

Rugged Network Components

A&N Electric

Reduces Outage Impact Using RUGGEDCOM and Siemens Products

A&N Electric Cooperative based in Tasley, Virginia, needed to improve SAIDI (System Average Interruption Duration Index) and reduce the outages to critical facilities such as hospitals, caused by storms and vehicular collisions with power poles. They wanted a system that minimized design, deployment, sparing and training costs.

ANEC's key business driver behind the FLIR (Fault, Location, Isolation and Restoration) project was to improve reliability for the local hospital. ANEC needed faster detection of faults and transfer to alternative supply for the hospital when a fault occurred on the primary feeder. ANEC informed RuggedCom and Siemens that they wanted a system that was future proof and insisted that it be based on key international standards such as IEC 61850 and IEEE 802.16e (WiMAX). It had to be cost effective and reproducible across their service territory.

Kelvin Pettit of ANEC explained that the key requirement was distribution feeder automation. "This is the first project in the world to use IEC 61850 GOOSE messaging over a RUGGEDCOM WIN communications network. The FLIR project was accomplished with protective relays using a high speed IEC 61850 GOOSE message communications network."

The requirements of the new system enabled rapid source transfer capability for the critical hospital load, high speed FLIR to minimize outages, scalable addressing of feeder problems over time in order of importance, and the flexibility to work and integrate with existing switchgear.

RUGGEDCOM WIN base stations and CPE units along with PoE, serial and Ethernet switch products provided reclosers, serial recloser controllers, automation controllers for Ethernet with HMI and engineering services.

The project began in January 2011 and was live by August of that same year, fully demonstrating IEC 61850 GOOSE and RUGGEDCOM WIN to be an extremely efficient and high-speed means of communicating fault information, resulting in a distributed intelligence system previously only seen in the most advanced substation automation systems. This system effectively extends the substation LAN into the distribution network and enables blindingly fast detection, isolation and recovery from faults on the instrumented feeders.

Using the latest industry standards has future proofed the design, allowing for future expansion and the ability for multiple vendors and devices to coexist on the same communications network. This has allowed ANEC to achieve the goals it set out to with the FLIR project.

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