TX	5.39	13951	7/24/2012	29.49	-95.09
3764	Dallas	Dallas	75229	TX	2.41	29176	7/24/2012	32.90	-96.87
3765	Bexar	Bexar	78261	TX	3.48	16312	7/24/2012	29.70	-98.41
3766	Bexar	Bexar	78261	TX	5.22	23686	7/24/2012	29.70	-98.41
3767	Bexar	Bexar	78259	TX	3.30	11715	7/24/2012	29.62	-98.43
3768	Bexar	Bexar	78258	TX	5.06	20691	7/24/2012	29.65	-98.47
3769	Bexar	Bexar	78254	TX	5.00	23037	7/24/2012	29.53	-98.78
3770	Collin	Collin	75024	TX	5.15	36315	7/25/2012	33.08	-96.81
3771	Bexar	Bexar	78230	TX	4.23	24323	7/25/2012	29.54	-98.56
3772	El Paso	El Paso	79912	TX	3.36	23365	7/25/2012	31.86	-106.55
3773	McLennan	Ellis	76705	TX	2.25	13500	7/25/2012	31.59	-97.07
3774	Dallas	Dallas	75219	TX	21.39	96233	7/25/2012	32.81	-96.81
3775	Dallas	Dallas	75219	TX	52.88	237938	7/25/2012	32.81	-96.81
3776	Bexar	Bexar	78205	TX	47.80	248102	7/25/2012	29.42	-98.49
3777	Bexar	Bexar	78258	TX	5.22	29841	7/25/2012	29.65	-98.47
3778	Bexar	Bexar	78260	TX	5.17	26109	7/25/2012	29.69	-98.50
3779	Bexar	Bexar	78221	TX	4.00	17920	7/25/2012	29.30	-98.50
3780	Bexar	Bexar	78112	TX	3.96	13583	7/25/2012	29.21	-98.39
3781	Bexar	Bexar	78228	TX	4.86	19996	7/25/2012	29.46	-98.56
3782	Bexar	Bexar	78228	TX	9.99	34166	7/25/2012	29.46	-98.56
3783	Bexar	Bexar	78231	TX	5.17	27574	7/25/2012	29.58	-98.54
3784	Bexar	Bexar	78263	TX	15.93	57672	7/25/2012	29.36	-98.32
3785	Bexar	Bexar	78258	TX	14.56	63821	7/25/2012	29.65	-98.47
3786	Bexar	Bexar	78261	TX	6.11	30389	7/25/2012	29.70	-98.41
3787	Dallas	Dallas	75061	TX	61.10	274950	7/26/2012	32.82	-96.96
3788	Gregg	Gregg	75601	TX	10.12	29000	7/26/2012	32.51	-94.72
3789	Wilbarger	Parker	76384	TX	10.80	104258	7/26/2012	34.20	-99.32
3790	Travis	Travis	78732	TX	5.00	18225	7/26/2012	30.38	-97.89
3791	Travis	Travis	78735	TX	5.39	20372	7/26/2012	30.26	-97.86
3792	Travis	Travis	78757	TX	6.25	23750	7/26/2012	30.35	-97.74
3793	Travis	Travis	78738	TX	5.80	23147	7/26/2012	30.30	-97.97
3794	Travis	Travis	78733	TX	9.60	35077	7/26/2012	30.33	-97.87
3795	Travis	Travis	78733	TX	7.26	26382	7/26/2012	30.33	-97.87
3796	Travis	Travis	78748	TX	6.00	27000	7/26/2012	30.17	-97.82
3797	Travis	Travis	78738	TX	11.00	39462	7/26/2012	30.30	-97.97
3798	Travis	Travis	78747	TX	4.00	16200	7/26/2012	30.13	-97.73
3799	Travis	Travis	78734	TX	3.87	12852	7/26/2012	30.37	-97.95
3800	Travis	Travis	78704	TX	5.24	27485	7/26/2012	30.25	-97.77

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3801	Travis	Travis	78734	TX	3.68	14707	7/26/2012	30.37	-97.95
3802	Bexar	Bexar	78023	TX	5.40	21066	7/26/2012	29.62	-98.73
3803	Rockwall	Rockwall	75032	TX	10.12	43421	7/27/2012	32.86	-96.42
3804	Travis	Travis	78660	TX	2.76	15012	7/27/2012	30.43	-97.60
3805	Webb	Nueces	78043	TX	8.05	36500	7/27/2012	27.55	-99.26
3806	El Paso	El Paso	79912	TX	1.00	3000	7/27/2012	31.86	-106.55
3807	Denton	Denton	75065	TX	9.36	42214	7/30/2012	33.12	-97.02
3808	Nueces	Nueces	78414	TX	10.00	66845	7/30/2012	27.65	-97.36
3809	Tarrant	Tarrant	76034	TX	8.28	32854	7/30/2012	32.89	-97.15
3810	Williamson	Williamson	78626	TX	7.50	31957	7/30/2012	30.65	-97.63
3811	Smith	Smith	75771	TX	7.56	28000	7/30/2012	32.53	-95.41
3812	Dallas	Dallas	75243	TX	3.68	15047	7/30/2012	32.91	-96.74
3813	Angelina	Rusk	75904	TX	8.28	34272	7/30/2012	31.33	-94.83
3814	Gregg	Gregg	75605	TX	11.04	40627	7/30/2012	32.56	-94.71
3815	Hopkins	Hunt	75482	TX	87.78	343266	7/30/2012	33.18	-95.60
3816	Galveston	Galveston	77546	TX	7.92	40062	7/30/2012	29.54	-95.20
3817	Dallas	Dallas	75052	TX	7.82	36676	7/31/2012	32.68	-97.03
3818	Tarrant	Tarrant	76011	TX	1.92	9344	7/31/2012	32.75	-97.09
3819	Dallas	Dallas	75244	TX	8.28	36375	7/31/2012	32.93	-96.84
3820	Collin	Collin	75074	TX	5.06	21751	7/31/2012	33.02	-96.67
3821	Williamson	Williamson	78665	TX	10.00	38850	7/31/2012	30.55	-97.62
3822	Dallas	Dallas	75051	TX	4.70	17090	7/31/2012	32.73	-96.99
3823	Tarrant	Tarrant	76179	TX	10.00	44300	7/31/2012	32.92	-97.46
3824	Dallas	Dallas	75054	TX	3.40	13600	8/1/2012	32.59	-97.06
3825	Denton	Denton	75022	TX	11.04	17500	8/1/2012	33.03	-97.10
3826	Collin	Collin	75070	TX	8.50	36264	8/1/2012	33.18	-96.70
3827	Tarrant	Tarrant	76103	TX	4.14	16560	8/1/2012	32.75	-97.26
3828	Tarrant	Tarrant	76016	TX	5.52	21726	8/1/2012	32.69	-97.18
3829	Dallas	Dallas	75209	TX	9.89	39560	8/1/2012	32.85	-96.82
3830	Denton	Denton	75034	TX	912.00		8/2/2012	33.10	-96.82
3831	Williamson	Williamson	76574	TX	10.00	38500	8/2/2012	30.57	-97.37
3832	El Paso	El Paso	79930	TX	2.82	14587	8/2/2012	31.81	-106.47
3833	Travis	Travis	78741	TX	5.25	19938	8/2/2012	30.23	-97.71
3834	Travis	Travis	78733	TX	5.39	18326	8/2/2012	30.33	-97.87
3835	Travis	Travis	78617	TX	5.25	19813	8/2/2012	30.15	-97.59
3836	Travis	Travis	78759	TX	4.25	16188	8/2/2012	30.40	-97.75
3837	Travis	Travis	78750	TX	5.64	21413	8/2/2012	30.43	-97.80
3838	Travis	Travis	78732	TX	6.38	24621	8/2/2012	30.38	-97.89
3839	Travis	Travis	78735	TX	14.75	65732	8/2/2012	30.26	-97.86
3840	Travis	Travis	78704	TX	2.93	20260	8/2/2012	30.25	-97.77



Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3841	Travis	Travis	78746	TX	6.12	27114	8/2/2012	30.31	-97.82
3842	Travis	Travis	78745	TX	3.24	17757	8/2/2012	30.22	-97.80
3843	Travis	Travis	78730	TX	6.11	28130	8/2/2012	30.37	-97.84
3844	Travis	Travis	78702	TX	3.06	15275	8/2/2012	30.26	-97.71
3845	Kendall	Bexar	78006	TX	10.00	40845	8/6/2012	29.92	-98.70
3846	Bexar	Bexar	78251	TX	4.17	22981	8/6/2012	29.47	-98.68
3847	Bell	Williamson	76549	TX	9.50	35850	8/6/2012	31.00	-97.81
3848	El Paso	El Paso	79936	TX	10.05	41000	8/6/2012	31.76	-106.29
3849	Bexar	Bexar	78209	TX	6.58	29610	8/6/2012	29.49	-98.45
3850	Bexar	Bexar	78209	TX	8.60	42595	8/6/2012	29.49	-98.45
3851	Bexar	Bexar	78251	TX	5.30	25397	8/6/2012	29.47	-98.68
3852	Bexar	Bexar	78255	TX	9.89	37608	8/6/2012	29.66	-98.67
3853	Bexar	Bexar	78209	TX	7.05	27743	8/6/2012	29.49	-98.45
3854	Bexar	Bexar	78231	TX	14.04	50039	8/6/2012	29.58	-98.54
3855	Bexar	Bexar	78247	TX	2.12	3670	8/6/2012	29.59	-98.41
3856	Bexar	Bexar	78218	TX	5.92	20898	8/6/2012	29.49	-98.39
3857	Bexar	Bexar	78002	TX	13.16	55290	8/6/2012	29.29	-98.73
3858	El Paso	El Paso	79932	TX	9.87	46733	8/8/2012	31.89	-106.62
3859	Travis	Travis	78704	TX	8.82	29850	8/9/2012	30.25	-97.77
3860	Travis	Travis	78754	TX	6.25	23350	8/9/2012	30.36	-97.65
3861	Travis	Travis	78732	TX	5.04	20254	8/9/2012	30.38	-97.89
3862	Travis	Travis	78738	TX	6.00	24300	8/9/2012	30.30	-97.97
3863	Travis	Travis	78738	TX	6.00	23335	8/9/2012	30.30	-97.97
3864	Travis	Travis	78723	TX	5.94	20783	8/9/2012	30.31	-97.68
3865	Travis	Travis	78732	TX	6.00	23147	8/9/2012	30.38	-97.89
3866	Bexar	Bexar	78069	TX	10000.00		8/13/2012	29.19	-98.67
3867	Anderson	Henderson	75763	TX	9.66	40480	8/13/2012	32.03	-95.54
3868	Ellis	Ellis	75154	TX	10.56		8/14/2012	32.51	-96.77
3869	Cherokee	Smith	75766	TX	2.96	13350	8/14/2012	31.93	-95.27
3870	Midland	El Paso	79705	TX	1.96	9448	8/14/2012	32.07	-102.09
3871	Ellis	Ellis	75119	TX	7.92	36613	8/14/2012	32.32	-96.62
3872	Dallas	Dallas	75006	TX	10.00	45500	8/16/2012	32.97	-96.89
3873	Travis	Travis	78703	TX	7.50	28125	8/16/2012	30.29	-97.77
3874	Travis	Travis	78744	TX	5.00	18875	8/16/2012	30.20	-97.73
3875	Travis	Travis	78747	TX	6.25	23438	8/16/2012	30.13	-97.73
3876	Travis	Travis	78727	TX	5.50	21075	8/16/2012	30.43	-97.71
3877	Travis	Travis	78759	TX	6.00	23470	8/16/2012	30.40	-97.75
3878	Travis	Travis	78759	TX	6.25	24513	8/16/2012	30.40	-97.75
3879	Travis	Travis	78738	TX	6.00	24300	8/16/2012	30.30	-97.97
3880	Travis	Travis	78734	TX	6.00	22900	8/16/2012	30.37	-97.95

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3881	Travis	Travis	78747	TX	6.25	23438	8/16/2012	30.13	-97.73
3882	Travis	Travis	78732	TX	6.00	23100	8/16/2012	30.38	-97.89
3883	Travis	Travis	78733	TX	6.25	20313	8/16/2012	30.33	-97.87
3884	Travis	Travis	78750	TX	6.00	23300	8/16/2012	30.43	-97.80
3885	Travis	Travis	78748	TX	6.25	25318	8/16/2012	30.17	-97.82
3886	Travis	Travis	78750	TX	6.50	22150	8/16/2012	30.43	-97.80
3887	Travis	Travis	78727	TX	8.36	31058	8/16/2012	30.43	-97.71
3888	Travis	Travis	78738	TX	6.00	24300	8/16/2012	30.30	-97.97
3889	Travis	Travis	78744	TX	6.25	23563	8/16/2012	30.20	-97.73
3890	Travis	Travis	78727	TX	6.25	21875	8/16/2012	30.43	-97.71
3891	Travis	Travis	78749	TX	6.08	24000	8/16/2012	30.22	-97.86
3892	Travis	Travis	78733	TX	5.50	22275	8/16/2012	30.33	-97.87
3893	Travis	Travis	78753	TX	4.00	16623	8/16/2012	30.39	-97.67
3894	Travis	Travis	78747	TX	6.16	35780	8/16/2012	30.13	-97.73
3895	Travis	Travis	78703	TX	3.50	15732	8/16/2012	30.29	-97.77
3896	Travis	Travis	78704	TX	4.50	22729	8/16/2012	30.25	-97.77
3897	Travis	Travis	78703	TX	3.60	16178	8/16/2012	30.29	-97.77
3898	Travis	Travis	78703	TX	3.60	16178	8/16/2012	30.29	-97.77
3899	Travis	Travis	78703	TX	4.68	20849	8/16/2012	30.29	-97.77
3900	Tarrant	Tarrant	76116	TX	10.56		8/18/2012	32.72	-97.44
3901	Smith	Smith	75707	TX	10.34	36900	8/19/2012	32.32	-95.16
3902	El Paso	El Paso	79912	TX	3.60	21836	8/19/2012	31.86	-106.55
3903	Bexar	Bexar	78230	TX	20.01	92038	8/20/2012	29.54	-98.56
3904	Bexar	Bexar	78259	TX	6.96	29841	8/20/2012	29.62	-98.43
3905	Bexar	Bexar	78244	TX	3.12	13127	8/20/2012	29.47	-98.35
3906	Bexar	Bexar	78259	TX	5.52	28410	8/20/2012	29.62	-98.43
3907	Tarrant	Tarrant	76133	TX	4.56		8/20/2012	32.65	-97.38
3908	Bexar	Bexar	78223	TX	5.06	20575	8/20/2012	29.30	-98.41
3909	Bexar	Bexar	78259	TX	6.66	17851	8/20/2012	29.62	-98.43
3910	Bexar	Bexar	78258	TX	5.22	23686	8/20/2012	29.65	-98.47
3911	Bexar	Bexar	78261	TX	6.48	25221	8/20/2012	29.70	-98.41
3912	Bexar	Bexar	78265	TX	16.50	64321	8/20/2012	29.54	-98.42
3913	Ellis	Ellis	75165	TX	5.76	28800	8/20/2012	32.38	-96.77
3914	El Paso	El Paso	79928	TX	2.59	10469	8/20/2012	31.66	-106.13
3915	Comal	Comal	78132	TX	6.58	31829	8/20/2012	29.74	-98.20
3916	Bexar	Bexar	78251	TX	1.08	5087	8/20/2012	29.47	-98.68
3917	Comal	Comal	78163	TX	5.88	22101	8/20/2012	29.77	-98.51
3918	Bexar	Bexar	78230	TX	7.20	32400	8/20/2012	29.54	-98.56
3919	Bexar	Bexar	78250	TX	1.08	5131	8/20/2012	29.50	-98.67
3920	Tarrant	Tarrant	76135	TX	8.80		8/21/2012	32.84	-97.47

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
3921	Dallas	Dallas	75248	TX	9.90		8/21/2012	32.97	-96.78
3922	Harris	Harris	77507	TX	53.46		8/21/2012	29.63	-95.09
3923	Denton	Denton	75068	TX	10.64	28526	8/21/2012	33.17	-96.95
3924	Bexar	Bexar	78240	TX	2.21	20409	8/21/2012	29.53	-98.61
3925	Dallas	Dallas	75182	TX	9.18	38000	8/21/2012	32.81	-96.55
3926	Galveston	Galveston	77573	TX	11.76	53767	8/21/2012	29.49	-95.09
3927	Tarrant	Tarrant	76016	TX	5.50	28823	8/22/2012	32.69	-97.18
3928	El Paso	El Paso	79911	TX	5.28	22992	8/22/2012	31.89	-106.54
3929	El Paso	El Paso	79912	TX	4.32	22826	8/22/2012	31.86	-106.55
3930	El Paso	El Paso	79911	TX	1.92	10560	8/22/2012	31.89	-106.54
3931	El Paso	El Paso	79912	TX	1.92	10560	8/22/2012	31.86	-106.55
3932	El Paso	El Paso	79938	TX	1.92	10560	8/22/2012	31.84	-105.92
3933	El Paso	El Paso	79938	TX	3.36	17472	8/22/2012	31.84	-105.92
3934	El Paso	El Paso	79938	TX	3.36	17472	8/22/2012	31.84	-105.92
3935	El Paso	El Paso	79912	TX	4.32	22826	8/22/2012	31.86	-106.55
3936	Travis	Travis	78746	TX	4.00	14400	8/23/2012	30.31	-97.82
3937	El Paso	El Paso	79924	TX	5.50	19142	8/23/2012	31.90	-106.43
3938	El Paso	El Paso	79912	TX	6.25	26500	8/23/2012	31.86	-106.55
3939	El Paso	El Paso	79901	TX	5.28	21330	8/23/2012	31.76	-106.48
3940	El Paso	El Paso	79938	TX	3.36	17472	8/23/2012	31.84	-105.92
3941	El Paso	El Paso	79912	TX	1.92	10560	8/23/2012	31.86	-106.55
3942	El Paso	El Paso	79934	TX	1.92	10560	8/23/2012	31.98	-106.42
3943	Jim Wells	Nueces	78332	TX	11.04	46950	8/23/2012	27.74	-98.09
3944	Travis	Travis	78748	TX	8.00	23400	8/23/2012	30.17	-97.82
3945	Travis	Travis	78748	TX	6.50	24375	8/23/2012	30.17	-97.82
3946	Travis	Travis	78732	TX	7.00	26548	8/23/2012	30.38	-97.89
3947	Travis	Travis	78735	TX	6.30	22994	8/23/2012	30.26	-97.86
3948	Travis	Travis	78652	TX	7.50	28250	8/23/2012	30.14	-97.88
3949	Travis	Travis	78748	TX	7.75	28481	8/23/2012	30.17	-97.82
3950	Travis	Travis	78732	TX	6.00	24905	8/23/2012	30.38	-97.89
3951	Travis	Travis	78746	TX	6.25	33723	8/23/2012	30.31	-97.82
3952	Travis	Travis	78757	TX	5.28	25000	8/23/2012	30.35	-97.74
3953	Travis	Travis	78758	TX	6.00	24305	8/23/2012	30.39	-97.70
3954	Travis	Travis	78733	TX	4.41	14994	8/23/2012	30.33	-97.87
3955	Travis	Travis	78738	TX	5.50	22275	8/23/2012	30.30	-97.97
3956	Travis	Travis	78732	TX	5.80	23727	8/23/2012	30.38	-97.89
3957	Travis	Travis	78750	TX	6.25	27121	8/23/2012	30.43	-97.80
3958	Travis	Travis	78732	TX	6.00	24300	8/23/2012	30.38	-97.89
3959	Travis	Travis	78731	TX	2.10	8732	8/23/2012	30.35	-97.77
3960	Travis	Travis	78730	TX	5.15	29988	8/23/2012	30.37	-97.84

