



GENERATION PLANNING UPDATE: NEW FLEXIBLE PATHSM RESOURCE PLAN

PRESENTED BY:

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Chief Operating Officer (COO)

January 25, 2021

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

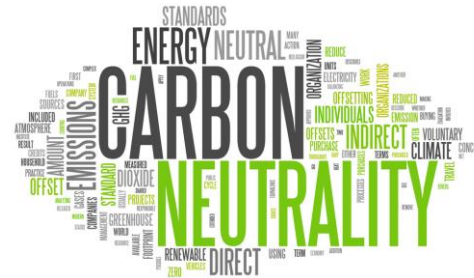
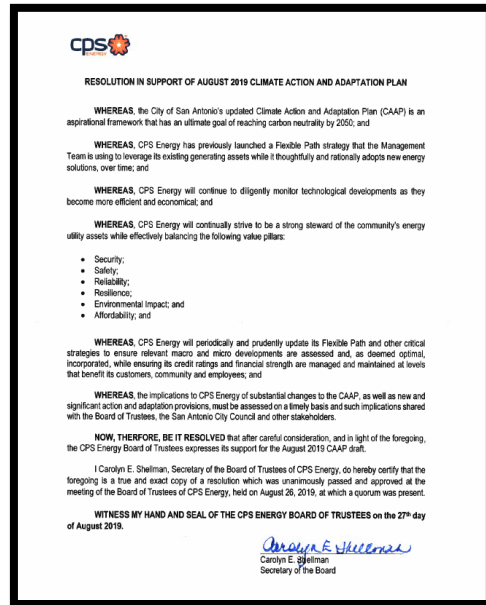
ALIGNMENT WITH THE CAAP

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



Reliability



Customer Affordability



Security



Safety



Environmental Responsibility



Resiliency



● *Financially Responsible* ●



Our **Guiding Pillars** are the foundation to support a lower carbon footprint.

