Scott Krueger, Billing/IT Supervisor
AMI Deployment at a Rural Electric Cooperative
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About REA

• Headquartered in Alexandria, MN
• Established in 1935
• Member owned and governed
• Seven member Board of Directors
• Serving in portions of Douglas, Pope, Grant, Stevens, Ottertail, Stearns and Todd counties
• Over 14,000 services
• 2,967 miles of line
• 19 Substations
RUNESTONE ELECTRIC ASSOCIATION SERVICE AREA

Runestone Electric Association service area is displayed in green.
Current Metering System

• 18,000 Meters installed
• 100+ Meters being hand read
• Hunt Technologies Turtle System (TS1)
  • System installed 1997
  • Landis+Gyr Acquired the Technology
  • Announced End of Support March 2014
  • PLC
• Turtles were starting to fail rapidly
• Let the Search Begin!
Advancements

• Radio Frequency Communication Systems
• Enhancements to Power Line Carrier Technology
• Smart Grid and Advanced Metering Infrastructure (AMI)
• Head End Software
Meters and Modules

- Electronic Meters Only
- Measurement of Electrical Values Takes Place in Meter
- Modules are one of two types
  - Stand alone module that plugs into meter
  - Module manufactured on board
- Modules Read Meter Digitally, Few Calculations by Module
- Data Stored Digitally In Module Memory and Transmitted
- This Allows Systems to Backfill Data as Needed
Data

• For the Most Part, Any Data Measured by the Meter Can Be Extracted and Stored in the Head End Software
• All Solutions Offer Same Datasets
• Head End Software Can Find Holes in Data Due to Loss of Communications and Backfill
Other Features

• All Solutions Offer Disconnect Meters and Disconnect Collars
• Some Solutions allowed you to use any meter
• All Solutions Offer integration to OMS, CIS
• Some solutions offer an MDM as part of the head end and VEE
Decision

• Cost
  • Initial Purchase
  • Future Build out

• Communication Path
  • Point to Multipoint
  • Power Line
  • Mesh

• Smart Grid Features
  • Smart Appliances
Aclara TWACS®

- Mature Technology
- Highly Reliable Hardware
- Demand Management Features
- Real Time Communication
- PLC
  - Can integrate with other Aclara Products (Metrum®, Synergize®)
- Had a choice as to what meters we wanted to use
  - Landys+Gyr Focus & Polyphase
Planning

• 3 Year Project 2015 - 2017
• Setup Hardware/Software for System
• Sent Employees to training
• Installed Substation Coupling Equipment
  • Worked with G&T
• Received Meters in phases (I-III)
• Deployment Plan – Where do we start?
• Meter Socket Rebuilds, Conversions and Upgrades
Planning (Cont)

• Have to keep TS1 system running for 3 years
  • Use parts from completed sub collectors
• Space out meter numbers
• Change out procedure
• Old Meter disposal
• Billing issues
• Specialty Accounts
• Members
Workload!
Ready, Set...Go!

• Started August 2015
• Started with our Lake Mary Substation
• Replaced REA meters first
• Meter Tech changed a majority at first
• Used a contractor part time
• Used Line Crew during winter months
• We were constrained by number of meters we received
• 65% Deployed
What we have Learned

• TWACS system works as advertised
• Sub-Meters and Peak Interrupter Panels
• Look at Meters not reporting differently
• Line Loss. At project start 6.64%; Today 5.39% and going down!
• Mechanical Meters
• Interval Data allows CSR’s to handle High Bill Complaints effectively
• Able to pull Operational Data quickly for Back Feed planning
Questions?
Thank You!

Scott Krueger
Billing/IT Supervisor
Runestone Electric Association
scott.Krueger@runestoneelectric.com
320-762-1121/800-473-1722