GENERATION UPDATE

PRESENTED BY:

Dr. Cris Eugster
Chief Operating Officer (COO)
March 25, 2019

Informational Update
AGENDA

• OUR GROWING COMMUNITY
• OUR DIVERSE PORTFOLIO
• PLANNING FOR SUMMER 2019
• OUR FUTURE PLANNING APPROACH
San Antonio grew more than any other city in the country between 2016 and 2017.\(^{(1)}\)

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\(^{(1)}\) [Link](https://www.npr.org/sections/thetwo-way/2018/05/24/614195884/new-census-data-shows-texas-cities-are-growing-faster-than-all-other-states) dated May 24, 2018
CUSTOMERS ARE BECOMING MORE ENERGY EFFICIENT

We have helped our customers be more efficient and kept our overall peak flat, even as San Antonio continues to grow.

Power Use per Residential Customer

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>kWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>12,500</td>
</tr>
<tr>
<td>2005</td>
<td>13,000</td>
</tr>
<tr>
<td>2007</td>
<td>13,500</td>
</tr>
<tr>
<td>2009</td>
<td>14,000</td>
</tr>
<tr>
<td>2011</td>
<td>14,500</td>
</tr>
<tr>
<td>2013</td>
<td>15,000</td>
</tr>
<tr>
<td>2015</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td></td>
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</tbody>
</table>

Peak Load

<table>
<thead>
<tr>
<th>Calendar Year</th>
<th>MWs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>5,000</td>
</tr>
<tr>
<td>2014</td>
<td>5,000</td>
</tr>
<tr>
<td>2015</td>
<td>5,000</td>
</tr>
<tr>
<td>2016</td>
<td>5,000</td>
</tr>
<tr>
<td>2017</td>
<td>5,000</td>
</tr>
<tr>
<td>2018</td>
<td>6,000</td>
</tr>
</tbody>
</table>

Demand response programs and other conservation efforts are effective.
PORTFOLIO APPROACH TO SERVING CUSTOMERS

We have diverse generation resources to serve our customers.

- **AVR Plant** 830 MW Gas
- **Sommers Plants** 830 MW Gas
- **Rio Nogales Plant** 800 MW Gas
- **Milton B Lee Plants** 373 MW Gas
- **Spruce Plants** 1,345 MW Coal
- **South Texas Project** 1,036 MW Nuclear
- **Solar Plants** 547 MW Solar
- **Wind Farms** 1,059 MW Wind
- **Braunig Plants** 859 MW Gas
RESERVE MARGIN FOR SUMMER 2019

We maintain a strong reserve margin to meet the needs of the community.

Summer 2019 Reserve Margin = 1,032 MW (or 19.2%) versus 13.75% Planning Target

<table>
<thead>
<tr>
<th>Resources Available</th>
<th>Expected Peak Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,418 MW</td>
<td>5,386¹ MW</td>
</tr>
</tbody>
</table>

¹ 5,038 MW peak load + 348 MW of long-term sales obligations
We continue to invest in flexible generation to meet our customers’ needs.

<table>
<thead>
<tr>
<th>Type of Generation</th>
<th>Capacity</th>
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</thead>
<tbody>
<tr>
<td>Rio Nogales</td>
<td>800 MW</td>
</tr>
<tr>
<td>Utility Scale Solar</td>
<td>547 MW</td>
</tr>
<tr>
<td>DG Rooftop Solar</td>
<td>128 MW</td>
</tr>
<tr>
<td>DR / STEP</td>
<td>216 MW</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,691 MW</strong></td>
</tr>
</tbody>
</table>
Our plants performed well across all fuel types.
DIVERSE YET AGING FLEET
OWNED GENERATION(1)

30% of our owned capacity comes from plants that are 40+ years old

We regularly deal with emerging issues at our aging plants & effectively work through challenges to maintain reliability.

(1) As of Jan. 2019
FINANCIAL PLANNING PROCESS

Generation Resource = Load (Demand) + Reserve Margin

- Customer Growth (Electric & Gas Sales)
- Regulatory Costs (TCOS, ERCOT)
- Fuel Cost (gas, coal, nuclear, renewables)
- Generation Resource Plan

- Market Power Prices
- Wholesale Price, Revenue & Margin
- Interest Rates

FORECAST INPUTS

WE DEPLOY AN ANNUAL UPDATE PROCESS

Historical & current year performance

5-year detailed planning by business unit

25-Year Long Range Plan

| 1 | 2 – 5 | 6 – 25 |

Year 1 will be presented to Board for approval (outer years are refreshed in subsequent planning cycles, so they are considered preliminary & subject to change)

A robust long-range planning process is essential for long-term resource planning & yields budget targets, financial metric performance, & revenue support requirements.
Future investments are needed to meet the growing electricity needs of San Antonio.
# MORE FLEXIBLE PLANNING APPROACH

## Traditional Approach *(Historical)*
- Predictable customer load
- Predictable customer growth
- Consistent generation levels
- 5 year lead time
- $1B+ Investment

![40+ Year Baseload Assets](image)

*Traditional Power Plants*

## Flexible Approach *(Future)*
- Smaller Investments
- More Agile & Dynamic
- Additional Renewables
- Energy Storage Capacity
- New Technologies on the Horizon
- Demand Response

![Need Ability to Adapt](image)

*Flexible Path Generation*
TIMELINE

Resource Options CY2019 - 2020

• Exploring new technologies
  – Solar + Battery Storage Pilot
• STEP 2.0
• Combined cycle upgrades
• Unit life extension studies
• Power purchase

Resource Options CY2021 - 2025

• Climate Action & Adaptation Plan
• Load trends
• Assessing Resource Options
  – Renewables
  – Storage
  – Power Purchase
  – Small Box
• Monitoring Future Technologies
We have the opportunity to serve our customers in new & innovative ways.

Source: SA Climate Ready: A Pathway for Climate Action & Adaptation (Jan. 2019 Draft)
EXISTING FLEET IS A KEY PART OF THE EVOLUTION

Past

Renewables + Existing Fleet

Hybrid

Renewables + Energy Storage + Smart Grid

Present

Eliminates need to build big power plants

Future

Transitioning to the Future

Technology Drives Timing
Thank You
<table>
<thead>
<tr>
<th>Term</th>
<th>Acronym (if applicable)</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demand Response</td>
<td>DR</td>
<td>A load curtailment program initiated to reduce high energy demand during extreme temperatures.</td>
</tr>
<tr>
<td>Electric Reliability Council of Texas</td>
<td>ERCOT</td>
<td>Entity that manages the flow of electric power on the Texas Interconnection that supplies power to Texas customers - representing 85% of the state's electric load.</td>
</tr>
<tr>
<td>Peak Load</td>
<td></td>
<td>The maximum periodic load demand imposed on a power supply system.</td>
</tr>
<tr>
<td>Reserve Margin</td>
<td></td>
<td>A measure of available capacity over and above the capacity needed to meet normal peak demand levels.</td>
</tr>
<tr>
<td>Resources</td>
<td></td>
<td>Electrical Generation facilities available to meet Customer demand on an as-needed basis.</td>
</tr>
<tr>
<td>Save for Tomorrow Energy Plan</td>
<td>STEP</td>
<td>CPS Energy’s energy efficiency and conservation program. It includes a highly effective demand response component that is successfully supported by a high level of customer participation.</td>
</tr>
<tr>
<td>Small Box</td>
<td></td>
<td>With regard to generation assets &amp; resources, investment in smaller MW options (as opposed to large resources e.g. power plants)</td>
</tr>
</tbody>
</table>