

Overview of Austin Energy's Advanced Metering Infrastructure (AMI) Community Technology and Telecommunications Commission Dan Smith, P.E.

Vice President – Electric Service Delivery





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Overview

- Safety Moment
- Summary of Austin Energy's Power Delivery System
- Overview of AE's Strategic Goals and Grid Modernization Strategy
- Overview of AE's AMI
 - Benefits
 - Scope
 - History
 - Roadmap & Initiatives
 - Highlight of a few Applications





Technology Driving Safety

Remote communication and control of T&D assets









AE's Power Delivery System



- 80,000 Distribution Transformers
- 180,000 Distribution Poles

- 23 police, fire stations
- 56,879 of businesses



Electric Service Delivery's Vision



Enriching the lives of our customers and communities by being their trusted energy provider, platform, and partner



Grid Modernization Strategic Goal

STRATEGIC GOALS

FINANCIAL HEALTH

Long-term financial resiliency that ensures cost recovery, provides market competitiveness, delivers operational excellence and creates value for customers and the Austin community.

CUSTOMER COLLABORATION

New heights in customer satisfaction through increased collaboration, varied and high-quality services, programs, and delivery methods and competitive pricing that strengthen customer loyalty.

GRID MODERNIZATION

Innovative two-way grid utilizing customer and company infrastructure to deliver superior reliability and customer experience at the lowest reasonable cost.

EMPLOYEE ENGAGEMENT

Employees are safe, healthy and engaged and equipped with tools and training to effectively perform their work.

BUSINESS EXCELLENCE

Best Managed Utility culture where customer needs are thoroughly and efficiently achieved through optimal use of resources.

ENVIRONMENT

Minimized environmental footprint throughout Austin Energy's value chain.

VISION: Drive customer value in energy services with innovative technology and environmental leadership.

Goal: Innovative **two-way grid** utilizing customer and company infrastructure to deliver **superior reliability** and **customer experience** at the **lowest reasonable cost**. **Measure**: Achieve top decile T & D reliability indices (SATLPI, SAIDI, SAIFI, CAIDI) and above average JD Power customer satisfaction index for residential and commercial customers **Current State**: Top quartile reliability indices; Bottom quartile customer satisfaction index **Opportunities/Challenges**: Resources (personnel/knowledge/funding), Analytics, Solution Selection





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The Benefits of AMI

Customer Collaboration

- Enhanced Outage Communication
- Increased Availability of Energy Usage Information
- Alternative Rate Offerings

• Financial Health and Business Excellence

- Enhanced revenue detection and protection
- Remote monitoring and alarming
- Over the air programming and remote service operations results in less field activities
- Increased revenue modeling
- Streamlining Complex Metering Operations
- Operational efficiencies and cost savings

Grid Modernization

• Expanded system monitoring for Conservation Voltage Reduction, Fault Location Isolation & Service Restoration, micro grid, and other grid optimization applications

• Environment

• Reduced Truck Rolls decreasing carbon footprint

• Employee Engagement

• Increased personnel and public safety through alarming and monitoring and reduced truck rolls







Scope of AMI at AE

- RF network spanning 437 square miles of service territory
- Managed Service provided by Landis + Gyr
- Over 490,000 Electric Meters in the AE Service Territory ...and growing ...
 - ~65k C&I meters
 - ~425k Residential Meters
 215k 'Simple' Two-Way Meters
 210k Two-Way Meters with IDR, Service Disconnect capability
- AMI at AE is the meter, the network, the systems that facilitate access







History of AMI at Austin Energy







AMI in 2013







AMI in 2018





AMI Data Flood



Daily Reads = 1/day Alarms/Events/Flags = 4 2018

Daily Reads = 1/day Interval Reads = 96/Day Alarms/Events/Flags = 137/600



Commercial & Residential Meter Upgrades

Commercial Meter Replacement Project

- 48,000 GE and Elster meters to be exchanged
- Planned completion FY 2019
- 30% complete
- Installation contractor

Residential Meter Replacement Project

- 245,000 residential meters to be exchanged
- Planned completion FY 2022
- 10% complete
- Revenue Measurement and Control





Leverage/Optimize Advanced Metering Infrastructure

Head End System Upgrade

Remote Connect/Disconnect

ADMS Integrations

- Instantaneous voltage underway
- Automated outage/restoration events to MDMS>ADMS
- On Demand voltage requests from ADMS

Other Initiatives

- Thermostat and Home Energy Management System (HEMS) ZigBee integration proof of concept
- Proposed pilot of IP based metering communication protocol







Meter Data Management System Upgrade

Phase II Upgrade

- Upgrade to Version 4.0
- Planned completion Q1 FY 2020

ADMS Integrations

- Automated outage/restoration events to ADMS
- On Demand Voltage requests from ADMS
- Monthly and Annual load profile data for all AMI reporting meters to support load flow estimates in ADMS

Totalized and Fractional Metering

• Using MDMS Virtual Metering Engine

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Customer Outage Communication









Automated Remote Service Switching

Remotely Connecting and Disconnecting Customer Service

Meter can *Open* or *Close* with a command sent OTA



Manual process today Reduces ~50 Truck Rolls/Day



Automated process tomorrow Reduces ~300-500 Truck Rolls/Day



Pairing our AMI Meters with Home Energy Devices

Meter is provisioned to accept a connection request from a specific device

Device will "read" the register of the meter

Customers have the ability to better understand their energy consumption







Shared Solar

One Meter, Many Customers

Allows landlords to offer solar credit to tenants

PV consumption from one meter is broken out into specified fractions within MDMS

Tenants receive credit from consumptive values on 'virtual meter' in CC&B









Customer Driven. Community Focused.SM



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