GENERATION PLANNING UPDATE: NEW FLEXIBLE PATH SM RESOURCE PLAN

PRESENTED BY:
Dr. Cris Eugster
Chief Operating Officer (COO)

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Informational Update
OBJECTIVES & TAKEAWAYS

• SHARE A PRELIMINARY VIEW OF OUR GENERATION MIX & OUR NEW FLEXIBLE PATH RESOURCE PLAN

• DISCUSS FORMAL PROCESSES TO CONSIDER POTENTIAL OPTIONS TO ADDRESS AGING PLANTS & COAL
AGENDA

- CONTEXT FOR DISCUSSION
- PRELIMINARY VIEW OF OPTIONS
- COSTS & BENEFITS OF PLAN
- TIMELINE & MILESTONES
-QUESTIONS
CAREFULLY DECARBONIZING OUR GENERATION MIX

Flexible Path:
Traditional + Renewables
+ Energy Storage + Smart Grid
+ Energy Efficiency

Renewables + Low/Zero Carbon Firming Capacity:
• FlexPOWER BundleSM our next step in the Flexible Path

Power Plants

Transitioning to Innovation

Technology Drives Timing

Past Present Future
ALIGNMENT WITH THE CAAP
CLIMATE ACTION & ADAPTATION PLAN

August 2019 Board of Trustees’ Resolution of Support for Climate Action & Adaptation Plan (CAAP)

Our **Flexible Path** charts a journey to reduce emissions & ultimately reach carbon neutrality by 2050.
OUR GUIDING PILLARS & FOUNDATION
THE PATH FOR OUR LONG-TERM TRANSITION

Our **Guiding Pillars** are the foundation to support a lower carbon footprint.
OUR STARTING POINT TODAY
DELIVERING OPERATIONAL EXCELLENCE

We have diverse generation resources to serve our customers.
Our approach is to add new innovative technologies to replace older units, while reliably meeting our customers’ energy needs.

Note: *FlexPOWER Bundles* could include renewables, bulk storage, low-emitting flexible generation, and/or other technologies.
We must thoughtfully prioritize the order of plant changes to maintain **Reliability**.
OUR OLDEST UNITS – GAS STEAM WILL REACH END OF LIFE BEFORE 2030

Our new FlexPOWER Bundle is a very effective way to replace power plants. We have prioritized the careful replacement of our oldest gas steam units to help maintain San Antonio’s Reliability.
**POTENTIAL STRANDED COST**

**OUR COMMUNITY’S INVESTMENT IN SPRUCE 2**

The community has made a significant investment in constructing the Spruce plant, including extensive environmental controls.

- Both Spruce units are **Reliable** resources
- 21% of our total generation in FY2020

<table>
<thead>
<tr>
<th>Unit</th>
<th>Capacity</th>
<th>Year On Line</th>
<th>Age</th>
<th>Environmental Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spruce 1</td>
<td>560 MW</td>
<td>1992</td>
<td>28</td>
<td>Scrubber, Baghouse, Mercury Control, Ash Recycled</td>
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<tr>
<td>Spruce 2</td>
<td>785 MW</td>
<td>2010</td>
<td>10</td>
<td>Scrubber, Baghouse, Mercury Control, SCR*, Ash Recycled</td>
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**Est. Net Book Value @1/31/21**

- $1.255B

*SCR is a Selective Catalytic Reduction system that reduces nitrogen oxides*

**Designed/Original Service Life:**

- 55 years

**Possible Accelerated Service Life:**

- 40 years

**Remaining Debt Service:**

- Principal: $1.148B
- Interest: $0.638B
- Total: $1.786B

**The Spruce Investment represents ~11% of San Antonio’s assets.**
GAS CONVERSION VERSUS COAL

SPRUCE 2

Gas Conversion
(Approximate Cost ~$40M)
- Low Retrofit Cost
- Lower Emissions
- Reduced O&M
- Smaller Carbon Footprint
- Minimizes Stranded Costs

Coal
(Cost of Environmental Retrofits ~$60M*)
- Higher Cost of Regulatory Retrofits
- Higher Emissions
- Higher O&M
- Future Carbon Cost
- No Stranded Costs

Gas conversion minimizes the stranded cost of Spruce 2 & reduces carbon in alignment with our Guiding Pillars to deliver Affordable, Reliable power in an Environmentally Responsible way.

