AGENDA

CHALLENGES → OPPORTUNITIES

FLEXIBLE PATH

COMMUNITY & OUTREACH

THOUGHT LEADERSHIP
We see challenges as opportunities to learn, improve & grow
CHALLENGES ➔ OPPORTUNITIES:

SPRUCE 2 REPLACEMENT GENERATOR

Benjamin Ethridge
SVP – Power Generation
Will highlight the project scope & major milestones

Cris Eugster
COO
Will provide additional context about solar optionality
The Spruce 2 generator experienced an internal core failure in Nov. 2014:

- It was initially repaired with the same design.
- Further evaluation determined that the replacement of the generator was the most economical solution to optimize the power output of our generation resource.
CHALLENGES ➔ OPPORTUNITIES:

SPRUCE 2 REPLACEMENT GENERATOR: TIMELINE

2014
- Generator failure
- OEM completed in-kind repairs
- Performed RCA with 3rd Party Gen. Expert

2015
- RCA recommended new generator with enhanced design
- Unit returned to service with limitations
- Hired SWRI to help reduce limitations

2016
- Performed generator internal inspection and found concerns
- Reduced unit output limitation based on SWRI findings, but still unable to meet ERCOT output requirements
- Completed Bid Process and Board Recommendation

2017
- Board Approved new Generator – MAR 2017

2018
- Generator transported & delivered
- Contractor Mobilized
- New Generator mfg & testing completed
We must replace Spruce 2’s existing generation (the stator & rotor). The unit began operations in 2010; however, late in 2014 significant problems developed, resulting from an internal electrical failure (i.e. a “unit trip”). Once examined internally, extreme signs of abnormal overheating were detected, including significant and clearly marked areas of core iron melting. The existing unit has been out of warranty for some time and it is not being operated at optimal levels, relative to existing ERCOT protocols. While a major repair was conducted by the Original Equipment Manufacturer, Toshiba, later in 2015, we have concluded that the apparent gaps in the unit’s design are foundational concerns and accordingly, a whole new alternative architecture is the best option for our community at this time.

The project will include the:
- design, manufacture, assembly, and the initial operational tests in the factory;
- delivery of the new generator to our SA site;
- removal of the existing generator; and
- installation, start up & commissioning of the new generator.

The project will also cover the:
- associated heavy haul / lifting;
- 5-year warranty test & inspection;
- a concurrent 5-year service & parts warranty plus an extended 5 years parts warranty; and
- spare parts.

The generator replacement will enable our ability to re-align our operational activities to be consistently compliant with existing ERCOT protocols, while effectively mitigating the increased risk of premature wear and deterioration. This project will in turn help ensure that the unit can last for decades, as originally planned.
CHALLENGES ➔ OPPORTUNITIES:

SPRUCE 2 REPLACEMENT GENERATOR TRANSPORTATION

Generator’s route from Victoria to Calaveras Power Station

TRANSPORTATION PHASE: Major focus on SAFETY
CHALLENGES ➔ OPPORTUNITIES:

SPRUCE 2 REPLACEMENT GENERATOR

- All generator equipment on site / inspected
- Installation ~ 60% complete
- On budget - $28.7M
- Schedule targeting 2/5/2019 release
- No Safety or Environmental issues
- Test lift completed 12/15
- Foundation inspection planned for 12/18
- Plan to set new generator 12/20
CHALLENGES ➔ OPPORTUNITIES:

SPRUCE 2 REPLACEMENT GENERATOR TRANSPORTATION

• Replacement generator will:
  - Increase performance to meet ERCOT requirements
  - Enhance long-term reliability for our customers & community as reserve margins continue to decline throughout the state
CHALLENGES ➔ OPPORTUNITIES: SPRUCE 2 REPLACEMENT GENERATOR COMPARED TO A SOLAR INVESTMENT

• COMPARATIVE QUESTION:
  ❑ Would it be better to not have spent money on the capital repair in lieu of purchasing more renewables?

• CONSIDERATIONS:
  ❑ MW not available 24/7
  ❑ Efficiency Difference (Thermal vs. Solar)
  ❑ Back-up Power Source
  ❑ ERCOT Requirements
  ❑ Cost
CHALLENGES ➔ OPPORTUNITIES:

SPRUCE 2 REPLACEMENT GENERATOR
COMPARED TO A SOLAR INVESTMENT

• **Simple Calculation:**
  - At $1 per Watt, the solar cost to replace Spruce 2 nameplate capacity:
    - $185M for 185MW to cover de-rate
    - Additional capacity to close efficiency gap (3X cost & MW) = $555M

• **Further Consideration:**
  - Battery storage required to firm up load
Flexible Path is a full reboot of how we will prudently plan for, develop and/or install new energy sources going forward.
Our Board Members intensely & constructively listened to the wide range of interested citizens who shared their thoughtful perspectives.