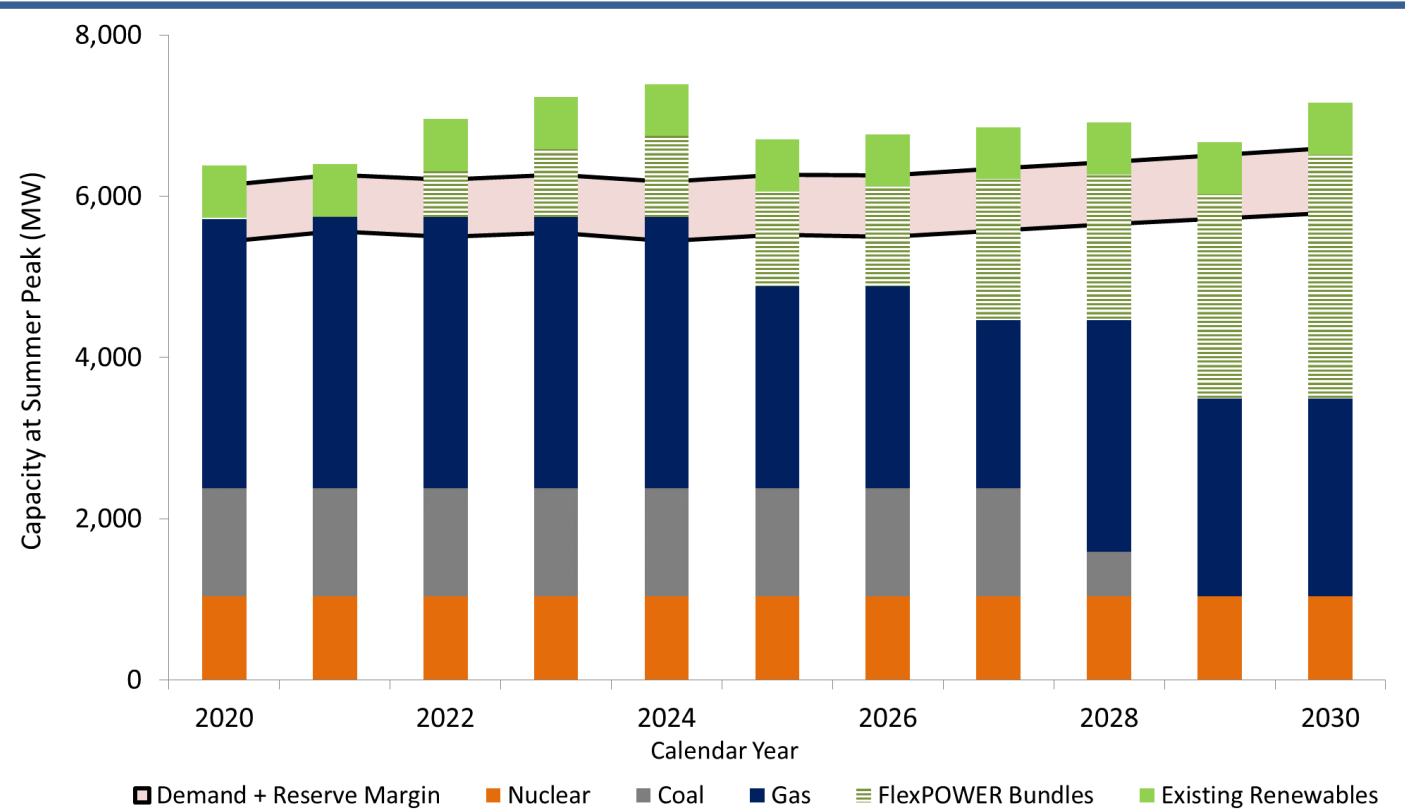
OUR STARTING POINT TODAY

DELIVERING OPERATIONAL EXCELLENCE



ENERGY CAPACITY

WE MUST CAREFULLY COVER S.A.'S NEEDS

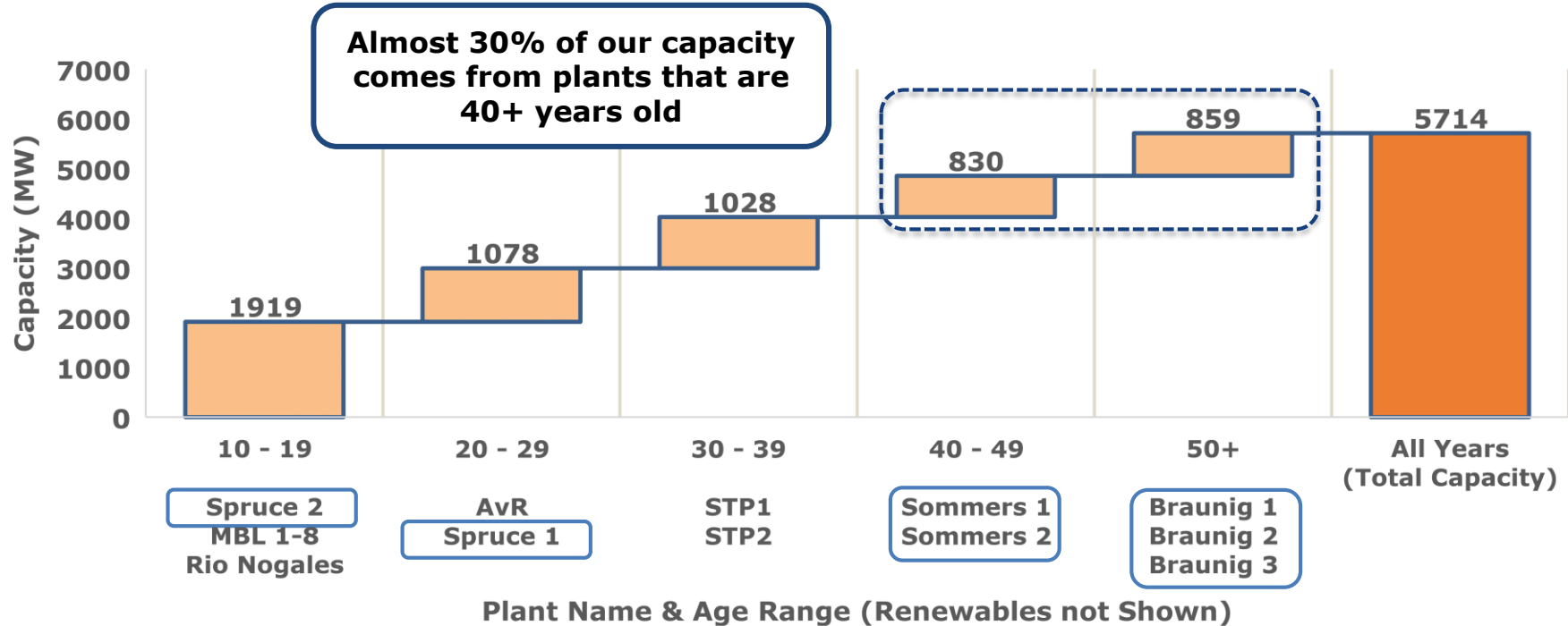


Our approach is to add new innovative technologies to replace older units, while reliably meeting our customers' energy needs.

Note: **FlexPOWER Bundles** could include renewables, bulk storage, low-emitting flexible generation, and/or other technologies.

