ESL-TR-03/07-01

PROCEDURE TO CALCULATE NOX REDUCTIONS USING THE EMISSIONS & GENERATION RESOURCE INTEGRATED DATABASE (E-GRID) SPREADSHEET

Report to the

Texas Commission for Environmental Quality For Texas' Senate Bill 5 Legislation For Reducing Pollution in Non-attainment and Affected Areas

Jeff Haberl, Piljae Im, Charles Culp, Bahman Yazdani Tom Fitzpatrick, Malcolm Verdict, Dan Turner

> Energy Systems Laboratory Texas A&M University System

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ENERGY SYSTEMS LABORATORY

Texas Engineering Experiment Station Texas A&M University System

1. Introduction

In this report a detailed description of the procedure to calculate NOx reductions from energy savings due to the 2000 IECC code implementation in single family residences using the United States Environmental Protect Agency's (USEPA's) Emissions and Generation Resource Integrated Database (E-GRID) is presented. This procedure is proposed for calculating county-wide NOx reductions in pounds per MWh for Energy Efficiency and Renewable Energy projects (EE/RE) implemented in each Power Control Area (PCA) in the ERCOT region

E-GRID is a comprehensive database of environmental attributes of electric power systems. E-GRID is based on available plant-specific data for all U.S. electricity generating plants that provide power and report data to the U.S. government. Data reported for each power generator includes generation (in MWh), resource mix (for renewables and non-renewables), emissions (in tons for NOx, SO2, and CO2; and in pounds of mercury), emission rates (in both pounds per megawatt-hour [lbs/MWh] and pounds per million Btu [lbs/MMBtu] for NOx, SO2, and CO2; and in both pounds per gigawatt-hour [lbs/GWh] and pounds per billion Btu [lbs/MMBtu] for nox, SO2, and CO2; heat input (in MMBtu), and capacity (in MW). E-GRID also reports changes in ownership and industry structure as well as power flows between states and grid regions. For more infromation on E-GRID, see http://www.epa.gov/cleanenergy/egrid.htm.

Table 1 shows the E-GRID table published in November 2002.¹ This table is the result of a methodology Art Diem of USEPA performed using E-GRID data. This methodology distributes reductions in energy generation within the ERCOT territory using E-GRID power flow data and E-GRID plant level capacity factor data. The EGRID plant level NOx emission factors are applied to these generation changes and aggregated to the county level.

2. Description of the Tables

For the ESL's Senate Bill 5 project, several tables are needed to convert the county-wide electricity savings from 2000 IECC code implementation into NOx reductions at the power plants that provided the electricity using the EPA's EGRID database. In this section, an explanation of the procedure and a detailed description of the tables (i.e., spreadsheets) used to perform the calculations are presented.

Table 1. Table 1 shows county-wide NOx reductions per MWh of energy savings by each Power Control Area (PCA). The column headings indicate each PCA in the ERCOT region. The first column shows Federal Implementation Plan (FIP) code for each county, and the second column gives each corresponding county in the ERCOT region having

¹ The Energy Systems Laboratory (ESL) received this table from Mr. Art Diem ((Environment and Energy Integration) Phone: 202-564-3525 (<u>diem.art@epa.gov</u>)) at the USEPA in November 2002.

electric generators that could be affected by the energy savings. The next ten columns give the NOx reductions by each PCA for one megawatt of energy savings.

In Table 1, fifty counties have electric generating plants that would be affected by energy savings based on the methodology in the ERCOT region. Each cell shows the average amount of NOx (in pounds) that could be reduced by electric generators in that county if one megaWatt-hour of electricity (i.e., savings) is realized within the PCA for that column. Counties that do not have NOx values do not contain electric power generating plants that would be affected by energy savings realized within the PCAs shown in the column. The Total values shown at the bottom of each column represent the total NOx reduced by one megaWatt-hour of energy savings.

Table 2. Table 2 presents an expanded version of Table 1. The shaded counties do not have an electricity-generating plant that would be affected by energy savings according to this EPA methodology, or are not in the ERCOT region analyzed by EGRID. Seventy-one (71) county names are shown in Table 2. Of the thirty-eight (38) non-attainment or affected counties, there are five (5) counties that do not have electricity-generating plants owned by PCAs. Eleven (11) counties are not in the ERCOT region, and may contain power plants from other generators. Finally, not all municipal power generating plants appear to be in the EGRID database.

Table 3. In the Table 3, Table 2 was modified to allow for the calculation of NOx reductions when electricity production (i.e., savings) is entered in the bottom row for each PCA. To accomplish this, an empty column was added next to the each PCA column. NOx emissions reductions for each county in the specific PCA are calculated in this column according to the total MWh entered into the bottom of the PCA column. One additional column was added to the right side of the spreadsheet that calculates total NOx reductions (Tons/yr) for each county. This value represents the NOx produced by all PCAs in one particular county, as reported by EGRID. The modified parts of the table are shaded.

Table 4. Table 4 shows all electric utility providers for each county in Texas. This table was obtained from the Public Utility Commission of Texas (PUCT) website (<u>http://www.puc.state.tx.us</u>, November 2002). This table provides each county's region name and the electric utility providers for each county. For the calculations performed by the ESL in this report, <u>the first electric utility shown in each row was assumed to be the only electric utility for that county</u>, since the % electricity distribution are not published by the PUCT, and could not be obtained for purposes of publishing this report.

Table 5 and 6. Table 5 is the summary table from the ESL's 2002 TNRCC report². In this table, each county was assigned to a corresponding PCA using the PCA map

² Haberl, J., Culp, C., Yazdani, B., Fitzpatrick, T., and Turner, D. 2002. "Texas Senate Bill 5 Legislation for Reducing Pollution in Non-attainment and Affected Areas: Annual Report", submitted to the Texas Natural Resources Conservation Commission, Energy Systems Laboratory Report ESL-TR-02/07-01, Texas A&M University, 116 pages, (Revised: September).

published by ERCOT in May of 2002³. The assigned PCA is important because the September 2002 NOx emissions rate was decided according to the PCA shown, using the June 2002 NOx emissions rates published by the TNRCC. The third column shows the assigned PCA for each county using the ERCOT map. The fourth column gives the TMY2 weather locations that was used to perform the simulation. The fifth column lists the 2000 IECC climate zone that corresponds to the county. This climate zone was used to select the code compliant design characteristics. The sixth column shows the National Association of Home Builder's (NAHB) designation regarding which division of survey data pertained to the county shown. The seventh column shows the number of projected housing units according to the Real Estate Center at Texas A&M. This projection was determined using linear regression of the last several years of available data for each county. The eighth column gives the average floor area for a single family house according to the NAHB survey data for 1999. The ninth column gives the simulated energy use for the house calculated with the code-traceable DOE-2 simulation using the TMY2 weather location for each county. The tenth column shows the energy use of a similar house⁴ built to code-complaint specifications. Columns eleven and twelve show the peak day electricity use for the average 1999 house and the code-compliant house for each county. Column thirteen shows the annual electricity savings for each house and column fourteen shows the total savings for all houses built in each county and includes a 20% transmission and distribution loss. Column fifteen shows the NOx emissions rates for the utility provider that was assumed to provide the electricity to each county³. Column 16 provides the annual tons of NOx emissions savings from implemention of the 2000 IECC to the new single family housing units listed for each county and includes the 20% T&D losses. Column 17 provides the average tons-NOx/day for each county, which represents the annual total (tons-NOx/year) divided by 365. Column 18 provides the tons-NOx/day calculated by multiplying the peak electricity savings for each county times the NOx emissions rates for the utililty provider⁶. The bottom row in Table 5 gives the total values for all non-attainment and affected counties.

In Table 6, the electric utility providers were updated to reflect the data in Table 4. The shaded columns in Table 6 show the updated NOx values that including the new values from Table 4. Table 6 also provides peak day savings that include the 20% T&D losses. It is worth noting that the combination of the 20% T&D loss and the new NOx values increased the total peak-day emissions rates from 2.09 to 2.6 tons-NOx/peak-day.

3. Sample Calculation

In this section two example calculations are presented. The first one is for the calculation of annual NOx emissions reductions and the other is for the calculation of peak day NOx emission reductions. In this calculation procedure, all calculations were performed using

³ The map obtained from the ERCOT was presented by Mr. Ken Donoho at the Hot and Humid conference in Houston, Texas in May. This map is contained on page 71 of the ESL's September 2002 report to the TNRCC (ESL-TR-02/07-01). County assignments were made by choosing the predominate utility provider from the map.

⁴ Characteristics such as floor area, window-to-wall ratio, etc., are held constant, wall R-value, roof R-value, window U-value, window SHGC, air-conditioner SEER and furnact AFUE were changed.

⁵ These values represent the June 2002 values published by the TNRCC from the EPA's EGRID report.

⁶ This value does not include a 20% T&D factor.

several EXCEL spreadsheets. To perform these calculations, the user inputs the electricity savings for each PCA into the appropriate cells in the bottom row of the spreadsheet (Table 3).

Calculation of annual NOx emissions reductions

As shown in Table 1, the energy savings from a PCA cause NOx emission reductions in other counties where the power plant is located. Since the ESL's summary table (See Table 6) presents the energy savings for each county, as a first step, the energy savings for each county were totaled by PCA. Table 7 presents the total electricity savings by PCA. Since the EPA's EGRID table only provides values for the ERCOT Region only, the counties included in the other NERC regions such as SERC, WSCC and SPP are excluded in this calculation. From the Table 7, 27 counties are in ERCOT region, and the other 11 counties are in SERC, WSCC and SPP regions. According to the Table 7, the total electricity savings estimated in SERC, WSCC and SPP regions are 23,683 MWh per year which is about 12.5% of total electricity savings in 38 counties. In addition, the total NOx reductions in SERC, WSCC and SPP regions are 31.7 tons per year which is about 7.5% of total NOx reductions for 38 counties. Therefore, future analysis using EGRID will need to be expanded to include the total NOx reductions from electricity savings in all 38 counties.

As the next step of the calculation, energy savings (MWh) for each PCA in the Table 7 were entered into the last row of the corresponding column for the appropriate PCA in Table 3. For example, there was 2,477.2 MWh energy savings in the American Electric Power West/PCA(Table 7). This was input in the last row of the American Electric Power West/PCA column in Table 9.

Then, the NOx emissions reductions due to the energy savings by county were calculated as shown in the corresponding cells. For example, for Bastrop County, 2,477.2 MWh of electricity savings is multiplied by 0.01 which is shown beside in the row for Bastrop county (See Table 9). The calculated value, 24.77 lbs of NOx is from the 2,477.2 MWh saved by AEP due to the implementation of the 2000 IECC to single family residential.

After repeating this calculation for all counties and all PCAs, the NOx emissions reductions for each county are calculated by summing all value for the county across the row. For example, for Bastrop County, 8,862.27 lbs of NOx (= 24.77 + 4,977.32 + 3,572.11 + 288.07) are reduced from all electricity savings for AEP, Austin Energy, Lower Colorado River Authority, and San Antonio Public Service Bd. PCAs (See Table 10)

Calculation of peak day NOx emission reductions

This calculation procedure is nearly the same as the previous calculation. Table 8 was developed to calculate peak-day NOx emission reductions. This calculation is important since peak-day NOx emissions reductions are about 2x greater than average daily NOx emissions reductions calculated by dividing the annual NOx emissions by 365.

As a first step of the calculation, peak day energy savings (MWh) for each PCA in the Table 8 were entered into the last row of the corresponding column in Table 3.

Then, the NOx emissions reductions due to the energy savings by county were calculated as shown in the corresponding cells.

After repeating this calculation for all counties and all PCAs, the NOx emissions reduction for each county is calculated by summing all value for the county across the row. Table 11 shows the finished calculation results.

4. Results

In this section, the calculated electricity savings and NOx emissions reductions are presented in figures and maps to better facilitate an understanding of the where the different counties are located and the magnitude of the emissions reductions from implementation of the 2000 IECC.

Figure 1. Figure 1 shows the distribution of the 38 non-attainment and affected counties in Texas. Non-attainment counties are shown in blue and affected counties are shown in light blue.

Figure 2 and 3. Figure 2 shows the geographical distribution of projected 2002 annual electricity savings due to the implementation of the 2000 IECC to new single-family houses in the non-attainment and affected counties. Figure 3 presents the savings for each county sorted from the biggest savers to the smallest savers. These savings correspond to the values listed in Table 6. The savings were calculated using the code-traceable DOE-2 simulation, which compared the 1999 NAHB average house against the code-compliant house for each county. In this figure, "other counties" means the counties that are not included in the non-attainment and affected counties but shown in the EGRID table (Table 1).

Figure 4 and 5. Figure 4 shows the geographical distribution of annual NOx emissions reductions from power plants due to the 2000 IECC. Figure 5 shows the individual county NOx reductions. These NOx emissions reductions were calculated using the procedure outlined in Table 10. It is interesting to note in Figures 4 and 5 that much of the NOx emissions reductions occur in counties where there is limited growth in residential single-family housing. Conversely, it is clear that much of the pollution produced by housing is produced in counties other than the counties where the electricity is consumed.

Figure 6 and 7. Figure 6 and 7 shows the distribution of 2002 peak day electricity savings due to the implementation of the 2000 IECC to new single-family houses. These values were calculated using the actual peak electricity savings as shown in Table 11.

Figure 8 and 9. Figure 8 and 9 shows the distribution of peak day NOx emissions reductions from power plants due to the 2000 IECC. These NOx emissions reductions were calculated in the previous procedure in Table 11. It is interesting to note in Figure 9 that three counties (i.e., Ward, McLennan, and Mitchell) rise significantly in NOx reductions during peak days when compared to annual NOx reductions (Figure 5).

