CPS Energy’s Generation Strategy

Kim R. Stoker,
Sr. Director Environmental & Sustainability
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ABOUT CPS ENERGY

• The nation’s largest municipally-owned natural gas and electric utility

• Serve 786k electric and 339k natural gas customers in a 1,515 square-mile service area

• Customers’ combined energy bills rank among the lowest nationwide

• Solar leader in Texas; TX 10th in nation for solar capacity

• $11B in assets; $2.5B in annual revenue
VISION 2020

Vision 2020 transitions CPS Energy from a company that is highly dependent on traditional generation power sources to a company that provides **competitively priced power based on a diverse generation portfolio.**

- **20% renewable energy capacity in power generation mix**
- **65% of generation low-carbon**
Diversification

Fuel and Technology Diversification - Installed Capacity

1970
Gas-Steam 100%
1648 MW

1980
Gas-Steam 24.9%
Coal 75.1%
3338 MW

1990
Gas-Steam 61.1%
Coal 21.1%
Nuclear 17.8%
3930 MW

2015
Gas-Steam 41%
Coal 27%
Wind/Landfill Gas 13%
STEP 3.7%
Solar 1.7%
8056 MW
CPS Energy Approach

Reduce carbon intensity/transition to a cleaner fleet
- Early retirement of coal, Additional natural gas, Nuclear, Affordable renewables

Save For Tomorrow Energy Plan (STEP)
- Energy Efficiency
- Demand Response - Residential and C&I

Invest in innovative technologies
- LED lighting
- Smart grid/Smart meters
- Energy storage technologies
INTELLIGENCE & AUTOMATION OF GRID

- Community Benefits:
  - Economic growth
  - Enhanced reliability
  - Maintain competitive rates
CPS Energy Solar Installations

- Solara: 106.4 MW
- Pearl: 50 MW
- Sirius: 110 MW
- Eclipse: 40 MW
- Helios: 95 MW
- Alamo 1: 40 MW
- Alamo 2: 4.4 MW
- Alamo 3: 5.5 MW
- Alamo 8: 1 MW
- Blue Wing: 14 MW
- Somerset: 11 MW
- Sinkin 1&2: 20 MW

Total = 500 MW
SOLAR TECHNOLOGY MIX

Single Axis

Fixed

Dual Axis

Photo courtesy of OCI Solar
ALAMO 5 SOLAR FARM

Photo courtesy of OCI Solar
ALAMO 6 AND 7 SOLAR FARMS

Photos courtesy of OCI Solar
3 SOLAR PROGRAMS

Private Ownership  Roofless Solar  Solar Hosting
WIND
CPS Energy CO₂ Intensity

1988 - STP 1 & 2 added to Generation mix
1993 - STP shutdown for year
2005 - Increase STP from 28% to 40% ownership
2010 - Increase due to Spruce 2
POWER PLANT WATER USAGE

2011 Texas Water Use Survey*

- Irrigation: 61%
- Municipal: 28%
- Manufacturing: 6%
- Mining: 1%
- Steam Electric: 2%
- Livestock: 2%

State of Texas:

- Vast majority of water in electric generation process is cycled through power plant for cooling and returned to reservoir
- 2-4% of statewide water use; an important but relatively small amount on a statewide basis

*Source: Texas Water Development Board
Retrieved 12/4/2013
## WATER USE

<table>
<thead>
<tr>
<th>Water Sources</th>
<th>Water Requirements</th>
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</thead>
<tbody>
<tr>
<td><strong>Edwards Aquifer</strong> (Lee West Plant)</td>
<td>Cooling, process (NOx control)</td>
</tr>
<tr>
<td><strong>Surface Water</strong>-Braunig Power Station</td>
<td>Cooling water, natural evaporation</td>
</tr>
<tr>
<td><strong>Recycled Water from SAWS</strong> – Calaveras Power Station (San Antonio River beds and banks diversion) into Calaveras Lake</td>
<td>Cooling water, natural evaporation, process (FGD), and irrigation</td>
</tr>
<tr>
<td><strong>Potable Water</strong> from San Antonio Water System (SAWS)/East Central Water</td>
<td>Boiler feed, process, sanitary and drinking</td>
</tr>
<tr>
<td><strong>Reuse Water</strong>- Rio Nogales</td>
<td>Cooling tower</td>
</tr>
<tr>
<td><strong>Potable Water</strong> - Rio Nogales</td>
<td>Cooling tower, boiler, sanitary and drinking</td>
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Cumulative Historical Water Savings

<table>
<thead>
<tr>
<th></th>
<th>Water saved</th>
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<tbody>
<tr>
<td>CPS STEP (2005-2015)</td>
<td>5,842</td>
</tr>
<tr>
<td>CPS Renewables (2015)</td>
<td>40,410</td>
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</table>
ANNUAL WATER SAVINGS

Water Saved Due to Renewables & Energy Efficiency

<table>
<thead>
<tr>
<th>Year</th>
<th>STEP (Energy Efficiency)</th>
<th>Renewables</th>
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<tbody>
<tr>
<td>2002</td>
<td>-</td>
<td>581</td>
</tr>
<tr>
<td>2003</td>
<td>-</td>
<td>622</td>
</tr>
<tr>
<td>2004</td>
<td>-</td>
<td>656</td>
</tr>
<tr>
<td>2005</td>
<td>1</td>
<td>789</td>
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<tr>
<td>2006</td>
<td>41</td>
<td>1,45</td>
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<tr>
<td>2007</td>
<td>91</td>
<td>2,02</td>
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<tr>
<td>2008</td>
<td>216</td>
<td>2,50</td>
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<tr>
<td>2009</td>
<td>385</td>
<td>2,67</td>
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<tr>
<td>2010</td>
<td>496</td>
<td>3,81</td>
</tr>
<tr>
<td>2011</td>
<td>595</td>
<td>4,45</td>
</tr>
<tr>
<td>2012</td>
<td>770</td>
<td>5,36</td>
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<tr>
<td>2013</td>
<td>917</td>
<td>5,72</td>
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<tr>
<td>2014</td>
<td>1,09</td>
<td>4,92</td>
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<tr>
<td>2015</td>
<td>1,23</td>
<td>6,62</td>
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<tr>
<td>2016</td>
<td>1,08</td>
<td>7,19</td>
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<tr>
<td>2017</td>
<td>1,26</td>
<td>7,11</td>
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<td>2018</td>
<td>1,42</td>
<td>7,21</td>
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<td>2019</td>
<td>1,62</td>
<td>7,16</td>
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<tr>
<td>2020</td>
<td>1,75</td>
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</table>
Total Edwards Aquifer Water Saved 1.1 million acre ft

Groundwater (Acre-FT)
Reuse/SA River Diversion (Acre-Ft)
Net Gen Bexar County Plants only* (GWh)
QUESTIONS?

Photo courtesy of OCI Solar