Enhancing Grid Visibility to Support Solar Adoption in Rural Electrical Cooperatives

OBJECTIVES

The pilot's primary objective is to enhance Vermont Electric Coop's (VEC) grid visibility. By improving grid visibility, the cooperative aims to optimize the integration of solar power, reduce energy costs and enhance the reliability of its members' electricity supply.

APPROACH

- **Assessment & Analysis:** Edge Zero conducted an assessment of existing grid infrastructure, renewable energy sources and renewable energy targets.
- **Solution Design:** Stakeholder meetings enabled Edge to tailor the pilot to VEC's unique KPIs.
- **Implementation**: Edge supported VEC's deployment of 45 distribution transformer monitors across its distribution network and onboarded utility staff to the EdgeConnected™ monitoring platform.
- **Training and Support:** Edge provides staff training on the new systems and offers ongoing support.

RESULTS

Within a month of deployment, the new monitoring systems identified two issues and addressed existing overload occurrences, preventing potential outages.

- **High Voltage**: A three phase transformer was showing high voltage outside of acceptable levels. The issue was resolved before impacting members.
- **Phase Imbalance**: A commercial member's equipment was tripping offline due to a power quality issue. The sensors helped the team identify the cause, and the member's system is now stable.

The efficiency gains from optimized grid management will continue to support reduced operational costs and better utilization of solar energy resources.

AT A GLANCE

Challenges

- AMI Reporting Delays
- Integration Barriers
- Fault Detection Issues
- Operational Costs

Benefits

- Real-time Grid Visibility
- Increased Solar Adoption
- Faulty Transformers Identified
- Optimized Grid Management

"We installed these sensors last week on our South Alburg 28-4A circuit and immediately noticed high voltage on one phase of the transformer.

As it turns out, we had a bad transformer that could have turned into an outage."

Cyril Brunner
Vermont Electric Coop