Welcome!

Key Account Customer Meeting – January 2017

Jackie Sargent, General Manager
Customer Collaboration
Debbie Kimberly – VP, Customer Energy Solutions
2016 Customer Initiatives

• Rate Reductions
  – Over $100 M reduction in Power Supply Adjustment
  – $42.5 M reduction in base rates

• Demand Response
  – Increased Load Coop participation in 2016 from increasing the incentive to 1.45 ø / kWh
    • New or expanded participation from Commercial Real Estate, Government and ISD market segments
  – Largest single customer project of 16 MW from Samsung in ERS
2016 Customer Initiatives Cont.

• Prorated Demand
  – Option for accounts that start/stop service in the middle of a billing cycle

• Key Accounts Budgeting Tool

• GreenChoice Batch 5 & 6 moved to current 2017 offering at a lower price and shorter term

• 7.8 MW of commercial solar in FY16
  – Three times the amount in 2015
Customer Focus

• **Vision:** To drive **customer value** in energy services with innovative technology and environmental leadership.
• **Mission:** To safely deliver clean, affordable, reliable energy and excellent **customer service**.
• **Strategic Goal**
  – Customer Collaboration: New heights in **customer satisfaction** through increased collaboration, varied and high quality services, programs, and delivery method and competitive pricing that strengthens customer loyalty
2016 Customer Satisfaction Survey Results

• **Doing Well**
  – Is active in the community
  – Offers a variety of programs and services

• **Opportunity for Improvement**
  – Works to keep energy prices down
  – Effectively communicates during energy emergencies
2017 Initiatives to Close the Gaps

- Affordability always a top focus
  - Achieve fiscal goals to keep prices down
- New outage communication system launch Q4 2017
- Increased number face to face customer visits
- Customer planning collaboration
Questions & Discussion
Grid Modernization Programs

AE Strategic Goals

- Grid Modernization
  - Advanced Metering Infrastructure
  - Grid Automation
  - Distributed Energy Resource Integration
  - Asset Management
Rolling Cumulative SAIFI

At the end of 11/2016 the 12 Month Rolling Cumulative SAIFI is 0.59

2016 Goal: < 0.75
Distribution System Reliability

Rolling Cumulative SAIDI
Historical View

At the end of 11/2016 the
12 Month Rolling Cumulative SAIDI
is 48.28

2016 Goal: < 57.22
Distribution System Reliability

CAIDI/SAIFI SCATTER

Reliability Survey Results
(2.5 beta)

4 of 29 companies are top quartile in all 3
Reliability
System Average Transmission Line Performance Index (SATLPI) 11/16

12-month rolling average of the number of transmission line faults per 100 miles. Does not include substation faults or sags caused by other utilities. **Note:** The majority of the outages have been instantaneous outages with a very low impact on customer reliability and equipment costs. The high cost to reduce the # of faults does not support the low impact.
Transmission System Reliability

SUSTAINED OUTAGES PER CIRCUIT MILE

Very little impact from exclusions for the community and Austin...

All Interruptions

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Mean</th>
<th>Quartile 1</th>
<th>Quartile 2</th>
<th>Quartile 3</th>
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</thead>
<tbody>
<tr>
<td>&lt;100kV</td>
<td>2.69</td>
<td>1.44</td>
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Less Exclusion Days

<table>
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<th>Mean</th>
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<th>Quartile 2</th>
<th>Quartile 3</th>
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<tbody>
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<td>2.52</td>
<td>1.32</td>
<td>1.99</td>
<td>3.60</td>
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DELIVERY POINT INTERRUPTIONS

Very little impact from exclusions for the community and Austin...

All Interruptions

Delivery Point Outages per 100 Circuit Miles

<table>
<thead>
<tr>
<th>Voltage Level</th>
<th>Mean</th>
<th>Quartile 1</th>
<th>Quartile 2</th>
<th>Quartile 3</th>
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<tbody>
<tr>
<td>1000kV</td>
<td>4.05</td>
<td>1.20</td>
<td>2.59</td>
<td>5.12</td>
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<tr>
<td>100kV</td>
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<tr>
<td>200kV</td>
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<td>600kV</td>
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</table>

Less Exclusion Days

Outages per 100 Circuit Miles

<table>
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<th>Mean</th>
<th>Quartile 1</th>
<th>Quartile 2</th>
<th>Quartile 3</th>
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</thead>
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<td>1000kV</td>
<td>3.49</td>
<td>0.73</td>
<td>2.17</td>
<td>3.72</td>
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<td>100kV</td>
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<td>300kV</td>
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<td>500kV</td>
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<tr>
<td>600kV</td>
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</tbody>
</table>
Higher spending companies have larger amounts of T Line Capital.