			County	-wide NOx R	eductions in p	ounds per M	Wh for EE/RE	E implemente	ed in each liste	d PCA	
Cnty_FIP	County	American Electric Power - West (ERCOT)/PCA	Austin Energy/PCA	Brownsville Public Utils Board/PCA	Lower Colorado River Authority/PCA	Reliant Energy HL&P/PCA	San Antonio Public Service Bd/PCA	South Texas Electric Coop Inc/PCA	Texas Municipal Power Pool/PCA	Texas-New Mexico Power Co/PCA	TXU Electric/PCA
48021	BASTROP	0.01	0.20		0.34		0.01				
48029	BEXAR	0.06	0.09	0.04	0.16		2.00	0.08	0.01		
48039	BRAZORIA	0.01	0.01			0.05	0.01				
48041	BRAZOS		0.01		0.01			0.03	0.11		0.01
48057	CALHOUN	0.19		D.14	0.01			0.04	0.01		0.01
48061	CAMERON	0.14		0.20				0.03			0.01
48071	CHAMBERS	0.05	0.06	0.03	0.02	0.35	0.08	0.03	0.02	0.02	0.03
48073	CHEROKEE	0.01	0.01	0.00	0.02	0.00	0.00	0.00	0.02	0.02	0.00
48081	COKE	0.03	0.01	0.07	0.02			0.01	0.00	0.02	0.10
48083	COLEMAN	0.00		0.02				0.01			
19095	COLLIN	0.02	0.01	0.01	0.02	0.01		0.05	0.10		0.02
48105	CROCKETT	0.01	0.01	0.11	0.02	0.01		0.05	0.19		0.02
40103	DALLAS	0.14	0.06	0.11	0.00	0.02	0.01	0.03	0.20	0.00	0.01
40113	DENTON	0.00	0.06	0.04	0.09	0.03	0.01	0.09	0.30	0.09	0.51
40121	DENTON	0.00	0.01	0.01	0.01			0.04	0.16		0.01
40147	FANNIN	0.02	0.02	0.01	0.03	0.01		0.03	0.09	0.03	U.1/
48149	FATEILE	0.02	0.86	0.02	1.51	0.01	0.04	0.01	0.02		0.02
48157	FORT BEND	0.13	0.17	0.10	0.06	1.01	0.23	0.09	0.06	0.07	0.10
48161	FREESTONE	0.02	0.02	0.02	0.04	0.01		0.03	0.12	0.04	0.22
48163	FRIO	0.05		0.04	0.01			1.15	0.07		
48167	GALVESTON	0.05	0.06	0.04	0.02	0.39	0.09	0.04	0.03	0.42	0.04
48185	GRIMES	0.01	0.01		0.02	0.01		0.06	0.23		0.01
48197	HARDEMAN	0.01		0.01							
48201	HARRIS	0.05	0.07	0.04	0.02	0.41	0.09	0.04	0.02	0.03	0.04
48207	HASKELL	0.16		0.12	0.01			0.03	0.01		0.01
48213	HENDERSON				0.01				0.02	0.01	0.03
48215	HIDALGO	0.13		0.10				0.03			
48221	HOOD	0.02	0.02	0.02	0.04	0.01		0.03	0.12	0.04	0.22
48251	JOHNSON								0.01		
48253	JONES	0.14		0.11				60.03	0.01		0.01
48277	LAMAR	0.114		0.11				0.00			0.01
48293	LIMESTONE	0.01	0.01			0.05	0.01				0.01
48299	LIANO	0.01	0.01		0.21	0.05	0.01				
48309	MCLENNAN	0.04	0.12	0.02	0.21	0.00	0.01	0.06	0.72	0.07	0.40
18335	MITCHELL	0.04	0.04	0.03	0.07	0.02	0.01	0.06	0.22	0.07	0.40
40353	NOLAN	0.04	0.04	0.03	0.07	0.02	0.01	0.06	0.21	0.07	0.39
40355	MUECES	0.74	0.01	0.55	0.02	0.04	0.01	0.45	0.02	0.04	0.01
40303	DALO DINTO	0.74	0.01	0.55	0.02	0.01	0.01	0.15	0.02	0.01	0.03
40303	PALU PINTU	0.01	0.02	0.01	0.03	0.01		0.09	0.36		0.02
48367	PARKER				dama and the second second			0.01	0.03		
48387	RED RIVER								0.01		0.02
48395	RUBERISUN					0.01				0.40	0.01
48401	RUSK	0.01	0.01	0.01	0.01			0.01	0.04	0.01	0.07
48439	TARRANT	0.04	0.04	0.03	0.06	0.02	0.01	0.05	0.18	0.06	0.33
48441	TAYLOR	0.01									
48449	TITUS	0.01	0.01	0.01	0.02			0.02	0.05	0.02	0.10
48453	TRAVIS		0.46		0.05						
48469	VICTORIA	0.30	0.01	0.22	0.01			0.68	0.05		0.01
48475	WARD	0.06	0.06	0.04	0.09	0.02	0.01	0.08	0.28	0.10	0.51
48479	WEBB	0.06		0.05	- ALADENIA		CONTRACTOR IN	0.01			
48481	WHARTON					0.01			1		
48503	YOUNG	0.02	0.02	0.01	0.03	0.01		0.03	0.09	0.03	0.16
	TOTAL	2.90	2.56	2.24	3 16	2.50	2 65	3 28	3.22	1.50	3.66

Table 1. EPA's EGRID table: County-wide NOx Reductions in pounds per MWh for EE/RE Implemented in each listed PCA (Received from USEPA at November 2003)

Area	County	American Electric Power - West (ERCOT)/PCA	Austin Energy/PCA	Brownsville Public Utils Board/PCA	Lower Colorado River Auhotrity/PCA	Reliant Energy HL&P/PCA	San Antonio Public Service Bd/PCA	South Texas Electric Coop INC/PCA	Texas Municipal Power Pool/PCA	Texas-New Mexico Power Co/PCA	TXU Electric/PCA
	BASTROP	0.01	0.20		0.34		0.01				
	BEXAR	0.06	0.09	0.04	0.16		2.00	0.08	0.01		
	FAYETTE	50.0	0.40	0.02	1.51	0.01	0.04	0.01	0.02		0.02
Austin-	LLANO	0.02	0.12	0.02	0.21	0.01	0.04	0.01	0.02		0.02
San Antonio	CALDWELL	Sector States			and the second second	States St.	Contraction of the second			A CONTRACTOR	S.V. Samerka
Area	COMAL										and the second second
	GUADALUPE	A State of the second		1							
	HAYS							-			
	WILSON			and the second	and the second second						C. C
	COLLIN	0.01	0.01		0.02	0.01		0.05	0.19		0.02
	DALLAS	0.06	0.06	0.04	0.09	0.03	0.01	0.09	0.30	0.09	0.51
			0.01		0.01			0.04	0.15		0.01
	PARKER							0.01	0.03		
	CHEROKEE	0.01	0.01	0.01	0.02			0.02	0.06	0.02	0.10
	COKE	0.03		0.02				0.01			
	COLEMAN	0.02	0.02	0.01	0.02	0.04		0.02	0.00	0.03	0.17
	FRIO	0.02	0.02	0.01	0.03	0.01		1.05	0.09	0.05	0.17
	HARDEMAN	0.00		0.04	0.01			1.15	0.07		
	HASKELL	0.16		0.12	0.01			0.03	0.01		0.01
	HENDERSON				0.01				0.02	0.01	0.03
Dallas-Fort	HOOD	0.02	0.02	0.02	0.04	0.01		0.03	0.12	0.04	0.22
Worth Area	JONES	0.14		0.11				0.03			0.01
	LAMAR	0.01	0.01			0.05	0.01				0.01
	MCLENNAN	0.04	0.04	0.03	0.07	0.02	0.01	0.06	0.22	0.07	0.40
	MITCHELL	0.04	0.04	0.03	0.07	0.02	0.01	0.06	0.21	0.07	0.39
	NOLAN										0.01
	PALO PINTO	0.01	0.02	0.01	0.03	0.01		0.09	0.36		0.02
	TAYLOR	0.01							0.01		0.02
	TITUS	0.01	0.01	0.01	0.02			0.02	0.05	0.02	0.10
	YOUNG	0.02	0.02	0.01	0.03	0.01		0.03	0.09	0.03	0.16
	TARRANT	0.04	0.04	0.03	0.06	0.02	0.01	0.05	0.18	0.06	0.33
	ELUS KALIEMAN		Contraction of the					Contra Stational		Contraction of the local division of the loc	and the second s
	ROCKWALL	All and a state of the second									
	BRAZORIA	0.01	0.01			0.05	0.01				
	BRAZOS		0.01		0.01			0.03	0.11		0.01
	GRIMES	0.01	0.01		0.02	0.01		0.06	0.23		0.01
	CHAMBERS	0.05	30.0	0.03	0.07	0.01	0.08	0.03	0.02	0.02	0.03
	FORT BEND	0.13	0.17	0.10	0.06	1.01	0.23	0.09	0.06	0.07	0.10
Houston	GALVESTON	0.05	0.06	0.04	0.02	0.39	0.09	0.04	0.03	0.42	0.04
- Galveston	ROBERTSON					0.01				0.40	0.01
Area	HARRIS	0.05	0.07	0.04	0.02	0.41	0.09	0.04	0.02	0.03	0.04
	JEEEERSON				Carlos and the Carlos of the C						
	LIBERTY		and the second		CONTRACTOR OF	and the second sec	and the second	A STATE OF			
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El Dess Arres	WALLER						Chi Pagana Alina				
El Paso Area	DUSK	0.01	0.01	0.01	0.01	and the second second	State of the state	0.01	0.04	0.01	0.07
	CROCKETT	0.14	0.01	0.01	0.01			0.03	0.04	0.01	0.01
	FREESTONE	0.02	0.02	0.02	0.04	0.01		0.03	0.12	0.04	0.22
	CALHOUN	0.19		0.14	0.01			0.04	0.01		0.01
	HIDALGO	0.13		0.10				0.03			0.01
	WARD	0.14	0.06	0.20	0.00	0.02	0.01	0.03	0.28	0.10	0.01
ETC	WEBB	0.06	0.00	0.04	0.03	0.02	0.01	0.00	0.20	0.10	0.01
	NUECES	0.74	0.01	0.55	0.02	0.01	0.01	0.15	0.02	0.01	0.03
	VICTORIA	0.30	0.01	0.22	0.01			0.68	0.05		0.01
	GREGG	and the series of the									
	SMITH									all provide the second	
	UPSHUR	and the second second	112 N 2000		Service States			Marrie Carlos	The second	Apparente Colores	0.000
	SAN PATRICIO	and states		STANAL ST		STATISTICS.	and the second		Survey and	Desire Arrest	
	TOTAL	2.89	2.54	2.22	3.12	2.48	2.63	3.27	3.19	1.54	3.65

Table 2. EPA's EGRID table: County-wide NOx Reductions in pounds per MWh for EE/RE Implemented in each listed PCA (Including 38 Non-attainment and Affected Counties)



