

CUSTOMER SUCCESS STORY

CUSTOMER: EMPRESA DE ENERGÍA DEL QUINDÍO S.A ESP
INDUSTRY: UTILITIES
REGION: LATIN AMERICA
PRODUCT: iES28GF-L2 & iRBX6GF

THE CHALLENGE

The Empresa de Energía del Quindío (EDEQ) SA ESP, a subsidiary of the EPM group, undertook the modernization of its Calarcá medium voltage substations with the aim of repowering its capacity and providing a better quality of services to its clients in the region. To do this, it upgraded the substations with the installation of a new 12.5 MVA transformer that included a whole new control, protection, and measurement system with technologies based on IEC 61850 and the implementation of active redundancy in its station bus using IEC 62439-3 technology Clause 4 PRP.

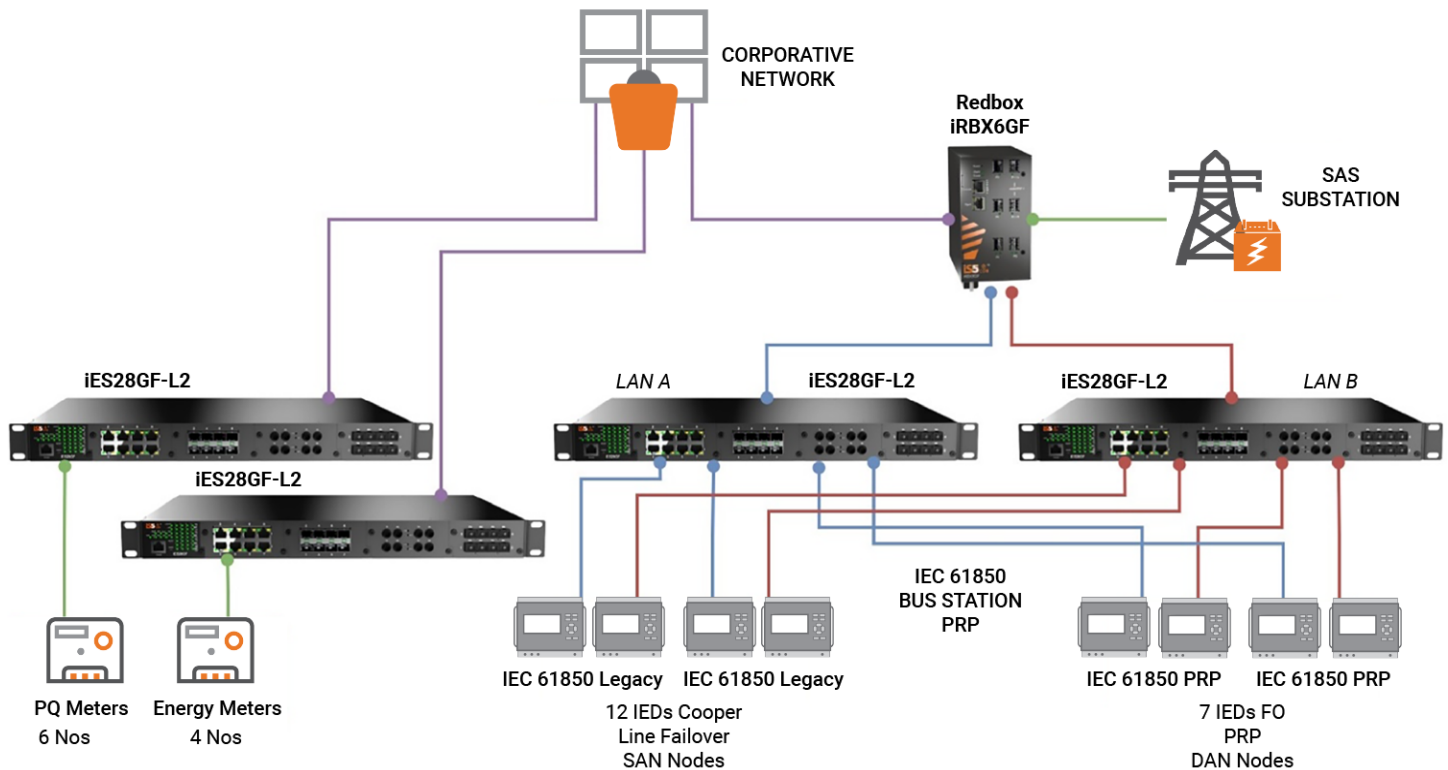
Another factor that had to be considered when designing the new network was the existing infrastructure which was outdated and still in full operation. The existing infrastructure had to be equally integrated with the new technologies based on active redundancy topology.

THE SOLUTION

To begin, it was necessary to expand the capacity of its single station bus networking system to a redundant PRP architecture so that the new control, protection, and measurement equipment could be coupled to the SAS (Substations Automation System) system. The solution selected was to utilize the iRBX6GF, HSR/PRP Red Box Switch to deliver the required network redundancy. This was combined with the implementation of iES28GF-L2 high-capacity switches with 28 ports into the substation.

In addition, the legacy relays were activated with their Line Failover capacity, a hot-standby redundancy technology in their ports that allows them to connect to two networks to achieve redundancy. However, they will always be seen as SAN (Single Attached Node) equipment in a PRP network. Although the SAN equipment is designed within a PRP network, the IEC 62439-3 Clause 4 standard enables the connection of this type of node at the same time as DAN (Double Attached Node) equipment.

Figure 1 - Network Diagram of the iS5 Communications Equipment Implementation



BENEFITS

- Greater integration capacity in the station bus for new control, protection, and measurement equipment and future systems.
- Implementation of an active redundancy architecture, which guarantees high reliability with zero packet loss and zero recovery times, an ideal condition for automation digitization platforms based on the IEC 61850 standard.
- Compatibility with legacy equipment without the capability of PRP active redundancy technology, allowing them to extend their useful life.

IMAGES



iS5 Communications Equipment Implementation.

ABOUT POTENCIA Y TECNOLOGÍAS INCORPORADAS (PTI)

PTI is a company dedicated to providing comprehensive electrical infrastructure engineering solutions through technological innovation, knowledge management and sustainable development. They have extensive experience in the design and implementation of high availability and reliability industrial networking solutions, integration of control and protection systems for automation and remote control of electrical systems with an emphasis on real time and cybersecurity. They are an iS5 Communications' distributor for Colombia and commercial and technical support in Spanish for South America. With a trajectory of more than 5 years with the brand and the development of several projects in automation, monitoring and control. With PTI you will be able to count on a strategic ally for the implementation of this and other solutions that allow you to improve the quality of your services, a greater satisfaction of the end users and an adequate return on investment by improving the operation of your systems.

ABOUT iS5 COMMUNICATIONS INC.

iS5 Communications Inc. ("iS5Com") is a global provider of integrated services and solutions, and manufacturer of intelligent Industrial Ethernet products. Our products are designed to meet the stringent demand requirements of utility sub-stations, roadside transportation, rail, and industrial applications. iS5Com's services and products are key enablers of advanced technology implementation such as the Smart Grid, Intelligent Transportation Systems, Intelligent Oil Field, and Internet of Things. All products have the ability to transmit data efficiently without the loss of any packets under harsh environments and EMI conditions.



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