- Mean: 8.56%
- Quartile 1: 6.23%
- Quartile 2: 7.77%
- Quartile 3: 10.36%
Continuous Improvement

- Detailed Fault and Root Cause Analysis
- Focused Improvements on Top 10 Lower Performing distribution feeders
- Detailed Study and Analysis of 2 Transmission Circuits with higher operations
- Outage Management and Communication
Customer Outage Communication

Current

Future
Basic Navigation

- Toggle for English or Spanish (upper left corner of the map)

- Toggle for Road or satellite map presentation.

- Toggle on/off for WeatherBug layer, radar, adjust opacity, run weather loop.
• Spring 2017, your Key Account Manager will be contacting you to set up your company’s contact preferences for receiving automated notifications

• Details of who, how, and when you wanted to be contacted

• Still have the option for contacting the Key Account Number to reach a live person
2-Way Outage Communication

EXAMPLE:
blue sky, single account/premise
Customer requests status once during the outage

1. Proactive SMS is sent to alert the customer that their premise may be affected by an outage

2. Customer is notified that a crew has been dispatched to the outage location

3. Customer is notified of the cause of the outage and ETR update
Customer is notified of the cause of the outage and ETR update

4. Customer initiates a two-way SMS info request for outage status (STAT)

5. Customer receives status update

6. Customer receives notification that power has been restored
Continuous Improvement

- Fine Tune ETR Reporting and Customer Communication and Integrate with IVR
- Roll Out Mobile OMS to Field Crews
- Expand Fault Locating Capabilities
- Implement Restoration Automation Algorithms
2016 Resource Plan Update

January 19, 2017
Why do Resource Planning?

- To support the Austin Energy Strategic Plan
- To meet the objectives of the (ACCP) Austin Climate Protection Plan – net zero carbon emissions by 2050 (among other goals)
- To manage cost and risk of energy to our customers—Affordability goals and rate volatility
- Manage customer load with behind the meter programs such as rooftop solar, energy efficiency, demand response and Storage
- Other complimentary strategies and objectives such as those related to low income customers

What Resource Planning is not?
A way to supply power to our customers
Resource Planning: It’s a Process...

Resource Plan

- Stakeholders
  - Customers
  - City of Austin

- Financial
  - Revenue Req.
  - Cost of Service
  - Affordability
  - Competitive Position

- Environment
  - Emissions
  - Water
  - Regulatory Compliance

- Supply
  - Power Plants
  - Purchased Power
  - Renewables

- Load
  - Energy Efficiency
  - Demand Response
  - Distributed Gen.

- Customer Programs
  - Energy Efficiency
  - Load Co-op
  - Green Choice
  - Solar

Market Model

- PLAN DEVELOPMENT
  (when?, how much?, build or purchase?)

- “WHAT IF” SENSITIVITIES

- PLANS MEETING CITY COUNCIL OBJECTIVES

- RECOMMENDATION & ACTIONS
Resource Planning Stakeholder Group

**EUC**
- Karen Hadden – EUC Chair
- Brent Heidebrecht – EUC Vice Chair
- Michael Osborne – Member EUC
- Cary Ferchill – Member EUC

**RMC**
- Leo Dielmann – RMC Chair
- Cyrus Reed – RMC Vice Chair & Lone Star Sierra Club Representative
- Kaiba White – Member RMC & Public Citizen Representative
- Suzanne Vaughn – Member RMC

**Industrial Customer Representatives**
- Todd Davey – NXP, Manager Corporate Services - Global Procurement
- Betty Dunkerley – Hospital/large Commercial Representative

**Other Community Members and Representatives**
- Paul Robbins – Environmentalist & Low Income Advocate
- Bob Batlan – Low Income Representative
- Janee Briesemeister – Low Income Advocate/Residential Customers
- Carlos Castañeda – Attorney /Community Member
- Rebecca Melancon - AIBA /small and midsize commercial customers
- Richard Halpin – Austin Interfaith Energy Group

Provides input during progressive phases of the plan to AE Staff

Monthly presentations to RMC and EUC and then AEUOC

Final plan developed

Final presentations to RMC and EUC and then AEUOC
Resource Planning Update Timeline

- **Nov-16**
  - Overview to Austin Energy Utility Oversight Committee

- **Dec-16**
  - Targeted briefings to stakeholders

- **Jan-17**
  - Present scenarios & Input assumptions to Committee

- **Feb-17**
  - Present preliminary recommendations to Committee

- **Mar-17**
  - Present 2016 Generation Plan Update to Council
Recap of Goals & Directives from 2014 Update