Table 3. Modified Calculation

NOx/EGRID Report, p.10

Country	Regio	n	Design Name				Electric Utilities					
ANDERSON	6 Numbe	Ea	st Texas Council of Governments	ONCOR	Trinity Valley EC	Houston County EC	Elecuic Guinnes					
ANDREWS	9	Pe	mian Basin Regional Planning Commission	ONCOR	Cap Rock EC		Section and the section of the secti					
ANGELINA	14	De	p East Texas Council of Governments	ONCOR	Sam Houston EC	Houston County EC	Jasper-Newton EC					
ARANSAS	20	Co	astal Bend Council of Governments	CPL(AEP)	San Patricio EC	140.00	Fod Balkoon EC	Tei Causta EC	Pouthwart Dural EC			
ARMSTRONG	1	Pa	the reveal of the second	XCEL(SPS)	Grannhalt EC	Swisher FC	Fon Dennap CC	m-county cc	Southwest Rule LC			
ATASCOSA	18	Ala	me Area Council of Governments	CPL(AEP)	CPSB	Medina EC	Karnes EC					
AUSTIN	16	Ho	uston-Galvetson Area Council	RELIANT(CENTER POINT)	Bellville	San Benard EC	Bluebonnet EC	Fayette EC				
BALLEY	2	So	uth Plains Association of Governments	XCEL(SPS)	Baliey County EC	Lamb County EC				5		
BANDERA	18	Ala	me Area Council of Governments	Bandera EC	Smithalla	Rhushonnat EC	Favalla FC					
BAYLOR	3	No	th Taxas Regional Planning Council	ONCOR	Sexmour	Tri-County EC	Southwest Rural EC				1	
BEE	20	Co	astal Bend Council of Governments	CPL(AEP)	San Patricio EC	Kames EC						
BELL	23	Ce	ntral Texas Council of Governments	ONCOR	Bartlett EC	Belfalls EC	McLennan County EC	Pedemales EC	Bartlett			
BEXAR	18	Ala	mo Area Council of Governments	CPSB	Bandera EC	Karnes EC						
BLANCO	12	Ca	pitol Area Planning Council	Pedemales EC	Central Texas EC	Can Dank EC						
BOSOUE	11	He	an of Texas Council of Governments	T-NMP	United Coop Services	McLennan County EC						
BOWIE	5	Ad	Tex Council of Governments	SWEPCO(AEP)	Bowe-Cass EC	Southwest Arkansas EC						
BRAZORIA	16	Ho	uston-Galveston Area Council	RELIANT (CENTER POINT)	T-NMP	Jackson EC						
BRAZOS	13	Bra	zos Valley Council of Governments	BRYAN	College Station	Mid-South EC	Navasota Valley EC					
BREWSTER	8	Ric	Grande Council of Governments	WTU(AEP)	Rio Grande EC	1	Outstan EC					
BROOKS	20	Co	stal Bend Council of Governments	CPL(AFP)	Medica EC	Nueces EC	Swisher EC					
BROWN	7	We	st Central Texas Council of Governments	ONCOR	WTU(AEP)	Cap Rock EC	Comanche EC					
BURLESON	13	Bra	zos Valley Council of Governments	ENTERGY	BRYAN	Bartlett EC	Bluebonnet EC					
BURNET	12	Ca	pitol Area Planning Council	ONCOR	Pedemales EC					former and	fars	
CALDWELL CALHOUN	12	Ca	pitol Area Planning Council	CPL(AEP)	Luling	Pedemales EC	Bluebonnet EC					
CALIOUN	7	W	et Central Taxas Council of Governments	WTU(AEP)	Taylor EC	Comanche EC						
CAMERON	21	Los	ver Rio Grande Valley Development Council	CPL(AEP)	Magic Valley EC	Brownsville						
CAMP	6	Ea	st Texas Council of Governments	SWEPCO(AEP)	Wood County EC	Upshur-Rural EC					La constantino de la constant	
CARSON	1	Pa	nhandle Regional Planning Commission	XCEL(SPS)							j	
CASS	6	An	Tex Council of Governments	SWEPCO(AEP)	Upshur-Rural EC	Bowe-Cass EC	Lomb Course EC	Suisbor EC				
CHAMBERS	16	Pa Ho	uston Galveston Area Council	RELIANT(CENTER POINT	ENTERGY	Dalley County EC	Camb County EC	Swisher EC				
CHEROKEE	6	Ea	at Texas Council of Governments	ONCOR	Cherokee County EC	Houston County EC						
CHILDRESS	1	Pa	nhandle Regional Planning Commission	WTU(AEP)	Greenbelt EC	Lighthouse EC	South Plains EC	Harmon EC				
CLAY	3	No	th Texas Regional Planning Commission	ONCOR	T-NMP	J-A-C EC	Wise EC					
COCHRAN	2	So	uth Plains Association of Governments	XCEL(SPS)	Balley County EC	Lamb County EC	Lea County Ec					
COLEMAN	10	Co	nono valley Council of Governments	WIU(AEP)	Concho Valley EC	Cap Back EC	Coleman County EC					
COLLIN	4	No	th Central Texas Council of Governments	ONCOR	T-NMP	Farmersville	Cap Rock EC	Grayson-Collin EC	CoServ E	FEC Electric	Fannin County EC	
COLLINGSWORTH	Н 1	Pa	nhandle Regional Planning Commission	WTU(AEP)	Greenbelt EC			-,		1		
COLORADO	16	Ho	uston-Galveston Area Council	CPL(AEP)	Weimar	Fayette EC	Bluebonnet EC	San Benard EC	Wharton County EC			
COMAL	18	Als	mo Area Council of Governments	CPSB	New Braunfels	Pedernales EC						
COMANCHE	7	W	est Central Texas Council of Governments	ONCOR	T-NMP Constant (allow EC	Comanche EC	United Coop Services	Southward Ty EC				
COOKE	22	Te	roma Council of Governments	ONCOR	Concho Valley EC	Caper F	Wise FC	SUGINWEST IX LC				
CORYELL	23	Ce	ntral Texas Council of Governments	ONCOR	T-NMP	McLennan County EC	Hamilton County EC	United Coop Services			1	
COTTLE	3	No	th Texas Regional Planning Commission	WTU(AEP)	South Plains EC	Kores Subject Personal and						
CRANE	9	Pe	mian Basin Regional Planning Commission	ONCOR		C 4 4 7 50					(
CROCKETT	10	Co Co	ncho Valley Council of Governments	WIU(AEP)	Hig Grande EC	Southwest Tx EC	South Plains EC					
CULBERSON	8	Ric	Grande Council of Governments	EPEC	Rig Grande EC	Eighthouse LC	Soun Plains LC					
DALLAM	1	Pa	nhandle Regional Planning Commission	XCEL(SPS)	Rita Blanca EC							
DALLAS	4	No	th Central Texas Council of Governments	ONCOR	Garland	FEC Electric	HILCO EC	Trinity Valley EC				
DAWSON	9	Pe	mian Basin Regional Planning Commission	ONCOR	Lyntegar EC	Cap Rock EC						
DEAP SMITH	5	Ad	Tex Council of Governments	ONCOR	Lamar County EC	Farmers EC New Mexico FEC Electric	0					
DENTON	4	No	th Central Texas Council of Governments	ONCOR	T-NMP	Denton	Sanger	Cooke County EC	CoServ E	Wise EC	Tri-County EC	
DEWITT	17	Go	Iden Crescent Regional Planning Commission	CPL(AEP)	Yoakum	Cuero	DeWitt EC	Victoria EC	South Texas EC			
DICKENS	2	So	uth Plains Association of Governments	WTU(AEP)	South Plains EC	Lighthouse EC						
DIMMIT	24	Mi	de Rio Grande Development Council	CPL(AEP)	Medina EC	Rio Grande EC						
DUNLEY	20	Pa	nhandle Regional Planning Commission	CDL(AEP)	Greenbell EC	Lighthouse EC	South Taxas EC					
EASTLAND	7	W	estal Bend Council of Governments	ONCOR	WTLKAEP)	Comanche EC	United Coop Services	Taylor EC				
ECTOR	9	Pe	rmian Basin Regional Planning Commission	ONCOR	Goldsmith	Cap Rock EC						
EDWARDS	24	Mu	ddle Rio Grande Development Council	CPL(AEP)	Rio Grande EC	Medina EC	Pedernales EC	Southwest Tx EC				
EL PASO	8	Rie	Grande Council of Governments	EPEC	Rio Grande EC							
ELUS	4	No	rth Central Texas Council of Governments	ONCOR	Navarro County EC	HILCO EC	United Coop Services					
FALIS	11	He	an of Texas Council of Governments	ONCOR	Belfalls EC	McLennan County EC	Navasota Valley EC					
FANNIN	22	Te	coma Council of Governments	ONCOR	T-NMP	Fannin County EC	Cap Rock EC	FEC Electric	Lamar County EC	1		
FAYETTE	12	Ca	pital Area Planning Council	La Grange	Schulenburg	Flatonia	Fayette EC	Bluebonnet EC		1		
FISHER	7	W	st Central Texas Council of Governments	WTU(AEP)	Big Country EC	Cap Rock EC	Taylor EC					
FLOYD	2	So	uth Plains Association of Governments	XCEL(SPS)	Floydada Southwest Rend EC	Lighthouse EC	South Plains EC					
FORT BEND	3	NO	uston-Galveston Area Council	RELIANT(CENTER POWIT	Southwest Hural EC	audin Plains EC	In-County EC					
FRANKLIN	5	Ari	-Tex Council of Governments	SWEPCO(AEP)	FEC Electric	Bowie-Cass EC	Wood County EC					
FREESTONE	11	He	art of Texas Council of Governments	ONCOR	Navasota Valley EC	Navarro County EC	Houston County EC					
FRIO	18	Ala	me Area Council of Governments	CPL(AEP)	Medina EC	1						
GALVESTON	10	Pe H-	uston Galention Area Council	RELIANT(CENTED DOWN	Lyntegar EU T.NMP	ENTERGY				+		
GARZA	2	So	uth Plains Association of Governments	XCEL(SPS)	Big Country EC	Lyntegar EC	South Plains EC			1		
GILLESPIE	18	Ala	mo Area Council of Governments	Fredericksburg	Pedemales EC	Central Texas EC	A STATE OF A			1		
GLASSCOCK	9	Pe	rmian Basin Regional Planning Commission	ONCOR	Cap Rock EC					1		
GOLIAD	17	Go	Iden Crescent Regional Planning Commission	CPL(AEP)	Karnes EC	Victoria EC	San Patricio EC	DeWitt EC		+		
GUNZALES	17	Go	norm Crescent Regional Planning Commission	VCEL(AEP)	Graanhalt EC	AAgeldet	Guadalupe Valey EC					
GRAYSON	22	Te	koma Council of Governments	ONCOR	T-NMP	Whitesboro	Gravson-Collin EC	Fannin County EC	Cooke County EC	CoServ E	1	
GREGG	6	Ea	st Texas Council of Governments	SWEPCO(AEP)	Rusk County EC	Upshur-Rural EC		and a sound and				
GRIMES	13	Br	205 Valley Council of Governments	ENTERGY	Mid-South EC	San Benard EC	1					
GUADALUPE	18	Ala	amo Area Council of Governments	CPSB	Seguin	Guadalupe Valey EC	Bluebonnet EC	Pedemales EC	4			
HALE	2	So	uth Plains Association of Governments	XCEL(SPS)	Swisher EC	Lamb County EC	Lighthouse EC	South Plains EC				
HAMILTON	23	Pa	nnandie Regional Planning Commission Initial Texas Council of Greenments	T-NMP	United Coop Services	Hamilton County EC	McLennan County EC					
	1	Pa	nhandle Regional Planning Commission	XCEL(SPS)	T-NMP	North Plains EC	Rita Blanca EC					
HANSFORD		No	th Texas Regional Planning Commission	WTU(AEP)	South Plains EC	Southwest Rural EC	Harmon EC					
HANSFORD HARDEMAN	3		uth East Texas Regional Planning Commission	ENTERGY	RELIANT(CENTER POINT)	Sam Houston EC						
HANSFORD HARDEMAN HARDIN	3 15	Sc	cates Colorates Loss Colorad	RELIANT(CENTER POINT)	ENTERGY	San Benard EC					1	
HANSFORD HARDEMAN HARDIN HARRIS	3 15 16	Ho	Usion-Gaweston Area Council	OMEDOO/AFT	manofa-Marrison EC	opsnur-Hural EC				4		
HANSFORD HARDEMAN HARDIN HARRIS HARRISON HARTIEY	3 15 16 6	So Ho Es	st Texas Council of Governments	SWEPCO(AEP) XCEL(SPS)	Rita Blanca EC							
HANSFORD HARDEMAN HARDIN HARRIS HARRISON HARTLEY HASKELI	3 15 16 6 1 7	So Ho Ea Pa	usion-Gaivesion Area Council sf Texas Council of Governments nhandle Regional Planning Commission set Central Texas Council of Governmente	SWEPCO(AEP) XCEL(SPS) WTU(AEP)	Rita Blanca EC Big Country EC	Tri-County EC						
HANSFORD HARDEMAN HARDIN HARRISON HARRISON HARTLEY HASKELL HAYS	3 15 16 6 1 7 12	So Ho Ea Pa Wi Ca	osion-Gaveston Area Council sf Texas Council of Governments nhandle Regional Planning Commission sel Central Texas Council of Governments pitol Area Planning Council	SWEPCO(AEP) XCEL(SPS) WTU(AEP) San Marcos	Rita Blanca EC Big Country EC Pedemales EC	Tri-County EC Bluebonnet EC						
