



Minnesota Rural Electric Association

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## **IJJA/BIL-Grid Resilience and Innovation Partnership (GRIP)**

*A sampling of projects proposed as part of the Grid Innovation Program*

Projects include (Not a full list):

- **Improving resiliency through improved sectionalizing** on the transmission system near Moose Lake and Foley.
- **Improving system voltage**, especially helping during major events and increasing renewable generation, using static synchronous compensator devices (STATCOM). This helps rural remote areas and disadvantaged communities the most.
- **Mobile generation and/or storage units** to provide power during major events.
- **Deploying and supporting Supervisory Control and Data Acquisition (SCADA) equipment and Advanced Distribution Management Systems (ADMS)** would benefit transmission and the 71 distribution systems served by Great River Energy, East River and Minnkota. Benefits include distribution system loss reduction, estimating and scheduling efficiencies for distributed energy resources (DERs), optimization of voltage control devices based on distribution power system modelling and end of line measurement, and automatic load restoration with the monitoring and control of fault location and isolation devices.
- To build on the ADMS, both GRE and Minnkota are proposing investment into **Distributed Energy Resource Management System (DERMS) to allow active management of the distributed renewable energy resources** being deployed across the territory. This will help cooperative utilities have a system that will help them collaboratively address system-wide transmission congestion and peak demand while empowering local distribution system operators to manage DERs in their communities.
- To offset the need for an expensive infrastructure investment to serve growing load, Connexus is proposing a **2 MW, 8 MWH battery system** in Vadnais Heights that would help meet system demands in the summer.
- To **address constraint issues and increase the amount of renewable energy provided to cooperative members**, Lake Region is proposing to incorporate distribution automation and advanced SCADA communications that will allow for load from a neighboring distribution substation to be switched automatically onto the renewable hybrid system's substation. This will allow the hybrid renewable system to maintain maximum generation output while preventing reverse power flow onto the transmission.

- Arrowhead Electric Cooperative is proposing **a novel battery storage project** to enhance resilience and avoid costly transmission upgrades by building battery storage on the Gunflint Trail circuit and at Grand Portage and Border Patrol. These storage units enhance the reliability of service to the **Grand Portage Band** of Minnesota Chippewa Tribe. The innovative approach avoids transmission upgrades and provides significant resilience enhancements through a local microgrid.
- Wild Rice Electric Cooperative provides electrical service to most of the White Earth Tribal Reservation located in northwest Minnesota. Wild Rice Electric's service territory includes Mahnomen County, a disadvantaged community. Wild Rice and their transmission supplier, Minnkota, plan **multiple projects to provide additional redundancy** to ten distribution substations that provide power to the White Earth Tribe: distribution automation, additional SCADA monitoring abilities and providing a loop feed.

The projects proposed by this utility consortium will increase the reliability and resiliency of the electric grid, provide more information and more complete information to better manage power quality and power costs. With enhanced visibility due to SCADA, ADMS and DERMS, trends can be monitored and tracked. Having these tools in place, along with enhanced infrastructure, will preemptively address issues as the state transitions to a higher portfolio of renewable generation and sees increased electrification.