*This cost is specific to Spruce 2. By retiring Spruce 1 early, we would also save ~$150M of SCR costs for our community.
New technologies & lower emission resources are being considered in potential transition of aging gas units & coal.
## OPTIONS REPLACEMENT OPTIONS

### CORE ASSUMPTIONS

<table>
<thead>
<tr>
<th>Description</th>
<th>Aging Gas Steam Units</th>
<th>Spruce Alternative</th>
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| **Replacement Capacity**           | FlexPOWER Bundles: Renewables, bulk storage, low-emitting flexible generation, and/or other technologies. | Spruce 2: Gas Conversion  
Spruce 1: Renewables, bulk storage, low-emitting flexible generation, and/or other technologies. |
| **Financial Management**           | Financial ratio targets achieved. Aging asset replacement is in current financial plan. | Additional funding for Spruce 2 Gas Conversion required; however less costly than near term environmental retrofits. |
| **Accelerated Depreciation (Stranded Cost)** | None.                                                                                 | About $450M (out of $1.26B) of coal assets subject to accelerated depreciation.    |
| **Workforce**                      | Re-skilling & training around new technologies.                                        | Natural transition for gas operations & re-skilling & training around new technologies. |
| **Environmental Aspects**         | Emission reduction projections are in current plan.                                   | Opportunity for additional emission reductions.                                   |
| **Reliability Aspects**           | Firming technologies assumed to maintain reliability.                                 | No impact to reliability with Spruce 2 converted to gas.                           |
Significant progress toward low-to-no emissions could be made this decade, as we work to transform half of our generation assets.
Questions?
**GLOSSARY / DEFINITIONS**

<table>
<thead>
<tr>
<th>Acronym or Word</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>Accelerated Depreciation</td>
<td>An accounting method whereby an asset loses book value at a faster rate than the traditional straight-line method.</td>
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<td>Ash</td>
<td>A coal combustion by-product.</td>
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<td>Baghouse</td>
<td>A system on a coal electric power plant that removes particulates from the combustion gases.</td>
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<td>CAAP</td>
<td>Climate Action and Adaptation Plan - provides a roadmap to achieve equitable climate mitigation and resilience goals for San Antonio, Texas. The City of San Antonio aims to be carbon neutral by 2050 and the CAAP identifies mitigation strategies intended to advance that goal, inclusive of adaptive ecosystem restoration and social equity strategies.</td>
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<td>Demand</td>
<td>The electric system usage of our community and is measured in megawatts (MW)</td>
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<tr>
<td>Megawatt (MW)</td>
<td>A measure of capacity to produce electric power. A megawatt equals 1,000 kilowatts or 1,000,000 watts. One megawatt can power about 200 homes on a hot day.</td>
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<tr>
<td>Mercury Control</td>
<td>A system on a coal electric power plant that removes mercury from the combustion gases.</td>
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<td>Net Book Value</td>
<td>An accounting term. Net book value is based on the original cost of the asset less any depreciation, amortization or impairment costs made against the asset.</td>
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<td>O&amp;M</td>
<td>Operations and Maintenance Expense – Costs incurred to keep an item in good operating condition.</td>
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<td>SCR</td>
<td>Selective Catalytic Reduction – A system on an electric power plant that removes nitrogen oxide emissions.</td>
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<td>Scrubber</td>
<td>A system on a coal electric power plant that removes sulfur dioxide emissions.</td>
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<td>Stranded Cost or Stranded Asset</td>
<td>An accounting term. An asset that has suffered from unanticipated or premature write-downs, devaluations or conversion to liabilities.</td>
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<td>Reserve Margin</td>
<td>The amount of extra electric generating capacity, above the maximum levels of customer usage. Reserve margin covers unforeseen events that occur on the complex state-wide electric grid.</td>
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