HANSFORD HARDEMAN HARDIN HARRIS HARRISON HARTLEY HASKELL HASKELL HAYS HEMPHILL	3 15 16 6 1 7 12 1	So Ho Pa W Ca Pa	usion-calveston Area Council es Texas Council of Governments nhandle Regional Planning Commission set Central Texas Council of Governments pitol Area Planning Council nhandle Regional Planning Commission	SWEPCO(AEP) XCEL(SPS) WTU(AEP) San Marcos Canadian	Rita Blanca EC Big Country EC Pedemales EC North Plains EC	Tri-County EC Bluebonnet EC Greenbelt EC						
HANSFORD HARDEMAN HARDIN HARRIS HARRISON HARTLEY HASKELL HAYS HEMPHILL HENDERSON	3 15 16 6 1 7 12 1 6	So Ho Ea Pa Ca Pa Ea	estor-careston Area Council of Texas Council of Governments nhandle Regional Planning Commission sti Central Texas Council of Governments pitol Area Planning Council nhandle Regional Planning Commission st Texas Council of Governments	SWEPCO(AEP) XCEL(SPS) WTU(AEP) San Marcos Canadian ONCOR	Rita Blanca EC Big Country EC Pedemales EC North Plains EC Trinity Valley EC	Tri-County EC Bluebonnet EC Greenbelt EC						
HANSFORD HARDEMAN HARDIN HARRIS HARRISON HARTLEY HASKELL HAYS HEMPHILL HENDERSON HIDALGO	3 15 16 6 1 7 12 1 6 21	So Ho Es Pa Ca Pa Es Lo	stand-Garveston Area Council st Fease Council of Governments nhandle Regional Planning Commission set Central Texas Council of Governments polo Avea Planning Council nhandle Regional Planning Commission st Texas Council of Governments wer Rio Grande Valley Development Council and Marce States of Council Council	SWEPCO(AEP) XCEL(SPS) WTU(AEP) San Marcos Canadian ONCOR CPL(AEP) ONCOR	Rita Blanca EC Big Country EC Pedemates EC North Plans EC Trnity Valley EC Magic Valley EC	Tri-County EC Bluebonnet EC Greenbelt EC	Nausenja Vallau 50	Navara Countu E^				
HANSFORD HARDEMAN HARDIN HARRISON HARRISON HARTLEY HASKELL HASKELL HASS HEMPHILL HENDERSON HIDALGO HILL HOCKI EY	3 15 16 6 1 7 12 1 6 21 1 11 2	So Ho Pa V Ca Pa Ea Lo	Stand-Survestan Arie & Council 5 Fease Council of Governments sto Cantal Tasa Council of Governments sto Cantal Tasa Council of Covernments pitel Arae Planning Council nhandle Regional Planning Cormission at Tease Souncil of Governments wer Rio Grande Vallery Development Council and of Tease Council of Governments the Plane Accessition of Governments the Plane Accessition of Governments	SWEPCO(AEP) XCEL(SPS) WTU(AEP) San Marcos Canadian ONCOR CPL(AEP) ONCOR XCEL(AEP) ONCOR	Rita Blanca EC Big Country EC Pedemales EC North Plains EC Traity Valley EC Traity Valley EC T-NMP South Plains EC	Tri-County EC Bluebonnet EC Greenbelt EC HILCO EC Luntenar EC	Navasota Valley EC	Navarro County EC				
HANSFORD HARDEMAN HARDIN HARRIS HARRISON HARRISON HARRISON HARTLEY HASS HEMPHILL HENDERSON HIDALGO HILL HOCKLEY HOOD	3 15 16 6 1 7 12 1 6 21 1 11 2 4	So Ho Ea Pa Vi Ca Pa Ea Lo He So	Okain-Gareatan Arak Council 1 Frans Council Governments Inhande Regional Planning Commission and Control Taxos Council of Governments and Control Taxos Council of Council of thinade Regional Planning Commission at Frans Council of Governments at Of Taxos Council of Governments uh Plans Association of Governments th Central Taxos Council of Covernments	SWEPCO(AEP) XCEL(SPS) WTU(AEP) San Marcos Canadian ONCOR CPL(AEP) ONCOR XCEL(SPS) ONCOR	Rita Blanca EC Big Country EC Pedemales EC North Plains EC Trinity Valley EC Magic Valley EC T-NMP South Plains EC T-NMP	Tri-County EC Bluebonnet EC Greenbelt EC HILCO EC Lyntegar EC Granbury	Navasota Valley EC Lamb County EC United Coop Services	Navarro County EC Tri-County EC				
HANSFORD HARDEMAN HARDIN HARRIS MARRISON HARTLEY HASKELL HAYS HEMPHILL HEMPHILL HEMPHILL HEMPKILS HIDALGO HIDALGO HIDALGO HODL HOCKLEY HOOD	3 15 16 6 1 7 12 1 6 21 11 2 4 5	So Ho Es Pa W Ca Pa Es Lo Es So No Ar	otain-Surveston Area Council of Fasas Council of Governments othande Regional Planning Commission stormatic Council of Covernments ptiol Area Planning Council handle Regional Planning Commission st Teass Council of Governments wer Rio Grande Valley Development Council and of Teass Council of Governments th Central Teass Council of Governments th Central Teass Council of Governments	SWEPCO(AEP) XCEL(SPS) WTU(AEP) San Marcos Canadian ONCOR ONCOR ONCOR XCEL(SPS) ONCOR ONCOR ONCOR	Rita Blanca EC Big Country EC Pedemales EC North Plains EC Trnity Valley EC Magic Valley EC T-NMP South Plains EC T-NMP SwEPCO(AEP)	Tri-County EC Bikebonnet EC Greenbelt EC HILCO EC Lyntegar EC Granbury FEC Electric	Navasota Valley EC Lamb County EC United Coop Services Wood County EC	Navarro County EC Tri-County EC				
HANSFORD HARDEMAN HARDIN HARDIN HARTIS HARTIS HARTEY HARSKELL HAYS HEMPHILL HENDERSON HILL HENDERSON HILL HOCKLEY HOOD HOPKINS HOUSTON	3 15 16 6 1 7 7 12 1 6 21 11 6 21 11 2 4 5 14	So Ho Ea Pa Ea Lo He So No Ar De	Veron-Developments Area Coloncia 1 Frans Council Governments all Central Council Connection set Central Council Connection Council Inhande Regional Planning Commission at Frans Council Governments at Frans Council of Covernments at of Frans Council of Covernments th Plans Association of Governments th Central Frans Council of Covernments tables Council of Covernments tables Council of Covernments tables Council of Covernments tables Council of Covernments	SWEPCO(AEP) XCEL(SPS) WTU(AEP) San Marcos Canadian ONCOR CPL(AEP) ONCOR ONCOR ONCOR ONCOR ONCOR	Rita Blanca EC Big Country EC Pedemales EC North Plains EC Trnity Valley EC Magic Valley EC T-NMP South Plains EC T-NMP SWEPCO(AEP) Houston Country EC	Tri-County EC Bluebonnet EC Greenbelt EC HILCO EC Lyntegar EC Granbury FEC Electric	Navasota Valley EC Lamb County EC United Coop Services Wood County EC	Navarro County EC Tri-County EC				
HANSFORD HARDEMAN HARRIN HARRIS HARRISON HARRISON HARRISON HARRISON HARRISON HARRISON HEMPHILI HENDERSON HILL HOCKLEY HOOD HOPKINS HOUSTON HOWSTON	3 15 16 6 1 7 12 1 1 6 21 11 2 1 1 1 2 1 4 5 14 9	So Ho Ea Pa Ea Lo Ho So No Are Pa	International Area Command International Area Command International Reports Plenning Commission set Central Tease Council of Governments piel Aves Planning Commission at Tease Council of Governments of Tease Council of Governments and Plana Association of Governments and Plana Association of Governments and Covernments area Ease Council of Governments area Ease Council of Governments	SWEPCO(AEP) XCEL(SPS) WTU(AEP) San Marcos Canadian ONCOR ONCOR ONCOR ONCOR ONCOR ONCOR ONCOR ONCOR	Rite Blance EC Big Country EC Prédernales EC North Plains EC Trinity Valley EC Magic Valley EC T-NMP South Plains EC T-NMP SWEPCO(AEP) Houston Country EC Cap Rock EC	Tri-County EC Bluebonnet EC Greenbelt EC HILCO EC Lyntegar EC Granbury FEC Electric	Navasota Valley EC Lamb County EC Unded Coop Services Wood County EC	Navarro County EC Tri-County EC				
HANSFORD HARDEMAN HARDIN HARDIN HARDIS HARDISON HARTLEY HASKELL HASKELL HASKELL HASKELL HASKELL HASKELL HILL HICKLEY HOCKLEY	3 15 16 6 1 7 12 1 1 6 21 11 2 1 4 5 14 9 8 8	So Ho Ea Pa Ea Lo He So A De R	In France Service Control Info 11 France Service Of Operational Info 15 Central Topase Council of Comments pilo Area Planning Council Inhande Regional Planning Commission 15 France Council of Operational 15 France Council of Coertiments uth Plaine Association of Operatiments the Central Texas Council of Coertiments Tar Council of Coertiments Carac Council of Coertiments Dirande Council of Coertiments	SWEPC0(AEP) XCEUSPS) WTU(AEP) San Marcos Canadian ONCOR ONCOR ONCOR ONCOR ONCOR ONCOR EPEC ONCOR	Rite Blance EC Big Country EC Pedemales EC North Plains EC Trnity Valley EC Magic Valley EC T-NMP South Plains EC T-NMP SWEPCO(AEP) Houston County EC Cap Rock EC Rio Grande EC	Tri-County EC Bluebonnet EC Greenbelt EC HILCO EC Lyntegar EC Granbury FEC Electric	Navasota Valley EC Lamb County EC Unded Coop Services Wood County EC	Navarro County EC Tri-County EC	Tings Value EA	Fanne Fo		
HANSFORD HARDENAN HARDIN HARDIN HARTISON HARTLEY HASKELL HAYS HEMPHILL HEMPHILL HEMPHILL HEMPKIS HOALGO HILL HOCKLEY HOOD HOPKINS HOUSTON HOUSTON HOUSPETH HUNT HUTTHESON	3 15 16 6 1 7 12 1 6 211 11 1 1 2 4 5 14 9 8 8 4	So Hos Pa Was Pa Lo Fa So No A De R No Pa No	Detain-Garantian Area Council 1 Frans Council Governments Inhande Regional Planning Commission phol Area Planning Council Stormat Taxas Council of Governments at That Council AGS Planning Commission at That Council AGS and the Council and Taxas Council of Governments and Taxas Council of Governments and Taxas Council of Governments the Central Taxas Council of Governments trans Council of Governments main Regional Planning Commission Strande Council of Governments th Central Taxas Council of Governments the Central Taxas Council of Governments	SWEPC0(AEP) XCEL(SPS) WTU(AEP) San Marcos Canadan ONCOR CPL(AEP) ONCOR XCEL(SPS) ONCOR ONCOR ONCOR ONCOR ONCOR ONCOR ONCOR ONCOR ONCOR ONCOR ONCOR ONCOR ONCOR ONCOR	Ras Blance EC Big Country EC Pedemales EC Noth Plans EC Tranty Valley EC Magic Valley EC TrANP South Plans EC TrANP SWEPCO(AEP) Houston Country EC Cap Rock EC TrANP EG Grande EC TrANP	Tri-County EC Bluebonnet EC Greenbell EC HILCO EC Lyntegar EC Graebury FEC Electric Greenville Ris Blanca FC	Navasola Valley EC Lamb County EC United Coop Services Wood County EC FEC Electric	Nevarro County EC Tri-County EC Cap Rock EC	Trinity Valley EC	Fannin EC		
HANSFORD HARDEMAN HARDIN HARDIN HARRIS HARRISON HARRISON HARTLEY HASKELL HASKELL HASKELL HASKELL HASKEN HELLEY HOCKLEY HOCKLEY HOCKLEY HOCKLEY HOCKLEY HOCKSIN HOUSTON HOUSTON HUDSPETH HUTCHINSON IRION	3 15 16 6 1 7 12 1 6 21 11 6 21 11 12 4 5 14 9 8 8 4 1 10	So Hose Pase Vice Pase Vic	Description of the second metal of the second metal in the second metal of the second metal metal of the second metal metal of the second metal	SWEPC0(AEP) XCELSPS) WTU(AEP) San Marcos Canadian ONCOR ONCOR ONCOR ONCOR ONCOR ONCOR EPEC ONCOR ONCOR CNCOR SCELSPS) WTU(AEP)	Rata Bianca EC Big Country EC Pedgemales EC North Plans EC Trnay Valley EC T-NMP South Plans EC T-NMP Mouthon Country EC Cap Rock EC Ris Grande EC T-NMP North Plans EC Cap Rock EC	Tri-County EC Bluebonnet EC Greenbell EC HILCO EC Lyntegar EC Granbury FEC Electric Greenville Rite Blance EC Concho Valler EC	Navasota Valley EC Lamb County EC United Coop Services Wood County EC FEC Electric Southwest Texas EC	Navarro County EC Tri-County EC Cap Rock EC	Trinity Valley EC	Fannin EC		