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
3961	Travis	Travis	78759	TX	6.25	18810	8/23/2012	30.40	-97.75
3962	Travis	Travis	78727	TX	4.75	18063	8/23/2012	30.43	-97.71
3963	Travis	Travis	78731	TX	4.50	16200	8/23/2012	30.35	-97.77
3964	Travis	Travis	78617	TX	6.00	24300	8/23/2012	30.15	-97.59
3965	Travis	Travis	78745	TX	5.50	19250	8/23/2012	30.22	-97.80
3966	Travis	Travis	78745	TX	4.75	16625	8/23/2012	30.22	-97.80
3967	Travis	Travis	78735	TX	5.76	20870	8/23/2012	30.26	-97.86
3968	Travis	Travis	78749	TX	6.24	25552	8/23/2012	30.22	-97.86
3969	Travis	Travis	78732	TX	7.04	25510	8/23/2012	30.38	-97.89
3970	Travis	Travis	78704	TX	10.00	39796	8/23/2012	30.25	-97.77
3971	Travis	Travis	78703	TX	2.88	13284	8/23/2012	30.29	-97.77
3972	Travis	Travis	78703	TX	4.32	19329	8/23/2012	30.29	-97.77
3973	Tarrant	Tarrant	76148	TX	6.72		8/24/2012	32.86	-97.25
3974	Archer	Parker	76366	TX	10.80	104258	8/25/2012	33.71	-98.79
3975	Williamson	Williamson	78613	TX	7.99	28038	8/27/2012	30.51	-97.82
3976	Bexar	Bexar	78213	TX	5.63	24483	8/27/2012	29.50	-98.52
3977	Tarrant	Tarrant	76039	TX	8.80		8/27/2012	32.87	-97.08
3978	Tarrant	Tarrant	76116	TX	10.56	52536	8/27/2012	32.72	-97.44
3979	Bexar	Bexar	78216	TX	25.30	113214	8/27/2012	29.55	-98.50
3980	Ellis	Ellis	75154	TX	10.56	52536	8/27/2012	32.51	-96.77
3981	Dallas	Dallas	75211	TX	5.72	28457	8/27/2012	32.74	-96.89
3982	Bell	Williamson	76542	TX	4.50	16875	8/27/2012	31.01	-97.72
3983	Bexar	Bexar	78220	TX	8.28	18230	8/28/2012	29.41	-98.39
3984	Tarrant	Tarrant	76039	TX	8.80	43780	8/28/2012	32.87	-97.08
3985	Dallas	Dallas	75062	TX	6.24	31044	8/28/2012	32.84	-96.98
3986	Tarrant	Tarrant	76135	TX	8.80	43780	8/28/2012	32.84	-97.47
3987	Dallas	Dallas	75248	TX	9.90	49253	8/29/2012	32.97	-96.78
3988	Tarrant	Tarrant	76133	TX	4.56	22686	8/29/2012	32.65	-97.38
3989	Dallas	Dallas	75211	TX	5.72		8/30/2012	32.74	-96.89
3990	Travis	Travis	78746	TX	5.50	20625	8/30/2012	30.31	-97.82
3991	Travis	Travis	78732	TX	4.35	17360	8/30/2012	30.38	-97.89
3992	Travis	Travis	78727	TX	6.37	21875	8/30/2012	30.43	-97.71
3993	Travis	Travis	78746	TX	6.00	28212	8/30/2012	30.31	-97.82
3994	Travis	Travis	78759	TX	6.27	23965	8/30/2012	30.40	-97.75
3995	Travis	Travis	78733	TX	6.00	23142	8/30/2012	30.33	-97.87
3996	Travis	Travis	78703	TX	3.36	14326	8/30/2012	30.29	-97.77
3997	Travis	Travis	78703	TX	5.76	25380	8/30/2012	30.29	-97.77
3998	Travis	Travis	78735	TX	6.24	24860	8/30/2012	30.26	-97.86
3999	Travis	Travis	78703	TX	3.60	13631	8/30/2012	30.29	-97.77
4000	Cameron	Nueces	78575	TX	3.36	15000	8/31/2012	26.04	-97.56

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
4001	Brown	Hood	76802	TX	3.22	14490	9/3/2012	31.71	-98.91
4002	Dallas	Dallas	75062	TX	6.24		9/4/2012	32.84	-96.98
4003	El Paso	El Paso	79936	TX	4.32	10800	9/4/2012	31.76	-106.29
4004	El Paso	El Paso	79936	TX	5.04	21168	9/4/2012	31.76	-106.29
4005	Grayson	Collin	75020	TX	49.55	173460	9/4/2012	33.78	-96.60
4006	El Paso	El Paso	79934	TX	1.92	10560	9/4/2012	31.98	-106.42
4007	El Paso	El Paso	79912	TX	1.92	10560	9/5/2012	31.86	-106.55
4008	El Paso	El Paso	79911	TX	1.92	10560	9/5/2012	31.89	-106.54
4009	El Paso	El Paso	79911	TX	1.92	10560	9/5/2012	31.89	-106.54
4010	El Paso	El Paso	79911	TX	1.92	10560	9/5/2012	31.89	-106.54
4011	Bexar	Bexar	78261	TX	4.35	20010	9/6/2012	29.70	-98.41
4012	Travis	Travis	78735	TX	7.50	28250	9/6/2012	30.26	-97.86
4013	Travis	Travis	78732	TX	6.00	23147	9/6/2012	30.38	-97.89
4014	Travis	Travis	78732	TX	6.00	24300	9/6/2012	30.38	-97.89
4015	Travis	Travis	78723	TX	1.00	3150	9/6/2012	30.31	-97.68
4016	Travis	Travis	78704	TX	5.75	19350	9/6/2012	30.25	-97.77
4017	Travis	Travis	78731	TX	5.50	18315	9/6/2012	30.35	-97.77
4018	Travis	Travis	78732	TX	5.40	22459	9/6/2012	30.38	-97.89
4019	Travis	Travis	78735	TX	6.24	18750	9/6/2012	30.26	-97.86
4020	Travis	Travis	78733	TX	6.37	20313	9/6/2012	30.33	-97.87
4021	Travis	Travis	78733	TX	5.76	24300	9/6/2012	30.33	-97.87
4022	Travis	Travis	78732	TX	6.00	23335	9/6/2012	30.38	-97.89
4023	Bexar	Bexar	78223	TX	2.90	12495	9/7/2012	29.30	-98.41
4024	Tarrant	Tarrant	76052	TX	5.52		9/10/2012	32.98	-97.38
4025	Tarrant	Tarrant	76012	TX	6.24		9/10/2012	32.76	-97.14
4026	Cherokee	Smith	75766	TX	1.44	9800	9/10/2012	31.93	-95.27
4027	Bexar	Bexar	78261	TX	10.26	38860	9/11/2012	29.70	-98.41
4028	Tarrant	Tarrant	76012	TX	6.24	31044	9/11/2012	32.76	-97.14
4029	Bexar	Bexar	78109	TX	4.35	17661	9/11/2012	29.47	-98.30
4030	Denton	Denton	75007	TX	10.14	50447	9/11/2012	33.01	-96.89
4031	Tarrant	Tarrant	76052	TX	5.52	27462	9/11/2012	32.98	-97.38
4032	Rockwall	Rockwall	75032	TX	10.20	26278	9/11/2012	32.86	-96.42
4033	Dallas	Dallas	75172	TX	9.20	27606	9/11/2012	32.60	-96.68
4034	Bexar	Bexar	78231	TX	7.35	33075	9/12/2012	29.58	-98.54
4035	Tarrant	Tarrant	76148	TX	6.72	33432	9/12/2012	32.86	-97.25
4036	Collin	Collin	75093	TX	6.76	26364	9/12/2012	33.04	-96.82
4037	El Paso	El Paso	79936	TX	5.28	20064	9/12/2012	31.76	-106.29
4038	Dallas	Dallas	75244	TX	5.10	16720	9/12/2012	32.93	-96.84
4039	Travis	Travis	78732	TX	7.50	28750	9/13/2012	30.38	-97.89
4040	Travis	Travis	78748	TX	6.25	23563	9/13/2012	30.17	-97.82

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
4041	Travis	Travis	78727	TX	5.00	18750	9/13/2012	30.43	-97.71
4042	Travis	Travis	78753	TX	5.50	21650	9/13/2012	30.39	-97.67
4043	Williamson	Williamson	78729	TX	2.25	18750	9/13/2012	30.46	-97.75
4044	Travis	Travis	78732	TX	3.29	18671	9/13/2012	30.38	-97.89
4045	Travis	Travis	78758	TX	4.50	18750	9/13/2012	30.39	-97.70
4046	Travis	Travis	78732	TX	6.00	24300	9/13/2012	30.38	-97.89
4047	Travis	Travis	78733	TX	6.25	20313	9/13/2012	30.33	-97.87
4048	Travis	Travis	78744	TX	6.25	21875	9/13/2012	30.20	-97.73
4049	Travis	Travis	78745	TX	6.37	20833	9/13/2012	30.22	-97.80
4050	Travis	Travis	78733	TX	6.25	20313	9/13/2012	30.33	-97.87
4051	Travis	Travis	78732	TX	6.00	24300	9/13/2012	30.38	-97.89
4052	Travis	Travis	78746	TX	6.59	29813	9/13/2012	30.31	-97.82
4053	Travis	Travis	78733	TX	4.50	17360	9/13/2012	30.33	-97.87
4054	Travis	Travis	78703	TX	3.96	16095	9/13/2012	30.29	-97.77
4055	Travis	Travis	78703	TX	4.32	19492	9/13/2012	30.29	-97.77
4056	Travis	Travis	78746	TX	6.11	30616	9/13/2012	30.31	-97.82
4057	Travis	Travis	78746	TX	6.11	32416	9/13/2012	30.31	-97.82
4058	Dallas	Dallas	75209	TX	4.48	15500	9/14/2012	32.85	-96.82
4059	Dallas	Dallas	75205	TX	5.76	25056	9/14/2012	32.83	-96.80
4060	Collin	Collin	75075	TX	7.00	22544	9/14/2012	33.02	-96.74
4061	Collin	Collin	75093	TX	6.72	33432	9/14/2012	33.04	-96.82
4062	Wichita	Denton	76309	TX	10.80	92027	9/17/2012	33.90	-98.54
4063	Bexar	Bexar	78259	TX	6.21	24522	9/19/2012	29.62	-98.43
4064	Bexar	Bexar	78229	TX	50.40	274000	9/19/2012	29.51	-98.58
4065	Bexar	Bexar	78230	TX	5.17	25075	9/19/2012	29.54	-98.56
4066	Travis	Travis	78732	TX	7.50	26375	9/20/2012	30.38	-97.89
4067	Travis	Travis	78732	TX	7.50	29500	9/20/2012	30.38	-97.89
4068	Travis	Travis	78723	TX	4.50	17200	9/20/2012	30.31	-97.68
4069	Travis	Travis	78732	TX	7.50	29125	9/20/2012	30.38	-97.89
4070	Travis	Travis	78758	TX	3.42	14752	9/20/2012	30.39	-97.70
4071	Travis	Travis	78733	TX	6.00	24300	9/20/2012	30.33	-97.87
4072	Travis	Travis	78723	TX	5.25	20768	9/20/2012	30.31	-97.68
4073	Travis	Travis	78735	TX	6.00	24305	9/20/2012	30.26	-97.86
4074	Travis	Travis	78727	TX	6.25	21875	9/20/2012	30.43	-97.71
4075	Travis	Travis	78733	TX	4.75	17908	9/20/2012	30.33	-97.87
4076	Travis	Travis	78732	TX	5.50	22275	9/20/2012	30.38	-97.89
4077	Travis	Travis	78735	TX	6.25	25313	9/20/2012	30.26	-97.86
4078	Travis	Travis	78738	TX	6.00	24300	9/20/2012	30.30	-97.97
4079	Travis	Travis	78732	TX	12.00	24300	9/20/2012	30.38	-97.89
4080	Travis	Travis	78735	TX	6.00	24300	9/20/2012	30.26	-97.86

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
4081	Travis	Travis	78735	TX	6.00	24300	9/20/2012	30.26	-97.86
4082	Hunt	Hunt	75458	TX	1.96	10362	9/24/2012	33.22	-96.29
4083	Bexar	Bexar	78224	TX	28.80	107633	9/25/2012	29.32	-98.54
4084	Tarrant	Tarrant	76108	TX	47.04		9/25/2012	32.77	-97.51
4085	Travis	Travis	78724	TX	8.46	41487	9/25/2012	30.29	-97.62
4086	El Paso	El Paso	79925	TX	3.84	14592	9/27/2012	31.80	-106.36
4087	Travis	Travis	78738	TX	7.75	27748	9/27/2012	30.30	-97.97
4088	Travis	Travis	78723	TX	6.24	18831	9/27/2012	30.31	-97.68
4089	Travis	Travis	78732	TX	6.25	21152	9/27/2012	30.38	-97.89
4090	Travis	Travis	78736	TX	6.00	24905	9/27/2012	30.25	-97.95
4091	Travis	Travis	78738	TX	6.25	21875	9/27/2012	30.30	-97.97
4092	Travis	Travis	78732	TX	6.24	24305	9/27/2012	30.38	-97.89
4093	Travis	Travis	78733	TX	6.00	24600	9/27/2012	30.33	-97.87
4094	Travis	Travis	78703	TX	3.52	16985	9/27/2012	30.29	-97.77
4095	Bexar	Bexar	78249	TX	5.17	15769	9/28/2012	29.57	-98.61
4096	Bexar	Bexar	78249	TX	4.50	16200	9/28/2012	29.57	-98.61
4097	Bexar	Bexar	78213	TX	8.10	27054	9/28/2012	29.50	-98.52
4098	Bexar	Bexar	78255	TX	5.92	20824	9/28/2012	29.66	-98.67
4099	Atascosa	Wilson	78052	TX	6.72	24301	9/28/2012	29.20	-98.77
4100	Bexar	Bexar	78073	TX	6.38	20608	9/28/2012	29.24	-98.63
4101	Bexar	Bexar	78251	TX	5.76	22447	9/28/2012	29.47	-98.68
4102	Bexar	Bexar	78210	TX	4.70	23480	9/28/2012	29.40	-98.47
4103	Bexar	Bexar	78222	TX	4.60	18225	10/1/2012	29.37	-98.39
4104	Bexar	Bexar	78023	TX	5.52	17090	10/2/2012	29.62	-98.73
4105	Comal	Comal	78266	TX	7.50	28500	10/2/2012	29.63	-98.32
4106	Bexar	Bexar	78255	TX	6.53	24260	10/2/2012	29.66	-98.67
4107	Bexar	Bexar	78232	TX	2.16	10185	10/2/2012	29.59	-98.46
4108	Bexar	Bexar	78258	TX	5.92	28577	10/2/2012	29.65	-98.47
4109	Bexar	Bexar	78253	TX	6.72	22982	10/2/2012	29.47	-98.81
4110	Bexar	Bexar	78258	TX	6.38	18885	10/2/2012	29.65	-98.47
4111	Bexar	Bexar	78251	TX	5.06	20161	10/3/2012	29.47	-98.68
4112	Bexar	Bexar	78245	TX	7.56	40787	10/3/2012	29.40	-98.74
4113	Bexar	Bexar	78258	TX	9.62	37442	10/3/2012	29.65	-98.47
4114	Bexar	Bexar	78217	TX	28.44	112311	10/3/2012	29.54	-98.42
4115	El Paso	El Paso	79932	TX	1.05	7720	10/3/2012	31.89	-106.62
4116	Bexar	Bexar	78249	TX	7.05	34085	10/4/2012	29.57	-98.61
4117	Travis	Travis	78738	TX	5.00	32452	10/4/2012	30.30	-97.97
4118	Hamilton	Hood	76436	TX	9.90	34551	10/5/2012	31.89	-98.20
4119	Tarrant	Tarrant	76179	TX	10.29	37330	10/6/2012	32.92	-97.46
4120	Collin	Collin	75002	TX	5.88	19295	10/8/2012	33.10	-96.64

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
4121	Tarrant	Tarrant	76051	TX	5.88	21780	10/8/2012	32.95	-97.07
4122	Dallas	Dallas	75082	TX	6.37	26590	10/8/2012	33.00	-96.66
4123	Johnson	Johnson	76028	TX	6.44	23040	10/8/2012	32.53	-97.29
4124	Comal	Comal	78163	TX	15.00	74500	10/8/2012	29.77	-98.51
4125	Bexar	Bexar	78023	TX	24.50	128650	10/8/2012	29.62	-98.73
4126	Comal	Comal	78163	TX	15.00	78445	10/8/2012	29.77	-98.51
4127	Comal	Comal	78163	TX	24.50	128650	10/8/2012	29.77	-98.51
4128	Denton	Denton	75007	TX	10.14		10/9/2012	33.01	-96.89
4129	Tarrant	Tarrant	76052	TX	7.20		10/9/2012	32.98	-97.38
4130	El Paso	El Paso	79936	TX	4.94	28441	10/9/2012	31.76	-106.29
4131	Bexar	Bexar	78023	TX	2.50	10000	10/10/2012	29.62	-98.73
4132	Bexar	Bexar	78260	TX	7.85	36718	10/10/2012	29.69	-98.50
4133	Bexar	Bexar	78201	TX	2.90	14429	10/10/2012	29.46	-98.52
4134	Travis	Travis	78704	TX	7.92	56575	10/10/2012	30.25	-97.77
4135	Travis	Travis	78723	TX	5.00	17325	10/10/2012	30.31	-97.68
4136	Travis	Travis	78702	TX	7.50	28125	10/10/2012	30.26	-97.71
4137	Travis	Travis	78732	TX	12.00	49211	10/10/2012	30.38	-97.89
4138	Travis	Travis	78703	TX	7.68	26000	10/10/2012	30.29	-97.77
4139	Travis	Travis	78732	TX	6.25	20938	10/10/2012	30.38	-97.89
4140	Travis	Travis	78744	TX	5.39	20213	10/10/2012	30.20	-97.73
4141	Travis	Travis	78723	TX	6.13	22642	10/10/2012	30.31	-97.68
4142	Travis	Travis	78744	TX	3.60	12820	10/10/2012	30.20	-97.73
4143	Travis	Travis	78734	TX	6.24	40000	10/10/2012	30.37	-97.95
4144	Travis	Travis	78746	TX	6.25	23750	10/10/2012	30.31	-97.82
4145	Travis	Travis	78744	TX	7.35	29315	10/10/2012	30.20	-97.73
4146	Travis	Travis	78750	TX	3.06	15966	10/10/2012	30.43	-97.80
4147	Travis	Travis	78746	TX	5.00	16600	10/10/2012	30.31	-97.82
4148	Travis	Travis	78733	TX	6.25	20313	10/10/2012	30.33	-97.87
4149	Travis	Travis	78703	TX	2.64	9880	10/10/2012	30.29	-97.77
4150	Travis	Travis	78703	TX	1.44	5616	10/10/2012	30.29	-97.77
4151	Travis	Travis	78703	TX	2.16	8424	10/10/2012	30.29	-97.77
4152	Travis	Travis	78703	TX	2.16	8424	10/10/2012	30.29	-97.77
4153	Travis	Travis	78703	TX	2.88	11232	10/10/2012	30.29	-97.77
4154	Travis	Travis	78703	TX	2.16	8424	10/10/2012	30.29	-97.77
4155	Travis	Travis	78703	TX	2.16	8424	10/10/2012	30.29	-97.77
4156	Travis	Travis	78703	TX	2.16	8424	10/10/2012	30.29	-97.77
4157	Travis	Travis	78703	TX	2.16	8424	10/10/2012	30.29	-97.77
4158	Travis	Travis	78703	TX	2.16	8424	10/10/2012	30.29	-97.77
4159	Travis	Travis	78703	TX	2.16	8424	10/10/2012	30.29	-97.77
4160	Travis	Travis	78703	TX	2.16	8424	10/10/2012	30.29	-97.77



Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
4161	Travis	Travis	78703	TX	2.88	11232	10/10/2012	30.29	-97.77
4162	Travis	Travis	78703	TX	1.44	5616	10/10/2012	30.29	-97.77
4163	Travis	Travis	78703	TX	2.16	8424	10/10/2012	30.29	-97.77
4164	Travis	Travis	78703	TX	2.16	8424	10/10/2012	30.29	-97.77
4165	Travis	Travis	78703	TX	2.16	8424	10/10/2012	30.29	-97.77
4166	Travis	Travis	78703	TX	2.88	11232	10/10/2012	30.29	-97.77
4167	Travis	Travis	78703	TX	2.16	8424	10/10/2012	30.29	-97.77
4168	Travis	Travis	78703	TX	2.16	8424	10/10/2012	30.29	-97.77
4169	Travis	Travis	78703	TX	2.16	8424	10/10/2012	30.29	-97.77
4170	Travis	Travis	78703	TX	1.44	5616	10/10/2012	30.29	-97.77
4171	Travis	Travis	78703	TX	2.16	8424	10/10/2012	30.29	-97.77
4172	Travis	Travis	78703	TX	2.88	11232	10/10/2012	30.29	-97.77
4173	Travis	Travis	78703	TX	1.44	5616	10/10/2012	30.29	-97.77
4174	Travis	Travis	78703	TX	2.16	8424	10/10/2012	30.29	-97.77
4175	Travis	Travis	78745	TX	6.24	32430	10/10/2012	30.22	-97.80
4176	Bexar	Bexar	78073	TX	5.80	26171	10/10/2012	29.24	-98.63
4177	Bexar	Bexar	78229	TX	8.60	36720	10/10/2012	29.51	-98.58
4178	Bexar	Bexar	78250	TX	5.30	25080	10/10/2012	29.50	-98.67
4179	Bexar	Bexar	78073	TX	13.40	54626	10/12/2012	29.24	-98.63
4180	Cameron	Nueces	78559	TX	576.73	NA	10/15/2012	26.12	-97.52
4181	Bexar	Bexar	78240	TX	2.21	14250	10/16/2012	29.53	-98.61
4182	Bexar	Bexar	78240	TX	2.21	14250	10/16/2012	29.53	-98.61
4183	Bexar	Bexar	78023	TX	6.12	25492	10/16/2012	29.62	-98.73
4184	Bexar	Bexar	78247	TX	3.68	24645	10/16/2012	29.59	-98.41
4185	Bexar	Bexar	78240	TX	2.21	14250	10/16/2012	29.53	-98.61
4186	Bexar	Bexar	78240	TX	2.21	14250	10/16/2012	29.53	-98.61
4187	Bexar	Bexar	78109	TX	5.40	17010	10/16/2012	29.47	-98.30
4188	Bexar	Bexar	78240	TX	2.21	14250	10/16/2012	29.53	-98.61
4189	Bexar	Bexar	78216	TX	4.68	19582	10/16/2012	29.55	-98.50
4190	Nueces	Nueces	78401	TX	1500.00	NA	10/16/2012	27.80	-97.39
4191	Travis	Travis	78741	TX	7.50	23900	10/17/2012	30.23	-97.71
4192	Travis	Travis	78723	TX	10.97	38577	10/17/2012	30.31	-97.68
4193	Travis	Travis	78702	TX	5.00	19250	10/17/2012	30.26	-97.71
4194	Travis	Travis	78749	TX	3.36	11770	10/17/2012	30.22	-97.86
4195	Travis	Travis	78734	TX	8.40	24480	10/17/2012	30.37	-97.95
4196	Travis	Travis	78749	TX	5.04	16452	10/17/2012	30.22	-97.86
4197	Travis	Travis	78724	TX	3.00	24000	10/17/2012	30.29	-97.62
4198	Travis	Travis	78734	TX	7.99	30000	10/17/2012	30.37	-97.95
4199	Travis	Travis	78734	TX	6.25	21875	10/17/2012	30.37	-97.95
4200	Travis	Travis	78746	TX	6.25	24420	10/17/2012	30.31	-97.82

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
4201	Travis	Travis	78738	TX	5.50	20626	10/17/2012	30.30	-97.97
4202	Travis	Travis	78732	TX	4.75	18525	10/17/2012	30.38	-97.89
4203	Travis	Travis	78756	TX	6.54	29538	10/17/2012	30.32	-97.74
4204	Travis	Travis	78746	TX	4.08	16882	10/17/2012	30.31	-97.82
4205	Travis	Travis	78732	TX	6.24	27249	10/17/2012	30.38	-97.89
4206	Travis	Travis	73301	TX	4.50	NA	10/17/2012	30.31	-97.68
4207	Bexar	Bexar	78239	TX	12.42	60854	10/18/2012	29.52	-98.36
4208	Bexar	Bexar	78258	TX	9.60	39820	10/18/2012	29.65	-98.47
4209	Bexar	Bexar	78209	TX	3.29	18874	10/18/2012	29.49	-98.45
4210	Bexar	Bexar	78209	TX	7.85	36154	10/18/2012	29.49	-98.45
4211	Bexar	Bexar	78260	TX	3.20	22500	10/18/2012	29.69	-98.50
4212	Bexar	Bexar	78209	TX	11.47	56228	10/18/2012	29.49	-98.45
4213	Travis	Travis	73301	TX	3.00	NA	10/18/2012	30.31	-97.68
4214	Bexar	Bexar	78255	TX	7.52	29279	10/19/2012	29.66	-98.67
4215	Bexar	Bexar	78260	TX	8.64	38900	10/19/2012	29.69	-98.50
4216	Bexar	Bexar	78205	TX	10.00	40392	10/19/2012	29.42	-98.49
4217	Collin	Collin	75407	TX	5.88	25500	10/19/2012	33.16	-96.47
4218	Travis	Travis	78745	TX	4.00	12125	10/19/2012	30.22	-97.80
4219	Travis	Travis	78735	TX	5.00	15268	10/19/2012	30.26	-97.86
4220	Travis	Travis	78734	TX	7.50	26400	10/19/2012	30.37	-97.95
4221	Travis	Travis	78747	TX	7.50	28125	10/19/2012	30.13	-97.73
4222	Travis	Travis	78738	TX	7.25	24892	10/19/2012	30.30	-97.97
4223	Travis	Travis	78733	TX	6.25	30277	10/19/2012	30.33	-97.87
4224	Travis	Travis	78749	TX	6.63	20885	10/19/2012	30.22	-97.86
4225	Travis	Travis	78727	TX	5.00	20000	10/19/2012	30.43	-97.71
4226	Travis	Travis	78733	TX	6.24	22340	10/19/2012	30.33	-97.87
4227	Travis	Travis	78735	TX	6.44	26929	10/19/2012	30.26	-97.86
4228	Travis	Travis	78704	TX	8.82	37882	10/19/2012	30.25	-97.77
4229	Travis	Travis	78735	TX	5.25	22138	10/19/2012	30.26	-97.86
4230	Travis	Travis	78738	TX	6.00	22897	10/19/2012	30.30	-97.97
4231	Travis	Travis	78745	TX	5.75	23363	10/19/2012	30.22	-97.80
4232	Travis	Travis	78722	TX	4.50	17875	10/19/2012	30.29	-97.71
4233	Travis	Travis	78749	TX	5.04	18256	10/19/2012	30.22	-97.86
4234	Travis	Travis	73301	TX	6.00	NA	10/19/2012	30.31	-97.68
4235	Travis	Travis	73301	TX	6.20	NA	10/20/2012	30.31	-97.68
4236	Travis	Travis	73301	TX	5.28	NA	10/21/2012	30.31	-97.68
4237	Travis	Travis	73301	TX	6.48	NA	10/21/2012	30.31	-97.68
4238	Collin	Collin	75025	TX	4.90	19400	10/22/2012	33.09	-96.76
4239	Bexar	Bexar	78201	TX	20	NA	10/22/2012	29.60	-98.49
4240	Winkler	El Paso	79745	TX	1.23	4617	10/23/2012	31.75	-102.85

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
4241	Bexar	Bexar	78201	TX	10.32	NA	10/23/2012	29.60	-98.49
4242	Bexar	Bexar	78238	TX	5.88	22791	10/24/2012	29.47	-98.62
4243	Bexar	Bexar	78260	TX	5.89	27870	10/24/2012	29.69	-98.50
4244	Guadalupe	Guadalupe	78154	TX	6.96	24290	10/24/2012	29.59	-98.28
4245	Galveston	Galveston	77539	TX	8.51	32000	10/24/2012	29.45	-95.03
4246	El Paso	El Paso	79928	TX	6.72	15440	10/24/2012	31.66	-106.13
4247	El Paso	El Paso	79928	TX	4.80	29550	10/24/2012	31.66	-106.13
4248	Bexar	Bexar	78250	TX	4.23	18240	10/24/2012	29.50	-98.67
4249	Bexar	Bexar	78201	TX	7.5	NA	10/24/2012	29.60	-98.49
4250	Travis	Travis	78748	TX	4.50	14175	10/25/2012	30.17	-97.82
4251	Travis	Travis	78746	TX	8.25	30113	10/25/2012	30.31	-97.82
4252	Travis	Travis	78732	TX	7.00	25200	10/25/2012	30.38	-97.89
4253	Travis	Travis	78746	TX	7.92	34074	10/25/2012	30.31	-97.82
4254	Travis	Travis	78758	TX	4.75	18875	10/25/2012	30.39	-97.70
4255	Travis	Travis	78733	TX	7.00	26200	10/25/2012	30.33	-97.87
4256	Travis	Travis	78753	TX	3.00	11250	10/25/2012	30.39	-97.67
4257	Travis	Travis	78733	TX	4.41	15015	10/25/2012	30.33	-97.87
4258	Travis	Travis	78736	TX	6.00	24905	10/25/2012	30.25	-97.95
4259	Travis	Travis	78733	TX	6.25	20313	10/25/2012	30.33	-97.87
4260	Travis	Travis	78730	TX	7.50	20396	10/25/2012	30.37	-97.84
4261	Travis	Travis	78733	TX	7.84	27400	10/25/2012	30.33	-97.87
4262	Travis	Travis	78746	TX	2.63	34800	10/25/2012	30.31	-97.82
4263	Bexar	Bexar	78201	TX	3.66	NA	10/25/2012	29.60	-98.49
4264	Kendall	Bexar	78006	TX	10.12	42754	10/26/2012	29.92	-98.70
4265	Collin	Collin	75013	TX	5.88	21750	10/26/2012	33.11	-96.70
4266	El Paso	El Paso	79905	TX	1.92	12462	10/26/2012	31.77	-106.42
4267	Bexar	Bexar	78219	TX	22.50	89550	10/26/2012	29.45	-98.39
4268	El Paso	El Paso	79904	TX	2.40	10392	10/29/2012	31.87	-106.48
4269	Dallas	Dallas	75220	TX	5.88	23250	10/30/2012	32.86	-96.87
4270	Dallas	Dallas	75104	TX	7.35	27750	10/30/2012	32.59	-96.99
4271	Kaufman	Kaufman	75142	TX	5.88	23200	10/30/2012	32.59	-96.26
4272	Collin	Collin	75023	TX	5.88	24200	10/30/2012	33.06	-96.73
4273	Dallas	Dallas	75063	TX	8.33	35700	10/30/2012	32.91	-96.99
4274	Tarrant	Tarrant	76001	TX	4.66	20102	10/30/2012	32.63	-97.15
4275	El Paso	El Paso	79911	TX	1.92	10560	10/30/2012	31.89	-106.54
4276	El Paso	El Paso	79911	TX	1.92	10560	10/30/2012	31.89	-106.54
4277	El Paso	El Paso	79911	TX	1.92	10560	10/30/2012	31.89	-106.54
4278	Bexar	Bexar	78204	TX	50.00	189924	10/30/2012	29.40	-98.50
4279	Nueces	Nueces	78414	TX	5.50	29036	10/31/2012	27.65	-97.36
4280	Bexar	Bexar	78232	TX	12.47	44608	11/1/2012	29.59	-98.46

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
4281	Bexar	Bexar	78261	TX	5.64	30338	11/1/2012	29.70	-98.41
4282	Dallas	Dallas	75202	TX	42.84		11/1/2012	32.78	-96.80
4283	El Paso	El Paso	79912	TX	4.08	20808	11/1/2012	31.86	-106.55
4284	Gregg	Gregg	75601	TX	2.99	13200	11/1/2012	32.51	-94.72
4285	Travis	Travis	78738	TX	5.00	16000	11/1/2012	30.30	-97.97
4286	Travis	Travis	78750	TX	5.25	18675	11/1/2012	30.43	-97.80
4287	Travis	Travis	78735	TX	5.00	18700	11/1/2012	30.26	-97.86
4288	Travis	Travis	78731	TX	6.12	19500	11/1/2012	30.35	-97.77
4289	Travis	Travis	78732	TX	5.94	24705	11/1/2012	30.38	-97.89
4290	Travis	Travis	78745	TX	7.65	29209	11/1/2012	30.22	-97.80
4291	Travis	Travis	78748	TX	5.00	22625	11/1/2012	30.17	-97.82
4292	Travis	Travis	78746	TX	6.25	23455	11/1/2012	30.31	-97.82
4293	Bexar	Bexar	78230	TX	36.00		11/3/2012	29.54	-98.56
4294	Bexar	Bexar	78240	TX	5.75	25617	11/5/2012	29.53	-98.61
4295	Bexar	Bexar	78232	TX	4.86	20655	11/5/2012	29.59	-98.46
4296	Bexar	Bexar	78261	TX	8.41	20744	11/5/2012	29.70	-98.41
4297	El Paso	El Paso	79938	TX	1.92	10560	11/5/2012	31.84	-105.92
4298	El Paso	El Paso	79911	TX	1.92	10560	11/5/2012	31.89	-106.54
4299	Bexar	Bexar	78232	TX	5.20	44648	11/5/2012	29.59	-98.46
4300	Bexar	Bexar	78232	TX	2.82	15694	11/6/2012	29.59	-98.46
4301	El Paso	El Paso	79911	TX	1.92	10560	11/6/2012	31.89	-106.54
4302	El Paso	El Paso	79911	TX	1.92	10560	11/6/2012	31.89	-106.54
4303	El Paso	El Paso	79938	TX	1.92	10560	11/6/2012	31.84	-105.92
4304	Bexar	Bexar	78230	TX	4.70	24675	11/8/2012	29.54	-98.56
4305	Bexar	Bexar	78218	TX	4.14	12050	11/8/2012	29.49	-98.39
4306	Comal	Comal	78266	TX	7.92	32087	11/8/2012	29.63	-98.32
4307	Bexar	Bexar	78023	TX	6.44	28010	11/8/2012	29.62	-98.73
4308	Travis	Travis	78732	TX	4.00	12525	11/8/2012	30.38	-97.89
4309	Travis	Travis	78733	TX	7.50	28125	11/8/2012	30.33	-97.87
4310	Travis	Travis	78734	TX	6.50	19595	11/8/2012	30.37	-97.95
4311	Travis	Travis	78732	TX	6.00	22647	11/8/2012	30.38	-97.89
4312	Travis	Travis	78749	TX	7.00	23800	11/8/2012	30.22	-97.86
4313	Travis	Travis	78727	TX	5.64	18246	11/8/2012	30.43	-97.71
4314	Travis	Travis	78748	TX	5.15	16721	11/8/2012	30.17	-97.82
4315	Travis	Travis	78738	TX	6.38	20604	11/8/2012	30.30	-97.97
4316	Travis	Travis	78759	TX	7.50	25500	11/8/2012	30.40	-97.75
4317	Travis	Travis	78727	TX	5.64	18246	11/8/2012	30.43	-97.71
4318	Travis	Travis	78735	TX	5.10	17950	11/8/2012	30.26	-97.86
4319	Travis	Travis	78759	TX	5.23	26042	11/8/2012	30.40	-97.75
4320	Travis	Travis	78757	TX	6.25	20440	11/8/2012	30.35	-97.74

