A Centralized Security Network for Substation Monitoring

A centralized security system serving over 150 substations adopted Moxa?s PoE switches to carry power, video, command and voice data over Ethernet

A national power grid located in the desert planned to deploy a centralized security system to connect more than 150 substations and consolidate management of multiple security systems?video surveillance, physical access control, and IP phone systems?within a single room.

System Requirements		

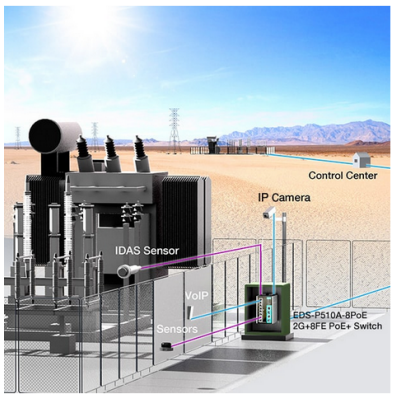
- 24/7 reliability for continuous operation
- Connectivity and availability even during EMI and surge conditions
- Remote management of operations to reduce costly onsite visits to unmanned locations

Moxa's Solutions

Extreme weather was the first challenge for achieving year-round operational reliability. All Moxa's switches used in this network, from the edge to the core, are fanless units designed with 3kV LAN surge protection, extended operating temperature ranges and dual-power inputs to ensure long-lasting system durability and connection reliability.

To build an efficient layer-3 network architecture, the backbone uses hot-swappable 10GbE/48-port full-Gigabit modular switches to construct a high-speed backbone for routing and switching.

To ensure the safety and security of every substation, two types of PoE+ switches?the IKS-6728A-8PoE 24+4G and the EDS-P510A-8PoE 2G+8 switches?were installed at each substation to link access security control and deliver surveillance video back to the control center. Both switches



provide 8-port/24-port 36 W outputs to supply the power needed for IP cameras, door access controllers, and VoIP equipment over Ethernet, and are built to withstand harsh desert environments.

To save on manual checks and personnel trips to remote and unmanned substations, these PoE switches provide Smart PoE management, which allows the security center to remotely monitor connected PDs to perform status detection, failure checks, threshold cutoffs, reboots, and active event warnings. All of these features provide improved efficiency for widespread control and monitoring, saving time and related costs.

Why Moxa

- Industrial-grade products that can withstand harsh operating conditions
- High-density high-power PoE-port connectivity
- Remote PoE network management and maintenance