

2019 | THE ACADEMY
Public Power
Forward Summit



Voices of Experience Leveraging AMI Networks and Data

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**Advanced Grid
Research**
OFFICE OF ELECTRICITY
US DEPARTMENT OF ENERGY

**THE
ACADEMY**

AMERICAN PUBLIC
POWER ASSOCIATION

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Voices of Experience Initiative

Voices Series

Focus on areas that pose operational challenges or are critical to industry transformation.

Share knowledge to further enhance grid modernization efforts.



Capturing the Collective Voice and Experience of Utilities at the Forefront on Modernization Efforts

Voices of Experience Initiative

Objective

- Create a valuable resource for utilities
- Provide an educational foundation and neutral perspective for other industry stakeholders (e.g., commissions, legislatures, consumer advocates, etc.)

Overview

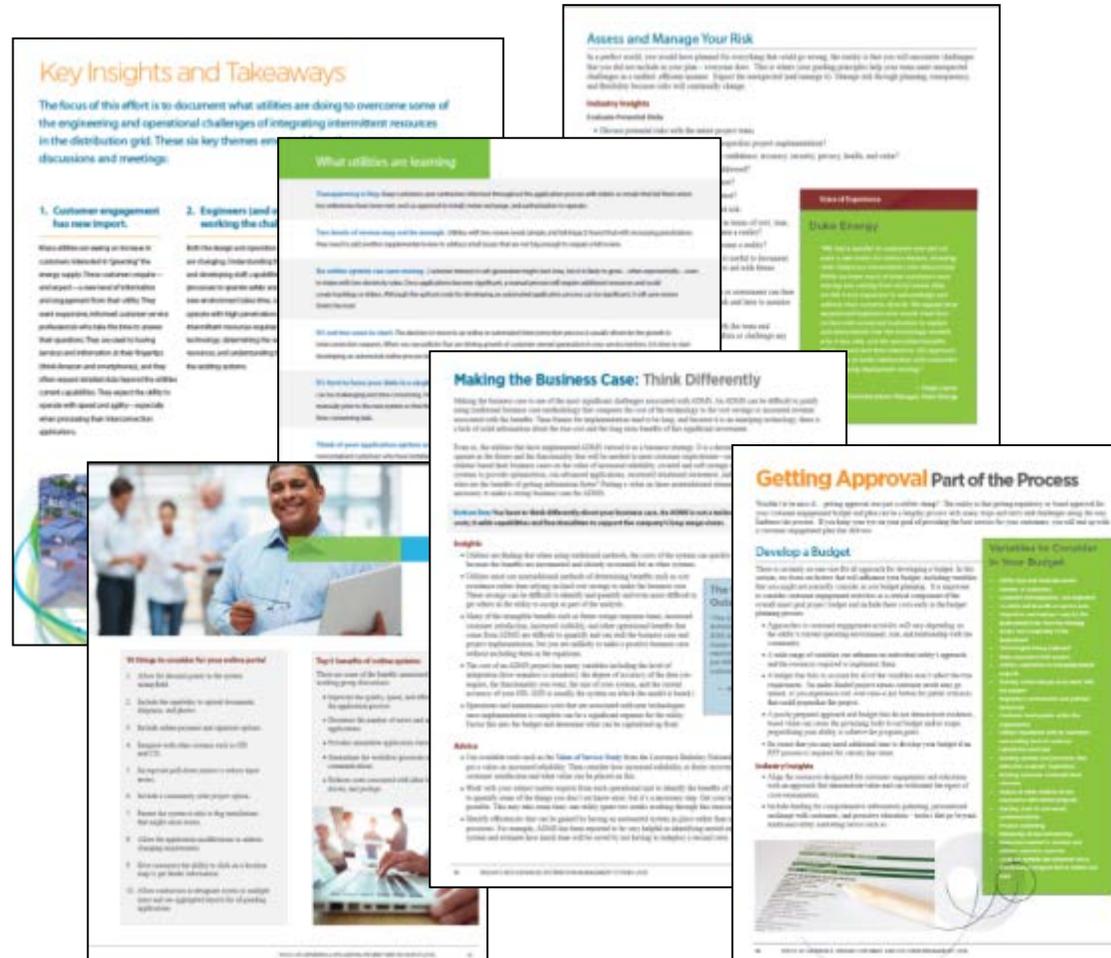
- Started in 2011
- Value in sharing experience and lessons learned
- Information collected through conversations
- Preserves the “voice” of the participants
- High-level insights and advice – not a technical report