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
4321	Travis	Travis	78730	TX	6.00	23350	11/8/2012	30.37	-97.84
4322	Travis	Travis	78746	TX	6.12	24603	11/8/2012	30.31	-97.82
4323	Travis	Travis	78731	TX	6.24	27309	11/8/2012	30.35	-97.77
4324	Bexar	Bexar	78253	TX	4.32	14708	11/8/2012	29.47	-98.81
4325	Medina	Bexar	78059	TX	8.50	33671	11/8/2012	29.18	-98.85
4326	Bexar	Bexar	78213	TX	6.48	38423	11/8/2012	29.50	-98.52
4327	El Paso	El Paso	79928	TX	10.56	33933	11/9/2012	31.66	-106.13
4328	El Paso	El Paso	79927	TX	7.20	24360	11/11/2012	31.64	-106.28
4329	El Paso	El Paso	79938	TX	6.72	23520	11/12/2012	31.84	-105.92
4330	El Paso	El Paso	79936	TX	24.00	81374	11/12/2012	31.76	-106.29
4331	Bexar	Bexar	78213	TX	5.94	19127	11/12/2012	29.50	-98.52
4332	El Paso	El Paso	79927	TX	3.84	12338	11/13/2012	31.64	-106.28
4333	El Paso	El Paso	79934	TX	11.77	65596	11/13/2012	31.98	-106.42
4334	El Paso	El Paso	79938	TX	1.92	10560	11/13/2012	31.84	-105.92
4335	El Paso	El Paso	79938	TX	1.92	10560	11/13/2012	31.84	-105.92
4336	El Paso	El Paso	79905	TX	106.56	604800	11/13/2012	31.77	-106.42
4337	Medina	Bexar	78059	TX	10.12	47276	11/14/2012	29.18	-98.85
4338	El Paso	El Paso	79934	TX	1.23	7463	11/14/2012	31.98	-106.42
4339	El Paso	El Paso	79911	TX	8.16	28973	11/14/2012	31.89	-106.54
4340	El Paso	El Paso	79924	TX	2.75	11655	11/14/2012	31.90	-106.43
4341	El Paso	El Paso	79907	TX	7.05	27476	11/14/2012	31.71	-106.33
4342	El Paso	El Paso	79904	TX	14.88	56008	11/14/2012	31.87	-106.48
4343	Bexar	Bexar	78204	TX	21.00	76000	11/14/2012	29.40	-98.50
4344	El Paso	El Paso	79936	TX	7.20	24951	11/15/2012	31.76	-106.29
4345	El Paso	El Paso	79932	TX	6.87	29452	11/15/2012	31.89	-106.62
4346	El Paso	El Paso	79932	TX	10.26	43429	11/15/2012	31.89	-106.62
4347	El Paso	El Paso	79934	TX	5.00	18481	11/15/2012	31.98	-106.42
4348	El Paso	El Paso	79905	TX	4.32	23760	11/15/2012	31.77	-106.42
4349	El Paso	El Paso	79905	TX	48.06	229450	11/15/2012	31.77	-106.42
4350	El Paso	El Paso	79905	TX	33.60	151200	11/15/2012	31.77	-106.42
4351	Travis	Travis	78732	TX	7.00	25386	11/15/2012	30.38	-97.89
4352	Williamson	Williamson	78729	TX	6.58	23300	11/15/2012	30.46	-97.75
4353	Travis	Travis	78759	TX	6.00	21288	11/15/2012	30.40	-97.75
4354	Travis	Travis	78746	TX	7.50	27390	11/15/2012	30.31	-97.82
4355	Travis	Travis	78704	TX	7.91	27152	11/15/2012	30.25	-97.77
4356	Travis	Travis	78746	TX	15.81	53597	11/15/2012	30.31	-97.82
4357	Travis	Travis	78749	TX	5.50	19250	11/15/2012	30.22	-97.86
4358	Williamson	Williamson	78729	TX	5.00	18050	11/20/2012	30.46	-97.75
4359	Travis	Travis	78748	TX	5.00	15000	11/20/2012	30.17	-97.82
4360	Travis	Travis	78748	TX	7.50	22125	11/20/2012	30.17	-97.82

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
4361	Travis	Travis	78756	TX	6.75	25938	11/20/2012	30.32	-97.74
4362	Travis	Travis	78741	TX	3.50	10920	11/20/2012	30.23	-97.71
4363	Travis	Travis	78759	TX	7.50	18725	11/20/2012	30.40	-97.75
4364	Travis	Travis	78733	TX	7.00	22750	11/20/2012	30.33	-97.87
4365	Travis	Travis	78731	TX	6.50	22100	11/20/2012	30.35	-97.77
4366	Travis	Travis	78759	TX	7.50	28375	11/20/2012	30.40	-97.75
4367	Travis	Travis	78746	TX	7.50	29150	11/20/2012	30.31	-97.82
4368	Travis	Travis	78748	TX	5.00	16250	11/20/2012	30.17	-97.82
4369	Travis	Travis	78738	TX	8.25	34330	11/20/2012	30.30	-97.97
4370	Travis	Travis	78733	TX	6.37	30776	11/20/2012	30.33	-97.87
4371	Travis	Travis	78748	TX	5.28	16632	11/20/2012	30.17	-97.82
4372	Travis	Travis	78735	TX	2.94	11465	11/20/2012	30.26	-97.86
4373	Travis	Travis	78727	TX	3.60	11897	11/20/2012	30.43	-97.71
4374	Collin	Collin	75093	TX	6.00		11/27/2012	33.04	-96.82
4375	Val Verde	Bexar	78840	TX	5.52	20900	11/27/2012	29.67	-100.85
4376	Mclennan	Ellis	76691	TX	2.40	6000	11/28/2012	31.78	-97.10
4377	Mclennan	Ellis	76691	TX	2.40	6000	11/28/2012	31.78	-97.10
4378	Rusk	Rusk	75652	TX	11.86	56000	11/28/2012	32.22	-94.77
4379	Cameron	Nueces	78559	TX	15.68	58500	11/28/2012	26.15	-97.82
4380	Bexar	Bexar	78232	TX	28.91	119955	11/28/2012	29.59	-98.46
4381	Bexar	Bexar	78216	TX	28.91	119955	11/28/2012	29.55	-98.50
4382	Guadalupe	Guadalupe	78154	TX	28.91	119955	11/28/2012	29.59	-98.28
4383	Bexar	Bexar	78251	TX	28.91	119955	11/28/2012	29.47	-98.68
4384	Webb	Nueces	78045	TX	4.60	19500	11/28/2012	27.82	-99.68
4385	Cameron	Nueces	78559	TX	10.78	58500	11/28/2012	26.15	-97.82
4386	Cameron	Nueces	78559	TX	11.76	58500	11/28/2012	26.15	-97.82
4387	Cameron	Nueces	78559	TX	11.76	58500	11/28/2012	26.15	-97.82
4388	Travis	Travis	78749	TX	6.35	22100	11/28/2012	30.22	-97.86
4389	Travis	Travis	78759	TX	4.50	13950	11/28/2012	30.40	-97.75
4390	Travis	Travis	78732	TX	2.70	6734	11/28/2012	30.38	-97.89
4391	Travis	Travis	78731	TX	7.80	26993	11/28/2012	30.35	-97.77
4392	Travis	Travis	78732	TX	5.39	17063	11/28/2012	30.38	-97.89
4393	Travis	Travis	78759	TX	5.00	31000	11/28/2012	30.40	-97.75
4394	Travis	Travis	78745	TX	6.00	36000	11/28/2012	30.22	-97.80
4395	Travis	Travis	78749	TX	5.00	31000	11/28/2012	30.22	-97.86
4396	Travis	Travis	78732	TX	5.56	26735	11/28/2012	30.38	-97.89
4397	Bexar	Bexar	78253	TX	9.36	42140	11/28/2012	29.47	-98.81
4398	Bexar	Bexar	78251	TX	28.91	119955	11/29/2012	29.47	-98.68
4399	Gregg	Gregg	75662	TX	9.80	30600	11/29/2012	32.38	-94.87
4400	Travis	Travis	78721	TX	6.00	19074	11/29/2012	30.27	-97.68

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
4401	Travis	Travis	78749	TX	5.00	18165	11/29/2012	30.22	-97.86
4402	Travis	Travis	78738	TX	6.72	21968	11/29/2012	30.30	-97.97
4403	Travis	Travis	78746	TX	7.80	24149	11/29/2012	30.31	-97.82
4404	Travis	Travis	78723	TX	6.11	21166	11/29/2012	30.31	-97.68
4405	Travis	Travis	78727	TX	4.56	14330	11/29/2012	30.43	-97.71
4406	Travis	Travis	78759	TX	6.30	22898	11/29/2012	30.40	-97.75
4407	Travis	Travis	78732	TX	6.24	23086	11/29/2012	30.38	-97.89
4408	Travis	Travis	78759	TX	2.00	5000	11/29/2012	30.40	-97.75
4409	Travis	Travis	78735	TX	6.37	20296	11/29/2012	30.26	-97.86
4410	Travis	Travis	78735	TX	4.80	17262	11/29/2012	30.26	-97.86
4411	Harrison	Harrison	75672	TX	7.99	39500	11/30/2012	32.42	-94.27
4412	Hidalgo	Nueces	78516	TX	12.74	53244	12/3/2012	26.12	-98.11
4413	Bexar	Bexar	78219	TX	61.60	199058	12/4/2012	29.45	-98.39
4414	Bexar	Bexar	78260	TX	12.76	44996	12/4/2012	29.69	-98.50
4415	Bexar	Bexar	78219	TX	67.60	219218	12/4/2012	29.45	-98.39
4416	Bexar	Bexar	78219	TX	113.96	347344	12/4/2012	29.45	-98.39
4417	Taylor	Hood	79601	TX	11.76		12/6/2012	32.57	-99.68
4418	Comal	Comal	78163	TX	5.17	25075	12/7/2012	29.77	-98.51
4419	Kendall	Bexar	78006	TX	7.52	35794	12/7/2012	29.92	-98.70
4420	Collin	Collin	75069	TX	3.33	8844	12/7/2012	33.14	-96.62
4421	Comal	Comal	78132	TX	5.15	21040	12/7/2012	29.74	-98.20
4422	Travis	Travis	78732	TX	2.90	7839	12/7/2012	30.38	-97.89
4423	Travis	Travis	78736	TX	4.90	18015	12/7/2012	30.25	-97.95
4424	Travis	Travis	78617	TX	5.00	29975	12/7/2012	30.15	-97.59
4425	Travis	Travis	78702	TX	3.36	12398	12/7/2012	30.26	-97.71
4426	Travis	Travis	78735	TX	5.25	29988	12/7/2012	30.26	-97.86
4427	Travis	Travis	78744	TX	4.16	13000	12/7/2012	30.20	-97.73
4428	Travis	Travis	78748	TX	5.00	15950	12/7/2012	30.17	-97.82
4429	Travis	Travis	78748	TX	7.28	22750	12/7/2012	30.17	-97.82
4430	Travis	Travis	78733	TX	7.50	27317	12/7/2012	30.33	-97.87
4431	Travis	Travis	78748	TX	8.00	29929	12/7/2012	30.17	-97.82
4432	Travis	Travis	78733	TX	6.63	21170	12/7/2012	30.33	-97.87
4433	Travis	Travis	78734	TX	5.36	19898	12/7/2012	30.37	-97.95
4434	Travis	Travis	78730	TX	7.91	27900	12/7/2012	30.37	-97.84
4435	Travis	Travis	78738	TX	4.59	17918	12/7/2012	30.30	-97.97
4436	Bexar	Bexar	78240	TX	5.50	21186	12/10/2012	29.53	-98.61
4437	El Paso	El Paso	79905	TX	20.28	210000	12/11/2012	31.77	-106.42
4438	Comal	Comal	78266	TX	8.50	25415	12/12/2012	29.63	-98.32
4439	Bexar	Bexar	78209	TX	6.24	23666	12/12/2012	29.49	-98.45
4440	Bexar	Bexar	78254	TX	6.67	21451	12/12/2012	29.53	-98.78

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
4441	Bexar	Bexar	78212	TX	4.08	16336	12/12/2012	29.46	-98.50
4442	Travis	Travis	78732	TX	5.75	18151	12/13/2012	30.38	-97.89
4443	Travis	Travis	78735	TX	2.50	10463	12/13/2012	30.26	-97.86
4444	Travis	Travis	78759	TX	6.50	23871	12/13/2012	30.40	-97.75
4445	Travis	Travis	78746	TX	4.68	14265	12/13/2012	30.31	-97.82
4446	Travis	Travis	78745	TX	4.00	15600	12/13/2012	30.22	-97.80
4447	Travis	Travis	78759	TX	7.50	33369	12/13/2012	30.40	-97.75
4448	Travis	Travis	78653	TX	7.50	24000	12/13/2012	30.33	-97.55
4449	Travis	Travis	78738	TX	7.85	37032	12/13/2012	30.30	-97.97
4450	Travis	Travis	78733	TX	10.29	39068	12/13/2012	30.33	-97.87
4451	Travis	Travis	78738	TX	7.60	24225	12/13/2012	30.30	-97.97
4452	Travis	Travis	78738	TX	7.60	24684	12/13/2012	30.30	-97.97
4453	Travis	Travis	78732	TX	5.75	18688	12/13/2012	30.38	-97.89
4454	Travis	Travis	78746	TX	5.88	23284	12/13/2012	30.31	-97.82
4455	Travis	Travis	78746	TX	6.24	28608	12/13/2012	30.31	-97.82
4456	Bexar	Bexar	78233	TX	13.92	37000	12/17/2012	29.56	-98.36
4457	Polk	Hardin	75939	TX	3.50	15822	12/17/2012	31.02	-94.85
4458	Bexar	Bexar	78254	TX	28.91	119955	12/17/2012	29.53	-98.78
4459	Bexar	Bexar	78258	TX	13.05	38498	12/17/2012	29.65	-98.47
4460	Bexar	Bexar	78212	TX	35.64	153196	12/17/2012	29.46	-98.50
4461	Bexar	Bexar	78231	TX	6.12	23228	12/17/2012	29.58	-98.54
4462	Bexar	Bexar	78258	TX	13.92	41064	12/17/2012	29.65	-98.47
4463	Bexar	Bexar	78258	TX	20.88	61596	12/17/2012	29.65	-98.47
4464	Bexar	Bexar	78251	TX	28.91	119955	12/17/2012	29.47	-98.68
4465	Travis	Travis	78735	TX	5.72	18218	12/21/2012	30.26	-97.86
4466	Travis	Travis	78702	TX	15.18	45905	12/21/2012	30.26	-97.71
4467	Travis	Travis	78748	TX	6.86	24468	12/21/2012	30.17	-97.82
4468	Travis	Travis	78757	TX	3.75	16366	12/21/2012	30.35	-97.74
4469	Travis	Travis	78745	TX	6.50	21074	12/21/2012	30.22	-97.80
4470	Travis	Travis	78733	TX	6.00	24300	12/21/2012	30.33	-97.87
4471	Travis	Travis	78746	TX	5.28	16368	12/21/2012	30.31	-97.82
4472	Travis	Travis	78735	TX	4.35	17360	12/21/2012	30.26	-97.86
4473	Travis	Travis	78735	TX	5.28	16368	12/21/2012	30.26	-97.86
4474	Bexar	Bexar	78258	TX	5.80	22040	12/21/2012	29.65	-98.47
4475	Bexar	Bexar	78260	TX	7.52	36472	12/26/2012	29.69	-98.50
4476	Bexar	Bexar	78223	TX	1.92	8688	12/26/2012	29.30	-98.41
4477	Bexar	Bexar	78258	TX	7.50	35227	12/26/2012	29.65	-98.47
4478	Bexar	Bexar	78260	TX	7.14	28560	12/26/2012	29.69	-98.50
4479	Bexar	Bexar	78244	TX	1.48	6669	12/26/2012	29.47	-98.35
4480	Bexar	Bexar	78258	TX	7.75	36720	12/26/2012	29.65	-98.47



Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
4481	Travis	Travis	78735	TX	6.00	20625	12/27/2012	30.26	-97.86
4482	Travis	Travis	78735	TX	7.50	27360	12/27/2012	30.26	-97.86
4483	Travis	Travis	78747	TX	7.50	27160	12/27/2012	30.13	-97.73
4484	Travis	Travis	78752	TX	5.28	18112	12/27/2012	30.33	-97.71
4485	Travis	Travis	78731	TX	6.00	24300	12/27/2012	30.35	-97.77
4486	Bexar	Bexar	78259	TX	13.20	37286	12/28/2012	29.62	-98.43
4487	Bexar	Bexar	78259	TX	9.43	56052	12/28/2012	29.62	-98.43
4488	Bexar	Bexar	78261	TX	1.44	10500	12/28/2012	29.70	-98.41
4489	Bexar	Bexar	78259	TX	1.44	10500	12/28/2012	29.62	-98.43
4490	Bexar	Bexar	78254	TX	8.16	27657	12/28/2012	29.53	-98.78
4491	Bexar	Bexar	78254	TX	6.96	23316	12/28/2012	29.53	-98.78
4492	Bexar	Bexar	78261	TX	1.44	10500	12/28/2012	29.70	-98.41
4493	Bexar	Bexar	78251	TX	7.28	25929	12/28/2012	29.47	-98.68
4494	Tarrant	Tarrant	76244	TX	5.00	18745	2/1/2013	31.02	-94.85
4495	Travis	Travis	78745	TX	8.00	25500	2/5/2013	30.23	-97.81
4496	Tarrant	Tarrant	76244	TX	5.00	18211	2/19/2013	31.02	-94.85
4497	Dallas	Dallas	75228	TX	8.25	29987	2/27/2013	32.87	-96.70
4498	Dallas	Dallas	75053	TX	5.50	22605	2/28/2013	33.04	-96.83
4499	Bell	Williamson	76543	TX	4.50	18621	3/8/2013	31.02	-94.85
4500	Bexar	Bexar	78205	TX	60.00	NA	4/1/2013	29.42	-98.49
4501	Dallas	Dallas	75254	TX	9.75	29250	4/4/2013	32.87	-96.70
4502	Rockwall	Rockwall	75087	TX	3.00	14336	5/3/2013	33.04	-96.83
4503	Collin	Collin	75074	TX	8.00		5/3/2013	33.02	-96.67
4504	Bexar	Bexar	78258	TX	4.16	16557	5/8/2013	29.63	-98.51
4505	Dallas	Dallas	75048	TX	7.50	26635	5/9/2013	33.04	-96.83
4506	Hunt	Hunt	75135	TX	9.75	36664	5/9/2013	33.06	-96.38
4507	Tarrant	Tarrant	76051	TX	8.25	27663	5/13/2013	32.95	-97.08
4508	Collin	Collin	75023	TX	4.50	18660	5/14/2013	33.06	-96.73
4509	Dallas	Dallas	75209	TX	11.76		5/24/2013	32.85	-96.82
4510	Dallas	Dallas	75006	TX	16.17		6/14/2013	32.97	-96.89
4511	Dallas	Dallas	75048	TX	5.10	19355	6/26/2013	33.04	-96.83
4512	Travis	Travis	78704	TX	202.00	NA	6/26/2013	30.24	-97.77
4513	Travis	Travis	78745	TX	52.00	NA	7/5/2013	30.21	-97.80
4514	Dallas	Dallas	75062	TX	14.00		8/5/2013	32.84	-96.98
4515	Dallas	Dallas	75080	TX	226.92		8/6/2013	32.95	-96.73
4516	Collin	Collin	75075	TX	3.75	17181	8/13/2013	33.02	-96.74
4517	Kaufman	Kaufman	75126	TX	5.23	25575	8/27/2013	33.06	-96.38
4518	Dallas	Dallas	75041	TX	3.12		8/28/2013	32.88	-96.65
4519	Bexar	Bexar	78259	TX	5.40	18900	9/2/2013	29.61	-98.44
4520	Ellis	Ellis	75125	TX	9.80	35809	9/6/2013	33.06	-96.38

