AGENDA

PART 1: THOUGHT LEADERSHIP / FLEXIBLE PATH

PART 2: POTENTIAL SOLAR OPTION FOR COSA
WE HAD:

• Great External Speakers
• Updates from our Sr. Chiefs
• City & State Congressional Guests
• Social Media
• PRESS CONFERENCE on Smart City
Paula Gold-Williams kicked off the 2nd Annual Future of Energy Symposium.

Dr. Cris Eugster hosted a panel on energy & its foundational role for our smart city with guests Dr. Massoud Amin and Clint Vince.

Mayor Ron Nirenberg discussed our path for moving our city forward, thru focuses on climate, renewables & other emerging topics.
Dr. Cavanagh explained how federal policy on home appliances has supported energy conservation. Then he & I discussed how gas is an important value proposition for SA.

“FELECIA TALKS:” Our Chief Customer Engagement Officer (CCEO) explained how the voice of the customer was anchoring our path forward.
DEVELOPING A FLEXIBLE FUTURE

Traditional power plants play an important role in firming up renewables until energy storage reaches utility scale.

Now: Renewables and Traditional Generation

Future: Renewables and Energy Storage

Currently not economical.
WHY FLEXIBLE?

Traditional
(Historical)

- Predictable customer load
- Predictable customer growth
- Consistent generation levels

40+ Year Baseload Assets

Traditional Power Plants

Flexible
(Future)

- Energy Efficiency
  - Equipment using less energy
  - Declining use per customer
- More Potential for Renewables
  - Intermittency in generation
  - Renewables serving off-peak hours
- New technologies on the horizon

Need Ability to Adapt
Flexible Generation Path
**WILL CONSIDER & ASSESS:**

- Moving up shut down of JK Spruce 1 to 2030 from 2047
- Removing the JK Spruce 1 coal unit SCR* from business plan & budget
- Extending life of Combined Cycle plants (AVR & Rio Nogales) additional 8 years
- Adding 4,100 MW of renewables by 2040 (in addition to current 1,600 = 5,700 MW)
- Adding 550 MW of battery storage (duration increased from 1 to 4 hours discharge)
- Including Flexible Generation build in smaller increments to fill remaining load forecast gap
  - **MAJOR CONSIDERATION:** “Price to Beat” based on Natural Gas Combined Cycle (NGCC) - $ per MWh & capacity factor

* Selective Catalytic Reduction (Reduces NOx)
Natural Gas combined cycle provides the baseline pivot within the Flexible Path Strategy. Will adjust our plan when competing technology provides more benefit.

**Nameplate Mix**

<table>
<thead>
<tr>
<th></th>
<th>2018 Traditional</th>
<th>2040 Traditional</th>
<th>2040 Flexible Plan</th>
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<tbody>
<tr>
<td>Storage/Tech</td>
<td>14%</td>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>Renewables</td>
<td>22%</td>
<td>49%</td>
<td>50%</td>
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<tr>
<td>Flex Gen</td>
<td>45%</td>
<td>16%</td>
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<tr>
<td>Gas</td>
<td>18%</td>
<td>13%</td>
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</tr>
<tr>
<td>Coal</td>
<td>14%</td>
<td>7%</td>
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<tr>
<td>Nuclear</td>
<td>0%</td>
<td>9%</td>
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**Under the new Flexible Path Strategy, we have multiple options.**
FLEXIBLE PATH STRATEGY – ALL GEN MIX (TWh)

While we’re not projecting to be long in generation, especially if Distributed Generation materializes, we will ensure that a balanced portfolio approach is maintained.

A flexible path strategy with renewable and market purchase options.

Market purchases could be renewables.
• U.S. EV sales are growing, but are only about 1% of total U.S. vehicle sales.

• EV sales are predicted to be over 50% of new car sales by 2040.
ELECTRIC VEHICLE PILOT NETWORK

146 Charging Stations!
ELECTRIC VEHICLE CHARGING STATION LOCATIONS

City & County
- Libraries
- Public Garages
- County Services
- Community College
- Port SA

Education
- UTSA
- ACCD

Additional Locations
- Hospital & Medical Clinics
- Grocery Stores & Malls
- Entertainment
- Workplace
ELECTRIC VEHICLE CHALLENGES

• Unauthorized commercial EV charging stations are operating in the Greater San Antonio Area, creating the following risks:
  • Customers being charged high rates for use of these stations
  • Creates potential public and employee safety hazards if the interconnection is not set up properly
  • Owners of these stations violate the law by reselling electricity in the area powered by CPS Energy

• CPS Energy is currently developing a framework for installation of charging stations by authorized vendors where they are needed
MORE ROOFLESS SOLAR!

