

CASE STUDY

SGS Patrolman Plus Helps Sioux Valley Energy Restore Power to 95% of Affected Members in Minutes

The Situation

In late April 2025, as spring storms moved across eastern South Dakota, Sioux Valley Energy experienced a lightning-related outage just south of Chester. Serving a mix of small towns and rural distribution lines, the cooperative's system includes both dense residential areas and miles of overhead line stretching into open countryside.

When a lightning strike caused a lightning arrestor to fail on a distribution line feeding out of the Chester substation, an A-phase recloser operation left 723 members without power.

What could have turned into a lengthy patrol across both town and rural feeder lines instead became a targeted response. By leveraging SGS Patrolman Plus communicating fault indicators, crews were able to quickly determine the faulted section, isolate the affected area, and restore power to the majority of members within minutes.

SNAPSHOT



LOCATION

Chester, SD



UTILITY

Sioux Valley Energy



EVENT DATE

April 2025



CAUSE

Lighting arrestor failure



CUSTOMERS AFFECTED

723



RESULT

95% restored within minutes



The Challenge (Before Fault Indicators)

Without fault indicators, crews would begin by identifying the nearest open protection device and patrolling all lines downstream to locate the fault.

For this feeder, that meant:

- Inspecting a dense town network
- Patrolling miles of rural overhead line

If the fault was not immediately visible, crews could spend up to an hour locating the issue before isolating the fault and restoring service.

The Response with SGS

SGS Patrolman Plus communicating fault indicators, installed just downstream of the urban area at the start of the rural overhead line, provided immediate fault visibility through real-time alerts sent via email and text, while also allowing dispatch to monitor device status through the SGS Portal.

When the outage occurred, the indicators immediately showed the fault was downline in the rural section, allowing crews to:

- Confirm the fault was outside of town
- Avoid unnecessary patrol through the urban area
- Open a switch to isolate the rural section
- Restore power to all upstream members immediately



The Results



Restored power to over 95% of affected members within minutes



Eliminated unnecessary patrols across both town and rural lines, saving time and resources.



Significantly reduced total outage duration, improving CAIDI and SAIDI benchmarks.

Contact us for more information

Smart Grid Solutions (SGS) is a US-based manufacturer of fault indicators. Our devices are manufactured in Texas, and meet Build America Buy America requirements.

info@smartgridsolutions.com
(512) 782-9698
smartgridsolutions.com

“Crews feel that in these situations, the indicators provide a valuable piece of information that helps them do their job faster and more effectively and get members back on as quick as possible.”

**— Director of Operations,
Sioux Valley Energy**