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
4521	Travis	Travis	78723	TX	169.00	NA	9/11/2013	30.30	-97.69
4522	Dallas	Dallas	75050	TX	14.00		9/23/2013	32.78	-97.02
4523	Collin	Collin	75093	TX	1.50		10/31/2013	33.04	-96.82
4524	Tarrant	Tarrant	76051	TX	275.52		11/6/2013	32.95	-97.07
4525	Collin	Collin	75025	TX	440.16		11/6/2013	33.09	-96.76
4526	Dallas	Dallas	75234	TX	258.72		11/6/2013	32.92	-96.87
4527	Dallas	Dallas	75082	TX	264.11		11/12/2013	33.00	-96.66
4528	El Paso	El Paso	79916	TX	8.64		11/15/2013	31.82	-106.41
4529	Dallas	Dallas	75235	TX	5.00		11/15/2013	32.83	-96.85
4530	Collin	Collin	75025	TX	3.00	9526	1/6/2014	33.09	-96.76
4531	Collin	Collin	75025	TX	9.00	27959	1/6/2014	33.09	-96.76
4532	Dallas	Dallas	75214	TX	5.83	17845	1/8/2014	32.82	-96.74
4533	Collin	Collin	75024	TX	5.00	15876	1/13/2014	33.08	-96.81
4534	Collin	Collin	75025	TX	7.50	23814	1/13/2014	33.09	-96.76
4535	Loving	El Paso	79754	TX	119.00		1/15/2014	31.82	-103.66
4536	Loving	El Paso	79754	TX	59.50		1/15/2014	31.82	-103.66
4537	Bexar	Bexar	78231	TX	23.04		1/15/2014	29.58	-98.54
4538	Collin	Collin	75023	TX	7.00	21746	1/20/2014	33.06	-96.73
4539	Collin	Collin	75023	TX	5.50	17464	1/20/2014	33.06	-96.73
4540	Denton	Denton	75034	TX	7.00	23000	1/20/2014	33.14	-96.86
4541	Collin	Collin	75075	TX	5.00	15533	1/27/2014	33.02	-96.74
4542	Collin	Collin	75075	TX	4.00	12426	1/27/2014	33.02	-96.74
4543	Dallas	Dallas	75230	TX	7.25	26566	1/27/2014	32.87	-96.70
4544	Collin	Collin	75035	TX	5.00	18975	2/3/2014	33.15	-96.76
4545	Collin	Collin	75023	TX	4.75	13918	2/3/2014	33.06	-96.73
4546	Collin	Collin	75023	TX	4.50	13980	2/3/2014	33.06	-96.73
4547	Collin	Collin	75075	TX	8.75	27183	2/10/2014	33.02	-96.74
4548	Collin	Collin	75075	TX	4.50	14288	2/10/2014	33.02	-96.74
4549	Harris	Harris	77032	TX	81.86		2/15/2014	29.97	-95.32
4550	Collin	Collin	75074	TX	6.00	18640	2/17/2014	33.02	-96.67
4551	Collin	Collin	75074	TX	8.00	24853	2/17/2014	33.02	-96.67
4552	Collin	Collin	75075	TX	4.00	12426	2/24/2014	33.02	-96.74
4553	Collin	Collin	75075	TX	2.50	7767	2/24/2014	33.02	-96.74
4554	Collin	Collin	75093	TX	3.25	10096	2/24/2014	33.04	-96.82
4555	Collin	Collin	75093	TX	5.50	17464	3/3/2014	33.04	-96.82
4556	Collin	Collin	75093	TX	4.50	14288	3/3/2014	33.04	-96.82
4557	Collin	Collin	75075	TX	2.50	7767	3/3/2014	33.02	-96.74
4558	Collin	Collin	75074	TX	5.50	20983	3/10/2014	33.02	-96.67
4559	Collin	Collin	75074	TX	10.00	34226	3/10/2014	33.02	-96.67
4560	Dallas	Dallas	75209	TX	10.00	23505	3/20/2014	32.85	-96.82

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
4561	Dallas	Dallas	75229	TX	5.40	15555	3/21/2014	32.90	-96.87
4562	Collin	Collin	75078	TX	10.00	34986	3/24/2014	33.24	-96.80
4563	Ellis	Ellis	75154	TX	2.00	7350	4/3/2014	32.51	-96.77
4564	Collin	Collin	75024	TX	5.60	16648	4/10/2014	33.08	-96.81
4565	Kaufman	Kaufman	75126	TX	8.80	26290	6/17/2014	32.75	-96.40
4566	Collin	Collin	75075	TX	6.88	16104	7/2/2014	33.02	-96.74
4567	Collin	Collin	75075	TX	5.40	12500	7/3/2014	33.02	-96.74
4568	Dallas	Dallas	75040	TX	0.25		7/9/2014	32.94	-96.63
4569	Dallas	Dallas	75040	TX	0.25		7/9/2014	32.94	-96.63
4570	Dallas	Dallas	75040	TX	9.50		7/9/2014	32.94	-96.63
4571	Dallas	Dallas	75040	TX	0.25		7/9/2014	32.94	-96.63
4572	Dallas	Dallas	75040	TX	1.00		7/9/2014	32.94	-96.63
4573	Dallas	Dallas	75040	TX	1.00		7/9/2014	32.94	-96.63
4574	Dallas	Dallas	75040	TX	0.50		7/9/2014	32.94	-96.63
4575	Dallas	Dallas	75040	TX	1.00		7/9/2014	32.94	-96.63
4576	Dallas	Dallas	75041	TX	0.25		7/9/2014	32.88	-96.65
4577	Dallas	Dallas	75041	TX	0.50		7/9/2014	32.88	-96.65
4578	Dallas	Dallas	75041	TX	0.25		7/9/2014	32.88	-96.65
4579	Dallas	Dallas	75040	TX	4.00		7/9/2014	32.94	-96.63
4580	Dallas	Dallas	75040	TX	0.25		7/9/2014	32.94	-96.63
4581	Dallas	Dallas	75043	TX	0.25		7/9/2014	32.85	-96.59
4582	Dallas	Dallas	75043	TX	0.25		7/9/2014	32.85	-96.59
4583	Dallas	Dallas	75043	TX	7.59		7/9/2014	32.85	-96.59
4584	Dallas	Dallas	75042	TX	0.50		7/9/2014	32.92	-96.68
4585	Dallas	Dallas	75042	TX	0.25		7/9/2014	32.92	-96.68
4586	Dallas	Dallas	75043	TX	7.50		7/9/2014	32.85	-96.59
4587	Dallas	Dallas	75043	TX	1.00		7/9/2014	32.85	-96.59
4588	Dallas	Dallas	75043	TX	1.00		7/9/2014	32.85	-96.59
4589	Dallas	Dallas	75043	TX	1.00		7/9/2014	32.85	-96.59
4590	Dallas	Dallas	75043	TX	4.20		7/9/2014	32.85	-96.59
4591	Dallas	Dallas	75044	TX	0.25		7/9/2014	32.96	-96.67
4592	Collin	Collin	75075	TX	8.00	15400	7/11/2014	33.02	-96.74
4593	Collin	Collin	75025	TX	4.00	7840	7/14/2014	33.09	-96.76
4594	Collin	Collin	75023	TX	5.50	12443	7/18/2014	33.06	-96.73
4595	Collin	Collin	75093	TX	4.32	9492	7/21/2014	33.04	-96.82
4596	Collin	Collin	75093	TX	6.05	13695	7/25/2014	33.04	-96.82
4597	Collin	Collin	75013	TX	338.92		7/25/2014	33.11	-96.70
4598	Dallas	Dallas	75244	TX	9.72	19631	7/28/2014	32.93	-96.84
4599	Collin	Collin	75093	TX	4.40	9252	8/5/2014	33.04	-96.82
4600	Collin	Collin	75093	TX	4.05	9072	8/8/2014	33.04	-96.82

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
4601	Collin	Collin	75025	TX	6.88	15132	8/11/2014	33.09	-96.76
4602	Collin	Collin	75023	TX	3.30	7633	8/11/2014	33.06	-96.73
4603	Dallas	Dallas	75019	TX	358.39		8/13/2014	32.96	-97.00
4604	Dallas	Dallas	75225	TX	20.00		8/15/2014	32.87	-96.79
4605	Collin	Collin	75025	TX	4.13	8800	8/21/2014	33.09	-96.76
4606	Collin	Collin	75075	TX	6.05	12463	8/25/2014	33.02	-96.74
4607	Travis	Travis	78748	TX	3.50	14400	8/26/2014	30.16	-97.81
4608	Collin	Collin	75023	TX	5.50	12705	8/27/2014	33.06	-96.73
4609	Collin	Collin	75025	TX	7.70	33384	9/3/2014	33.09	-96.76
4610	Collin	Collin	75093	TX	7.02	18613	9/11/2014	33.04	-96.82
4611	Collin	Collin	75024	TX	5.00	10626	9/16/2014	33.08	-96.81
4612	Collin	Collin	75023	TX	6.00	12100	9/19/2014	33.06	-96.73
4613	Tarrant	Tarrant	76180	TX	6.75	15535	9/22/2014	32.84	-97.23
4614	Dallas	Dallas	75141	TX	1379.21	3000000	10/1/2014	32.66	-96.71
4615	Dallas	Dallas	75182	TX	5.50	11742	10/7/2014	32.81	-96.55
4616	Collin	Collin	75074	TX	4.25	7565	10/10/2014	33.02	-96.67
4617	Collin	Collin	75023	TX	3.85	8605	10/13/2014	33.06	-96.73
4618	Collin	Collin	75409	TX	5.23	11704	10/17/2014	33.33	-96.51
4619	Collin	Collin	75093	TX	3.85	8889	10/20/2014	33.04	-96.82
4620	Collin	Collin	75074	TX	4.40	9306	10/21/2014	33.02	-96.67
4621	Tarrant	Tarrant	76002	TX	4.50	13752	10/27/2014	32.63	-97.09
4622	Collin	Collin	75023	TX	2.00	9552	10/29/2014	33.06	-96.73
4623	Tarrant	Tarrant	76118	TX	21.00	48600	10/29/2014	32.79	-97.17
4624	Collin	Collin	75075	TX	4.08	12000	10/30/2014	33.02	-96.74
4625	Collin	Collin	75075	TX	5.50	11798	10/31/2014	33.02	-96.74
4626	Collin	Collin	75093	TX	50.50		11/11/2014	33.04	-96.82
4627	Denton	Denton	75067	TX	10.50		12/1/2014	33.01	-97.00
4628	Lamar	Hunt	75462	TX	10.00	33740	12/9/2014	33.54	-95.52
4629	Dallas	Dallas	75146	TX	112.25		12/10/2014	32.57	-96.76
4630	Tarrant	Tarrant	76092	TX	487.56		12/17/2014	32.95	-97.15
4631	Grayson	Collin	75076	TX	5.00	12950	12/18/2014	33.77	-96.73
4632	Dallas	Dallas	75134	TX	665.23		n.d./2014	32.64	-96.80
4633	Travis	Travis	78701	TX	149.76		n.d./2014	30.27	-97.74
4634	Travis	Travis	78701	TX	33.66		n.d./2014	30.27	-97.75
4635	Williamson	Williamson	78717	TX	258.30		n.d./2014	30.48	-97.78
4636	Travis	Travis	78723	TX	74.15		n.d./2014	30.32	-97.67
4637	Travis	Travis	78739	TX	8.85		n.d./2014	30.19	-97.87
4638	Travis	Travis	78753	TX	260.00		n.d./2014	30.34	-97.69
4639	Travis	Travis	78754	TX	227.00		n.d./2014	30.33	-97.67
4640	Travis	Travis	78757	TX	260.00		n.d./2014	30.35	-97.73

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
4641	Hill	#N/A	76692	TX	8.28	39628	1/7/2015	31.96	-97.31
4642	Collin	Collin	75023	TX	4.50	9310	1/14/2015	33.05	-96.73
4643	Harris	Harris	77034	TX	5.25		1/20/2015	29.62	-95.18
4644	Dallas	Dallas	75048	TX	10.00	24900	2/4/2015	32.96	-96.57
4645	Dallas	Dallas	75248	TX	9.90	25245	2/10/2015	32.97	-96.79
4646	Dallas	Dallas	75146	TX	677.00		2/13/2015	32.57	-96.74
4647	Tarrant	Tarrant	76108	TX	11.2	23759	3/26/2015	32.77	-97.52
4648	Collin	Collin	75070	TX	7	19903	3/31/2015	33.18	-96.67
4649	Collin	Collin	75023	TX	7	12970	4/3/2015	33.05	-96.73
4650	Ellis	Ellis	76065	TX	7	17220	5/21/2015	32.46	-96.98
4651	Dallas	Dallas	75209	TX	6.16	12781	5/28/2015	32.84	-96.82
4652	Dallas	Dallas	75243	TX	6	18199	6/10/2015	32.91	-96.73
4653	Collin	Collin	75025	TX	8.75	17223	6/12/2015	33.08	-96.74
4654	Tarrant	Tarrant	76102	TX	136		6/17/2015	32.75	-97.32
4655	Collin	Collin	75070	TX	10	26360	6/19/2015	33.18	-96.67
4656	Harris	Harris	77030	TX	85.32		6/26/2015	29.70	-95.40
4657	Dallas	Dallas	75225	TX	6.325	9919	7/2/2015	32.86	-96.79
4658	Dallas	Dallas	75243	TX	8.96	19367	7/10/2015	32.91	-96.73
4659	Denton	Denton	75022	TX	9.52	27668	7/11/2015	33.01	-97.13
4660	Dallas	Dallas	75243	TX	8.96	43727	7/13/2015	32.91	-96.73
4661	Hill	#N/A	76692	TX	8.28	43727	7/20/2015	31.96	-97.31
4662	Harris	Harris	77433	TX	10		7/31/2015	29.88	-95.70
4663	Travis	Travis	78660	TX	8.68	34470	8/14/2015	30.44	-97.59
4664	Collin	Collin	75002	TX	11.76	40760	8/21/2015	33.09	-96.63
4665	Hill	#N/A	76692	TX	3.45	15649	9/15/2015	31.96	-97.31
4666	Nolan	Nolan	79556	TX	25.2		9/16/2015	32.51	-100.30
4667	Dallas	Dallas	75243	TX	8.4	20850	9/17/2015	32.91	-96.73
4668	Rockwall	Rockwall	75189	TX	9.455	32090	9/21/2015	32.96	-96.36
4669	Rockwall	Rockwall	75189	TX	9.455	32086	9/28/2015	32.96	-96.36
4670	Tarrant	Tarrant	76134	TX	100		10/1/2015	32.64	-97.33
4671	Ellis	Ellis	76065	TX	883.5		10/12/2015	32.46	-96.98
4672	Rockwall	Rockwall	75087	TX	10.2	23856	10/21/2015	32.95	-96.43
4673	Collin	Collin	75013	TX	9.8	32500	11/23/2015	33.10	-96.67
4674	Denton	Denton	76203	TX	21	66570	12/4/2015	33.21	-97.13
4675	Dallas	Dallas	75209	TX	12.6	45990	12/18/2015	32.84	-96.82
4676	Denton	Denton	75077	TX	7.42	25161	12/22/2015	33.07	-97.07
4677	Dallas	Dallas	75251	TX	76.5	234852	1/8/2016	32.92	-96.77
4678	Dallas	Dallas	75042	TX	44.88	136884	1/15/2016	32.91	-96.67
4679	Ellis	Ellis	76651	TX	11.925	35540	1/25/2016	32.18	-96.85
4680	Dallas	Dallas	75254	TX	10.07	31831	1/29/2016	32.94	-96.80

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kW DC)	Cost	Date Installed	Latitude	Longitude
4681	Denton	Denton	75068	TX	11.13	35416	2/2/2016	33.18	-96.95
4682	Grayson	Collin	75090	TX	5.565	20592	2/5/2016	33.60	-96.55
4683	Denton	Denton	76207	TX	19.08	50152	2/12/2016	33.23	-97.18
4684	Tarrant	Tarrant	76016	TX	13.5	42274	2/17/2016	32.69	-97.19
4685	Tarrant	Tarrant	76103	TX	4.88	14395	2/18/2016	32.75	-97.27
4686	Hunt		75422	TX	9.54	31920	2/19/2016	33.14	-95.93
4687	Dallas	Dallas	75089	TX	7.32	21269	2/24/2016	32.94	-96.55
4688	Dallas	Dallas	75218	TX	7.625	27383	2/26/2016	32.84	-96.70
4689	Tarrant	Tarrant	76126	TX	4.76	17426	3/2/2016	32.64	-97.50
4690	Dallas	Dallas	75248	TX	10.81	40828	3/14/2016	32.97	-96.80
4691	Dallas	Dallas	75207	TX	19.08	59663	3/15/2016	32.79	-96.82
4692	Collin	Collin	75075	TX	9.96	32292	3/22/2016	33.02	-96.74
4693	Denton	Denton	75034	TX	17.1	51025	3/25/2016	33.15	-96.86
4694	Rockwall	Rockwall	75032	TX	10.6	27095	3/28/2016	32.86	-96.43
4695	Denton	Denton	75010	TX	7.95	22844	3/28/2016	33.05	-96.87
4696	Dallas	Dallas	75230	TX	17.5	40265	4/6/2016	32.90	-96.79
4697	Collin	Collin	75025	TX	1.96	5596	4/8/2016	33.09	-96.74
4698	Dallas	Dallas	75243	TX	1.68	6861	4/8/2016	32.91	-96.74
4699	Ellis	Ellis	76065	TX	7.2	17493	4/11/2016	32.47	-96.99
4700	Harris	Harris	77004	TX	48.96		4/13/2016	29.72	-95.36
4701	Collin	Collin	75024	TX	21.35	75185	4/25/2016	33.08	-96.80
4702	Grayson	Collin	75020	TX	14.28		4/28/2016	33.77	-96.60
4703	Denton	Denton	75077	TX	5.175	26557	5/4/2016	33.08	-97.06
4704	Tarrant	Tarrant	76036	TX	12.81	32979	5/20/2016	32.58	-97.42
4705	Denton	Denton	75022	TX	13.78	40943	5/24/2016	32.83	-97.15
4706	Dallas	Dallas	75014	TX	4.88	10221	6/6/2016	32.86	-96.98
4707	Dallas	Dallas	75116	TX	72.96		6/7/2016	32.66	-96.91
4708	Collin	Collin	75082	TX	10.335	25318	6/10/2016	32.99	-96.68
4709	Ellis	Ellis	76065	TX	3.35	7775	6/16/2016	32.46	-96.98
4710	Ellis	Ellis	75152	TX	15.96	21000	6/20/2016	32.44	-96.67
4711	Tarrant	Tarrant	76132	TX	6.1	14774	6/29/2016	32.66	-97.41
4712	Denton	Denton	75028	TX	6.6	17925	7/5/2016	33.03	-97.08
4713	Collin	Collin	75023	TX	9.65	25775	7/11/2016	33.05	-96.73
4714	Dallas	Dallas	75206	TX	6.71	20706	7/20/2016	32.83	-96.77
4715	Denton	Denton	75028	TX	94.6		7/22/2016	33.03	-97.08
4716	Johnson	Johnson	76033	TX	16.58	25365	7/29/2016	32.34	-97.38
4717	Collin	Collin	75093	TX	16.47	53565	8/8/2016	33.03	-96.81
4718	Collin	Collin	75075	TX	31191		8/11/2016	33.02	-96.73
4719	Denton	Denton	76201	TX	107.7		8/12/2016	33.22	-97.14
4720	Collin	Collin	75013	TX	6.89	22420	8/26/2016	33.10	-96.67