FOCUS ON AGING GAS & COAL

OVER 3,000 MW OF GENERATION CAPACITY



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

Unit	Capacity	Year On Line	Age	Environmental Controls
Spruce 1	560 MW	1992	28	Scrubber, Baghouse, Mercury Control, Ash Recycled
Spruce 2	785 MW	2010	10	Scrubber, Baghouse, Mercury Control, SCR*, Ash Recycled

Est. Net Book Value @1/31/21

Designed/Original Service Life:
Possible Accelerated Service Life:

\$1.255B

55 years
40 years

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

Remaining Debt Service:

Principal
Interest

\$1.148B
.638B
\$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*)

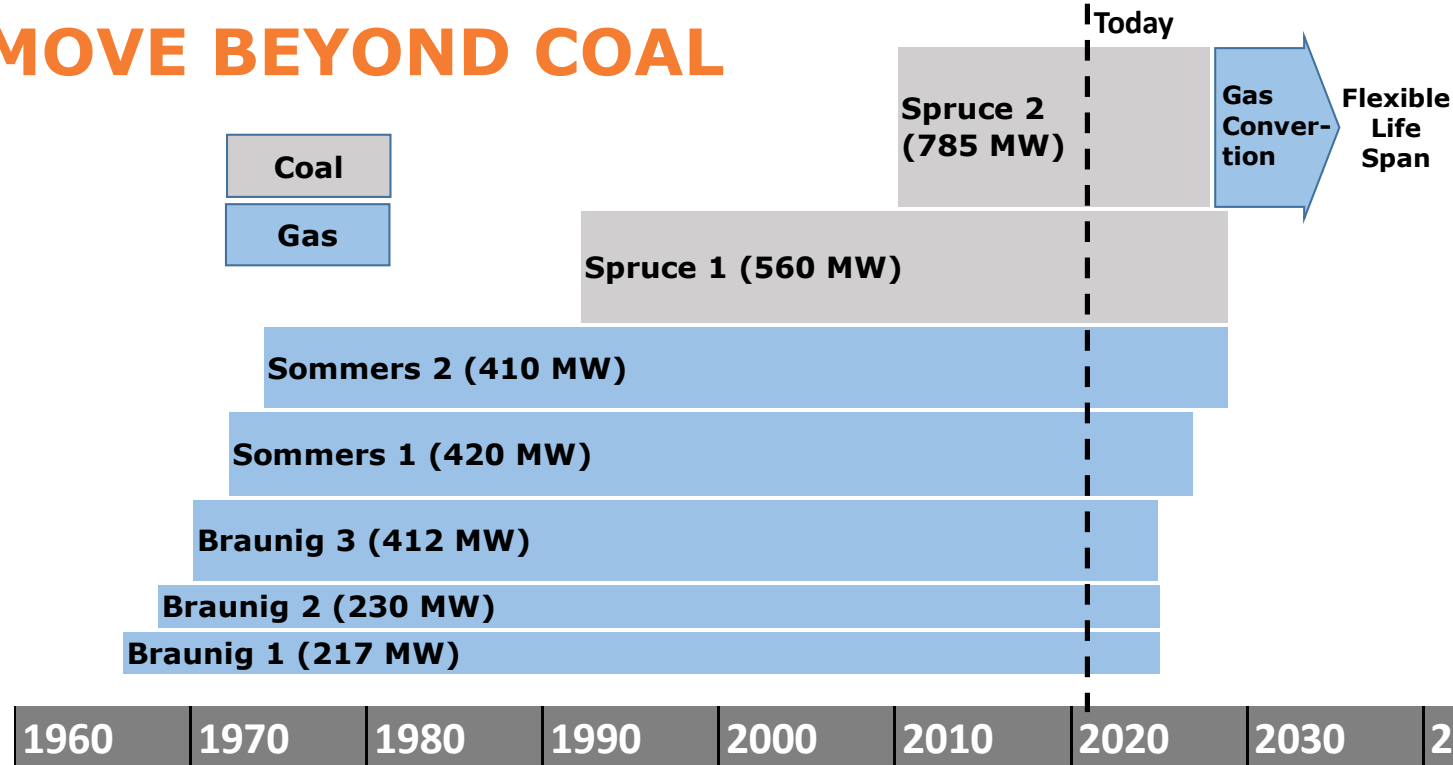
Higher Cost of Regulatory Retrofits
Higher Emissions
Higher O&M
Future Carbon Cost
No Stranded Costs

*This cost is specific to Spruce 2. By retiring Spruce 1 early, we would also save ~\$150M of SCR costs for our community.

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.

POTENTIAL APPROACH

TIMING TO REPLACE AGING GAS UNITS & MOVE BEYOND COAL



New technologies & lower emission resources are being considered in potential transition of aging gas units & coal.

