

Beyond AMI to True Grid Intelligence with Distribution Automation

The small utility electric cooperative's implementation of a Smart Grid in a rural community

Project Title: Beyond AMI to True Grid Intelligence with Distribution Automation

Prime Recipient: Arkansas Valley Electric Cooperative Corporation (AVECC)

Project Location: AR-003 and AR-004 (See Map)

Project Timeline: 60 Months

Project Manager: Chris Howe
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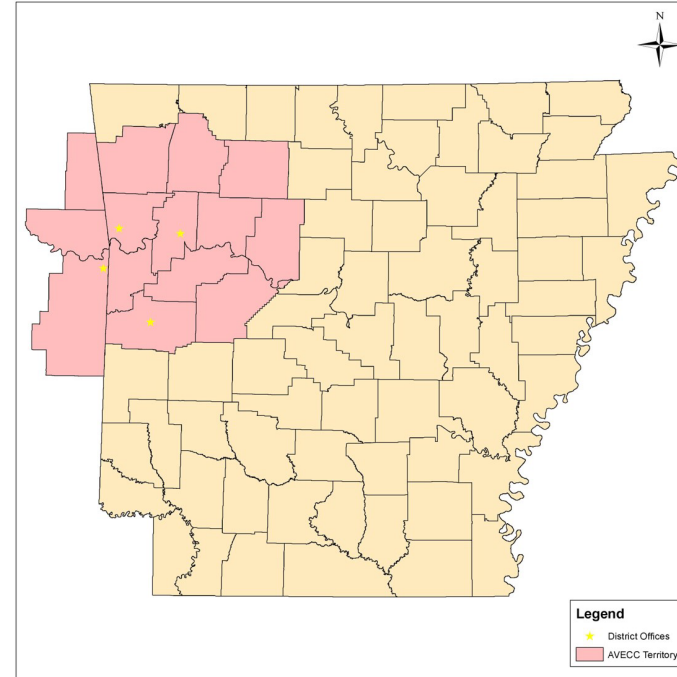
FOA Topic Area: Topic Area 2: Smart Grid Grants (BIL Section 40107)

Federal Share: \$18.3 Million

Cost Share: \$18.3 Million

Total Est. Project: \$36.6 Million

Project Goals: To increase efficiency, reliability, and flexibility of the distribution grid using grid enhancing technologies throughout the electric system to build a Smart Grid in a rural community composed of 80% membership in Justice 40 eligible communities.



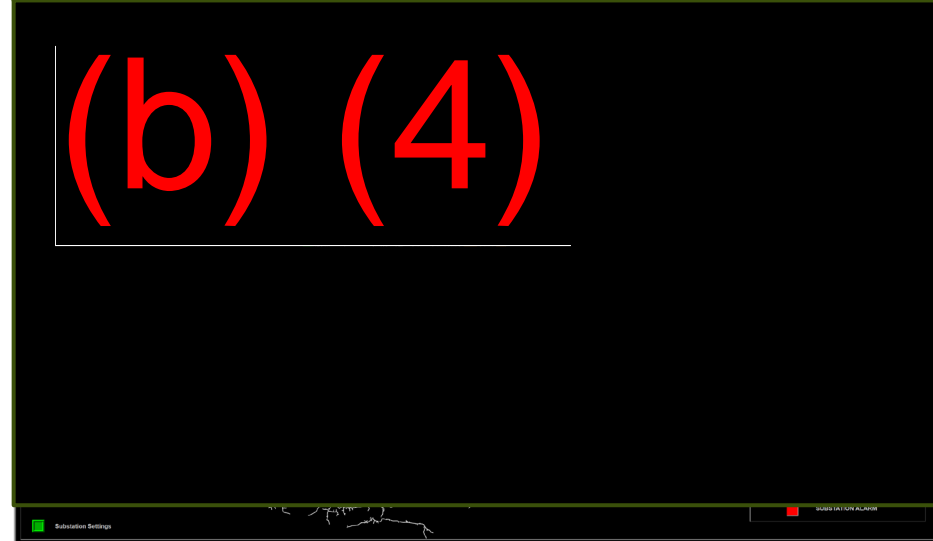
Arkansas Valley
Electric Cooperative

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Technical Project Benefits:

- Improve visibility and control of the distribution grid
- Enhance secure communications
- Improve grid resilience
- Conservative Voltage Reduction
- Peak Load Reduction
- Emergency Load Curtailment
- Energy savings for consumers
- Fewer and shorter power outages
- Flexibility for distributed generation or electric vehicles
- Reduced grid maintenance cost
- Reduced environmental exposure and impact
- Improved safety for line workers and residents



Grid Enhancing Technology Used:

- Advanced Metering Infrastructure (AMI) – Provides real-time feedback from the edge of the grid via secure communications to identify grid malfunctions and threats ensuring action can be taken to secure grid efficiency
- Vacuum Fault Interrupting Circuit Reclosers – Offers grid load visibility and remote control to ensure balance and provides grid flexibility automation options
- Real Time Data Switched Capacitor Banks – Allows for autonomous power factor correction to reduce load dependency and deliver power savings
- Autonomous Voltage Regulators – Autonomously maintains power grid voltage levels and offers conservative voltage reduction for peak load shedding
- Supervisory Control and Data Acquisition (SCADA) – Provides the ability to view system conditions throughout the electric distribution grid and allows the utility to remotely control any connected devices to achieve system reliability, flexibility and efficiency.