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
4721	Collin	Collin	75023	TX	9.65	25775	7/11/2016	33.05	-96.73
4722	Dallas	Dallas	75206	TX	6.71	20706	7/20/2016	32.83	-96.77
4723	Denton	Denton	75028	TX	94.6		7/22/2016	33.03	-97.08
4724	Johnson	Johnson	76033	TX	16.58	25365	7/29/2016	32.34	-97.38
4725	Collin	Collin	75093	TX	16.47	53565	8/8/2016	33.03	-96.81
4726	Collin	Collin	75075	TX	31191		8/11/2016	33.02	-96.73
4727	Denton	Denton	76201	TX	107.7		8/12/2016	33.22	-97.14
4728	Collin	Collin	75013	TX	6.89	22420	8/26/2016	33.10	-96.67
4729	Harris	Harris	77449	TX	23.56		9/1/2016	29.83	-95.73
4730	Denton	Denton	76266	TX	28.16	85800	10/7/2016	33.36	-97.20
4731	Collin	Collin	75023	TX	5.4	14151	10/7/2016	33.05	-96.73
4732	Collin	Collin	75075	TX	12.2	29031	10/14/2016	33.02	-96.73
4733	Dallas	Dallas	75220	TX	4.77	12196	10/20/2016	32.86	-96.87
4734	Dallas	Dallas	75220	TX	4.77	12196	10/21/2016	32.86	-96.87
4735	Collin	Collin	75069	TX	5.4	16740	11/1/2016	33.20	-96.61
4736	Grayson	Collin	75090	TX	99.99		11/1/2016	33.64	-96.58
4737	Collin	Collin	75069	TX	7.02	23450	11/3/2016	33.20	-96.61
4738	Dallas	Dallas	75224	TX	90.1		11/15/2016	32.71	-96.83
4739	Tarrant	Tarrant	76180	TX	5.52	20171	11/16/2016	32.86	-97.21
4740	Midland	El Paso	79703	TX	76.175		11/18/2016	31.97	-102.13
4741	Collin	Collin	75082	TX	6.4	15423	11/18/2016	32.99	-96.68
4742	Collin	Collin	75023	TX	11.04	39345	11/22/2016	33.05	-96.73
4743	Dallas	Dallas	75225	TX	8.28	28965	11/22/2016	32.86	-96.79
4744	Dallas	Dallas	75050	TX	51.3		11/22/2016	32.77	-97.00
4745	Collin	Collin	75025	TX	11.16	30100	12/2/2016	33.08	-96.74
4746	Dallas	Dallas	75217	TX	98.8		12/9/2016	32.71	-96.68
4747	Dallas	Dallas	75238	TX	81.25		12/9/2016	32.87	-96.70
4748	Collin	Collin	75252	TX	98.8		12/9/2016	32.99	-96.78
4749	Denton	Denton	75034	TX	10.08	49640	12/9/2016	33.13	-96.83
4750	Dallas	Dallas	75204	TX	4.16	22845	12/29/2016	32.80	-96.78
4751	Dallas	Dallas	75211	TX	1111.59		1/6/2017	32.74	-96.91
4752	Tarrant	Tarrant	76140	TX	8.48	25779	1/9/2017	32.62	-97.27
4753	Harris	Harris	77388	TX	11.42	40000	1/27/2017	30.06	-95.46
4754	Denton	Denton	75056	TX	26		1/31/2017	33.09	-96.90
4755	Shelby	Shelby	75935	TX	134.4		2/10/2017	31.76	-94.20
4756	Dallas	Dallas	75212	TX	100.32		2/10/2017	32.78	-96.88
4757	Jack	Jack	76458	TX	10.08	35299	2/22/2017	33.30	-98.15
4758	Bowie	Upshur	75501	TX	110.55		3/10/2017	33.36	-94.21
4759	Harris	Harris	77449	TX	20.46		3/24/2017	29.84	-95.74
4760	Dallas	Dallas	75080	TX	10.37	18740	4/18/2017	32.97	-96.74

Table 11-1: Solar Photovoltaic Projects: Data and Information (cont.)

Project No.	County in Texas	County for ECALC	Zipcode	State	Size (kWDC)	Cost	Date Installed	Latitude	Longitude
4761	Collin	Collin	75074	TX	7.32	22440	4/19/2017	33.03	-96.67
4762	Tarrant	Tarrant	76006	TX	14.64	38092	5/2/2017	32.79	-97.09
4763	Collin	Collin	75023	TX	12.2	27082	5/3/2017	33.06	-96.73
4764	Collin	Collin	75075	TX	7.625	21885	5/5/2017	33.02	-96.74
4765	Dallas	Dallas	75207	TX	75.95		5/13/2017	32.79	-96.82
4766	Collin	Collin	75075	TX	6.1	16840	5/20/2017	33.02	-96.74
4767	Tarrant	Tarrant	76107	TX	4.41	13559	6/6/2017	32.74	-97.38
4768	Collin	Collin	75023	TX	3.05	4397	6/9/2017	33.06	-96.73
4769	Dallas	Dallas	75218	TX	10.23	32971	6/13/2017	32.84	-96.70
4770	Collin	Collin	75024	TX	42.93		6/16/2017	33.08	-96.80
4771	Collin	Collin	75069	TX	6.71	20282	6/28/2017	33.20	-96.62
4772	Tarrant	Tarrant	76131	TX	48.96		6/30/2017	32.91	-97.37
4773	Cooke	Cooke	76240	TX	21.78		7/7/2017	33.70	-97.08
4774	Dallas	Dallas	75215	TX	50.66		7/14/2017	32.75	-96.76
4775	Travis	Travis	78701	TX	183.54		7/28/2017	30.27	-97.74
4776	Collin	Collin	75098	TX	68.44		8/18/2017	33.01	-96.54
4777	Tarrant	Tarrant	76133	TX	22.62		8/25/2017	32.65	-97.38
4778	Collin	Collin	75002	TX	12.54	27025	8/29/2017	33.10	-96.63
4779	Dallas	Dallas	75205	TX	14.85	20927	9/14/2017	32.84	-96.80
4780	Collin	Collin	75024	TX	8791.35		9/15/2017	33.08	-96.80
4781	Tarrant	Tarrant	76013	TX	161.16		11/3/2017	32.72	-97.15
4782	Dallas	Dallas	75204	TX	90.1	232260	11/16/2017	32.80	-96.79
4783	Travis	Travis	78753	TX	474		11/17/2017	30.38	-97.68
4784	Tarrant	Tarrant	76010	TX	65.88		11/20/2017	32.72	-97.08
4785	Dallas	Dallas	75204	TX	9.9	28541	11/25/2017	32.80	-96.79
4786	Dallas	Dallas	75243	TX	6.03	20500	12/28/2017	32.91	-96.73



Table 11-2: Solar Thermal Projects up to 2017

Project No	City	County	County for eCalc	Project Purpose	Model	Collector Area (sqft)	Number of collectors	Total Area (sqft)	Slope (degree)	Azimuth (i.e. South=0, West (-) and East (+))	Fluid
1	Austin	Travis	Travis	Domestic Hot Water (DHW)	N/A	N/A	2	N/A	N/A	0	Antifreeze
2	Austin	Travis	Travis	Domestic Hot Water (DHW)	SS HX Drainback	26.25	3	78.75	20	0	Water
3	Round Rock	Williamson	Williamson	Domestic Hot Water (DHW)	SS HX Drainback	26.25	2	52.5	20	-90	Water
4	Dripping Springs	Hays	Hays	Domestic Hot Water (DHW)	SS HX Drainback	26.25	2	52.5	20	20	Water
5	San Antonio	Bexar	Bexar	Domestic Hot Water (DHW)	SS HX Drainback	26.25	2	52.5	20	0	Water
6	San Antonio	Bexar	Bexar	Pool Heating System	FS collector	32	8	256	20	-45	Water
7	N/A	N/A	N/A	Domestic Hot Water (DHW)	SS HX Drainback	26.25	3	78.75	20	-45	Water
8	N/A	N/A	N/A	Domestic Hot Water (DHW)	SS HX Drainback	26.25	2	52.5	20	-45	Water
9	Midland	Midland	El paso	Pool Heating System-city of midland aquatic center	HC 50 collectors-make:APS	50	256	12800	N/A	N/A	Water
10	Lubbock	Lubbock	Parker	Pool Heating System-Lubbock TX State School	HC 50 collectors-make:APS	50	36	1800	N/A	N/A	Water
11	Corpus Christi	Nueces	Nueces	Pool Heating System-Corpus Christi TX State School	HC 50 collectors-make:APS	50	36	1800	N/A	N/A	Water
12	Richmond	Fort Bend	Fort Bend	Pool Heating System-Richmond TX State School	HC 50 collectors-make:APS	50	36	1800	N/A	N/A	Water
13	Elpaso	El paso	El paso	Pool Heating System-University of Elpaso recreation facility	HC 50 collectors-make:APS	50	120	6000	N/A	N/A	Water
14	Elpaso	El paso	El paso	Pool Heating System-University of Elpaso recreation facility	HC 50 collectors-make:APS	50	128	6400	N/A	N/A	Water
15	edinburg	Hidalgo	Nueces	Pool heating system for Gym spa	make : APS	N/A	34	600+	N/A	N/A	Water
16	pearland	Brazoria	Brazoria	Pool heating system-residential	make : APS	N/A	7	N/A	N/A	N/A	Water
17	cleveland	Liberty	Liberty	Domestic Hot Water (DHW)	make : APS	N/A	N/A	N/A	N/A	N/A	Water
18	Austin	Travis	Travis	Pool hating system at the Jester Club	make: FAFCO	N/A	N/A	N/A	N/A	N/A	Water
19	Austin	Travis	Travis	pool heating at Quenciera@Barton Creek	make: FAFCO	N/A	N/A	N/A	N/A	N/A	Water
20	Laredo	Webb	Nueces	Pool heating at Tjerina Ranch	make: FAFCO	N/A	N/A	N/A	N/A	N/A	Water
21	San Antonio	Bexar	Bexar	DHW system-Apartment high rise-The army resident community	30 tube Apricus collectors	25.8	180	4644	N/A	N/A	Water
22	San Antonio	Bexar	Bexar	DHW system-Assisted Living Facility-The army resident community	30 tube Apricus collectors	25.8	5	129	N/A	N/A	Water
23	Victoria	Victoria	Victoria	Domestic Hot Water (DHW)	30 tube Apricus collectors	25.8	2	51.6	N/A	N/A	Water
24	Kingsville	Kleberg	Nueces	DHW system-Texas A&M Kingsville residence hall	Evacuated tube collectors	N/A	66	N/A	N/A	N/A	Water
25	Austin	Travis	Travis	DHW system-University of Texas	Evacuated tube collectors	N/A	185	N/A	N/A	N/A	Water
26	San Antonio	Bexar	Bexar	DHW system-Army Residence Community High-Rise Apartment Building	Evacuated tube collectors	N/A	176	N/A	N/A	N/A	Water
27	San Antonio	Bexar	Bexar	DHW system-Bexar County Adult Detention Center Annex	Evacuated tube collectors	N/A	216	N/A	N/A	N/A	Water
28	San Antonio	Bexar	Bexar	DHW system-Bexar County Jail Annex	AP-30 solar collectors	N/A	220	N/A	N/A	N/A	Water
29	San Antonio	Bexar	Bexar	Domestic Hot Water (DHW)-resident project by Brooks energy & sutainability lab	N/A	N/A	N/A	N/A	N/A	N/A	Water
30	San Antonio	Bexar	Bexar	Domestic Hot Water (DHW) at city public service-northside	N/A	N/A	N/A	5000	N/A	N/A	Water
31	San Antonio	Bexar	Bexar	Domestic Hot Water (DHW)-Bexar County Adult Jail Annex	N/A	N/A	N/A	N/A	N/A	N/A	Water
32	San Antonio	Bexar	Bexar	Domestic Hot Water (DHW)	Progressive Tube Technology	N/A	N/A	N/A	N/A	N/A	Water
33	San Antonio	Bexar	Bexar	Historic Gardens phase II project by SADA	N/A	N/A	N/A	N/A	N/A	N/A	Water
34	San Antonio	Bexar	Bexar	Domestic Hot Water (DHW)-Fort sam Houston, public hot water supply	RMT modules	N/A	29	1377.95	N/A	N/A	Water
35	San Antonio	Bexar	Bexar	Domestic Hot Water (DHW)-Imagine homes	N/A	N/A	N/A	54	N/A	N/A	Water
36	San Antonio	Bexar	Bexar	Domestic Hot Water (DHW)Veterans Administration Hospitals	EC-40-1.5	N/A	320	N/A	N/A	N/A	Water
37	Killeen	Bell	Williamson	DHW system-Ft. Hood Army Base	TitanPowerPlus SU2 series	N/A	93	N/A	N/A	N/A	Water
38	San Angelo	Travis	Travis	17th Security Forces Squadron (SFS) roof at Goodfellow Air Force Base outside of San Angelo, Texas.	N/A	N/A	2	N/A	N/A	0	Antifreeze

Table 11-3: Solar Thermal Special Project

Special Case	
Location	Fort Sam Houston, San Antonio TX
Date	3-Jun
Collector	Roof Mounted Parabolic Trough
Number of collectors	129
Total Aperture area (sqft)	4515
Maximum operation temperature (°F)	400
Annual Energy Consumption (KWh/yr)	270583
Annual Energy Consumption OSD (KWh/yr) (KWh/yr)	741.3

Table 11-4: Geothermal Heat Pump Energy Projects up to 2017

Project No	Project	County	Implementation Date	Capacity (ton)	Area (sqft)
1	Birdville High School Campus	Denton	2001	N/A	N/A
2	Texas Motor Speedway	Denton	1998	N/A	N/A
3	George W. Bush's ranch	McLennan	2001	14	N/A
4	Esperanza del Sol, Dallas (Hope of the Sun)	Dallas	1994	18	15,276
5	Hillside Oaks, East Dallas	Dallas	1997	366	276,120
6	Pease Elementary School, Austin	Travis	1994	90	39,162
7	Brooke Elementary School	Travis	1993	150	51,605
8	Govalle Elementary School	Travis	1994	230	89,319
9	Bailey Middle School, Austin	Travis	1992	512	200,000
10	Home in Iowa Park	Wichita	1997	1	1,668
11	The Home of the Future	Dallas	1997	13	4,573
12	Birdville Athletic Complex / Stadium	Tarrant	post 1992	N/A	60,000
13	Frisco ISD Administration Building and Network Operations Center	Collin	post 1992	N/A	20,000+
14	Aubrey Athletic Complex / Stadium	Denton	post 2002	64	25,807
15	Lake Dallas Athletic Complex / Stadium	Denton	post 2001	63	43,500
16	Wakeland High School	Collin	post 1992	1,010	335,932
17	Lovejoy High School	Collin	post 2004	793	216,290
18	Grand Prairie High Ninth Grade Center	Dallas	post 2000	598	150,000+
19	South Grand Prairie High Ninth Grade Center	Dallas	post 2001	atleast 133	100,000+
20	Renovations to HVAC System at South Grand Prairie High School	Dallas	post 2001	69	12,500
21	Renovations to HVAC System at South Grand Prairie High School	Dallas	post 2002	64	49,000
22	David Daniels Elementary	Dallas	post 1992	N/A	70,000+
23	Edelweiss Daniels Elementary	Dallas	post 2000	305	72,872
24	Crockett Elementary	Dallas	post 2000	305	72,872
25	Kirby Elementary	Dallas	post 2000	305	72,872
26	Renovations to HVAC System at Lee Middle School	Dallas	post 1992	214	136,600 +
27	Rebuild of Lee Middle School (Fire Damage)	Dallas	post 2000	64	2,800
28	Renovations/Additions to Adams Middle School	Dallas	post 1992	N/A	N/A
29	Renovations/Additions to North Oaks Middle School	Tarrant	post 1992	N/A	71,000+
30	Renovations/Additions to North Richland Middle School	Tarrant	post 1992	273	80,000+

Table 11-4: Geothermal Heat Pump Energy Projects up to 2017 (cont.)

Project No	Project	County	Implementation Date	Capacity (ton)	Area (sqft)
31	Watauga Middle School	Tarrant	post 2000	N/A	80,000+
32	HVAC Renovation for Watauga Middle School	Tarrant	post 1992	23	1987 added
33	Renovations to HVAC System at Eisenhower Elementary	Dallas	post 1992	N/A	N/A
34	Renovations/Additions to Rayburn Elementary	Dallas	post 1992	N/A	38,000+
35	Renovations/Additions to Watauga Elementary School	Tarrant	post 1992	N/A	56,000+
36	Renovations/Additions to Smithfield Elementary School	Tarrant	post 1992	N/A	56,000+
37	Renovations to David E. Smith Elementary School	Tarrant	2003	30	45,000+
38	Renovations/Additions to Green Valley Elementary School	Tarrant	post 2000	8	50,000+
39	Renovations/Additions to Richland Elementary School	Tarrant	post 1992	221	38,000+
40	Renovations/Additions to Birdville Elementary School	Tarrant	post 1992	N/A	32,000+
41	Renovations/Additions to Grace Hardeman Elementary	Tarrant	post 2000	12	N/A
42	W.A. Porter Elementary School	Tarrant	post 2000	N/A	48,000+
43	Renovations/Additions to W.A. Porter Elementary School	Tarrant	post 2000	12	1963 added
44	Haltom Middle School	Tarrant	post 1992	N/A	109,000
45	HVAC Renovation for Haltom Middle School	Tarrant	post 2000	22	6730 added
46	HVAC Renovation for Richland Middle School	Tarrant	post 1992	N/A	91,000
47	HVAC Renovation for North Oaks Middle School	Tarrant	post 1992	N/A	70,000
48	HVAC Renovation for North Richland Middle School	Tarrant	post 1992	N/A	75,000
49	Holiday Heights Elementary	Tarrant	post 2000	N/A	40,000
50	HVAC Renovation for Holiday Heights Elementary	Tarrant	post 2000	12	2923 added
51	HVAC Renovation for Watauga Elementary	Tarrant	post 1992	N/A	40,000
52	HVAC Renovation for David E. Smith Elementary	Tarrant	post 1992	N/A	35,000
53	HVAC Renovation for West Birdville Elementary	Tarrant	post 1992	N/A	42,000
54	HVAC Renovation for Glenview Elementary	Tarrant	post 1992	N/A	40,000
55	HVAC Renovation for South Birdville Elementary	Tarrant	post 1992	149	38,000
56	HVAC Renovation for WT Francisco Elementary	Tarrant	post 2000	26	31,000
57	HVAC Renovation for Foster Village Elementary	Tarrant	post 2000	12	66,000
58	Snow Heights Elementary	Tarrant	post 2000	124	33,000
59	Renovations/Additions to Snow Heights Elementary School	Tarrant	post 2000	8	1963 added
60	HVAC Renovation for OH Stowe Elementary	Tarrant	post 1992	N/A	40,000

Table 11-4: Geothermal Heat Pump Energy Projects up to 2017 (cont.)