• 2014 Austin Energy Resource Plan (Progress to date)
  – 55% renewables by 2025 (31%)
  – 900 MW Demand Side Management by 2025
    • 700 MW energy efficiency by 2020
    • Demand Response
      – 100 MW by 2020 and additional 100 MW by 2025
  – 950 MW solar by 2025
    • 110 MW Local Solar by 2020 and additional 90 MW by 2025 if affordable
    • 750 MW Utility Scale Solar by 2025 (180MWs Operational/450 under contract)
  – CO2 emissions
    • 20% reduction from 2005 levels by 2020
    • Retirement of Fayette Coal Plant beginning in 2023 (in progress)
  – Affordability
    • 2% limit per year (**met**)
    • Rates should be in the lower 50th percentile statewide (**slightly above trending lower**)
  – 10 MW (lithium ion batteries) local storage by 2025 + 20 MW of thermal storage (**17MW Thermal/3 MWe in progress**)
  – Retire Decker steam units by 2019 and replace with 500 MW efficient combined-cycle – subject to a third party study (**pending**)
Renewable Generation to Date

<table>
<thead>
<tr>
<th>Year</th>
<th>Project</th>
<th>Capacity (MW)</th>
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<tbody>
<tr>
<td>2011</td>
<td>Upton Solar</td>
<td>108</td>
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<tr>
<td>2012</td>
<td>East Pecos Solar</td>
<td>8</td>
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<tr>
<td>2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
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<tr>
<td>2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>SW2 (-93MW)</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>SW3 (-34MW) Midway Solar</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td></td>
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<tr>
<td>2020</td>
<td>150MW Solar</td>
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<tr>
<td>2021</td>
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<tr>
<td>2022</td>
<td></td>
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<tr>
<td>2023</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2024</td>
<td>HB Wind (-165MW) 150MW Wind 108MW Solar</td>
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<tr>
<td>2025</td>
<td></td>
<td>150MW Wind 150MW Solar</td>
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</tbody>
</table>

History vs. Forecast
Austin Energy Methodology

- AE uses integrated modeling tools to simulate market data, AE’s load and generation assets, financial data along with emission modeling to assess resource plans

  - Uses UPLAN simulation modeling well suited to ERCOT’s market design, risk analysis using Monte Carlo techniques as well as one-off scenarios

  - Inputs include: cost of gas, coal, nuclear, oil, carbon, cost of new build of various technologies, fixed and variable O&M for ERCOT generation

  - Calculates cost & revenues of ERCOT assets and pricing at each node – 6,600 data output points

  - Results modeled for rate impact and financial metrics

  - This approach in line with industry practices, Brattle endorsed AE methodology in 2015

  - Well trained highly experienced economists & engineers
Energy forecast follows similar trend with average growth rates of 1% for ERCOT and 0.7% for AE.
DSM & Local PV Forecast

DSM and Local PV Goals

- 900 MW DSM by 2025
- 200 MW Local PV by 2025
* 100 MW Rooftop / Commercial

Years: 2016 to 2025

- Local PV
- DSM
Environmental Assumptions – CO₂

- Source: ERCOT Analysis of The Impact of The Clean Power Plan
For Solar assumed PPA through 2022 and ownership afterwards due to PTC/ITC expiration.
Scenarios & Sensitivities

- Scenarios cover a wide range of values for key uncertainties
- Planning horizon covers from 2018 to 2027 with end effects considered
- Assume PPA for future resources as long as it is more economical than ownership on a levelized cost basis
- 5 broad strategies:
  1) Business as usual
  2) Increase Goals
  3) Reduce risk and improve competitiveness through local generation
  4) AE Carbon Free Generation by 2030
  5) Net Zero Emissions by 2030
- In total:
  - 22 scenarios including variations
  - Sensitivities to ERCOT-wide market conditions:
    - Carbon cost
    - Natural gas cost
    - Demand level
- The top plans are further studied for high solar penetration & high ancillary services requirements or to optimize added resources
## Scenarios Descriptions

<table>
<thead>
<tr>
<th>Attributes of Scenarios</th>
<th>Strategies</th>
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<tr>
<td></td>
<td>Business As Usual</td>
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<tr>
<td>No New Commitments</td>
<td>Yes</td>
</tr>
<tr>
<td>Current Goals (55% Renewables, 950 MW Solar, 900 MW DSM, Reduce/Retire FPP, 10 MW Battery Storage)</td>
<td>Yes</td>
</tr>
<tr>
<td>Renewable credits</td>
<td>To meet Goals</td>
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<tr>
<td>Additional 100 MW Local Solar</td>
<td>Yes</td>
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<tr>
<td>Additional renewable goal</td>
<td>75%</td>
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<tr>
<td>Additional DSM</td>
<td>100-300 MW</td>
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<tr>
<td>Battery at Decker</td>
<td>125 - 300 MW</td>
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<tr>
<td>Gas Turbines / Reciprocating Engines at Decker</td>
<td>300 MW</td>
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<tr>
<td>Combine Cycle at Decker</td>
<td>500 MW</td>
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<tr>
<td>Compressed Energy Storage</td>
<td>300 MW</td>
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<tr>
<td>Local distributed Storage</td>
<td>20 MW</td>
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<tr>
<td>Retirement of Gas Units</td>
<td>Decker</td>
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| Number of Scenarios | 3 | 12 | 4 | 1 | 2 |
Questions & Discussion