Intelligence in the AE Grid
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Pieces of Smart Grid are here

Energy Management

Metering

Distribution Management

Substation Protection
Growing the intelligence

- Substation IEDs, communication networks and smart meters being deployed support Smart Grid
  - Increased data available
  - Collection and conversion of the data to information is challenging
  - Application integration is technical challenge
Customer Expectations

- Customers’ expectations rising, want electric providers to know status of their power
- Provide restoration or construction completion time with completion notice
- Want new services and options to help manage consumption and cost
Austin Energy’s AMI

- Upgrade current AMR network to 2-way AMI and convert last 2/3 of meters over next 2 years
- Key enabler of the Smart Grid concept
- Promotes efficient operations
  - Revenue billing reads
  - Remote disconnect; reduces truck rolls
- Enables
  - System planning; transformer load management
  - Distribution automation (DA)
  - Customer/Utility load control – thermostats, pools, etc
  - In home displays for customers
  - Billing cycle preferences
Meter Automation Benefits

- **Utility Benefits**
  - Increased organizational efficiency
  - Safety – less property accesses & miles driven
  - Enhanced theft detection
  - Outage identification & restoration verification
  - More customer usage data available

- **Customer Benefits**
  - Fewer utility personnel in yards
  - Information to manage consumption
  - Quick utility recognition of outages
Fault locating

- Replacing electromechanical relays with microprocessor relaying enables
  - Faster fault location
  - Improved reliability and dependability of the protection system
  - Provides data for other analysis we do with the data
- Historically for transmission, expanding to distribution
- Expedited locating and positive locating
Power Quality

- AE is upgrading to ION devices for PQ monitoring.
- Cost effective up-to-date technology.
- Improved high-speed Ethernet communication.
- Higher data accuracy.
PQ Monitors

- To monitor the quality of power delivered to AE’s hi-tech customers and critical nodes.
  - Detect sag/swells
  - Capture switching transients
  - Voltage trending
- System reliability studies by AE and customers
- A tool for preparing voltage sag notifications and fault reports.
Beyond Today

- Transportation sector – plug in hybrids
- Renewable and distributed generation
- And more