AMI EVOLUTION
Successfully Transitioning to a Smart Utility Network
INDUSTRY TRENDS & POSSIBILITIES

- Time-of-use pricing
- Distributed energy resources
- Electric vehicles
- Behind-the-meter solar
- Distribution Automation
- Customer, not rate-payer
- Proactive grid maintenance
- Internet of Things
- Smart Lighting
- Energy storage
KEEPING PACE WITH CHANGE

Utilities have played an instrumental role in building the infrastructure needed to electrify the world. Over the past century, the demands on the grid were challenging, however the pace of change was manageable. Utilities built the modern grid and by most accounts, it was a resounding success.

But utilities have never faced a challenge like today.

What was once a centralized, uni-directional, instantaneous production/demand system is now a dynamic and complex decentralized, bi-directional, grid with energy storage. And, it’s happening at a faster pace than ever before.

Utilities are at a critical junction right now.

Sensus’ Philosophy—a reliable, resilient and secure grid is dependent upon having a communication network that is able to evolve, adapt and scale to a changing world.

The insight provided by AMI data is a key component to effectively managing the world’s most complex machine.
FIRST GENERATION AMI

In the beginning, the business case for AMI revolved around one feature—optimizing billing processes. Along the way, meter readers would be repurposed into new positions and truck rolls would be reduced. Billing was the catalyst for change.

But something happened along the way. Utilities realized that meters were capable of providing something more valuable than simply billing data.

Meter data could be used to get a complete, detailed picture of the grid.
NEXT GENERATION AMI

Utilities are transitioning from a reactive to a proactive model. This directly impacts both customers and utility operations.

From streaming videos on demand to next-day shipping, today’s energy consumer expects the same conveniences that they are accustomed to in everyday life.

AMI is the conduit. Real-time text alerts, proactive outage response and smart home integrations are just the beginning.

With each meter acting as a sensor, utilities are able to get a complete picture of the grid.

From end-of-line voltage monitoring to identifying overloaded transformers, AMI is giving utilities the data needed to make decisions before a problem occurs.
AMI BENEFITS - TODAY AND TOMORROW

Customer

Save Money
Time-of-use rate options, pre-pay and other behavior-based programs align customer actions with energy consumption to reduce costs.

Information & Control
By providing near real-time access to meter data, customers can access online portals and get a complete picture of their energy use. Additionally, they can receive timely alerts on outages, billing and more.

Safety First
From hot-socket detection to identifying open-neutral problems, meters can alert residents to a potentially dangerous situation before it occurs.

Outage Restoration
Simply put, when there is an outage the utility is able to respond with surgical precision. There is no longer a need to report an outage. The result: the power gets turned on a lot faster.

Smart Home Integration
By integrating smart home devices with a smart meter, a powerful ecosystem is formed that can intelligently control smart inverters, EV chargers and more.
Utility

- **Manage Voltage**
  Utilities can see end-of-line voltage and optimize with cost saving measures such as conservation voltage reduction programs.

- **Reduce Truck Rolls**
  From on-demand meter reading to remote connect/disconnect, utilities are able to reduce the time crews spend on the road.

- **Asset Optimization**
  With granular grid visibility, utilities can identify overloaded transformers and proactively address problems before failure.

- **Distributed Resource Management**
  Identifying unauthorized solar installations is only the beginning. Controlling smart inverters on the grid edge is a compelling non-wire alternative solution to voltage stabilization.

- **Model Validation**
  Through phase detection and meter-to-transformer mapping, utilities can optimize forecasting, planning and asset management while keeping connectivity models accurate.
PRINCIPLES OF A FUTURE-PROOF NETWORK

1. Build for longevity
2. Secure your data
3. Perform preventative maintenance
4. Safeguard your infrastructure
5. Increase reliability
6. Reduce obsolescence
7. Plan ahead
8. Review life cycle benefits
9. Promote advantages
10. Monitor and manage your bandwidth

Networks That Do More

A communications network should be used for more than simply AMI. Today’s network architecture is multi-application ready.

Across the country, electric utilities are using communication networks to add customer-friendly smart lighting and distribution automation applications. Many utilities leverage the same network for gas and water AMI as well.

Utilities have a tremendous opportunity to create additional value across operations. Opening up the dialogue between internal departments is a step in the right direction.
THE FLEXNET DIFFERENCE

Fast
• Transmits data 8x faster than competitive systems
• Critical alarm messages get priority attention
• Industry’s highest signal power and range

Reliable
• Private, FCC-licensed spectrum
• Powerful two-way network means data is sent and received via multiple base stations simultaneously
• Storm hardened to withstand any weather

Secure
• Banking-level security protocols
• AES 256-bit encryption
• Multi-level security layering takes licensed spectrum system to the next level

Low Cost of Ownership
• Minimal footprint, less infrastructure is required
• Robust scalability – add base stations over time as your utility grows
• Multiple management models including Network as a Service (NaaS)
STRATUS IQ
METERING AT THE GRID EDGE

The Stratus IQ™ meter takes measurement to a whole new level by monitoring and providing feedback through enhanced data. This meter provides utilities with the data visibility and control needed to adapt to a rapidly evolving smart grid.

The Stratus IQ combines grid edge intelligence with precise energy measurement into one powerful package. This meter provides two-way counting and options for high or low granularity of reads. Plus, with high-precision voltage monitoring and outage alarms, the Stratus IQ has the intelligence to deliver smart better.
Software-defined Metrology
Hardware constraints for measuring energy is now a thing of the past. With the ability to make metrology adjustments over-the-air, utilities are prepared for whatever the future holds. The Stratus IQ takes measurement to the next-level by sampling 8,000 samples per second for increased accuracy.

C&I Power in a Residential Meter
Four-quadrant metering is just the beginning. By simultaneously measuring real, apparent and reactive energy, the Stratus IQ gives utilities the competitive knowledge necessary to be more efficient in the generation and distribution of power.

Data is the Name of the Game
The Stratus IQ has eight channels of load profile data along with line-side and load-side voltage reporting. This insight gives utilities the concrete data needed to make educated decisions. No other meter on the market has this type of system visibility.
About Sensus

Sensus, a Xylem brand, helps a wide range of public service providers—from utilities to cities to industrial complexes and campuses—do more with their infrastructure to improve quality of life in their communities. We enable our customers to reach farther through the application of technology and data-driven insights that deliver efficiency and responsiveness. We partner with them to anticipate and respond to evolving business needs with innovation in sensing and communications technologies, data analytics and services.

Learn more at sensus.com and follow @SensusGlobal on Facebook, LinkedIn, Twitter and Instagram.