Austin Energy

• 8th largest community-owned electric utility serving 435,000 meters and a population of approximately one million

• 437 square miles of service area covering City of Austin, Travis County and portions of Williamson County.

• Owns and operates generation, transmission, and distribution

• System peak load - 2714 MW

• Annual budget - $1.3 billion

• First public power utility in Texas to earn Diamond Level recognition (2011) as a Reliable Public Power Provider (RP3) by the American Public Power Association (APPA); again in 2013 (eligible every 2 years)

• ISO Certified T&D Organization since 2007
## Strategic Goals & Performance

<table>
<thead>
<tr>
<th>Strategic Category</th>
<th>Goal by 2020</th>
<th>Current State</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Renewables</strong></td>
<td>35% with 200 MW of Solar</td>
<td>20% (2013) – on track to meet goal in 2016</td>
</tr>
<tr>
<td><strong>Carbon</strong></td>
<td>CO2 power plant emissions reduction, 20% below 2005 levels</td>
<td>17.6% reduction (2012)</td>
</tr>
<tr>
<td><strong>Efficiency</strong></td>
<td>Demand Side Management 800 MW</td>
<td>371 MW savings (2013)</td>
</tr>
<tr>
<td><strong>Affordability</strong></td>
<td>&lt;2% rate increase, in the lower 50% of Texas retail sales</td>
<td>Below 2% and 50% of State (2013)</td>
</tr>
<tr>
<td><strong>Reliability</strong></td>
<td>&lt;0.80 per year (SAIFI), &lt;60 minutes (SAIDI), &lt;3.00 (SATLPI)</td>
<td>FY 2013 SAIFI – 0.59, FY 2013 SAIDI – 46.24, FY 2013 SATLPI – 1.44</td>
</tr>
<tr>
<td><strong>Customer Satisfaction</strong></td>
<td>83%</td>
<td>71% (2013)</td>
</tr>
</tbody>
</table>
New System Control Center

Austin Energy System Control Center & Tier 3 Data Center
2012
AE is evolving beyond working on Smart Grid Projects to implementing a Smart Utility Vision aimed at improving customer engagement, enhancing safety and reliability, improving workforce efficiency and productivity, and integrating demand response and renewables.
Distribution Automation

General Equipment Types - Some Combined
- Sensing
- Operating
- Resource (Generation / Demand Reduction)
Evolution of ADMS

*Centralized intelligence working with distributed intelligence to make a Smart Utility
ADMS Business Drivers

- Capitalizing on DMS intelligence paired with a traditional OMS prediction engine to determine fault location and expedite restoration; including leveraging AE’s fully-deployed smart meter assets
- Deployment of a highly reliable system (99.98% Availability)
- Need for a single HMI with common database model to reduce number of systems/screens operations staff have to interact with while increasing situational awareness and decreasing Operator stress/fatigue
- Reduce future training needs by reducing number of systems
- Fully functional Dispatcher Training System (DTS)/training simulator
- Operational engineering analysis tools integrated into ADMS to provide real-time support of Operators
- Maintain and support one back-end system
## ADMS Enhancements

<table>
<thead>
<tr>
<th>Enhancement</th>
<th>Functionality Delivered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated Voltage Var Control (IVVC)</td>
<td>Optimize the system, reduce power losses, and apply conservation voltage reduction to reduce demand</td>
</tr>
<tr>
<td>Fault Location, Isolation, and Service Restoration (FLISR)</td>
<td>Assist locating faulted equipment, automatically isolate, and expedite power restoration by re-routing power and sending crews directly to area needing repair</td>
</tr>
<tr>
<td>State Estimation and Load Flow</td>
<td>Increase operator situational awareness and minimize future costs to expand distributed grid intelligence</td>
</tr>
<tr>
<td>Leverage other Intelligent Initiatives</td>
<td>Further optimize the electric system, including Distribution Automation (DA) and Advanced Metering Infrastructure/Automatic Metering Reading (AMI/AMR)</td>
</tr>
</tbody>
</table>
ADMS Interfaces

- Remote Access
- AMI / Meter Data (MDMS)
- Storm Center
- SCADA (EMS)
- PI Historian
- Video Wall
- Front End processor
- GIS
- Mobile Work
- CIS
- Call Center
- Overflow IVR
- AVL
- MAS
- ICG
- ADMS
- OMS D-SCADA DMS Advanced Apps
1. Grants (DOE, State, etc...)

2. Upgrading a major system (OMS, SCADA, DMS, etc...)

3. Conservation Voltage Reduction

4. FLISR /Reliability Indices / Benchmarks
Hardware/Software Choices

Operating Systems / ESB / Integrations

Discrete vs. Virtual
• Organizational Commitment - have a plan & know what you want
• Demo – have vendors demo
• Vendor Partnership – be willing to compromise
• Stakeholders - involve them from day one; have a diverse group
• Design Sessions – hold prior to signing contract to agree on interpretation
• Project Schedule - phased approach
• Processes vs. Customizations - be open to changing your processes & minimize the number of customizations
ADMS Landbase
ADMS Geo-Schematic
ADMS Substation
Additional Substation Views
ADMS Schematic
Questions?

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