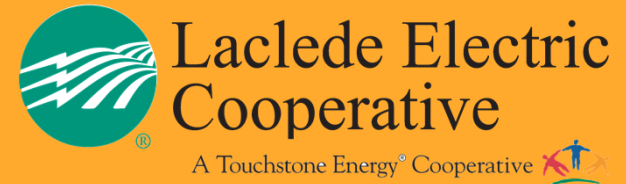


# Smart Grid Update

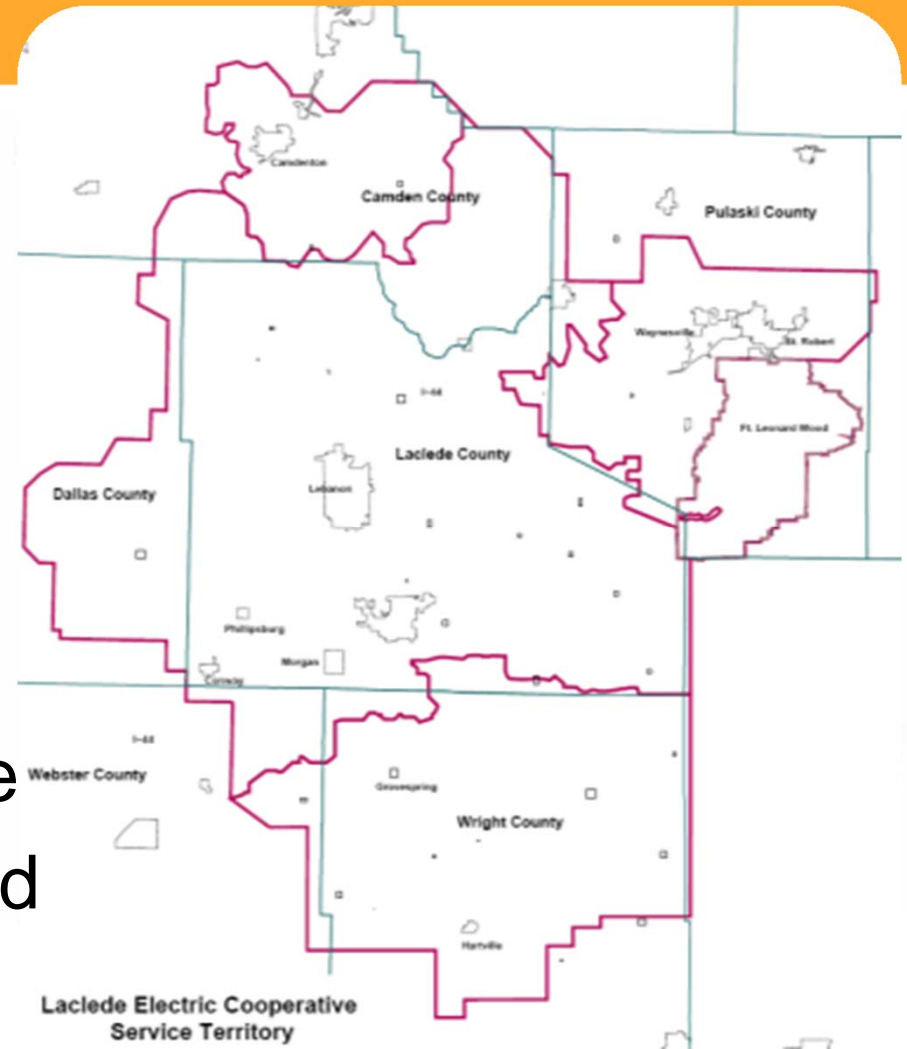


## Laclede Electric Cooperative

Terry Rosenthal, P.E.  
Manager of Engineering

# Cooperative Profile

- Lebanon, MO
- Serve parts of 6 counties
- 3 district offices; 120 staff
- Approx 36,000 meters
  - varying member density
  - 7 per mile average
- Approx 5,000 miles of line
- Approx 200 MW peak load
- 27 substations



**Own & operate distribution system on  
Fort Leonard Wood Army Base**

# Smart Grid Goals

## Technology Assimilation

- Evaluate, integrate & implement technologies to:
  - modernize operations & business processes
  - improve customer care

