BUILDING BRIDGES TO A LOW CARBON FUTURE

UNIVERSITY OF TEXAS ENERGY WEEK
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PRESIDENT & CEO, CPS ENERGY
FEBRUARY 17, 2015
CPS ENERGY OVERVIEW

- Largest municipally owned, vertically integrated electric & gas company in the nation- 756K Electric & 334K gas customers
- Lowest rates among the top 10 largest U.S. cities
- Designated by Bank of America Merrill Lynch as the “Premier Credit Rating” in industry
- Innovative public private partnerships have yielded 548 jobs & $622M in economic impact to-date in local San Antonio community
- $11B in asset base, $2.5B in annual revenue
- 14% of customers are on a Demand Response program which is equivalent a total of 135MWs
- San Antonio Ranks 6th in Nation for Solar Energy *

Vision 2020 transition’s CPS Energy from a company that is highly dependent on power from traditional generation sources to a company that provides competitively priced power based on a diverse generation portfolio.
THE CASE FOR LOW CARBON APPROACH

• Hyperactive Regulatory Environment
  – EPA Clean Power Plan (111D)
  – MATS
  – 316A&B
  – Methane

• Market Dynamics
  – Declining Solar Prices / Grid Parity
  – Increased Scalability of Storage Technologies
  – Declining Natural Gas Prices
  – Demand Response / Lower Demand

• Consumer Behavior
  – Flexibility
  – Control
  – Demographics
HYPERACTIVE REGULATORY ENVIRONMENT

Get ahead of the issues, rather than be defined by them.
MARKET DYNAMICS:
DECLINING SOLAR COST/GRID PARITY

*Source: Lawrence Berkeley National Laboratory

Median prices for systems installed in 2013 (n=50,614):
- $4.7/W (≤10 kW)
- $4.3/W (10-100 kW)
- $3.9/W (>100 kW)

*Source: Lawrence Berkeley National Laboratory
MARKET DYNAMICS: NATURAL GAS FORECASTS

Henry Hub Natural Gas Price

(dollars per million Btu)

Note: Confidence interval derived from options market information for the 5 trading days ending Feb. 5 2015. Intervals not calculated for months with sparse trading in near-the-money options contracts.
MARKET DYNAMICS: DECLINING CONSUMPTION

U.S. Electricity Demand Growth
(Annual and Moving Average in %)

Historical
Projected

Latest EIA projection*
2011–2040
Average: 0.9%/year

Three-Year Moving Average
Trendline

Primary product of electric utilities continues to decline year over year

Sources: *EIA, Annual Energy Outlook 2013; EIA, Monthly Energy Review (Dec. 2013); ScottMadden analysis
Developing deeper insight into customer behavior, and anticipating changes, is critical to future market share.
THE CPS ENERGY STORY

• Diversity of Generation
  – Natural gas bridge fuel
  – Incremental integration of renewables

• Grid of the Future
  – Interoperability via Open Architecture
  – Data Analytics

• Public Private Partnerships
  – Technology/Innovation
  – Economic Development Education

• Human Capital Investment
  – Training & development
  – “De-bureaucratizing”
CPS ENERGY 2020 GENERATION DIVERSIFICATION GOALS

- 20% renewable energy capacity in power generation mix
- 65% of generation low-carbon
- 771MW energy efficiency STEP goal*

2010 Generation

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<th>Source</th>
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<td>Coal</td>
<td>45.86%</td>
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<td>Wind</td>
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<tr>
<td>Landfill Gas</td>
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Projected Generation 2020

<table>
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<th>Source</th>
<th>%</th>
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<tr>
<td>Wind</td>
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<td>Purch Pwr</td>
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<td>Landfill Gas</td>
<td>0.25%</td>
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<td>Solar</td>
<td>0.03%</td>
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</table>

*STEP (Save for Tomorrow Energy Program)
GRID OF THE FUTURE: INTEROPERABILITY
VIA OPEN ARCHITECTURE

Traditional Energy System

Future Energy System

Interoperability between providers and customers creates most value: “prosumers”
PUBLIC PRIVATE PARTNERSHIPS: NON-TRADITIONAL STRATEGIC ALLIANCES

SolarCity  
Google  
Sunrun  
Bloomenergy®  
OCI  
S&C Electric Company

Toshiba  
OPower  
GreenStar  
Silver Spring Networks

SunEdison®  
Honeywell  
Tesla  
Tendril

Affordable  |  Reliable  |  Innovative
Don’t just survive in a changing environment, THRIVE…
CHALLENGES

- Cyber and Physical Security Concerns
- Natural Phenomena
- Increasing Global Coal Demand
- Disaster recovery
- Utility Adaptability
“ALL FIXED SET PATTERNS ARE INCAPABLE OF ADAPTABILITY OR PLIABILITY. THE TRUTH IS OUTSIDE OF ALL FIXED PATTERNS.” –BRUCE LEE