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 Table 4(a). PUCT Power Suppliers by County (Obtained from PUCT website, http://www.puc.state.tx.us. November, 2002)

County	Region	Region Name				Electric Utilitie					
JACKSON JASPER	17	Golden Crescent Regional Planning Commission Deep East Texas Council of Governments	CPL(AEP) ENTERGY	Jackson EC	Victoria EC Kirbywlie	DeWitt EC Jasper-Newton EC	Deep East Texas EC	Sam Houston EC			
JEFF DAMS	8	Rio Grande Council of Governments	WTU(AEP)	Rio Grande EC	randy max						
JIM HOGG	19	South Texas Development Council	CPL(AEP)	Medina EC							
JOHNSON	4	Coastal Bend Council of Governments North Central Texas Council of Governments	ONCOR	T-NMP	San Patncio EC United Coop Services	HILCO EC					
JONES	7	West Central Texas Council of Governments Alamo Area Council of Governments	WTU(AEP) CPL(AEP)	Taylor EC Floresville	Big Country EC Karnes EC	DeWitt EC					
KAUFMAN	4	North Central Texas Council of Governments	ONCOR	Trinity Valley EC	FEC Electric Redemales EC	Bandera EC					
KENEDY	20	Coastal Bend Council of Governments	Nueces EC	Magic Valley EC	Federina es co	Canona Co					
KERR	18	West Central Texas Council of Governments Alamo Area Council of Governments	WIU(AEP) Kenville	Bandera EC	Big Country EC Central Texas EC	Pedemales EC					
KIMBLE	10	Concho Valley Council of Governments South Plains Association of Governments	WTU(AEP) WTU(AEP)	Central Texas EC South Plains EC	Pedemales EC Tri-County EC						
KINNEY	24	Middle Rio Grande Development Council	CPL(AEP)	Rio Grande EC	Medina EC	Pedernales EC					
KNOX	7	West Central Texas Council of Governments	WTU(AEP)	Tri-County EC							
LA SALLE LAMAR	24 5	Middle Rio Grande Development Council Ark-Tex Council of Governments	CPL(AEP) ONCOR	T-NMP	Lamar County EC	Fannin County EC					
LAMB	2	South Plains Association of Governments Central Texas Council of Governments	XCEL(SPS) ONCOR	Lamb County EC	Bailey County EC Hamilton County EC	South Plains EC Pademales EC					
LAVACA	17	Golden Crescent Regional Planning Commission	Schulenburg	Yoakum	Hallottsville	Moulton Bluebeenst EC	Shiner	Sweet Home	DeWitt EC	Guadalupe Valley	EFayette EC
LEON	13	Brazos Valley Council of Governments	ONCOR	ENTERGY	Navasota Valley EC	Houston County EC					
LIBERTY	16	Houston-Galveston Area Council Heart of Texas Council of Governments	ENTERGY ONCOR	Sam Houston EC ENTERGY	Navasota Valley EC	Navarro County EC					
LIPSCOMB LIVE OAK	1 20	Panhandle Regional Planning Commission Coastal Bend Council of Governments	T-NMP CPL(AEP)	North Plains EC San Patricin EC	Kames FC	Nueces EC					
LLANO	12	Capitol Area Planning Council	Liano	Pedemales EC	Central Texas EC						
LUBBOCK	2	South Plains Association of Governments	XCEL(SPS)	Lubbock	South Plains EC						
MADISON	2	South Plains Association of Governments Brazos Valley Council of Governments	XCEL(SPS) ENTERGY	ONCOR Houston County EC	Lyntegar EC Mid-South EC	South Plains EC Navasota Valley EC					
MARION	6	East Texas Council of Governments Permian Basin Regional Planning Commission	SWEPCO(AEP)	Upshur-Rural EC	Lynteoar EC						
MASON	10	Concho Valley Council of Governments	Mason	Cap Rock EC	Central Texas EC	Pedemales EC					
MATAGORDA	16	Middle Rio Grande Development Council	CPL(AEP) CPL(AEP)	RELIANT(CENTER POINT) Rio Grande EC	Jackson EC	Wharten County EC					
McCULLOCH McLENNAN	10	Concho Valley Council of Governments Heart of Texas Council of Governments	WTU(AEP) ONCOR	Brady T-NMP	Cap Rock EC McLennan County EC	Central Texas EC HILCO EC	Navasota Valley EC				
McMULLEN	20	Coastal Bend Council of Governments	CPL(AEP)	Karnes EC	Medina EC	Nueces EC	San Patricio EC	Readous EC	Vanas EC		
MENARD	18	Concho Valley Council of Governments	WTU(AEP)	Cap Rock EC	Southwest Texas EC	Pedernales EC	Central Texas EC	Dancera EC	Karnes EC		
MIDLAND	9 23	Permian Basin Regional Planning Commission Central Texas Council of Governments	ONCOR	Cap Rock EC ENTERGY	Belfalls EC	Bartlett EC					
MILLS	23	Central Texas Council of Governments	Goldwaithe	Cap Rock EC	Hamilton County EC	Comanche EC Conche Valley EC					
MONTAGUE	3	North Texas Regional Planning Commission	ONCOR	T-NMP	Bowie	Cooke County EC	Wise EC	J-A-C EC			
MOORE	1	Panhandle Regional Planning Commission	XCEL(SPS)	Rita Blanca EC	MID-South EC	Sam Houston EC	San Denard EC				
MORRIS	5	Ark-Tex Council of Governments South Plains Association of Governments	SWEPCO(AEP) WTU(AEP)	Bowie-Cass EC Lighthouse EC	Upshur-Rural EC South Plains EC						
NACOGDOCHES	14	Deep East Texas Council of Governments North Central Texas Council of Governments	ONCOR	Cherokee County EC	Deep East Texas EC	Rusk County EC					
NEWTON	14	Deep East Texas Council of Governments	Newton	Jasper-Newton EC	Deep East Texas EC	Con Dark EC	Die Carreter EC	Caracha Mallau EC			
NUECES	20	Coastal Bend Council of Governments	CPL(AEP)	Robstown	Nueces EC	San Patricie EC	Big Country EC	Concrib Valley EC			
OCHILTREE	1	Panhandle Regional Planning Commission Panhandle Regional Planning Commission	T-NMP XCEL(SPS)	North Plains EC Deaf Smith EC	Rita Blanca EC						
ORANGE PALO PINTO	15	South East Texas Regional Planning Commission	ENTERGY	Jasper-Newton EC	To County EC	United Coon Services					
PANOLA	6	East Texas Council of Governments	SWEPCO(AEP)	Rusk County EC	Panola-Harrison EC	Deep East Texas EC					
PARMER	1	North Central Texas Council of Governments Panhandle Regional Planning Commission	XCEL(SPS)	Deaf Smith EC	Wise EC Bailey County EC	Th-County EC					
PECOS	9	Permian Basin Regional Planning Commission Deep Fast Texas Council of Governments	WTU(AEP) ENTERGY	ONCOR	T-NMP Sam Houston EC	Rio Grande EC	Southwest Texas EC				
POTTER	1	Panhandle Regional Planning Commission	XCEL(SPS)	Rita Blanca EC							
RAINS	6	East Texas Council of Governments	T-NMP	FEC Electric	Wood County EC						
RANDALL	1	Panhandle Regional Planning Commission Concho Valley Council of Governments	XCEL(SPS) WTU(AEP)	Greenbelt EC Cap Rock EC	Swisher EC Concho Valley EC	Southwest Texas EC					
REAL	24	Middle Rio Grande Development Council	CPL(AEP)	Bandera EC	Central Texas EC	Medina EC	Pedemales EC				
REEVES	9	Permian Basin Regional Planning Commission	WTU(AEP)	ONCOR	T-NMP	Rio Grande EC	Dome Case CC				
ROBERTS	1	Coastal Bend Council of Governments Panhandle Regional Planning Commission	XCEL(SPS)	San Patricio EC Greenbelt EC	North Plains EC						
ROBERTSON	13	Brazos Valley Council of Governments North Central Texas Council of Governments	ENTERGY ONCOR	Hearne FEC Electric	Benchely	Wheelack	Navasota Valley EC				
RUNNELS	7	West Central Texas Council of Governments	WTU(AEP)	Coleman County EC	Concho Valley EC	Charakan Causty EC	Dass East Taxas EC	Linehus Paral EC			
SABINE	14	Deep East Texas Council of Governments	Hemphill	Pineland	Jasper-Newton EC	Deep East Texas EC	Deep Last reves LC	opinio-rierin co			
SAN JACINTO	14	Deep East Texas Council of Governments Deep East Texas Council of Governments	ENTERGY	Sam Houston EC							
SAN PATRICIO SAN SARA	20 23	Coastal Bend Council of Governments Central Texas Council of Governments	CPL(AEP) San Saba	San Patricio EC Central Texas EC	Hamilton County EC	Can Rock EC	Pedemales EC				
SCHLEICHER	10	Concho Valley Council of Governments	WTU(AEP)	Pedemales EC	Southwest Texas EC						
SHACKELFORD	7	West Central Texas Council of Governments	WTU(AEP)	Fort Belknap EC	Big Country EC	Comanche EC	Taylor EC				
SHERMAN	14	Panhandle Regional Planning Commission	XCEL(SPS)	Rita Blanca EC	Rusk County EC						
SMITH	6	East Texas Council of Governments	ONCOR T.NMP	SWEPCO(AEP)	Wood County EC	Cherokee County EC	Upshur-Rural EC				
STARR	19	South Texas Development Council	CPL(AEP)	Medina EC	Magic Valley EC	United Cores Devices					
STERLING	10	Concho Valley Council of Governments	WTU(AEP)	Cap Rock EC	Concho Valley EC	onneu coop services					
STONEWALL	7	West Central Texas Council of Governments Concho Valley Council of Governments	WTU(AEP) WTU(AEP)	Big Country EC Pedemales EC	South Plains EC Southwest Texas EC	Tn-County EC					
SWISHER	1	Panhandle Regional Planning Commission	XCEL(SPS)	Tulia Tri-County EC	Swisher EC	Lighthouse EC					
TAYLOR	7	West Central Texas Council of Governments	WTU(AEP)	Taylor EC	0000112	childe stop connect					
TERRY	2	South Plains Association of Governments	XCEL(SPS)	Brownfield	Lyntegar EC						
THROCKMORTON	7	West Central Texas Council of Governments Ark-Tex Council of Governments	WTU(AEP) SWEPCO(AEP)	Fort Belknap EC T-NMP	Big Country EC Bowle-Cass EC	Tri-County EC Wood County EC					
TOM GREEN	10	Concho Valley Council of Governments	WTU(AEP)	Concho Valley EC	Cap Rock EC	Southwest Texas EC					
TRINITY	14	Deep East Texas Council of Governments	ENTERGY	Houston County EC	Sam Houston EC	Since and E.C.					
UPSHUR	6	East Texas Council of Governments	SWEPCO(AEP)	Upshur-Rural EC	Wood County EC						
UPTON	9 24	Permian Basin Regional Planning Commission Middle Rio Grande Development Council	WTU(AEP) CPL(AEP)	ONCOR Bandera EC	Cap Rock EC Medina EC	Southwest Texas EC Rio Grande EC					
VAL VERDE	24	Middle Rio Grande Development Council East Texas Council of Greatmente	CPL(AEP) ONCOR	Rio Grande EC	Southwest Texas EC	Tonty Valley EC	FEC Electric				
VICTORIA	17	Golden Crescent Regional Planning Commission	CPL(AEP)	Victoria EC	DeWitt EC	Manadan County Co			4		
WALKER	16 16	Houston-Galveston Area Council Houston-Galveston Area Council	RELIANT(CENTER POINT)	Mid-South EC Hempstead	Sam Houston EC Mid-South EC	Houston County EC San Benard EC					
WARD	9 13	Permian Basin Regional Planning Commission Brazos Valley Council of Governments	ONCOR ENTERGY	T-NMP Bluebonnet EC	Fayette EC						
WEBB	19	South Texas Development Council	CPL(AEP)	Rio Grande EC	Medina EC						
WHEELER	1	Panhandle Regional Planning Commission	XCEL(SPS)	WTU(AEP)	Greenbelt EC	North Plains EC					
WICHITA	3	North Texas Regional Planning Commission North Texas Regional Planning Commission	ONCOR WTU(AEP)	Electra Vernon	Southwest Rural EC Southwest Rural EC	Tn-County EC					
WILLACY	21	Lower Rio Grande Valley Development Council	CPL(AEP)	Magic Valley EC	Generation	Blueboonet EC	Bartlett FC	Pedemales FC			
WILSON	18	Alamo Area Council of Governments	Floresville	Guadalupe Valley EC	Karnes EC	District and E.V.					
WINKLER	9	Permian Basin Regional Planning Commission North Central Texas Council of Governments	ONCOR	Bridgeport	Wise EC	Cooke County	CoSer E	In-County EC			
YOAKUM	6 2	East Texas Council of Governments South Plains Association of Governments	SWEPCO(AEP) XCEL(SPS)	ONCOR Lyntegar EC	Upshui-Rural EC Lea County Ec	Wood County EC	FEC Electric				
YOUNG	3	North Texas Regional Planning Commission South Texas Development Council	ONCOR CPL(AEP)	T-NMP Medina EC	Fort Belknap EC	United Coop Services					
	10	ieves seversprinelit Cottinen	- wy war j	Contra to to	Taper opportunity approx						

Table 4(b). PUCT Power Suppliers by County (Obtained from PUCT website, <u>http://www.puc.state.tx.us</u>. November, 2002)

													Tatal		T	otal Saving	s
	County	Power Control Area ¹	TMY2 ²	Climate Zone ³	Division (East or West) ⁴	No. of projected units ⁵	Floor Area (ft2) ⁶	1999 Average Energy Use (KWh) ⁷	IECC 2001 Energy Use (KWh) ⁸	1999 Peak Day(KWH /House) ³	IECC Peak Day(KWH /House) ¹⁰	Savings per house (kWh) ¹¹	Savings (MWh) 1999-IECC w/ 20% T&D Loss ¹²	lb- NOx/MWh ¹³	Tons/Year ¹⁴	Tons/Day ¹ 5	Peak Tons/Day ¹ §
	Bastrop	ERCOT	Austin	4	West	146	2,426	16,545	13,310	77.98	59.56	3,235	566.77	2.69	0.7623	0.0021	0.0036
		San Antonio														· · · · · · · · · · · · · · · · · · ·	
	Bexar	Public Service Bd	San Antonio	4	West	7,168	2,426	16,681	13,332	71.48	55.66	3,349	28,806.76	3.24	46.6669	0.1279	0.1837
	Caldwell	ERCOT	Austin	4	West	101	2,426	16,545	13,310	77.98	59.56	3,235	392.08	2.69	0.5274	0.0014	0.0025
	Comal	ERCOT	San Antonio	4	West	1,111	2,426	16,681	13,332	71.48	55.66	3,349	4,464.89	2.69	6.0053	0.0165	0.0236
	Ellis	TXU	Fort Worth	5	West	649	2,426	15,465	12,448	82.47	61.45	3,017	2,349.64	3.34	3.9239	0.0108	0.0228
	Gregg	SWEPCO	Lufkin	6	East	194	2,548	13,139	11,258	65.34	52.74	1,881	437.90	2.68	0.5870	0.0016	0.0033
	Guadalupe	ERCOT	San Antonio	4	West	478	2,426	16,681	13,332	71.48	55.66	3,349	1,920.99	2.69	2.5837	0.0071	0.0102
	Harrison	SWEPCO	Lufkin	E	East	33	2,548	13,139	11,258	65.34	52.74	1,881	74.49	2.68	0.0999	0.0003	0.0006
	Hays	ERCOT	Austin	5	West	737	2,426	16,662	13,160	76.83	58.28	3,502	3,097.17	2.69	4.1657	0.0114	0.0184
Affected	Johnson	TXU	Fort Worth	5	West	629	2,426	15,465	12,448	82.47	61.45	3,017	2,277.23	3.34	3.8030	0.0104	0.0221
County	Kaufman	TXU	Fort Worth	6	West	218	2,426	15,725	12,419	78.10	58.40	3,306	864.85	3.34	1.4443	0.0040	0.0072
county	Nueces	CRI	Corpus Chrsti	3	East	841	2,548	14,354	12,651	63.46	56.11	1,703	1,718.67	2.68	2.3039	0.0063	0.0083
	Parker	TXU	Fort Worth	6	West	302	2,426	15,725	12,419	78.10	58.40	3,306	1,198.09	3.34	2.0008	0.0055	0.0099
	Rockwall	TXU	Fort Worth	6	West	1,111	2,426	15,725	12,419	78.10	58.40	3,306	4,407.56	3.34	7.3606	0.0202	0.0366
	Rusk	SWEPCO	Lufkin	5	East	17	2,548	13,139	11,253	65.34	52.97	1,886	38.47	2.68	0.0516	0.0001	0.0003
	San Patricio	CRI	Corpus Chrsti	3	East	218	2,548	14,354	12,651	63.46	56.11	1,703	445.50	2.68	0.5972	0.0016	0.0021
	Smith	TXU	Lufkin	5	East	465	2,548	13,139	11,253	65.34	52.97	1,886	1,052.39	3.34	1.7575	0.0048	0.0096
	Travis	Austin Energy	Austin	5	West	5,922	2,426	16,662	13,160	76.83	58.28	3,502	24,886.61	1.44	17.9184	0.0491	0.0791
	Upshur	SWEPCO	Lufkin	E	East	17	2,548	13,139	11,258	65.34	52.74	1,881	38.37	2.68	0.0514	0.0001	0.0003
	Victoria	CRI	Victoria	3	East	156	2,548	13,923	12,251	67.25	60.21	1,672	313.00	2.68	0.4196	0.0011	0.0015
	Williamson	TXU	Austin	5	West	4,111	2,426	16,662	. 13,160	76.83	58.28	3,502	17,276.07	2.68	23.1586	0.0634	0.1022
	Wilson	ERCOT	San Antonio	4	West	16	2,426	16,681	13,332	71.48	55.66	3,349	64.30	2.69	0.0865	0.0002	0.0003
1		Reliant Energy															
	Brazoria	HL & P	Houston	3	East	2,008	2,548	13,740	11,859	66.52	55.568	1,881	4,532.46	1.88	4.2605	0.0117	0.0207
	Chambers	EGS	Port Arthur	4	East	318	2,548	12,913	11,297	59.02	49.96	1,616	616.67	2.68	0.8266	0.0023	0.0039
	Collin	TXU	Fort Worth	5	West	9,639	2,426	15,725	12,419	78.10	58.40	3,306	38,239.84	3.34	63.8605	0.1750	0.3172
	Dallas	TXU	Fort Worth	5	West	8,595	2,426	15,465	12,448	82.47	61.45	3,017	31,117.34	3.34	51.9660	0.1424	0.3017
	Denton	TXU	Fort Worth	6	West	5,338	2,426	15,725	12,419	78.10	58.40	3,306	21,176.91	3.34	35.3654	0.0969	0.1757
	El Paso	EL PASO Electric Company	El Paso	E	West	3,098	2,426	16,085	12,684	76.74	56.52	3,401	12,643.56	2.68	16.9487	0.0464	0.0839
Nonattain-	Fort Bend	Reliant Energy HL & P	Houston	4	East	1,049	2,548	13,093	11,467	61.75	51.80	1,626	2,046.81	1.88	1.9240	0.0053	0.0098
ment		Reliant Energy			_												
County	Galveston	HL & P	Houston	3	East	2,338	2,548	13,740	11,859	66.52	55.568	1,881	5,277.33	1.88	4.9607	0.0136	0.0241
	Hardin	EGS	Port Arthur	4	East	19	2,548	12,913	11,297	59.02	49.96	1,616	36.84	2.68	0.0494	0.0001	0.0002
	Harris	Reliant Energy	Houston		Faet	19 193	2.548	13.093	11 467	61 75	51 80	1 626	37 429 87	1.88	35 1841	0.0964	0 1795
	lefferson	EGS	Port Arthur		Faet	F103	2,540	12 913	11 207	59.02	10 00	1,020	1 182 91	2.68	1 5857	0.0043	0.0074
	Liberty	EGS	Port Arthur	1 7	Faet	212	2,340	12,913	11 207	59.02	40.90	1,010	A12.00	2.00	0.5537	0.0045	0.0026
	Montgomen	FGS	Houston	1 2	East	1000	2,340	12,913	11 /07	61 75	51 00	1,010	7 967 34	2.00	10.5057	0.0015	0.0020
	Orange	FGS	Port Arthur	4	East	4,032	2,040	12,093	11,407	69.03	10 00	1,020	332 54	2.00	0.4471	0.0209	0.0030
	Tarrant	TVII	Fort Month	4	Lasi	1/2	2,340	12,913	12 449	93.02	45.90	2,017	27 600 10	2.00	63 6363	0.0012	0.0021
	Tallant	Deliant Energy	For worth		west	10,358	2,420	15,465	12,440	02.47	61.45	3,017	37,500.10	3.34	02.0252	0.1710	0.3030
	Waller	HL & P	Houston	4	East	22	2,548	13,093	11,467	61.75	51.80	2,047	54.04	1.88	0.0508	0.0001	0.0002
	TOTAL											2,517	297,160.32	1	417.4298	1.1436	2.0947