RFP responses received February 26, 2018
Target to award contract by June 2018

- Phase 1 sold out quickly, customer feedback very positive
- Seeking vendor to build up to 5 MW in CPS Energy territory
- Encouraging innovative approaches
TENTATIVE RFP TIMELINE

2/26

Proposals Due

3/6

3/7-3/28

Technical Evaluation

Early April

Short List to Steering Committee

End of April

Vendor Recommendation

May-June

Award Contract

Minimum Requirements Pre-Screening Completed

Short List Interviews

Contract Negotiations
Thank You
COSA’S PATHWAY TO 100% RENEWABLES FOR CITY FACILITIES

PRESENTED BY:

Cris Eugster
Chief Operating Officer

March 6, 2018

Informational Update
TABLE OF CONTENTS

• DIVERSIFICATION & CREATIVITY
• THE VISION AND CAPABILITIES
• COSA’S USAGE
• PATHWAY TO SUCCESS
• GETTING TO 100% RENEWABLE
• NEXT STEPS
DIVERSIFICATION & CREATIVITY

Our strategic strength in energy diversification & its continual focus on being creative positions us to be able to support COSA’s & other local governments’ environmental & climate goals!
THE VISION

• We are the ideal strategic partner to deliver solutions to meet this goal & achieve a green energy supply for COSA facilities

• We can provide options & flexible approaches with our broad renewable portfolio & programs
Residential Solar

- 88 MW homeowner owned
- 5 MW Solar Host installed and in-flight
- 1 MW Community Solar installed
- 5 MW Community Solar RFP
#1 IN SOLAR IN TEXAS

Alamo 7 Solar Farm 106.4 MW – Haskell, Texas

Alamo 6 Solar Farm 110.2 MW – Pecos County, Texas

CPS Energy has over 500 MW of Solar
ADDITIONAL PROGRAMS

- Solar Host & Roofless Solar
- Energy Efficiency
- Electric Charging
- Weatherization
- Solar Rebates
CURRENT COSA USAGE

• City Facilities: ~1,200
• Annual Average Usage: ~225,000 MWh
• Current Renewable Procurement: ~3,350 MWh
  • Renewable % of total load: 1.5%
    • Includes direct renewable pricing & COSA-owned on-site
• Solar Host participation ~300 kW
COSA’S PATH TO 100% RENEWABLE/SOLAR

There are many pathways to success

Short Term
- Synthetic
- Written Structural Transactions

Hybrid

Renewables
- Solar
- Wind
+ Traditional Generation

Very Long Term
- Renewables
- Solar
- Wind
+ Energy Storage

Physical Assets
- Rebated
- Non-Rebated

Synthetic
- New Renewable Generation

RECs*: Renewable Energy Credits
PPAs**: Purchased Power Agreements
CPS ENERGY WILL FIRM UP RENEWABLES

**NOW: RENEWABLES & TRADITIONAL GEN.**

**FUTURE: RENEWABLES + ENERGY STORAGE**

Traditional generation is playing the role of “virtual storage” for renewable energy until energy storage technology scales up.
PATHWAY TO SUCCESS

• Utilize CPS Energy Renewable Energy Credits (RECs) tied to our solar & wind farms

• Flexible build out of rooftop solar on COSA facilities supported by solar rebate

• Ability to integrate new technologies & opportunities in the future
Build 3 MW Solar (example)

Upfront Capital Cost
- CPS Energy Rebate
= Net Capital Cost

CPS Energy RECs (example)
Value of CPS RECs x 216,500 MWh = Cost Per Year

Rooftop solar requires capital investment

Purchase of RECs added to electric bill
100% RENEWABLE
COSA CAN CONTROL THE PROGRAM

Small On-Site Buildout

CPS Energy RECs

On Site Gen

85%

98%

2%

15%

2018

Aggressive On-Site Buildout

CPS Energy RECs

On Site Gen

100%

98%

2%

15%

2018

COSA can be 100% renewable quickly with the ability to scale using the CPS Energy portfolio
ROOFTOP SOLAR + RECS
FLEXIBLE OPTIONS

Benefits

• RECs are tied to physical CPS Energy solar and wind farms
• Ability to achieve 100% renewable in the short-term
• Blend of on-site generation supplemented with CPS Energy renewable portfolio
• Utility cost savings from solar production to offset the cost of RECS
• Flexibility to slow down or speed up on-site generation based on changing solar panel costs
• Ability to adjust approach at any time
NEXT STEPS

• Meet with COSA about path forward
• Finalize proposal to COSA
• Begin internal process to support transaction
Thank You
# DEFINITIONS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>MW</td>
<td>Megawatt</td>
<td>A measure of the capability to produce one million watts of energy</td>
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<tr>
<td>MWh</td>
<td>Megawatt hour</td>
<td>Unit for measuring power that is equivalent to one million watts; equal to 1,000 kilowatt hours (Kwh)</td>
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<tr>
<td>PPA</td>
<td>Purchase Power Agreement</td>
<td>A contract between two parties, one who generates electricity and one who purchases the energy</td>
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<tr>
<td>REC</td>
<td>Renewable Energy Credit</td>
<td>Tradeable, non-tangible energy commodity representing proof that 1 MWh of electricity was generated from an eligible renewable energy source</td>
</tr>
<tr>
<td></td>
<td>Synthetic</td>
<td>A virtual PPA where the buyer receives RECs directly from the renewable generator but does not take physical delivery of power.</td>
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