## Member Relationship & Loyalty

- Expand strategies that strengthen relationship with members, communities and leaders

## Distribution System Reliability

- Develop a comprehensive long-term reliability plan for the distribution plant to ensure:
  - highly efficient operations
  - high level of electric service reliability

## Operational Efficiency & Cost Control

- Implement initiatives to:
  - optimize efficiencies
  - mitigate cost increases
  - enhance productivity

# Smart Grid Initiatives

- **AMI Meter Deployment**

- Wireless system
- Fully deployed 2009 – 2010
- Hourly intervals residential
- 15 minute intervals C&I
- Remote Connect / Disconnect
- MDMS / Customer Portal Access

- **Distribution Automation**

- SCADA voltage / VAR controls
- Down-line feeder controls

## Driving Change

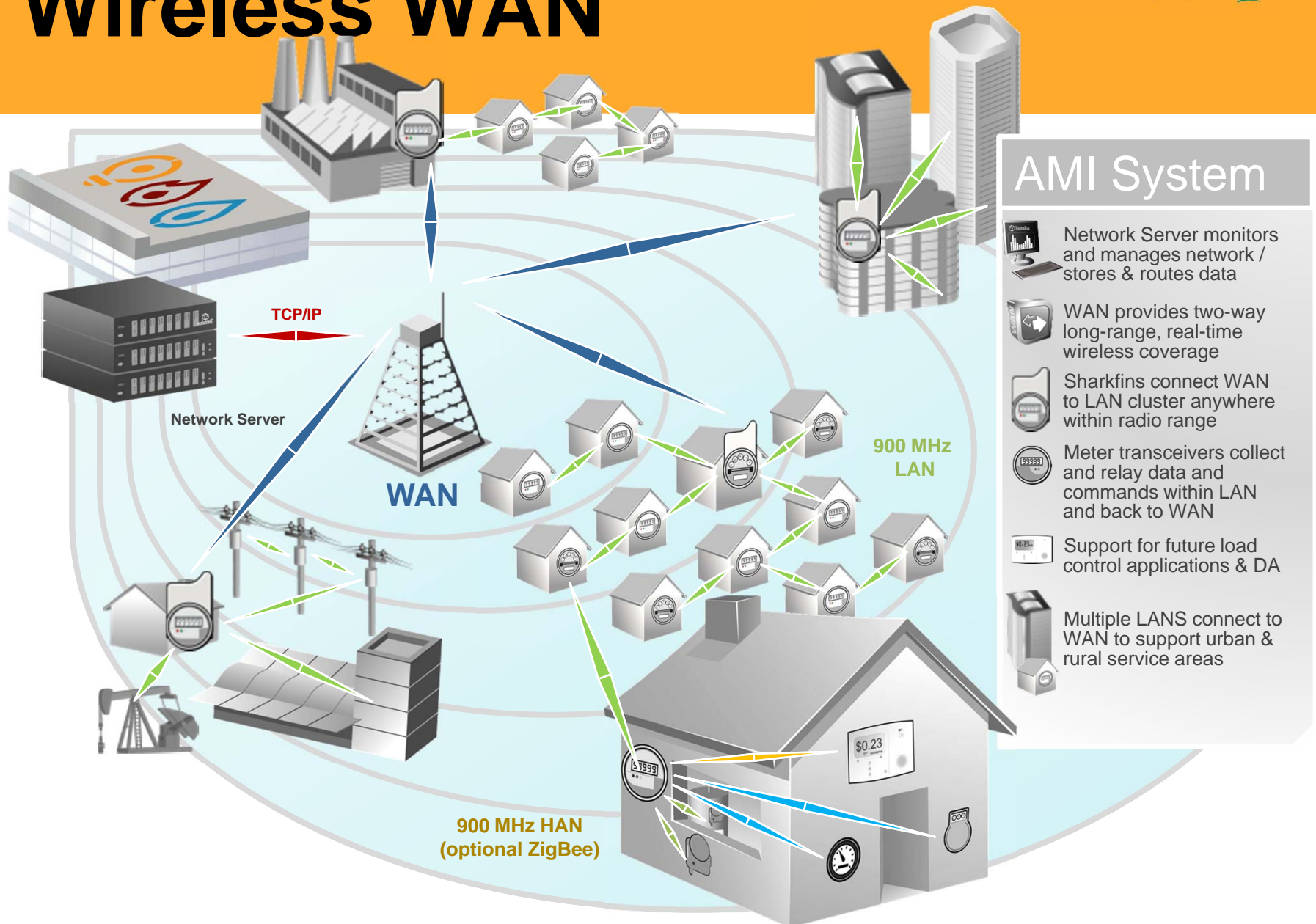
- Improve customer satisfaction
- Business process efficiency
- Develop accurate records and data for system statistics
- Utilize AMI as a means to improve outage response process
- Use the AMI systems for improved system reporting – voltage, amps, peak demand, high usage, etc.
- Possible Demand Response or other Smart Grid initiatives in future