Table 5. ESL Summary table: County-wide NOx Reductions Due to the 2000 IECC (Single Family Residences)

									Er	nergy Us	e per Hoi	use	Energy	Use for Ne For:	ew and All 2002	Houses		Energy	Savings											
			Primany Flacttic		Divisio	Estimated Total	Projected Number o Building	f Floor	1999 Average Annual	IECC 2001 Annual	1999	IECC	2002 Total	2002 Total	2002 Total Peak Day	2002 Total Peak Day	Annual	Peak Day	Total Enegy Savings (MWb)	Peak Day Energy Savings	lb.	lb.		Total Saving	s	Total	Savings (F	чөст)	2002 To Emis from Al Family	tal NOx sions I Single Houses
	County	Power Control Area ¹	Utility (Frem PUCT)	TMY2 ²	CZ ^I (East o West) ⁴	Family Houses (2002 ⁵	Permits to Single Family Houses ⁶ (2002)	(fi2) ⁷	Energy Use (KWh/ House) ^e	Energy Use (KWh/ House) ⁹	Peak Day (kWh/ House) ¹⁰	Peak Day(kWh/ House) ¹¹	Energy Use for New Houses (MWh)	Energy Use for All Houses (NWh)	Energy Use for New Houses (MWh)	Energy Use for All Houses (MWh)	per house (kWh/ flouse) ¹²	Savings (kWh/ House)	1999-JECC w/ 20% T&D Loss 13	for New Houses w/ 20% TAD Loss (MWh)	NOx/MWh	NO&/MWI (PUCT)	Tons/Year ¹³	Tons/Day ¹⁶	Peak Tons/Day ¹⁷	Tons/Year	Tons/Day	Peak Tons/Day	Tons/Yr	Peak Tons/Day
	Bastrop	ERCOT	ONCOR	Austin	4 West	16,96	3 14	6 2,426	16,545	13,310	77.98	59.56	1,943	226,037	7 9	1,012	3,235	18.42	566.77	3.23	2.69	3.34	0.7623	0.0021	0.0036	0.9465	0.0026	0.0054	377.48	1.69
		San Antonio				2000000					- Andrewski			Ren Market and Sale																
	Bexar	Public Service Bd	CPSB	San Antonio	4 West	405,35	5 7,16	8 2,426	16,681	13,332	71.48	55.66	95,564	5,404,196	399	22,563	3,349	15.82	28,806.76	136.09	3.24	3.24	46.6669	0.1279	D.1837	46.6669	0.1279	0.2205	8,754.80	36.55
	Caldwell	ERCOT	CPL(AEP)	Austin	4 West	9,12	8 10	1 2,426	16,545	13,310	77.98	59.56	1,344	121,490	0 6	544	3,236	18.42	392.08	2.23	2.69	2.65	0.5274	0.0014	0.0025	0.5274	0.0014	0.0030	163.40	0.73
	Comal	ERCOT	CPSB	San Antonio	4 West	26,76	1 1,11	1 2,426	16,681	13,332	71.48	55.66	14,812	356,771	1 62	1,490	3,349	15.82	4,464.89	21.09	2.69	3.2	6.0053	0.0165	0.0236	7.2331	0.0198	0.0342	577.97	2.41
	Ellis	TXU	ONCOR	Fort Worth	5 West	30,60	1 64	9 2,426	15,465	12,448	82.47	61.45	8,079	380,924	40	1,880	3,017	21.02	2,349.64	16.37	3.34	3.24	3.9239	0.0108	0.0226	3,8064	0.0104	0.0265	617.10	3.06
	Gregg	SWEPCO	SWEPCO(AEP)	Lufkin	6 East	35,15	0 19	4 2,548	13,139	11,258	65.34	52.74	2,184	395,716	5 10	1,854	1,881	12.61	437.90	2.93	2.68	2.6	0.5870	0.0016	0.0033	0.5890	0.0016	0.0039	532.24	2.49
	Guadalupe	ERCOT	CPSB	San Antonio	4 West	26,14	5 47	8 2,426	16,681	13,332	71.48	55.66	6,373	348,562	2 27	1,455	3,349	15.82	1,920.99	9.08	2.69	3.2	2.5837	0.0071	0.0102	3.1120	0.0085	0.0147	564.67	2.36
	Harrison	SWEPCO	SWEPCO(AEP)	Lufkin	6 East	19,76	9 3	3 2,548	13,139	11,258	65.34	52.74	372	222,562	2 2	1,043	1,861	12.61	74.49	0.50	2.68	2.6	0.0999	0.0003	0.0006	0.1002	0.0003	0.0007	299.35	1.40
	Hays	ERCOT	ERCOT/San Marco	s Austin	5 West	28,20	6 73	7 2,426	16,662	13,160	76.83	58.28	9,699	371,194	4 43	1,644	3,502	18.55	3,097.17	16.41	2.69	2.68	4.1657	0.0114	0.0184	4.1502	0.0114	0.0220	497.40	2.20
Affected	Johnson	TXU	ONCOR	Fort Worth	5 West	35,96	0 62	9 2,426	15,465	12,448	82.47	61.45	7,830	447,627	39	2,210	3,017	21.02	2,277.23	15.87	3.34	3.34	3.8030	0.0104	0.0221	3.8030	0.0104	0.0265	747.54	3.69
County	Kaufman	TXU	ONCOR	Fort Worth	6 West	20,03	6 21	8 2,426	15,725	12,419	78.10	58.40	2,707	248,824	4 13	1,170	3,306	19.71	864.85	5.18	3.34	3.3	1.4443	0.0040	0.0072	1,4443	0.0040	0.0086	415.54	1.95
	Nueces	CRI	CPL(AEP)	Corpus Chrsti	3 East	93,96	3 84	1 2,548	14,354	12,651	63.46	56.11	10,639	1,188,723	3 47	5,272	1,703	7.35	1,718.67	7.42	2.68	2.8	2.3039	0.0063	0.0063	2.3116	0.0063	0.0100	1,598.83	7.09
	Parker	TXU	ONCOR	Fort Worth	6 West	26,16	7 30	2 2,426	15,725	12,419	78.10	58.40	3,751	324,968	3 18	1,528	3,306	19.71	1,198.09	7.14	3.34	3.3	2.0008	0.0055	0.0099	2.0008	0.0055	0.0119	542.70	2.56
	Rockwall	TXU	ONCOR	Fort Worth	6 West	13,73	5 1,11	1 2,426	15,725	12,419	78.10	58.40	13,798	170,578	3 65	802	3,306	19.71	4,407.58	26.27	3.34	3.3	7.3606	0.0202	0.0366	7.3606	0.0202	0.0439	284.87	1.34
	Rusk	SWEPCO	SWEPCO(AEP)	Lufkin	5 East	14,93	4 1	7 2,548	13,139	11,253	65.34	52.97	191	166,066	5 1	791	1,886	12.37	38.47	0.25	2.68	2.6	0.0516	0.0001	0.0003	0.0517	0.0001	0.0003	226.03	1.06
	San Patricio	CRI	CPL(AEP)	Corpus Chrsti	3 East	19,08	4 21	8 2,548	14,354	12,651	63.46	56.11	2,758	241,432	2 12	1,071	1,703	7.35	445.50	1.92	2.68	2.65	0.5972	0.0016	0.0021	0.5992	0.0016	0.0026	324.73	1.44
	Smith	TXU	ONCOR	Lufkin	5 East	54,70	6 46	5 2,548	13,139	11,253	65.34	52.97	5,233	615,604	1 25	2,896	1,886	12.37	1,052.39	6.90	3.34	3.3	1.7575	0.0048	0.0096	1.7575	0.0048	0.0115	1,028.06	4.84
	Travis	Austin Energy	ONCOR	Austin	5 West	263,75	5 5,92	2 2,426	16,662	13,160	76.83	58.28	77,934	3,471,013	3 345	15,371	3,502	18.55	24,886.61	131.85	1.44	3.34	17.9184	0.0491	0.0791	41.5606	0.1139	0.2202	5,796.59	25.67
	Upshur	SWEPCO	SWEPCO(AEP)	Lufkin	6 East	11,23	2 1	7 2,548	13,139	11,258	65.34	52.74	191	126,444	1 1	592	1,881	12.61	38.37	0.26	2.68	2.65	0.0514	0.0001	0.0003	0.0516	0.0001	0.0003	170.07	0.80
	Victoria	CRI	CPL(AEP)	Victoria	3 East	25,02	1 15	6 2,548	13,923	12,251	67.25	60.21	1,911	306,525	9 9	1,507	1,6/2	7.04	313.00	1.32	2.68	2.65	0.4196	0.0011	0.0015	0.4210	0.0012	0.0018	412.28	2.03
	Williamson	TXU	ONCOR	Austin	5 West	75,96	6 4,11	1 2,426	16,662	13,160	76.83	58.28	54,101	999,709	240	4,427	3,502	18.55	17,276.07	91.53	2.68	3,34	23.1586	0.0634	0.1022	28.8510	0.0790	0.1528	1,669.51	7.39
	Wilson	ERCOT	ERCOT/Floreswille	San Antonio	4 West	9,11	5 1	6 2,426	16,681	13,332	71.48	56.66	213	121,515	1	507	3,349	15.82	64.30	0.30	2.69	2.62	0.0865	0.0002	0.0003	0.0962	0.0002	0.0004	162.83	0.58
	12 12	Reliant Energy				1000				10000								10.00							0.0007					
	Brazoria	HL & P	HELIANI	Houston	3 East	/1,98	/ 2,00	8 2,548	13,740	11,859	66.52	35.565	23,813	853,894	112	4,000	1,881	10.95	4,532.40	20.39	1.88	1.00	4.2605	0.0117	0.0207	4.2005	0.0117	0.0248	802.47	376
	Chambers	EGS	RELIANT	Port Arthur	4 East	8,38	8 31	8 2,548	12,913	11,297	59.02	49.96	3,592	94,759	16	419	1,616	9.06	616.67	3.46	2.68	1.8	0.8266	0.0023	0.0039	0.5/9/	0.0016	0.0033	89.07	0.39
	Collin	TXU	ONCOR	Fort Worth	5 West	165,44	/ 9,63	9 2,426	15,725	12,419	78.10	58.40	119,707	2,054,686	563	9,661	3,306	19.71	38,239.84	221.95	3.34	3.3	63.8605	0.1/50	U.3172	63 8605	0 1750	0.380/	3,431.33	16.13
	Dallas	10	ONCOR	Fort Worth	5 West	65/,//	9 8,59	5 2,420	15,465	12,448	82.47	61.45	106,991	8,168,036	528	40,421	3,017	21.02	31,117.34	216.80	3.34	3.34	51.9660	0.1424	0.3017	51.9000	0.1424	0.3621	13,674.02	67.50
	Denton	TXU DIOR	UNCOR	For worth	DIVVest	136,72	5,33	8 2,420	15,725	12,419	78.10	56.4U	00,233	1,598,022	312	7,904	3,300	19.71	21,176.91	120.24	3.34	3.34	35.3054	0.0969	U.1/5/	30,3004	0.0969	0.2106	2,835.70	13.33
	100	EL PASO		CI D	-			1 2 425	10.000		75.74			2 240 250		0.000	2.04	20.24	100000		2.00		10.007	0.000	0.0000	10 0000	00.00	0.000	201100	10.00
	El Paso	Electric Company	EPEC	El Paso	5 West	1/4,53	1 3,09	8 2,420	16,065	12,684	/6./4	56.52	39,295	2,213,754	1/5	9,865	3,401	20.21	12,643.56	/5.15	2.60	2.0.	16.948/	0.0464	0.0639	10.0203	0.0456	0.0988	2,911.09	12.97
	F	Remark Coergy							12 000		C4 35		13 000			1.545		0.00	205.00		1		1000	0.0000	0.0000		0000	0.000	000.04	1
Nonattain	Fort Bend	HL & P	HELIANI	Houston	4 2:251	89,09	1 1,04	9 2,548	15,093	11,46/	61.75	51.80	12,029	1,021,609	54	4,615	1,020	9.96	2,046.81	12.53	1.00	1.00	1.9240	0.0053	0.0090	1.9240	0.0053	0.0118	960.31	4.34
ment	L	Reliant Energy			1			0.000						1.00000	1	1.015		10.00	6.000.000				1.0000	0.047			00.00	0.000		1
County	Galveston	HL & P	RELIANI	Houston	JEast	88,47	6 2,33	8 2,548	13,740	11,859	60.02	55.568	21,120	1,049,234	130	4,916	1,881	10.95	5,211.33	30.73	1.88	1.00	4.9607	0.0136	0.0241	4.9607	0.0136	0.0289	966.26	4 62
	Mardin	EGS	ENTERGY	Port Arthur	4 East	14,91	5 1	9 2,548	12,913	11,297	59.02	49.96	215	168,495	1	/45	1,010	9.06	30.04	0.21	2.60	2.04	0.0494	0.0001	0.0002	0.0301	0.0001	0.0002	1/4.39	0.77
	al and a	Hellant Energy	INFI LANT		1			3 3600	13.000			F1	210.075	11 004 100		£3.4-3		0~	27.420.00	220.00	1.00	1.00	20.4000	0.0001	0.1705	26 10/1	0.000	0.200	10.007.00	10.72
	nams	IL & P	RELIANI	nousion	4 East	1,011,96	4 19,18	3 2,548	13,093	11,46/	61./5	51.80	219,9/1	070 004	994	2,41/	1,620	9.90	1 192 24	223.10	1.80	1.00	35,1841	0.0964	0.1795	30.1841	0.0964	0.2154	10,907.93	49.27
	Jenerson	100	ENIERGY	Pon Annur	4 East	///8	61	2,548	12,913	11,29/	59 02	49.96	6,891	8/8,681	30	3,886	1,010	9.06	1,182.91	0.03	2.66	2.04	1.565/	0.0043	0.0074	0 4275	0.0034	0.0069	909.43	4.02
	Liberty	200	ENTERGY	Pon Arthur	4 East	20,19	21	3 2,548	12,913	11,29/	59 02	49.96	2,400	226,146	11	1,009	1,616	9.06	413.05	2.32	2.68	2.00	0.553/	0.0015	0.0026	0.42/5	0.0012	0.0024	236.13	1.04
	montgomer	1500	ENIERGY	Houston	4 East	92,64	4,03	2 2,548	13,093	11,467	61.75	51.80	46,235	1,062,320	209	4,799	1,626	9.96	7,067.24	48.17	2.68	2.0/	10.5460	0.0289	0.0538	0,1425	0.0223	0.0499	1,099.50	4.9/
	Urange	EGS	ENTERGY	Pon Arthur	4 East	26,43	1/	2 2,548	12,913	11,29/	59 02	49.96	1,943	298,577	9	1,320	1,616	9.06	333.54	1.87	2.68	2.0/	0.44/1	0.0012	0.0021	0.3452	0.0009	0.0019	309.03	1.3/
	Tarrant	Defect Farm	UNCOR	r on worth	5 West	445,08	9 10,35	0 2,420	15,465	12,448	82.4/	61.45	128,936	5,54U,462	63/	21,351	3,017	21.02	37,500.10	201 21	3.34	3.34	02.6252	0.1/16	0.3636	02.0252	0.1/16	0.4363	9,652.57	45.68
		reelant Energy	OT LANT		15.1			2 2 5 40	+2 000		C1 70	61.00	200	100 704		107	2.047	0.00	54.04	0.00	1.00	1.00	0.0000	0.0001	0.0000	0.0000	0.0004	0.000	07.12	0.0
	TOTAL	IL & P	RELIANI	riouston	4 East	9,01	0 01 00	2 2,548	13,093	11,46/	01/5	51.80	1 107 000	103,321	F 100	40/	2,04/	3.90	307 400 20	1 772 20	1.88	1.00	417.4000	0.0001	2,000/2	145 0110	1.00001	2,0002	37.12	244.04
	HUIAL	1	and the second se		1 1	6 10 / //	9163	71			2 1000	2110	1 1.127 922	1 33.116 454	1 5 192	245 505	20.031		227 100 32	1 1/3 23		A REAL PROPERTY OF A REAL PROPER	41/.428	1.1430	2.054/ 1	440.U110 I	12192	2 0001	7.4.440.30	/ 344.041