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Over 80% of the AVECC Service Territory is Justice40 Qualified meaning over 80% of the GRIP Funding awarded for this project benefits Justice40 Communities and Tribal Lands

Community Project Benefits:

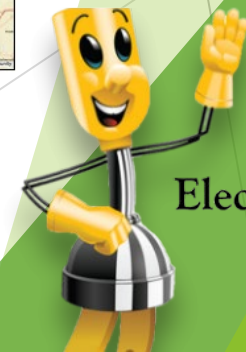
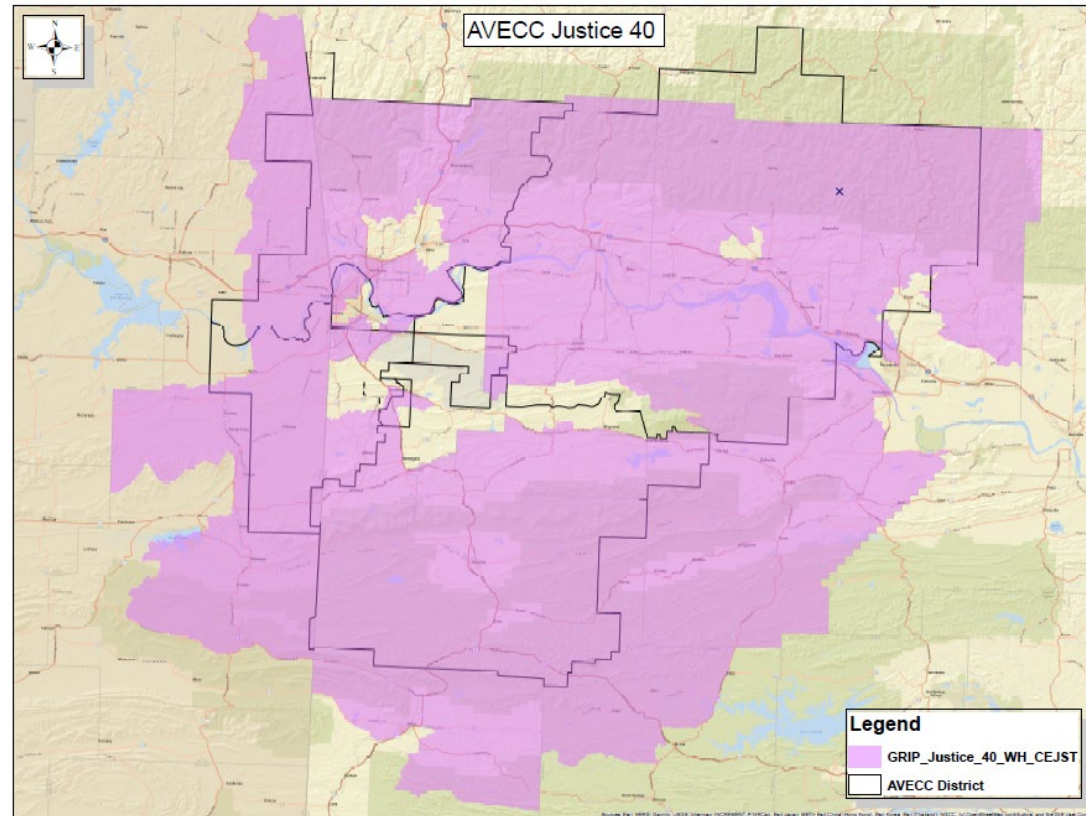
- Energy Burden Reduction
- Reduction in Frequency of Outage Events
- Minimize Duration of Outage Events
- Increase Job Creation
- Added Job Training

Community Initiatives:

- Lineman Apprenticeship Program
- STEM Internships for Community Members
- Extensive Job Training
- Equal Opportunity Employment
- Supplier Diversity
- Project Team Diversity

Economic Justice Factors in Area:

- Low Income
- High Energy Cost
- Transportation Barrier
- Higher than Average Percentage of individuals with less than a High School Education
- Linguistic Isolation
- Agricultural Loss from Natural Hazards
- Increased Risk for Heart Disease



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