Project No	Project	County	Implementation Date	Capacity (ton)	Area (sqft)
61	Jackson Middle School	Dallas	post 2000	365	100,000+
62	Renovations to HVAC System at Jackson Middle School	Dallas	post 2000	N/A	N/A
63	Renovations/Additions to Richland Elementary School	Tarrant	post 1992	N/A	38,000+
64	Renovations/Additions to Birdville Elementary School	Tarrant	post 1992	N/A	32,000+
65	HVAC Renovation for Rayburn Elementary School	Dallas	post 1992	N/A	N/A
66	HVAC Renovation for North Oaks Middle School	Tarrant	post 1992	204	70,000
67	HVAC Renovation for Watuaga Elementary	Tarrant	post 2000	26	40,000
68	Anchor Church	Tarrant	post 1992	N/A	40,000+
69	Little Elm Elementary	Denton	post 2001	218	70,000+
70	Griffen Parc Middle School	Collin	2004	383	151,566
71	Riddle Elementary	Collin	2003	238	70,000+
72	Boals Elementary	Collin	2003	238	74,300
73	Lake Dallas Middle School	Denton	post 2003	538	250,000+
74	North Elementary	Tarrant	post 1992	N/A	110,000+
75	Isbell Elementary	Collin	2004	279	75,904
76	Bledsoe Elementary	Collin	2005	279	75,904
77	Roach Middle School	Collin	post 1992	N/A	120,000+
78	Fowler Middle School	Collin	2006	488	138,651
79	North Star Elementary	Tarrant	post 1992	N/A	70,000+
80	Hometown Elementary School	Tarrant	post 1992	N/A	70,000+
81	Liberty High School	Collin	2007	1,051	306,179
82	Ashley Elementary	Collin	2005	279	75,325
83	Ogle Elementary	Collin	2006	279	75,904
84	Sem Elementary	Collin	post 1992	N/A	70,000+
85	Corbell Elementary	Collin	2005	279	76,814
86	Taylor Elementary	Collin	post 1992	N/A	70,000+
87	Middle School #5	Tarrant	post 1992	N/A	1,40,000+
88	Intermediate School #5	Tarrant	post 1992	N/A	1,20,000+
89	Liberty Elementary	Tarrant	post 1992	N/A	70,000+
90	Stafford Middle School	Collin	2008	509	142,108

Table 11-4: Geothermal Heat Pump Energy Projects up to 2017 (cont.)

Project No	Project	County	Implementation Date	Capacity (ton)	Area (sqft)
91	Scoggins Middle School	Collin	2008	512	124,108
92	Elementary #10	Tarrant	post 1992	N/A	70,000+
93	Elementary #11	Tarrant	post 1992	N/A	70,000+
94	Elementary #12	Tarrant	post 1992	N/A	70,000+
95	Elementary #13	Tarrant	post 1992	N/A	70,000+
96	Middle School #4	Tarrant	2006	624	151,417
97	Robertson Elementary	Collin	2007	291	75,902
98	Mooneyham Elementary	Collin	2007	291	75,902
99	Carrol Elementary	Collin	2007	292	75,902
100	Brookstone Elementary	Collin	2008	292	75,902
101	Tadlock Elementary	Collin	2008	307	77,184
102	Aubrey Intermediate/Middle School	Denton	post 2004	210	80,000+
103	Florence Hill Elementary	Dallas	post 2003	160	70,000+
104	Garner Elementary	Dallas	post 2004	160	70,000+
105	Bowie Elementary	Dallas	post 2004	44	25,000+
106	High School #5	Collin	post 1992	N/A	300,000+
107	High School #6	Collin	post 1992	N/A	300,000+
108	Memorial Stadium Field House	Collin	2004	27	10,000+
109	Rogers Elementary	Collin	post 2006	221	63,000+
110	Camp Wisdom Elementary	Dallas	post 1992	N/A	70,000+
111	Additions to Anderson Elementary	Collin	2003	30	9,000+
112	Additions to Borchardt Elementary	Collin	post 1992	N/A	9,000+
113	Bright Elementary	Collin	2004	30	9,000+
114	Additions to Christi Elementary	Collin	2004	30	9,000+
115	Additions to Curtsinger Elementary	Collin	post 1992	N/A	9,000+
116	Additions to Fisher Elementary	Collin	2003	30	9,000+
117	Additions to Shawnee Trail Elementary	Collin	post 1992	N/A	9000 +
118	CATE Center (Career and Technology)	Collin	2008	402	100, 000+
119	CTE at Centennial High School (Career and Technology)	Collin	2007	16	9000+
120	Staley Middle School Field House	Collin	2004	12	6000+

Table 11-4: Geothermal Heat Pump Energy Projects up to 2017 (cont.)

Project No	Project	County	Implementation Date	Capacity (ton)	Area (sqft)
121	West Transportation Facility	Collin	2008	80	26,148
122	McKinney Lofts	Dallas	N/A	N/A	N/A
123	Havana Club Apartments	Bexar	N/A	N/A	N/A
124	Hogg Palace Lofts	Harris	N/A	N/A	N/A
125	South Main Baptist Church	Harris	N/A	N/A	N/A
126	The Tower	Tarrant	N/A	N/A	N/A
127	Edgemere	Dallas	N/A	N/A	N/A
128	Radisson Carlson Park	Bexar	N/A	N/A	N/A
129	Biggs Field Project	El Paso	N/A	N/A	N/A
130	Denison Housing Authority	Grayson	N/A	N/A	N/A
131	Fort Sam Houston Barracks	Bexar	N/A	N/A	N/A
132	Fort Sam Houston Building 905/906	Bexar	N/A	N/A	N/A
133	Fort Walters	Palo pinto	N/A	N/A	N/A
134	Drury Inn & Suites	Bexar	N/A	N/A	N/A
135	Lexington Hotel Suites	Tarrant	N/A	N/A	N/A
136	Arnold Middle School	Dallas	N/A	N/A	N/A
137	Shaner Hotel	Bexar	N/A	N/A	N/A
138	Holiday Inn Northwest	Bexar	N/A	N/A	N/A
139	2ND Home Suites	Dallas	N/A	N/A	N/A
140	Homewood Suites	Bexar	N/A	N/A	N/A
141	Air Dynamics	Dallas	N/A	N/A	N/A
142	Radiatas	Webb	N/A	N/A	N/A
143	Hensley Field Operations Center	Dallas	N/A	N/A	N/A
144	Southwest Plaza Base Bldg	Dallas	N/A	N/A	N/A
145	Air Performance	Dallas	N/A	N/A	N/A
146	Meadwest VA Co.	Harris	N/A	N/A	N/A
147	Gap #1550 Mockingbird Station	Dallas	N/A	N/A	N/A
148	Kirby Building	Dallas	N/A	N/A	N/A
149	USSA Towers	Bexar	N/A	N/A	N/A
150	Trinity Towers	Nueces	N/A	N/A	N/A

Table 11-4: Geothermal Heat Pump Energy Projects up to 2017 (cont.)

Project No	Project	County	Implementation Date	Capacity (ton)	Area (sqft)
151	Sonny Bryans BBQ	Dallas	N/A	N/A	N/A
152	L'Etoile Restaurant	Bexar	N/A	N/A	N/A
153	Sweeny Ind.Sch. Dist.Warehouse	Brazoria	N/A	N/A	N/A
154	Freylands Elementary	Chambers	N/A	N/A	N/A
155	Mustang Mech. Montwood High	El Paso	N/A	N/A	N/A
156	Boerne Elementary School	Kendall	N/A	N/A	N/A
157	City View Schools	Wichita	N/A	N/A	N/A
158	Montwood High School Addition	El Paso	N/A	N/A	N/A
159	Montwood High School Auditorium	El Paso	N/A	N/A	N/A
160	The Island on Lake Travis	Travis	N/A	N/A	N/A
161	Allen Campus	Brazos	N/A	N/A	N/A
162	Judson Lofts	Bexar	N/A	N/A	N/A
163	pink elementary school	Collin	2005	286	75,904
164	Griffin middle school	Collin	2002	N/A	N/A
165	Joslin Elementary	Travis	1991	N/A	N/A
166	Brent wood Elementary	Travis	1991	N/A	N/A
167	Walnut Creek Elementary	Travis	1991	N/A	N/A
168	Sims Elementary	Travis	1991	N/A	N/A
169	F R Rice Elementary	Travis	1991	N/A	N/A
170	T A Brown Elementary	Travis	1991	N/A	N/A
171	Canyon Ridge Middle School	Williamson	2004	N/A	N/A
172	Vista Ridge High School	Williamson	2004	N/A	N/A
173	Pleasant Hill Elementary	Williamson	2005	N/A	N/A
174	Good Night Middle school	Hays	1985	N/A	N/A
175	Santa Teresa Elementary	Hays	N/A	125	N/A
176	Santa Teresa Middle School	Hays	N/A	200	N/A
177	Esconreras primary kindergarten	Hays	N/A	105	N/A
178	Mullendore Elementary	Tarrant	post 1995	N/A	N/A
179	O.H. Stowe Elementary	Tarrant	post 1995	N/A	N/A
180	Austin Elementary School GPISD	Dallas	post 2000	91	atleast 21,100



Table 11-4: Geothermal Heat Pump Energy Projects up to 2017 (cont.)

Project No	Project	County	Implementation Date	Capacity (ton)	Area (sqft)
181	Fannin Elementary School GPISD	Dallas	2004	221	N/A
182	Peaster Elementary	Parker	post 1995	N/A	N/A
183	Frisco Elementary School #15	Collin	post 1995	N/A	N/A
184	Lone Star Elementary - Frisco ISD	Collin	post 1995	N/A	N/A
185	Woodland Springs Elementary - Keller ISD	Tarrant	post 1995	N/A	N/A
186	Bette Perot Elementary - Keller ISD	Tarrant	post 1995	N/A	N/A
187	Granbury Middle School East Site	Hood	post 1995	N/A	N/A
188	Frisco Elementary #18 - Shaddock	Collin	post 2007	N/A	N/A
189	Shiver Road Elementary #18 Keller ISD	Tarrant	post 2007	N/A	N/A
190	Woodland Springs Elementary #17 Keller ISD	Tarrant	post 2007	N/A	N/A
191	McDonwell Elementary (Keller ISD)	Tarrant	post 2007	N/A	N/A
192	Keller Intermediate School #5 Keller ISD	Tarrant	post 2007	N/A	N/A
193	Shady Shores Elementary	Denton	post 2007	393	75,904
194	Alta Vista Middle School #5 Keller ISD	Tarrant	post 2007	N/A	N/A
195	Brewer High School (White Settlement ISD)	Tarrant	post 2007	N/A	N/A
196	Leaky High school	Gillespie	N/A	120	N/A
197	Canutillo High School	El Paso	N/A	1,200	N/A
198	Lubbock Christian University	Lubbock	N/A	N/A	N/A
199	Rice University	Harris	N/A	N/A	N/A
200	brown building lofts	Travis	N/A	N/A	N/A
201	Wheeler county Court House	Wheeler	N/A	N/A	N/A
202	Ballinger housing authority	Runnels	N/A	N/A	N/A
203	Project under category miscellaneous cited by FHP manufacturing	Travis	N/A	N/A	N/A
204	Foreman independent school district	Bowie	N/A	N/A	N/A
205	Timber Creek High School #4	Tarrant	post '2008	117	361,141
206	Ed Wilkie Middle School #5: Geothermal Design Services	Travis	post '2008	643	N/A
207	William & Abbie Allen Elementary School	Collin	post '2008	339	83,960
208	Career & Technology Education Center	N/A	post '2008	799	247,880
209	Early Childhood School	Collin	post '2008	385	54,861
210	Burleson Elementary School #11	N/A	post '2008	284	N/A

Table 11-4: Geothermal Heat Pump Energy Projects up to 2017 (cont.)

Project No	Project	County	Implementation Date	Capacity (ton)	Area (sqft)
211	Killeen Police Headquarters: Geothermal Design	Bell	post '2008	208	88,663
212	Burleson High School #2	Tarrant	post '2008	2,126	490,447
213	Secondary Instructional Facility	Travis	post '2008	745	184,824
214	Lamar & Norma Hunt Middle School #10	Collin	post '2008	512	147,096
215	Elizabeth Cash Maus Middle School #11	Collin	post '2008	512	147,096
216	Robert Cobb Middle School #12	Collin	post '2008	512	147,096
217	D'Guiseppe (Gerald Sonntag) Elementary School: 2003 New ES	Collin	post '2008	310	77,184
218	Aubrey High School	Denton	post '2008	225	N/A
219	DFW Airport: EAD Annex	Travis	post 2009	18	N/A
220	2009 Capital Improvements @ Various Campuses	Travis	post 2009	148	N/A
221	Pre-Kindergarten School	Denton	post 2009	164	60,391
222	George & Debra Purefoy Elementary School #30	N/A	post 2009	304	N/A
223	Elementary School #14: Geothermal Design Services	N/A	post 2009	Y	N/A
224	Patricia Dean Boswell McCall Elementary School	Parker	2007	367	89,642
225	Aubrey Intermediate: Add/Reno	Denton	2007	234	69,519
226	Sam Carter Service Center	Collin	2007	116	49,377
227	Dr. Monaco Elementary School	Denton	2007	263	74,544
228	Caprock Elementary School #20	Tarrant	2007	304	92,768
229	Trinity Springs Middle School: Add.	Tarrant	2007	121	36,136
230	Milam Elementary School: 2007 Bond HVAC Replacement	Dallas	2008	131	N/A
231	Truman Middle School: HVAC Retrofit Phase 2	Dallas	under progress	146	N/A
232	Alta Vista Elementary School	Tarrant	under progress	573	N/A
233	Sandshell Elementary School #21	Travis	under progress	278	N/A
234	Corinth Primary	Denton	under progress	238	N/A
235	All Saints Episcopal School	Travis	under progress	337	N/A
236	Alliance for Children	Travis	under progress	33	N/A
237	Faithbridge Presbyterian Church	Collin	under progress	165	N/A
238	Heritage High School	Collin	2007	1,042	325,693
239	Cotulla High School	La Salle	N/A	N/A	N/A
240	Marlin Hospital	Falls	N/A	N/A	N/A

Table 11-4: Geothermal Heat Pump Energy Projects up to 2017 (cont.)

Project No	Project	County	Implementation Date	Capacity (ton)	Area (sqft)
241	Stacy Park Pool	Travis	N/A	N/A	N/A
242	1505, elm street	Dallas	N/A	N/A	N/A
243	Covington high school	Hill	N/A	N/A	N/A
244	Residential project by energyhomes.org	N/A	N/A	50	N/A
245	Residential project by reported Trane	Coryell	N/A	4	N/A
246	Golden Sands disaster recovery dome, Texas	Travis	N/A	N/A	N/A
247	Liberty county co production	Liberty	N/A	N/A	N/A
248	Department of defense-Fort Bliss project	El Paso	N/A	N/A	N/A
249	Department of defense-Fort Bliss project (Family housing)	El Paso	N/A	N/A	N/A
250	Department of defense-Fort Hood project (Family housing)	Bell	N/A	N/A	N/A
251	Department of defense-Fort Hood project (Administrative)	Bell	N/A	N/A	40,782
252	Department of defense-Dyes AFB project	Taylor	N/A	N/A	N/A
253	Rice University	Harris	2008	N/A	1,400
254	Trail Driver	Hays	N/A	N/A	N/A
255	Seregetti International Office Bldg.	Harris	N/A	18	10,000
256	Lone Star Calibration Lab	Harris	N/A	5	1,200
257	McDonalds Restaurant	Montgomery	N/A	30	2,000
258	Asia House	Harris	N/A	200	30,000
259	Rosewood Funeral Home	Harris	N/A	50	5,000
260	Leakey ISD	Real	N/A	120	45,000
261	Canutillo HS	El Paso	N/A	1,200	465,000
262	El Paso Chamb of Commerce	El Paso	N/A	100	30,000
263	South Houston Police	Harris	N/A	60	15,000
264	Conroe Medical Office Building	Montgomery	N/A	40	5,000
265	Kingwood Village Estates	Harris	N/A	150	60,000
266	Laughlin AFB	Val Verde	N/A	150	45,000
267	Texas Gov Mansion	Travis	N/A	40	12,000
268	Lubbock Christian University	Lubbock	N/A	800	350,000
269	Early Childhood Development	El Paso	N/A	100	45,000
270	Harlandale ISD	Bexar	N/A	80	25,000

Table 11-4: Geothermal Heat Pump Energy Projects up to 2017 (cont.)

Project No	Project	County	Implementation Date	Capacity (ton)	Area (sqft)
271	Shargri La Botanical Gardens	Orange	N/A	50	25,000
272	Galveston Coast Guard Station	Galveston	N/A	100	30,000
273	Billy Dade MS	Dallas	N/A	500	190,000
274	South Houston Police Station, South Houston, TX	Harris	NA	NA	NA
275	Texas Governor's Mansion in Austin	Travis	NA	NA	NA
276	Austin ISD -several schools, Austin, TX	Travis	NA	NA	NA
277	Goliad Co. Coproduction	Goliad	NA	NA	NA
278	William Beaumont New Hospital, Ft. Bliss, El Paso, TX	El Paso	NA	NA	NA
279	Finnell residence	Travis	NA	NA	NA
280	Bryan Army Reserve Center	Brazos	NA	90	49,144
281	National K Works	Harris	NA	200	60,000
282	Menil Museum Bookstore & Cafe	Harris	NA	70	10,000
283	Texas Automotive Muscle Museum	Waller	NA	70	22,000
284	Monarch School	Harris	NA	3	1,500
285	Metro National Tech Center	Harris	NA	30	10,000
286	Blue Bonnett Elec Coop Display Home	Washington	NA	3	1,200