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 Table 6. Modified Summary Table Using the November 2002 PUCT PCA assignments.

Nonattainment and Affected Counties	Electric Retail Service Area	Power Control Area	NERC Region	Total Energy Savings by County (MWh)	Total Energy Savings by PCA (MWh)	NOx Emission Reduction by County (Tons/yr)	NOx Emission Reduction by PCA (Tons/yr)
Travis	Austin Energy	Austin Energy/PCA	ERCOT	24,886,6	and the second se	17,9184	
A CARE NO.		Austin Energy/PCA			24.886.6		17,9184
		American Electric Power West					
Nueces	CRI	(ERCOT)/PCA	ERCOT	1,718.7		2.3039	
	0.01	American Electric Power West				0.5070	
San Patricio	CRI	(ERCOT)/PCA	ERCOT	445.5		0.5972	
Victoria	CRI	(FRCOT)/PCA	FRCOT	313.0		0.4196	
THORETTY	UT II	American Electric Power West	LICOT	010.0		0.1100	
	Caroling Strategy	(ERCOT)/PCA			2,477.2		3.3207
Bastrop		Lower Colorado River Authority/PCA	ERCOT	566.8		0.7623	
Caldwell		Lower Colorado River Authority/PCA	ERCOT	392.1		0.5274	
Comal		Lower Colorado River Authority/PCA	ERCOT	4,464.9		6.0053	
Guadalupe		Lower Colorado River Authority/PCA	ERCOT	1,921.0		2.5837	
Hays		Lower Colorado River Authority/PCA	ERCOT	3,097.2		4.1657	
Wilson		Lower Colorado River Authority/PCA	ERCOT	64.3		0.0865	
	Contraction and States	Lower Colorado River Authority/PCA		and the second	10,506.2		14.1309
Brazoria	Reliant Energy HL&P	Reliant Energy HL&P/PCA	ERCOT	4,532.5		4.2605	
	Reliant Energy						
Fort Bend	HL&P	Reliant Energy HL&P/PCA	ERCOT	2,046.8		1.924	
Galveston	Reliant Energy HL&P	Reliant Energy HL&P/PCA	ERCOT	5,277.3		4.9607	
Harris	Reliant Energy HL&P	Reliant Energy HL&P/PCA	ERCOT	37,429.9		35.1841	
Waller	Reliant Energy HL&P	Reliant Energy HL&P/PCA	ERCOT	54.0		0.0508	
C. C. S. F. F. S.		Reliant Energy HL&P/PCA		Constant Constant	49,340.5	1. 2. 1. 1. 1. 1. 1. 1.	46.3801
Bexar	San Antonio Public Service Bd	San Antonio Public Service Bd/PCA	ERCOT	28,806.8		46.6669	
	Contraction of the second	San Antonio Public Service Bd/PCA			28,806.8		46.6669
Ellis	1XU	TXU Electric/PCA	ERCOT	2,349.6		3.9239	
Johnson	1XU	TXU Electric/PCA	ERCOT	2,211.2		3.803	
Kaufman	1XU	TXU Electric/PCA	ERCOT	864.8		1.4443	
Parker	TXU	TXU Electric/PCA	ERCOT	1,198.1		2.0008	
Rockwall	1XU	TXU Electric/PCA	ERCOT	4,407.6	-	7.3606	
Smith	TXU	TXU Electric/PCA	ERCOT	1,052.4		1.75/5	
Callia	TXU	TXU Electric/PCA	ERCOT	17,276.1		23.1500	
Dallas	TYU	TXU Electric/PCA	ERCOT	38,239.8	4	63.0005 E1.000	
Donton		TXU Electric#CA	ERCOT	31,117.3		20.2054	
Tarrant	TYL	TXU Electric/PCA	ERCOT	21,170.9		62,6262	
Tariant	1/0	TVU Electric PCA	ERCOT	37,500.1	157 460 0	02.0252	258 2658
Chambore	FCS	Enterroy Electric Surder DC #	SEDC	E16 7	107,400.0	0.9366	200.2000
Hardin	EGS	Entergy Electric System/PCA	SERC	2010.7	-	0.0200	
leffersen	EGS	Entergy Electric System/PCA	SEDC	1 193.0	1	1.6957	
Liberty	EGS	Entergy Electric System/PCA	SERC	1,102.9	1	0.5537	
Montgomory	FGS	Entergy Electric System/PCA	SEDO	7 967 0	-	10.5557	
Orange	EGS	Entergy Electric System/PCA	SEDC	1,007.2	-	0.4471	
vialige	200	Entergy Electric System/PCA	JERU		10,450.3	0.44/1	14.0085
	EL DAGO	and grant of along of			10,400.0		
El Paso	EL PASO Electric Company	El Paso Electric Co/PCA	WSCC	12,643.6		16.9487	
		El Paso Electric Co/PCA			12,643.6		16.9487
Gregg	SWEPCO	Southwestern Public Service Co/PCA	SPP	437.9		0.587	
Harrison	SWEPCO	Southwestern Public Service Co/PCA	SPP	74.5		0.0999	
Rusk	SWEPCO	Southwestern Public Service Co/PCA	SPP	38.5		0.0516	
Upshur	SWEPCO	Southwestern Public Service Co/PCA	SPP	38.4		0.0514	
		Southwestern Public Service Co/PCA		a state of the sta	589.2		0.7899
Total	MARCH AND THE REAL PROPERTY AND THE REAL PRO	No second the state of the second second	Contraction of the local distance	297 160 3	297,160,3	418 4299	418,4299

 Table 7. Total Annual Electricity Savings Due to The 2000 IECC by Power Control Area (Single Family Residences)