November 27, 2018
• Our Board held their 2nd Public Input Session of the year at Venue Villita from 6:00 - 8:30pm:
  - 45 people spoke
  - 17 left comment cards
  - 133 people attended
  - +95 employees & volunteers

Paula Gold-Williams addressed those gathered for the Board Public Input Session, including Councilmembers Ana Sandoval and John Courage (at left).

Interested citizens share their thoughtful perspectives with our Board members.
FLEXIBLE PATH:
BRIEFINGS – 3 of 4

RECENTLY COMPLETED

- **Tuesday, November 13**
  - Greater San Antonio Builders Association
  - Speaker: Paula Gold-Williams

- **Thursday, November 15**
  - North Chamber of Commerce Members
  - Speaker: John Bonnin, Kara Hill

- **Tuesday, November 27**
  - San Antonio Manufacturers Association
  - Speaker: Paula Gold-Williams, John Barrow

- **Tuesday, November 27**
  - CPS Energy Board of Trustees Public Input Session
  - Speaker: Paula Gold-Williams

- **Wednesday, December 12**
  - Joint Base San Antonio
  - Speaker: Paula Gold-Williams, Garrick Williams

- Presented our *Flexible Path* to:
  - ☑ Greater SA Builders Association (GSABA)
  - ☑ San Antonio Manufacturers Association (SAMA)
# FLEXIBLE PATH:

## BRIEFINGS – 4 of 4

### CURRENTLY PENDING

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<thead>
<tr>
<th>Date</th>
<th>Organization</th>
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<td>Wednesday, January 9</td>
<td>Rotary Club of San Antonio</td>
<td>David Jungman</td>
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<td>TBD</td>
<td>Institute of Electrical and Electronics Engineers</td>
<td>Angela Rodriguez Samuel Taylor</td>
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![Our Flexible Path](image)
We focused on many special efforts during the month; several are included in this report.
COMMUNITY & OUTREACH:
2018 ROCK & ROLL MARATHON

• Congratulations to Demetrius Payton on running his 28th marathon!
• He was the pacesetter for this marathon

December 2, 2018
Demetrius Payton, Interim Director, Infrastructure & Operations
As the 2019 San Antonio Chamber of Commerce Chair, my leadership team & I are working together to develop our priorities.
• I officially started my 1-year term as Chair. Some of my leadership team include:

- **Dr. Homer Guevara Jr.**, Education / Workforce Council
- **Kathy Garcia**, the Legislative Advisory Committee & the Economic Development Council for the SA to DC Task Force
- **Angela Rodriguez**, Energy & Sustainability Committee
CONGRATULATIONS TO:

• Zandra on being selected to participate in the new cohort
• Kara will serve on the Steering Committee

Zandra Pulis, Program Participant, LSA
Kara Hill, Steering Committee Member, LSA
• We received the **2018 Commercial Partner of the Year Award** at the Annual Board of Directors’ Dinner
• Award recognizes our commitment to supporting small, women, minority, veteran - owned businesses in our community

**December 6, 2018**

**Abi Ottmers**, Deputy General Counsel, TF&BT
**Becky Bailey**, Senior Director, Supply Chain
**Mike Gilliam**, CEO/President, SA Lighthouse for the B&VI
The CEO, Kimberly Britton, gave a great 2018 recap & 2019 forecast @ the home of Mort and Margie Baird. It was attended by:

- Enrolled Tech Innovators,
- Supporters &
- Board Members
Alignment of our strategic thinking is broadening rapidly, & our THOUGHT LEADERSHIP is paving the way to new solutions & more creativity!
Fortnightly Top Innovator 2018 Nominees:
  • Paula Gold-Williams, President & CEO
  • Jason Scarlett, Director, Architecture & Innovation
  • Arun Schipse, Manager, Data Sciences
• Attended a session of **Global Insights** from **Chairman Jerome “Jay” Powell**. The session was moderated by the **President of the Dallas Reserve, Robert Kaplan**.
• Our Environmental Stakeholders Meeting discussion included:

- Enhanced Environmental Processes for Construction Projects & Habitat Conservation Plan for Future Projects
- Extension of Solar Rebates & New Service Tariff
- Generation Resource Planning
- CPS Energy / SAWS Joint Board Meeting
- Update on Southwest Quadrant Board Position