Table 11-5: Landfill Gas-Fired Power Plants up to 2017: Operational

Project No	Landfill Name	City	County	Waste In Place (tons)	Landfill Owner Organization	Project Status	Project Start Date	MW Capacity	LFG Flow to Project (mmSCFD)
1	121 Regional Disposal Facility	Melissa	Collin	8,709,705	North Texas Municipal Water District	Operational	12/15/2017		3.40
2	Arlington LF	Eules	Tarrant	23,707,502	City of Arlington, TX	Operational	4/1/2003	5.0	2.90
3	Atascocita RDF	Humble	Harris	33,830,834	Waste Management, Inc.	Operational	6/1/2003	8.5	
4	Atascocita RDF	Humble	Harris	33,830,834	Waste Management, Inc.	Operational	1/1/2004	1.7	
5	Austin Community RDF	Austin	Travis	20,028,106	Waste Management, Inc.	Operational	9/1/2007	6.4	3.17
6	Blue Ridge LF	Fresno	Fort Bend	20,007,835	Republic Services, Inc.	Operational	12/1/2009		4.32
7	Camelot Landfill	Lewisville	Denton	18,964,223	City of Farmers Branch, TX	Operational	2/1/2011	3.2	
8	City of Denton Landfill	Denton	Denton	4,900,000	City of Denton, TX	Operational	1/1/2016		
9	City of Denton Landfill	Denton	Denton	4,900,000	City of Denton, TX	Operational	12/17/2008	1.6	0.98
10	City of Edinburg Landfill	Edinburg	Hidalgo	10,320,408	City of Edinburg, TX	Operational	5/3/2016		2.30
11	City of Victoria Landfill	Bloomington	Victoria	4,381,715	City of Victoria, TX	Operational	3/27/2014		1.58
12	Coastal Plains RDF	Santa Fe	Galveston	20,719,693	Waste Management, Inc.	Operational	1/10/2003	6.7	
13	Covel Gardens RDF	San Antonio	Bexar	32,122,196	Waste Management, Inc.	Operational	12/20/2005	9.6	
14	DFW Recycling & Disposal Facility	Lewisville	Denton	66,798,169	Waste Management, Inc.	Operational	1/1/1988	3.2	
15	DFW Recycling & Disposal Facility	Lewisville	Denton	66,798,169	Waste Management, Inc.	Operational	7/1/2009	6.4	
16	Fort Bend Regional Landfill	Needville	Fort Bend	8,143,619	WCA Waste Corporation	Operational	6/2/2013		2.45
17	Fort Worth Regional LF	Haltom City	Tarrant	4,950,848	Republic Services, Inc.	Operational	12/27/2006	1.6	0.72
18	Greenwood Farms Landfill	Tyler	Smith	9,967,631	City of Tyler, TX	Operational	4/22/2009		2.30
19	IESI Turkey Creek Landfill	Alvarado	Johnson	11,022,493	Progressive Waste Solutions Ltd.	Operational	9/30/2012		1.92
20	IESI Turkey Creek Landfill	Alvarado	Johnson	11,022,493	Progressive Waste Solutions Ltd.	Operational	1/1/2017		0.86
21	McCarty Road LF	Houston	Harris	92,289,534	Republic Services, Inc.	Operational	3/1/1986		9.70
22	McCarty Road LF	Houston	Harris	92,289,534	Republic Services, Inc.	Operational	1/1/2005		5.30
23	McCarty Road LF	Houston	Harris	92,289,534	Republic Services, Inc.	Operational	5/22/2009		6.48
24	McCommas Bluff Landfill	Dallas	Dallas	48,061,837	City of Dallas, TX	Operational	1/1/2008		7.00
25	McCommas Bluff Landfill	Dallas	Dallas	48,061,837	City of Dallas, TX	Operational	1/1/2012		3.00
26	McCommas Bluff Landfill	Dallas	Dallas	48,061,837	City of Dallas, TX	Operational	1/1/2014		2.50
27	McKinney Landfill	McKinney	Collin	6,539,355	North Texas Municipal Water District	Operational	5/27/2011	3.2	
28	Mesquite Creek LF	New Braunfels	Comal	9,463,849	Waste Management, Inc.	Operational	12/31/2010	3.1	
29	Nelson Gardens LF	San Antonio	Bexar	11,802,410	City of San Antonio, TX	Operational	4/1/2014	4.2	
30	Pine Hill LF	Kilgore	Gregg	12,077,856	Four-S Oil Company	Operational	7/31/2017		2.16
31	Security Recycling and Disposal LF	Cleveland	Montgomery	11,139,983	Waste Management, Inc.	Operational	5/1/2003	5.0	
32	Skyline LF	Ferris	Ellis	21,875,777	Waste Management, Inc.	Operational	6/13/2007	6.4	3.40
33	Sunset Farms Landfill	Austin	Travis	22,281,720	Republic Services, Inc.	Operational	12/1/1996	3.0	2.09
34	Tessman Road Landfill	San Antonio	Bexar	29,601,219	Republic Services, Inc.	Operational	10/10/2002	5.4	2.90
35	Tessman Road Landfill	San Antonio	Bexar	29,601,219	Republic Services, Inc.	Operational	5/1/2003	2.7	1.45
36	Tessman Road Landfill	San Antonio	Bexar	29,601,219	Republic Services, Inc.	Operational	10/1/2015	1.3	0.73
37	Trinity Oaks Landfill	Dallas	Dallas	6,838,600	Republic Services, Inc.	Operational	2/24/2009	3.2	
38	Westside RDF	Aledo	Tarrant	12,328,360	Waste Management, Inc.	Operational	3/15/2010	4.8	

Table 11-6: Landfill Gas-Fired Power Plants up to 2017: Candidate

Project No	Landfill Name	City	County	Waste In Place (tons)	Year Landfill Opened	Landfill Closure Year	Landfill Owner Organization	Project Status	MW Capacity
1	Abilene Regional Landfill	Abilene	Jones	7,921,300	1982	2336	Ray Knowles	Candidate	
2	Angelina County Waste Management Center	Lufkin	Angelina	2,954,123	1992	2037	Angelina County, TX	Candidate	
3	Brownsville Municipal Landfill	Brownsville	Cameron	5,307,401	1979	2050	City of Brownsville, TX	Candidate	
4	CM Hinton Regional Landfill	Rowlett	Dallas	5,528,813	2002	2053	City of Garland, TX	Candidate	
5	Caliche Canyon LF	Lubbock	Lubbock	5,848,561	1970	2025	City of Lubbock, TX	Candidate	
6	Cefe Valenzuela Landfill	Robstown	Nueces	3,960,956	2007	2095	City of Corpus Christi, TX	Candidate	
7	Charter Waste Landfill	Odessa	Ector	6,504,025	1992	2098	Republic Services, Inc.	Candidate	
8	City of Amarillo Landfill	Amarillo	Potter	8,195,827	1975	2104	City of Amarillo, TX	Candidate	
9	City of Beaumont LF	Beaumont	Jefferson	7,905,847	1982	2064	City of Beaumont, TX	Candidate	
10	City of Corsicana LF	Corsicana	Navarro	3,419,092	1976	2110	City of Corsicana, TX	Candidate	
11	City of Fort Worth Southeast Landfill	Forest Hill	Tarrant	14,218,688	1969	2041	City of Fort Worth, TX	Candidate	
12	City of Laredo LF	Laredo	Webb	9,138,975	1986	2030	City of Laredo, TX	Candidate	
13	City of Midland MSW Landfill	Midland	Midland	4,613,521	1985	2083	City of Midland, TX	Candidate	
14	City of Nacogdoches Landfill	Nacogdoches	Nacogdoches	2,101,405	1976	2050	City of Nacogdoches	Candidate	
15	City of Pampa LF	Pampa	Gray	1,305,108	1940	2117	City of Pampa, TX	Candidate	
16	City of Perryton Landfill	Perryton	Ochiltree	1,631,100	1979		City of Perryton, TX	Candidate	
17	City of Port Arthur Landfill	Beaumont	Jefferson	3,984,989	1974	2091	City of Port Arthur, TX	Candidate	
18	City of Sweetwater LF	Sweetwater	Nolan	1,283,800	1976	2040	City of Sweetwater, TX	Candidate	
19	City of Wichita Falls LF	Wichita Falls	Wichita	4,557,529	1981	2277	City of Wichita Falls, TX	Candidate	
20	Clint Landfill	El Paso	El Paso	9,164,615	1983	2039	City of El Paso, TX	Candidate	
21	Colorado City Landfill	Colorado City	Mitchell	1,545,200	1975	2020	City of Colorado City, TX	Candidate	
22	CSC Disposal and Landfill	Waxahachie	Ellis	5,141,709	1980	3000	Republic Services, Inc.	Candidate	
23	ECD Landfill	Ennis	Ellis	5,581,643	1988	2229	Republic Services, Inc.	Candidate	
24	El Centro Landfill	Robstown	Nueces	3,611,818	2000	2072	Republic Services, Inc.	Candidate	
25	Fort Hood Landfill	Killeen	Coryell	2,240,000	1978	2060	US Army Fort Hood	Candidate	
26	Galveston County LF	Alta Loma	Galveston	16,882,706	1973	2070	Republic Services, Inc.	Candidate	
27	Golden Triangle Landfill	Beaumont	Jefferson	9,366,976	1993	2024	Republic Services, Inc.	Candidate	3.2
28	Hillside Landfill	Sherman	Grayson	4,545,696	1977	2039	Waste Management, Inc.	Candidate	
29	IESI Buffalo Creek Landfill	Iowa Park	Wichita	3,515,812	1983	2122	Progressive Waste Solutions Ltd.	Candidate	
30	IESI East Texas Regional Landfill	Henderson	Rusk	1,974,718	1979	2065	Progressive Waste Solutions Ltd.	Candidate	

Table 11-6: Landfill Gas-Fired Power Plants up to 2016: Candidate (cont.)

Project No	Landfill Name	City	County	Waste In Place (tons)	Year Landfill Opened	Landfill Closure Year	Landfill Owner Organization	Project Status	MW Capacity
31	IESI Weatherford Landfill	Weatherford	Parker	2,922,499	1977	2019	Progressive Waste Solutions Ltd.	Candidate	
32	Itasca Landfill	Itasca	Hill	11,154,903	1977	2097	Republic Services, Inc.	Candidate	
33	Lacy Lakeview RDF	Waco	McLennan	3,793,337	1983	2024	Waste Management, Inc.	Candidate	
34	Maloy Landfill	Campbell	Hunt	4,299,984	1979	2047	Republic Services, Inc.	Candidate	
35	Mexia Landfill	Mexia	Limestone	1,500,740	1983	2162	Republic Services, Inc.	Candidate	
36	New Boston Landfill	New Boston	Bowie	6,507,305	1968	2073	Waste Management, Inc.	Candidate	
37	Newton County Landfill	Buna	Newton	4,741,056	1998	2161	Waste Management, Inc.	Candidate	
38	Paris Landfill	Powderly	Lamar	4,211,085	1982	2060	Waste Management, Inc.	Candidate	
39	Pleasant Oaks Landfill	Mount Pleasant	Titus	2,468,859	1960	2158	City of Mount Pleasant	Candidate	
40	Polk County Landfill	Livingston	Polk	1,843,714	1981	2064	Polk County, TX	Candidate	
41	Rio Grande Valley	Donna	Hidalgo	8,828,412	1994	2014	Republic Services, Inc.	Candidate	
42	Royal Oaks Landfill	Jacksonville	Cherokee	3,168,239	1984	2037	City of Jacksonville, TX	Candidate	
43	San Angelo Landfill	San Angelo	Tom Green	5,095,237	1970	2033	City of San Angelo, TX	Candidate	
44	Southwest Landfill	Canyon	Randall	6,795,942	1985	2025	Republic Services, Inc.	Candidate	
45	Temple Recycling & Disposal Facility	Temple	Bell	6,999,402	1979	2028	City of Temple	Candidate	
46	Texoma Area Solid Waste Authority Landfill	Whitesboro	Grayson	1,452,684	2005	2087	Texoma Area Solid Waste Authority, TX	Candidate	
47	Twin Oaks Landfill	Anderson	Grimes	1,690,240	2011	2046	Brazos Valley SWMA, TX	Candidate	
48	West Texas Region Disposal Facility	Abemathy	Lubbock	4,377,550	1999	2240	City of Lubbock, TX	Candidate	
49	Whispering Pines LF	Houston	Harris	10,176,459	1978	2040	Republic Services, Inc.	Candidate	2.6
50	Williamson County LF	Hutto	Williamson	7,405,787	1985	2092	Williamson County, TX	Candidate	

Table 11-7: Landfill Gas-Fired Power Plants up to 2017: Potential

Project No	Landfill Name	City	County	Waste In Place (tons)	Year Landfill Opened	Landfill Closure Year	Landfill Owner Organization	Project Status
1	Altair Disposal Services LLC	Altair	Colorado	8,581,378	1973	2027	Clean Harbors	Potential
2	Bell County/Sparks LF	Holland	Bell	343,200	1994	2001	Bell County	Potential
3	Bell Processing Inc. LF	Wichita Falls	Wichita		1990	2001	Bell Processing Inc	Potential
4	Belfort Boulevard Landfill	Houston	Harris	9,731,720	1954	1970	City of Houston, TX	Potential
5	Best Pak Disposal Inc. LF	Pattison	Waller			2001	Waste Management, Inc.	Potential
6	BFI LF	Abilene	Taylor	745,888	1993	1997	Pine Street Salvage Company	Potential
7	Blossom Prairie Landfill	Blossom	Lamar	922,899	2010	2186	Josh Bray DBA Sanitation Solutions	Potential
8	C&T Regional Landfill	Linn	Hidalgo	3,844,000	1976	2003	Republic Services, Inc.	Potential
9	City of Brownwood Landfill	Brownwood	Brown	1,300,100	1983	2040	City of Brownwood, TX	Potential
10	City of Cleburne Landfill	Cleburne	Johnson	1,583,200	1976			Potential
11	City of Garland Castle Drive Landfill	Garland	Dallas	5,508,137	1978	2003	City of Garland, TX	Potential
12	City of Kingsville Landfill	Kingsville	Kleberg	583,309	1977	2067	City of Kingsville, TX	Potential
13	City of Luling Landfill	Luling	Caldwell		1965	1993		Potential
14	City of Nederland Landfill	Nederland	Jefferson			1990	Mid County Municipal League, TX	Potential
15	City of Richardson LF	Richardson	Collin	825,218	1975	1990	City of Richardson, TX	Potential
16	City of Snyder Landfill	Snyder	Scurry	969,694	1980	2137	City of Snyder, TX	Potential
17	Eastside Landfill	Fort Worth	Tarrant	2,700,462	1970	1993	Waste Management, Inc.	Potential
18	El Campo Landfill	El Campo	Wharton		1985	1994		Potential
19	Ellis County LF	Palmer	Ellis	892,320	1994		Waste Management, Inc.	Potential
20	Fort Bliss Municipal Solid Waste Landfill	El Paso	El Paso	205,818	1974	2013	United States Army	Potential
21	Hallettsville Landfill	Hallettsville	Lavaca		1928	1992	City of Hallettsville, TX	Potential
22	Hazelwood Enterprises, Inc. LF	Baytown					Landfill Owner of Hazelwood Enterprises, Inc. LF	Potential
23	Hunter Ferrell Landfill	Irving	Dallas	3,540,177	1982	2077	City of Irving, TX	Potential
24	Hutchins Landfill	Hutchins	Dallas	1,000,000	1978	1992	Republic Services, Inc.	Potential
25	IESI Hardin County Landfill	Kountze	Hardin	876,794	1999	2025	Progressive Waste Solutions Ltd.	Potential
26	J.C. Elliott LF	Corpus Christi	Nueces	9,930,000	1972	2007	City of Corpus Christi, TX	Potential
27	Kerrville Landfill	Kerrville	Kerr	722,608	1984	2040	City of Kerrville, TX	Potential
28	Laidlaw/Wilmer LF	Wilmer	Dallas	686,400	1992	2001	Landfill Owner of Laidlaw/Wilmer LF	Potential
29	Lewisville Landfill	Lewisville	Denton		1986	2003	Republic Services, Inc.	Potential
30	Maxwell Creek LF	Sachse	Collin	4,593,218	1982	2005	North Texas Municipal Water District	Potential
31	McCombs LF	El Paso	El Paso	2,428,756	1977	2079	City of El Paso, TX	Potential
32	Mill Creek LF	Fort Worth	Tarrant	4,815,500	1973	2001	Republic Services, Inc.	Potential
33	North County C&D Landfill	Dickinson	Galveston				Republic Services, Inc.	Potential
34	Orange County LF	Orange	Orange	1,517,000	1975	1993	Orange County, TX	Potential
35	Pecan Prairie Landfill	Celeste	Hunt	1,479,900	1985	1998	Waste Management, Inc.	Potential
36	Rock Prairie Road Landfill	College Station	Brazos	4,905,978	1982	2011	Brazos Valley SWMA, TX	Potential
37	Sinton Landfill	Sinton	San Patricio	1,851,756	1972	2002	Republic Services, Inc.	Potential
38	Tricil Environmental Response/Altair SLF	Altair	Colorado	1,980,400	1976	2002	Safety Clean	Potential



Table 11-8: Landfill Gas-Fired Power Plants up to 2017: Construction

Project No	Landfill Name	City	County	Waste In Place (tons)	Year Landfill Opened	Landfill Closure Year	Landfill Owner Organization	Project Status	Project Start Date	MW Capacity
1	City of Grand Prairie LF	Grand Prairie	Dallas	4,085,230	1978	2047	City of Grand Prairie, TX	Construction	6/1/2017	
2	Fort Bend Regional Landfill	Needville	Fort Bend	8,143,619	2004	2055	WCA Waste Corporation	Construction	3/31/2018	
3	Seabreeze Environmental Landfill	Angleton	Brazoria	21,721,876	1974	2041	Waste Connections Inc. - Central Region	Construction	2/28/2018	

Table 11-9: Landfill Gas-Fired Power Plants up to 2017: Shutdown

Project No	Landfill Name	City	County	Waste In Place (tons)	Landfill Owner Organization	Project Status	Project Start Date	Project Shutdown Date	MW Capacity	LFG Flow to Project (mmSCFD)
1	Austin Community RDF	Austin	Travis	20,028,106	Waste Management, Inc.	Shutdown	1/1/1998	1/1/2000		
2	Baytown Landfill	Baytown	Chambers	9,149,671	Waste Management, Inc.	Shutdown	1/24/2003	1/1/2016	3.9	1.73
3	Blue Bonnet LF	Houston	Harris	2,564,239	Waste Management, Inc.	Shutdown	3/1/2003	1/1/2016	1.936	0.928
4	Blue Ridge LF	Fresno	Fort Bend	20,007,835	Republic Services, Inc.	Shutdown	12/1/2009	12/31/2010	1.6	0.648
5	City of Brownwood Landfill	Brownwood	Brown	1,300,100	City of Brownwood, TX	Shutdown	1/1/1998	12/31/2007		0.4
6	City of Conroe LF	Conroe	Montgomery	3,684,509	Waste Management, Inc.	Shutdown	3/1/2003	1/1/2011	2.9	
7	City of Denton Landfill	Denton	Denton	4,900,000	City of Denton, TX	Shutdown	3/1/2005	4/1/2008		0.432
8	City of Garland Castle Drive Landfill	Garland	Dallas	5,508,137	City of Garland, TX	Shutdown	5/1/2000	12/31/2004		1.1
9	City of Waco LF	Woodway	McLennan	7,184,908	City of Waco, TX	Shutdown	3/1/2004	3/1/2007	1.5	1.5
10	City of Waco LF	Woodway	McLennan	7,184,908	City of Waco, TX	Shutdown	2/28/2008	2/24/2013		1.5
11	FM 812 Landfill	Austin	Travis	4,858,500	City of Austin, TX	Shutdown	2/1/2004	12/31/2006	0.2	
12	Fort Bend County Landfill	Rosenberg	Fort Bend	2,649,100	Fort Bend County, TX	Shutdown	1/1/2000	1/1/2011		1
13	McCommas Bluff Landfill	Dallas	Dallas	48,061,837	City of Dallas, TX	Shutdown	1/1/2000	12/31/2006		5.45
14	McCommas Bluff Landfill	Dallas	Dallas	48,061,837	City of Dallas, TX	Shutdown	1/1/2007	12/31/2007		2.8

Table 11-10: Landfill Gas-Fired Power Plants up to 2017: Planned

Project No	Landfill Name	City	County	Waste In Place (tons)	Year Landfill Opened	Landfill Closure Year	Landfill Owner Organization	Project Status	Project Start Date	MW Capacity
1	121 Regional Disposal Facility	Melissa	Collin	8,709,705	2004	2056	North Texas Municipal Water District	Planned	12/31/2018	
2	Atascocita RDF	Humble	Harris	33,830,834	1983	2045	Waste Management, Inc.	Planned	6/1/2018	
3	City of Denton Landfill	Denton	Denton	4,900,000	1984	2065	City of Denton, TX	Planned	12/31/2018	1.6
4	Texas Disposal Systems LF	Creedmoor	Travis	13,720,687	1991	2035	Texas Disposal Systems	Planned	6/1/2018	

Table 11-11: Landfill Gas-Fired Power Plants up to 2017: Other

Project No	Landfill Name	City	County	Waste In Place (tons)	Year Landfill Opened	Landfill Closure Year	Landfill Owner Organization	Project Status	Project Start Date	MW Capacity
1	Quail Canyon	Lubbock	Lubbock	200,200	1977	1993	Republic Services, Inc.	Other		