Nonattainment and Affected Counties	Electric Retail Service Area	Power Control Area	NERC	Peakday Energy Savings by County (MWh)	Peakday Energy Savings by PCA (MWh)	NOx Emission Reduction by County (Tons/day)	NOx Emission Reduction by PCA (Tons/day)
Travis	Austin Energy	Austin Energy/PCA	FRCOT	131.85		0.2202	
TIGTIO	ridolin Energy	Austin Energy PCA	Entoon	101.00	131.8	U.LLUL	0 2202
		American Electric Power West			10110		
Nueces	CRI	(ERCOT)/PCA	ERCOT	7.42		0.0100	
		American Electric Power West					
San Patricio	CRI	(ERCOT)/PCA	ERCOT	1.92		0.0026	
10-1-1-	0.01	American Electric Power West	FROOT	1.00		0.0010	
Victoria	CRI	(ERCOT)/PCA	ERCOT	1.32		0.0018	
	C. C	American Electric Power West		Star Sal 2003	10.7	a share a state	0.0143
Baetron		Lower Colorado River Authority PCA	EPCOT	3 23	10.1	0.0054	0.0145
Caldwall		Lower Colorado River Authority/PCA	ERCOT	3.23		0.0034	
Canuwen		Lower Colorado River Authority/PCA	ERCOT	2.23		0.0030	
Cundaluna		Lower Colorado River Authority/PCA	ERCOT	21.09		0.0342	
Guadalupe		Lower Colorado River Authority/PCA	ERCOT	9.08		0.0147	
Hays		Lower Colorado River Authority/PCA	ERCOT	16.41		0.0220	
Wilson		Lower Colorado River Authority/PCA	ERCOT	0.30		0.0004	0.07.01
	and the second	Lower Colorado River Authority/PCA			52.3		0.0797
	Reliant Energy						
Brazoria	HL&P	Reliant Energy HL&P/PCA	ERCOT	26.39		0.0248	
	Reliant Energy						
Fort Bend	HL&P	Reliant Energy HL&P/PCA	ERCOT	12.53		0.0118	
	Reliant Energy						
Galveston	HL&P	Reliant Energy HL&P/PCA	ERCOT	30.73		0.0289	
	Reliant Energy						
Harris	HILP	Relient Energy HI & P/PCA	FRCOT	229 18		П 2154	
Indina	Poliont Energy	Reliant chergy near rox	LROOT	220.10		0.2104	
Mallor	HI OD	Pallact Energy HI \$0.000	FROOT	0.26		0.0002	
wallel	TILOUF	Reliant Energy HLaP/PCA	ERCOT	0.20	200.1	0.0002	0 2017
	Can Antonia	Kellant Energy HL&P/PCA			299.1	and the second second	0.2012
0	San Antonio		FROOT	100.00		0.0005	
Bexar	Public Service Bd	San Antonio Public Service Bd/PCA	ERCOT	136.09	100.1	0.2205	0.0005
		San Antonio Public Service Bd/PCA			136.1		0.2205
Ellis	TXU	TXU Electric/PCA	ERCOT	16.37		0.0265	
Johnson	TXU	TXU Electric/PCA	ERCOT	15.87		0.0265	
Kaufman	TXU	TXU Electric/PCA	ERCOT	5.16		0.0086	
Parker	TXU	TXU Electric/PCA	ERCOT	7.14		0.0119	
Rockwall	TXU	TXU Electric/PCA	ERCOT	26.27		0.0439	
Smith	TXU	TXU Electric/PCA	ERCOT	6.90		0.0115	
Williamson	TXU	TXU Electric/PCA	ERCOT	91.53		0.1528	
Collin	TXU	TXU Electric/PCA	ERCOT	227.95		0.3807	
Dallas	TXU	TXU Electric/PCA	ERCOT	216.80		0.3621	1
Denton	TXU	TXU Electric/PCA	ERCOT	126.24		0.2108	1
Tarrant	TXU	TXLLElectric/PCA	ERCOT	261 27		0.4363	1
. JITOIN	1/10	TVI Flootria DCA	LINGOT	201.27	1 001 6	0.4000	1 6717
Chamber	FCC	Enterna Electric Contra DCA	CEDO	340	1,001.5	0.0022	1.0/17
Champers	E62	Entergy Electric System/PCA	SERU	3.46		0.0033	1
nardin	EGS	Entergy Electric System/PCA	SERC	0.21		0.0002	
Jenerson	EGS	Entergy Electric System/PCA	SERC	6.63		0.0069	
Liberty	EGS	Entergy Electric System/PCA	SERC	2.32		0.0024	4
Montgomery	EGS	Entergy Electric System/PCA	SERC	48.17		0.0499	
Orange	EGS	Entergy Electric System/PCA	SERC	1.87		0.0019	
		Entergy Electric System/PCA			62.7		0.0645
	EL PASO						
El Paso	Electric Company	El Paso Electric Co/PCA	WSCC	75.15		0.0988	
				. 5.10		0.000	
		El Dana Electric de Dea			75.4		0.0000
Crown	SIN/EDOO	El Paso Electric Co/PCA	000	2.00	/5.1	0.0000	0.0908
Gregg	SWEPCO	Southwestern Public Service Co/PCA	522	2.93		0.0039	
Harrison	SWEPCO	Southwestern Public Service Co/PCA	SPP	0.50		0.0007	4
Rusk	SWEPCO	Southwestern Public Service Co/PCA	SPP	0.25		0.0003	
Upshur	SWEPCO	Southwestern Public Service Co/PCA	SPP	0.26		0.0003	
		Southwestern Public Service Co/PCA			3.9		0.0053
Total	PROPERTY OF STREET, ST	And the second statements when the second statement and the second statements and	NUMBER OF STREET	17723	1 772 2	2 6661	2 6661

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 Table 8. Peak Day Electricity Savings Due to The 2000 IECC by Power Control Area (Single Family Residences)

2	American Electric Power - West	
County	(ERCOT)/PCA	04.77
BASTRUP	0.01	24.77
BEXAR	0.06	148.63
BRAZORIA	0.01	24.77
BRAZOS	0.00	0.00
CALHOUN	0.19	470.66
CAMERON	0.14	346.80
CHAMBERS	0.05	123.86
CHEROKEE	0.01	24.77
COKE	0.03	74.32
COLEMAN	0.02	49.54
COLLIN	0.01	24.77
CROCKETT	0.14	346.80
DALLAS	0.06	148.63
DENTON	0.00	0.00
FANNIN	0.02	49.54
FAYETTE	0.02	49.54
FORT BEND	0.13	322.03
FREESTONE	0.02	49.54
FRIO	0.05	123.86
GALVESTON	0.05	123.86
GRIMES	0.01	24.77
HARDEMAN	0.01	24.77
HARRIS	0.05	123.86
HASKELL	0.16	396.35
HENDERSON	0.00	0.00
HIDALGO	0.13	222.02
HOOD	0.13	322.03
IOUNICON	0.02	49.54
JOHNSON	0.00	0.00
JUNES	0.14	340.80
LAMAK	0.00	0.00
LIMESTONE	0.01	24.77
LLANO	0.00	0.00
MCLENNAN	0.04	99.09
MITCHELL	0.04	99.09
NOLAN	0.00	0.00
NUECES	0.74	1833.11
PALO PINTO	0.01	24.77
PARKER	0.00	0.00
RED RIVER	0.00	0.00
ROBERTSON	0.00	0.00
RUSK	0.01	24.77
TARRANT	0.04	99.09
TAYLOR	0.01	24.77
TITUS	0.01	24.77
TRAVIS	0.00	0.00
VICTORIA	0.30	743.15
WARD	0.06	148.63
WEBB	0.06	148.63
WHARTON	0.00	0.00
YOUNG	0.02	49.54
TOTAL	2.90	7183.80
		1100.00
Energy Savings by		

Table 9. Example of Calculation for American Electric Power/PCA and Bastrop County



 Table 10. Example of Calculation for Annual NOx Reductions

		Electric Power						Lower Colorado								Texas					
Area	County	West (ERCOT) /PCA	NOx Reductions (lbs)	Austin Energy/PCA	NOx Reductions (lbs)	Brownsville Public Utils Board/PCA	NOx Reductions (Ibs/year)	River Auhotrity /PCA	NOx Reductions (lbs)	Reliant Energy HL&P/PCA	NOx Reductions (lbs)	San Antonio Public Service Bd/PCA	NOx Reductions (lbs)	South Texas Electric Coop INC/PCA	NOx Reductions (fbs)	Municipal Power Poo/PCA	NOx Reductions (lbs)	Texas-New Mexico Power Co/PCA	NOx Reductions (lbs)	TXU Electric/PCA	NOx Reductions (lbs)
	BASTROP BEXAR	0.01	0.11	0.20	26.37 11.87	7 0.04	0.00	0.34	17,80		0.0	0 0.01	1.36	0.06	0.00	0.01	0.00	0	0.00		0.0
A	TRAVIS FAYETTE	0.02	0.00	0.46	60.65	0.02	0.00	0.05	2.62	0.01	0.0	0 0.04	0.00	0.01	0.00	0.02	0.00		0.00	0.02	20.0
Austin- an Antonio	CALDWELL		0.00	0.12	15.82	2	0.00	0.21	10.99		0.0	0 0.01	1.3		0.00		0.00		0.00		0.0
	GUADALUPE		000		0.00		0.00		0.00		0.0	0	0.00		0.00		0.0		0.00		0.0
	WILLIAMSON		0.00		0.00		0.00		0.00		0.0	0	0.00		0.00		0.00		0.00		0.0
	COLLIN DALLAS	0.01	0.11	0.01	1.32	2 0.04	0.00	0.02	1.05	0.01	2.9 8.9	9 7 0.01	0.00	0.05	0.00	0.19	0.00	0.09	0.00	0.02	20.0
	DENTON JOHNSON		0.00	0.01	1.32	2	0.00	0.01	0.52		0.0	0	0.00	0.04	0.00	0.15	0.0		0.00	0.01	10.0
	CHEROKEE	0.01	0.00 0.11	0.01	0.00	0.01	0.00	0.02	0.00		0.0	0	0.00	0.01	0.00	0.03	0.0	0.02	0.00	0 10	100.1
	COLEMAN	0.02	0.2	0.02	0.00	0.01	0.00	0.03	0.00	0.01	0.0	0	0.00	3 0.03	0.00	0.09	0.0	0.03	0.00	0.17	0.0
	FRIO HARDEMAN	0.05	0.5	1	0.00	0.04	0.00	0.01	0.52		0.0	0	0.00	1.16	0.00	0.07	0.0		0.00		0.0
	HASKELL HENDERSON	0.16	171		0.00	0.12	0.00	0.01	0.52		0.0	0	0.00	0.03	0.00	0.01	0.0	0 0.01	0.00	0.01	10.0
Vorth Area	HOOD JONES	0.02	0.21	0.02	2.64	0.02	0.00	0.04	2.09	0.01	2.9 0.0	9	0.00	0.03	0.00	0.12	0.00 0.00	0.04	0.00	0.22	220.3
	LAMAR LIMESTONE	0.01	0.00	0.01	0.00	2	0.00		0.00	0.05	0.0	0 6 0.01	0.00	5	0.00		0.00		0.00	0.01	10.0
	MITCHELL	0.04	0.4	0.04	5.27	0.03	0.00	0.07	3.66	0.02	5.9	8 0.01 8 0.01	1.3	0.06 0.06	0.00	0.22	0.00	0.07	0.00	0.39	390.5
	PALO PINTO	0.01	0.11	0.02	2.64	0.01	0.00	0.03	1.57	0.01	29	9	000	0.09	0.00	0.36	0.0	0	0.00	0.02	20.0
	TAYLOR	0.01	0 11	0.01	0.00	0.01	0.00	0.02	0.00		0.0	0	0.00	0.02	0.00	0.05	0.0	0.02	0.00	0.10	0.0
	YOUNG	0.02	0.2	0.02	2.64	0.01	0.00	0.03	1.57	0.01	2.9	9 0.01	0.00	0.03	0.00	0.09	0.0	0.03	0.00	0.16	160.2
	ELLIS KAUFMAN		0.00		0.00		0.00	1000 C	0.00		0.0	0	0.00		0.00		0.0	0	0.00		0.0
-	BRAZORIA	0.01	0.00	0.01	0.00	2	0.00		0.00	0.05	0.0	6 0.01	0.00	6	0.00		0.0	0	0.00		0.0
	GRIMES	0.01	0.11	0.01	1.32	2	0.00	0.01	0.52	0.01	29	9	0.00	0.06	0.00	0.23	0.0		0.00	0.01	10.0
	CHAMBERS	0.05	0.53	0.06	7.91	0.03	0.00	0.02	1.05	0.35	104.6	9 0.08	10.85	0.03	0.00	0.02	0.0	0.02	0.00	0.03	30.0
Houston Galveston	GALVESTON ROBERTSON	0.05	0.5	0.06	7.91	0.04	0.00	0.02	1.05	0.39	116.6	6 0.09	12 2	5 0.04	0.00	0.03	0.0	0 0.42	0.00	0.04	40.0
Area	HARRIS	0.05	0.53	0.07	9.23	0.04	0.00	0.02	1.05	0.41	122.6	3 0.09	12 25	5 0.04	0.00	0.02	0.0	0.03	0.00	0.04	40.0
	JEFFERSON LIBERTY		0.00		0.00		0.00		0.00		0.0	0	0.00		0.00		0.0	0	0.00		0.0
	MONTGOMERY ORANGE		0.00		0.00		0.00		0.00		0.0	0	0.00		0.00		0.0	0	0.00		0.0
Paso Area	WALLER EL PASO		0.00		0.00		0.00		0.00		0.0	0	0.00		0.00		0.0	0	0.00		0.0
	CROCKETT	0.01	1.45	0.01	0.00	0.11	0.00	0.01	0.52		00	0	0.00	0 0.03	0.00	0.04	0.0	0 0.01	0.0	0.01	10.0
	CALHOUN	0.12	200	0.02	0.00	0.02	0.00	0.04	0.52	0.01	0.0	0	0.00	0.03	0.00	0.01	0.0		0.00	0.01	10.0
	CAMERON	0.14	1.45	0.06	0.00	0 20	0.00	0.09	0.00	0.02	0.0	0 0.01	0.00	0.03	0.00	0.26	0.0	0 0.10	0.00	0.01	10.0
ETC	WEBB NUECES	0.06	0.64	0.01	0.00	0.05	0.00	0.02	0.00	0.01	0.0	0 9 0.01	0.00	0.01	0.00	0.02	0.0	0 0.01	0.0	0.03	0.0
	GREGG	0.30	3.20	0.01	1.32	0.22	0.00	0.01	0.52		0.0	0	0.0	0.68	0.00	0.05	0.0	0	0.0	0.01	10.0
	HARRISON SMITH		0.00)	0.00		0.00		0.00		00	0	0.00		00.00		0.0	0	0.00		0.0
	UPSHUR SAN PATRICIO		000		0.00		0.00		0.00		0.0	0	0.00		0.00		0.0	0	0.00		0.0
	TUTAL	2.89	30.8	2.54	334.89	2.22	0.00	3.12	163.30	2.48	741.7	2.63	357.9	3.27	00.0	3.19	0.0	1.34	0.0	3.63	3603.4
Energy Sa from E	mings by PCA SL (MWh)	10.55		131.86				52.34		288.11		136.09								1001.40	

 Table 11. Example of Calculation for Peak Day NOx Reductions



Figure 1. Distribution of the Non-attainment & Affected Counties in Texas



Figure 2. Distribution of 2002 Annual Electricity Savings Due To the 2000 IECC (Single Family Residential)



Figure 3. 2002 Annual Electricity Savings Due To the 2000 IECC (Single Family Residential)



Figure 4. Distribution of Power Plant Annual NOx Reductions Due To The 2000 IECC (Single Family Residential)



Figure 5. Power Plant Annual NOx Reductions Due To The 2000 IECC (Single Family Residential)



Figure 6. Distribution of 2002 Peak day Electricity Savings Due To the 2000 IECC (Single Family Residential)



Figure 7. 2002 Peak day Electricity Savings Due To the 2000 IECC (Single Family Residential)



Figure 8. Distribution of Power Plant Peak Day NOx Reductions Due To The 2000 IECC (Single Family Residential)



Figure 9. Power Plant Peak day NOx Reductions Due To The 2000 IECC (Single Family Residential)