Paula Gold-Williams participated in the Environmental Stakeholder Meeting

November 27, 2018

We continue to have dialogue and obtain feedback from our stakeholders.
• Cris Eugster served as a moderator for the event & the Keynote speaker was Tanuj Deora, Chief Strategy Officer for SEPA
  - Addressed “How the Grid is Changing and Why You Should Care”
• The lecture series focused on:
  - Purpose and Benefits of the EPIcenter
  - Our company’s perspective on the grid
THOUGHT LEADERSHIP:
LARGE PUBLIC POWER COUNCIL (LPPC)

• Kathy Garcia & Kari Torres Meyer attended the LPPC Post-Election Forum

• We received recognition from:
  ❑ Rick Counihan w/Google, who highlighted our partnership & our use of Nest thermostats since 2014
  ❑ Bill Loveless, an energy journalist, who said CPS Energy does it right when it comes to innovation

• The following day, they attended the Government Relations Task Force Meeting

Kari Torres Meyer, Director, F&SR, CPS Energy
Kathy Garcia, VP, GR, RA&PP, CPS Energy
John Di Stasio, President, LPPC

December 4, 2018
We received the **2018 Eagle Ford Excellence Award for Environmental Stewardship**

• The award honors leading companies in South Texas for their diligent efforts in protecting the environment with long-term, sustainable benefits

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Christopher Ashcraft, STEER Interim President  
Frank Almaraz, SVP, Commercial Operations  
Nelson Wolff, Bexar County Judge
It was an honor to join Mayor Nirenberg’s delegation focused on:

- Maintaining existing relationships in Mie & Aichi prefectures
- Japanese businesses & branches of government that support international economic development

Also Joined By:
- Ms. Rebecca Viagran, Councilwoman – District #3 (Above)
- Mr. Leo Gomez, President & CEO, Brooks
- Mr. Walt Downing, Executive Vice President, SwRI
- Mr. Nobuaki Yokoo, President of Japan - America Society of San Antonio & Senior Advisor, Joyson Safety (Formerly Takata)

November 17 - 22, 2018
The Keidanren [KAY-DAHN-REN] is the most influential business organization in Japan, with a membership of 1,400 companies including Toyota.

- Aims to assist the reconstruction & recovery of the Japanese economy
• Meeting with First Lady of Japan, Mrs. Abe to discuss Sister Cities International and future Japan US Sister Cities Summit

• Hideaki Ohmura is governor of Aichi Prefecture in Japan, currently in his second term. Previously, he was the parliamentary secretary of Economy, Trade and Industry.
Mitsui & Co., Ltd. has maintained 50 years of cooperation with SwRI. Mitsui & Co., Ltd. has served as SwRI's business agent in Japan since the 1960's. Mitsui invests in many types of international business projects.
• Toyota is 1 of our biggest customers
  - We were given a tour of their Toyota Innovation Center & Headquarters
  - We talked about their approach & possible SA opportunities for Hydrogen vehicle technology
• Our delegation met with the Hon. Eikei Suzuki, Governor of Mie Prefecture. In addition to meeting Mayor Nirenberg’s delegation this time, he previously met Congressman Joaquin Castro and Judge Nelson Wolff.
Visited the Advanced Technology R&D Center of NTN Corporation, including “Green Power Park.” They had all-in solar, wind, & security technology. They also demonstrated new electric industrial vehicles w/a 360-degree range.
CEO THOUGHT LEADERSHIP:
S&P GLOBAL ENERGY AWARDS

FINALISTS:

- CHIEF EXECUTIVE OF THE YEAR
- AWARD OF EXCELLENCE – POWER
- ENERGY COMPANY OF THE YEAR
- CORPORATE SOCIAL RESPONSIBILITY
UPCOMING KEY CEO DATES

2019

12/18-20, 2018
New York, NY:
• Ratings Agencies

01/10/2019
San Antonio, TX:
• Council Utility Briefing

01/15/2019
San Antonio, TX:
• Federal Reserve Board of Directors Meetings

01/15-16, 2019
Austin, TX:
• Legislative Sessions

01/16/2019
San Antonio, TX:
• EPIcenter Board of Directors Meeting
TOPICS FOR FUTURE MEETINGS

MORE SOLAR/STORAGE & OTHER GENERATION

TALENT DEVELOPMENT

EDUCATIONAL PARTNERSHIPS

FUTURE OF SAN ANTONIO
Thank You
GLOSSARY / DEFINITIONS

- B&VI  Blind & Vision Impaired
- CEO   Chief Executive Officer
- CSO   Chief Strategy Officer
- ED    Executive Director
- F&SR  Federal & State Relations
- ID    Interim Director
- LSA   Leadership San Antonio
- NY    New York
- SA    San Antonio
- SEPA  Smart Electric Power Alliance
- SwRI  Southwest Research Institute
- TF&BT Technical, Financial & Business Transformation
- TREIA Texas Renewable Energy Industries Alliance