# AMI System Highlights

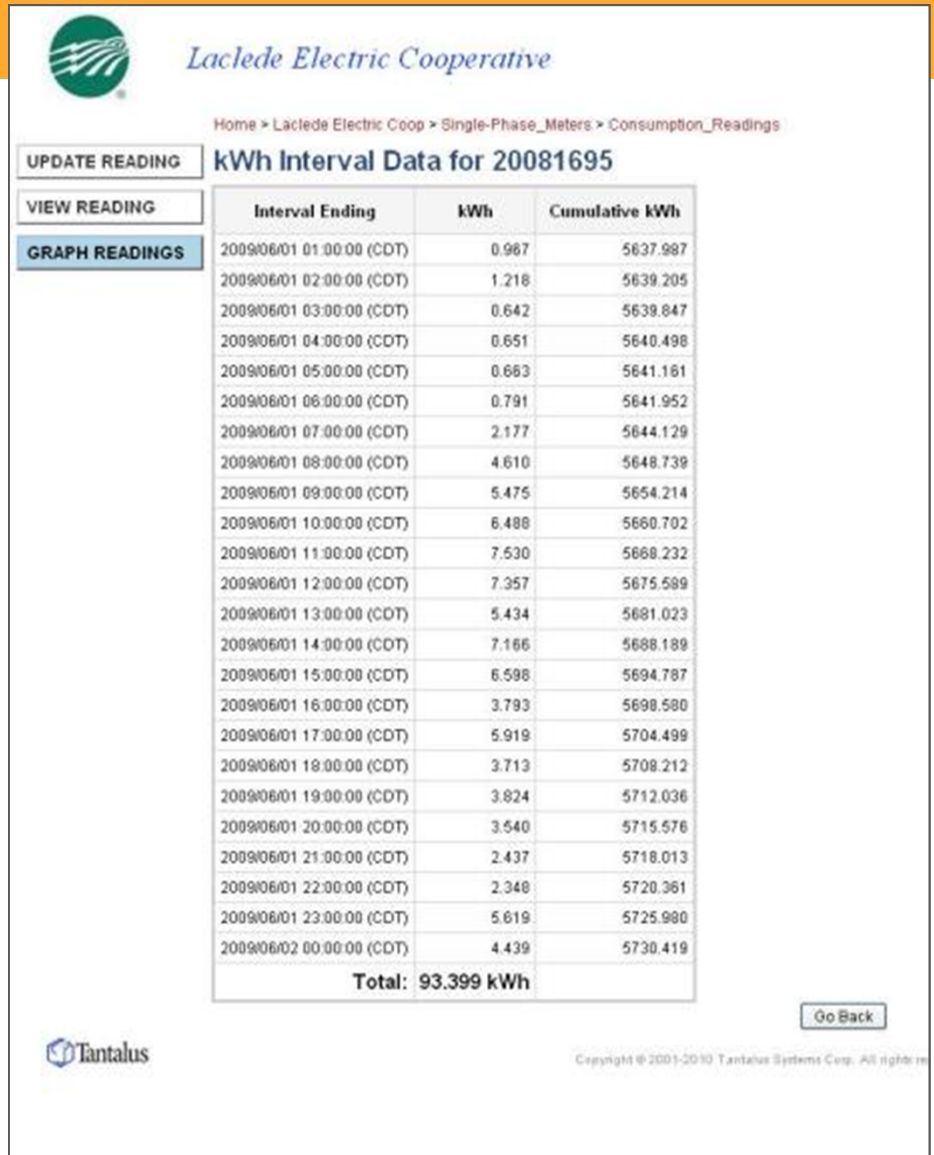
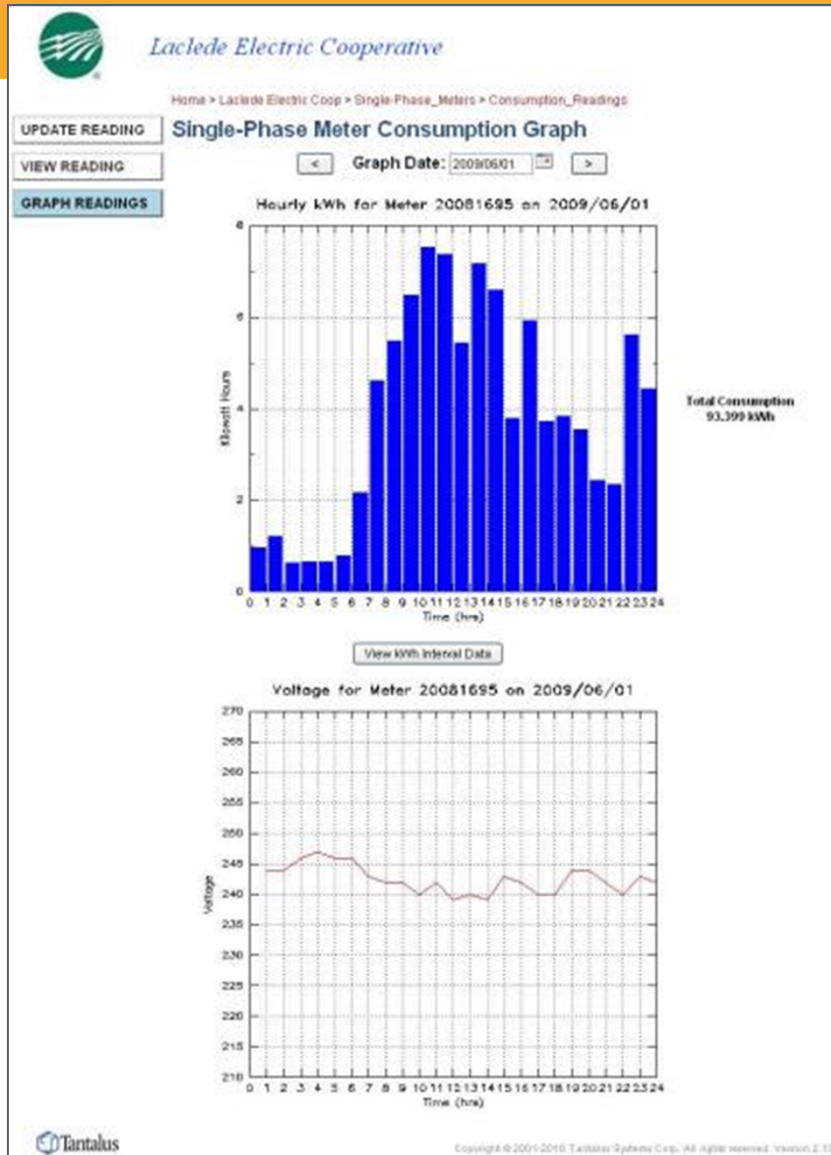
- Leverage Existing Radio Towers and Fiber Network
- Member Acceptance
- Data Integrations
  - Customer Information System (Billing and MDMS)
  - Outage Management System
  - Geographic Information System
- Report by exception
  - Outage / Restoration
  - Power Quality (voltage, blinks, etc.)
- Fort Leonard Wood Energy Management
- Mission Critical System



# Wireless WAN



# AMI Data



# Next Steps / Summary

- Business Process Review
  - Changes as needed to realize maximum AMI benefits
- Integrate to other information systems
  - Data support for other systems
  - Efficiency improvements
- Impacts entire organization

## Possibilities for the Future

- Ability to alter billing cycles
- Consider different rate structures
- Pre-pay option
- Home Area Network:
  - DR options
- Multiple utilities:
  - electric, water, gas, etc.
- Distribution Management System