OPTIONS REPLACEMENT OPTIONS

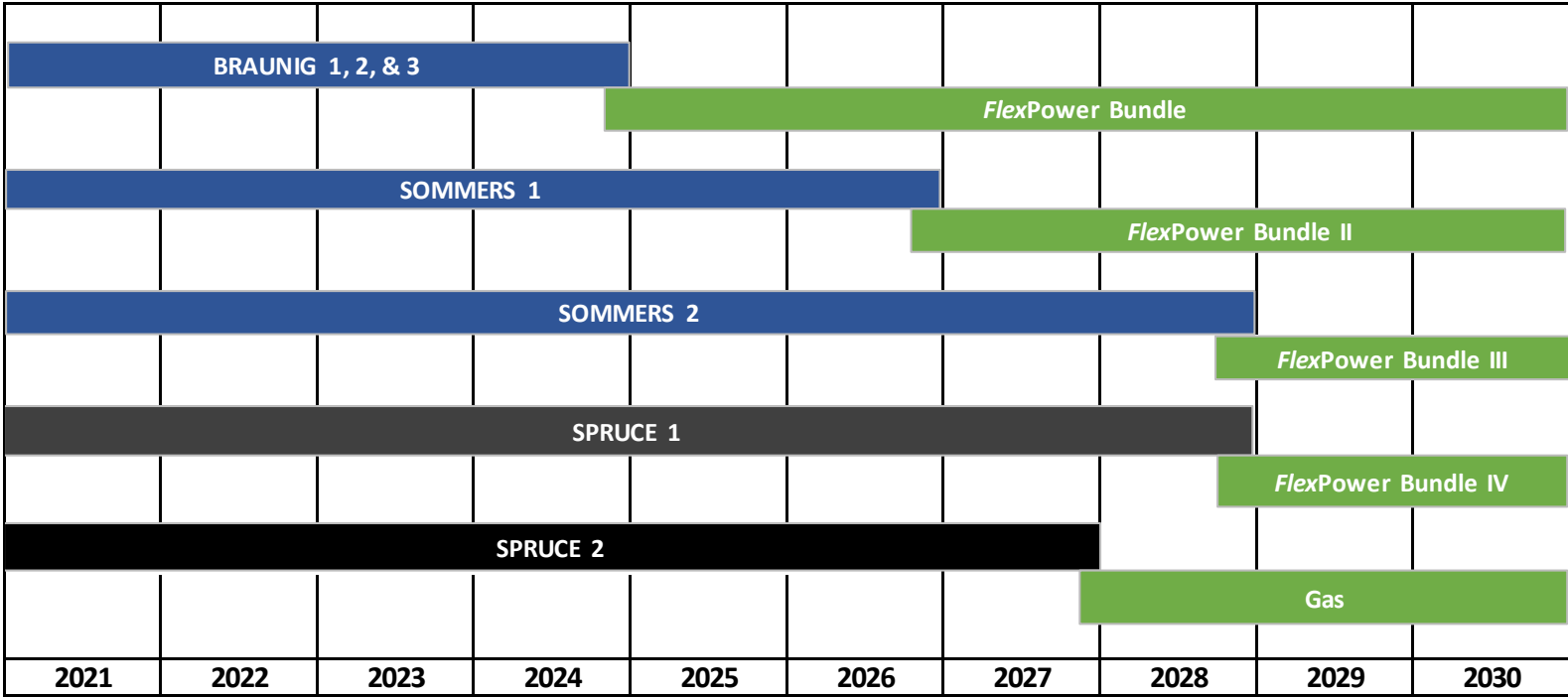
CORE ASSUMPTIONS



Description	Aging Gas Steam Units	Spruce Alternative
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.

GENERATION TRANSFORMATION

CONCEPTUAL TIMELINE



Calendar Year

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



Acronym or Word	Definition
Accelerated Depreciation	An accounting method whereby an asset loses book value at a faster rate than the traditional straight-line method.
Ash	A coal combustion by-product.
Baghouse	A system on a coal electric power plant that removes particulates from the combustion gases.
CAAP	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.
Demand	The electric system usage of our community and is measured in megawatts (MW)

GLOSSARY / DEFINITIONS



Acronym or Word	Definition
Megawatt (MW)	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.
Mercury Control	A system on a coal electric power plant that removes mercury from the combustion gases.
Net Book Value	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.
O&M	Operations and Maintenance Expense – Costs incurred to keep an item in good operating condition.
SCR	Selective Catalytic Reduction – A system on an electric power plant that removes nitrogen oxide emissions.

GLOSSARY / DEFINITIONS



Acronym or Word	Definition
Scrubber	A system on a coal electric power plant that removes sulfur dioxide emissions.
Stranded Cost or Stranded Asset	An accounting term. An asset that has suffered from unanticipated or premature write-downs, devaluations or conversion to liabilities.
Reserve Margin	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.