Underlying Goals

1. Capture industry insights and experience
2. Provide a forum to exchange ideas and learn from colleagues

- Skimmable
- Conversational
- Stand-alone chapters
- Document Elements
 - What utilities are learning
 - What utilities are doing
 - Lessons learned
 - Biggest Challenges
 - Examples
 - Insights
 - Advice
 - Additional Resources



Working Group

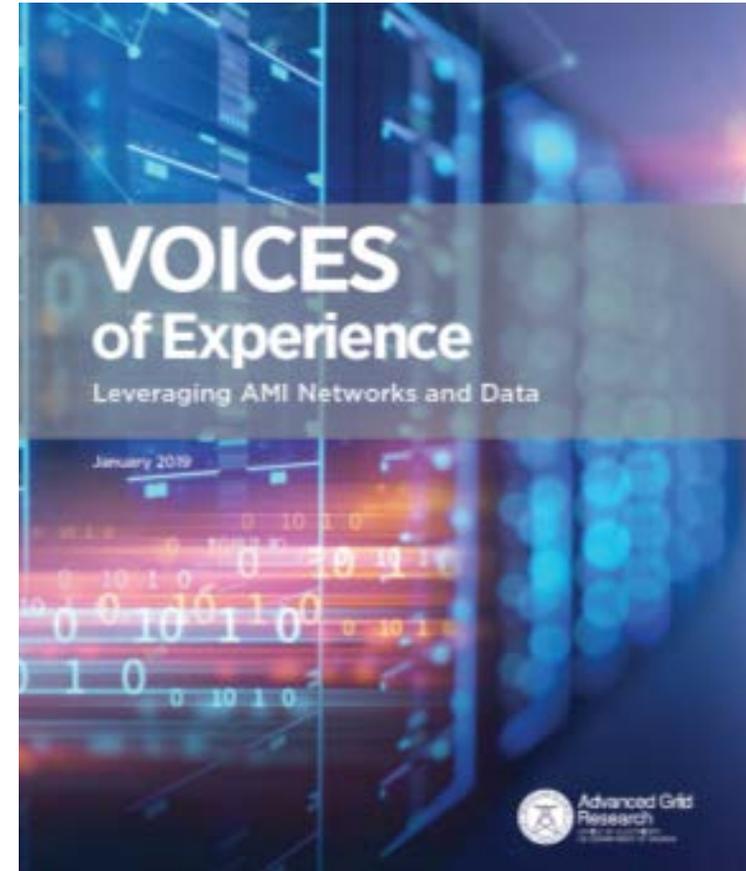
- Over 120 participants
- Represent Co-op, Munis, and IOUs

Data Gathering

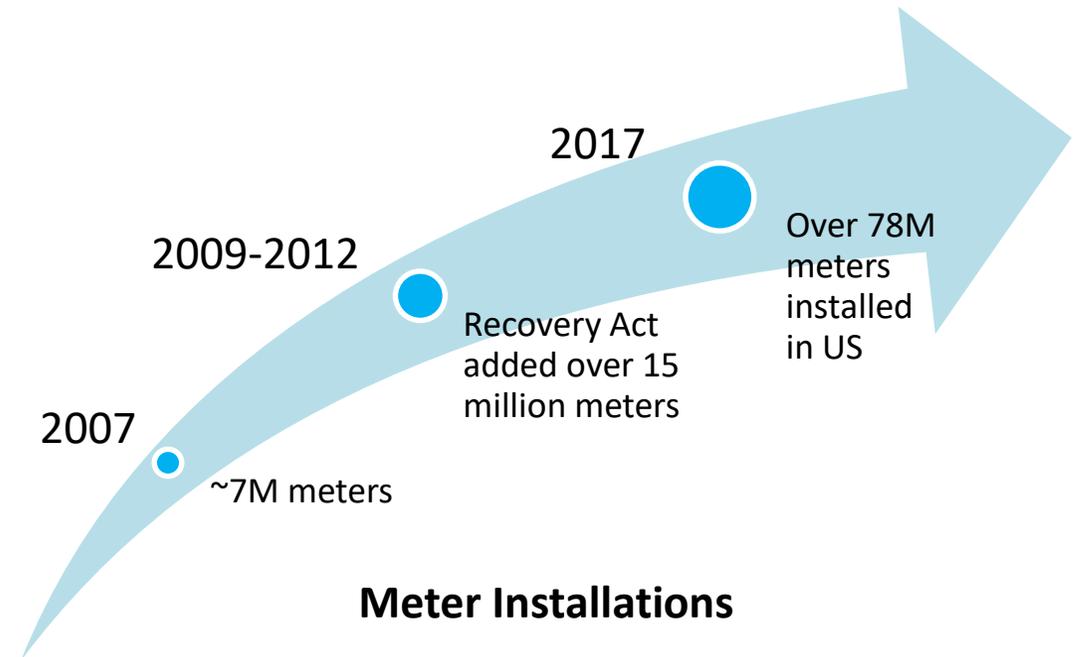
- Regional meetings
- One-on-one interviews
- Topic calls/webinars

Questions Explored

- What value is AMI providing beyond its original business case?
- How are utilities using the data to achieve value?
- How is AMI data helping improve operations?
- How are customers benefiting?



- Original business case: cost savings from avoided truck rolls
- Recovery Act jumpstarted installations (deploying 16,322,970 meters)
- Goal of DOE funding:
 1. Prove value and benefits
 2. Gain confidence and experience with the technology
- Experience shows value exceeds expectations
- Voices effort captures the value utilities are unlocking

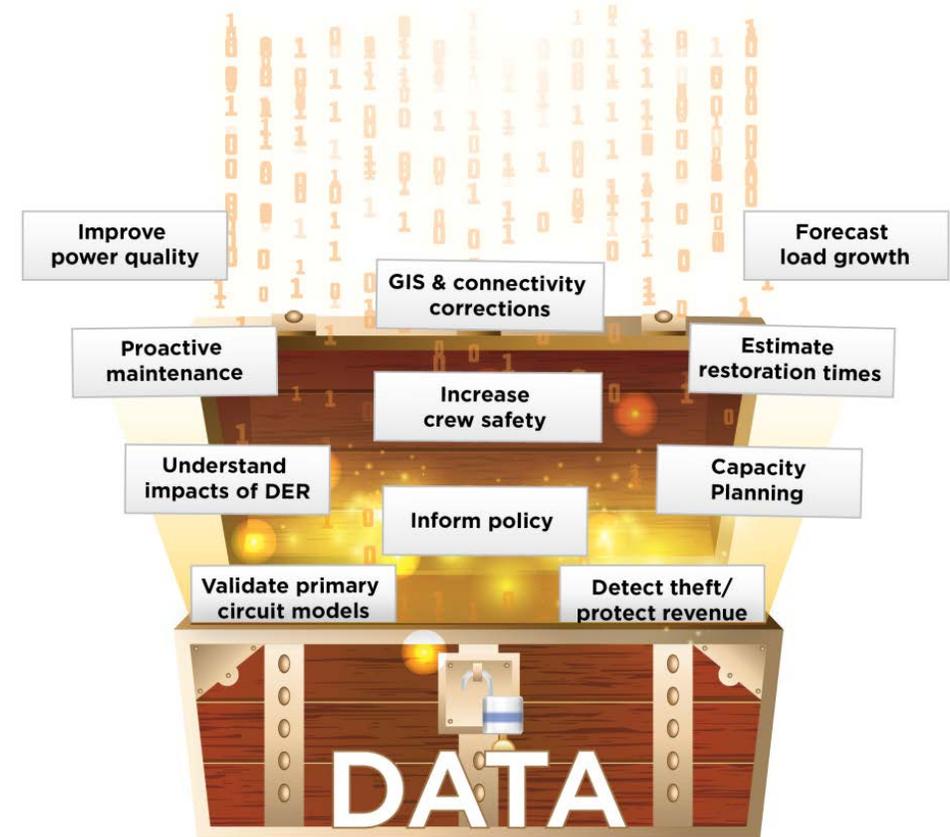


- AMI is an evolution.
- It does more than billing and rates
- It's a catalyst for new customer relationships
- Full-scale deployment and integration with other systems increases the value
- It enables utilities to be proactive rather than reactive
- It's worth the cost

The AMI world is a blast right now, and the opportunities are large.

Bryce Johanneck
Cass County Electric Cooperative

- Data is a valuable asset
- Learn to trust the data
- Some value will only be realized after becoming familiar with the data
- Foster curiosity and provide access to data across the enterprise
- Create tools to visualize the data and make it actionable for operators
- Prioritize good ideas; ideas will come faster than can be implemented



Customer Benefits

- Increased convenience
- Faster restoration times
- Increased reliability/
fewer unplanned outages
- Improved power quality
- More information and control
- Reduced fees and costs

New Products and Services

- Online portals
- Proactive notifications and alerts
- New rate programs
- Customer-initiated meter pings
- Remote connection of service
- Demand response programs (BYOT)
- Customized Solutions
- Targeted Communications

Insights

- Call times might go up as volume goes down
- Partner with vendors; many benefits to co-branding
- Access to energy usage not enough; proactive alerts and messages add more value
- Pairing AMI data with other data can enable new solutions that provide added convenience and target products to customer who will benefit from them

- Start small and expand – work into bigger projects; develop a good roadmap
- Encourage collaboration across groups; different groups bring different insights
- Requires breaking out of traditional responsibilities and bridging communication/data gaps
- Finding hidden failures or patterns requires advanced analytics and pairing AMI with new data sources (e.g., weather data, lightning strikes, etc.)
- Pair someone who understands the data with someone who knows the business

Using AMI for Analytics

- Theft detection/revenue protection
- Asset health and maintenance
- Predicting equipment failures
- Assessing impact of TOU rates
- Addressing power quality issues
- Understanding impacts of DER
- Increasing safety (detecting downed conductors & identifying unregistered DER)
- Improving customer service (new program recommendations; anticipating customer calls)

- Make the data accessible to all business units across the organization
- Important to establish data governance and assign ownership
- Data engineering is essential and must be prioritized from the beginning
- Don't put the data in tools. An agnostic data layer makes it more accessible and eliminates inefficiencies
- May require new expertise – someone who specializes in statistics and visualization
- Look outside the utility industry at nontraditional disciplines for data scientists

Advice from CEMC:

Analytics can be done by small utilities and doesn't have to cost a lot of money.

- **Florida Power & Light Company:** iOMS, tool-based artificial intelligence ticket processing robot that eliminates non-value added truck rolls. 96% accurate, runs 24/7, resolves tickets 8X faster.
- **KCPL/Westar Energy:** Piloted a predictive failure effort for transformers. Allows them to reduce unanticipated transformer failures, better plan replacements, reduce outage times, and decrease overtime costs.
- **PG&E:** Used customer analytics to target communications to customers that would be the most receptive to a product or service; increased enrollment in their Solar Choice program from 1 to 3%.
- **SMUD:** Will use segmentation and customer analytics to better understand forecasted load reductions based on demographics and house size for improved distribution planning forecasts
- **Avangrid:** Created customized solutions using customer segmentation models based on AMI data and third-party research

Planned transformer replacement costs are 25% lower than unplanned replacements

Florida Power & Light
