Channel Island Electricity Grid

Communication Network
for the Islands of Guernsey and Jersey

Reference

The Channel Island Electricity Grid (CIEG) is a joint venture organization set up by Jersey Electricity and Guernsey Electricity to maximize the reliability and the generation facilities presented by the electrical interconnection to Europe. The underlying communication network integrated by ABB fulfils mission critical demands in terms of grid-control and protection.

About CIEG

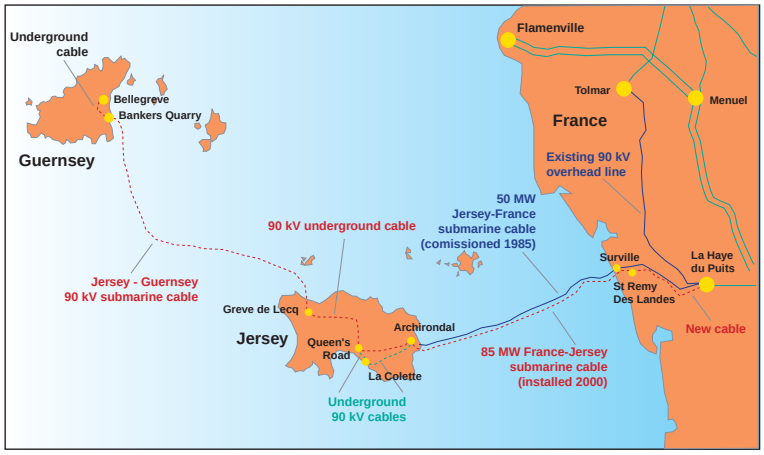
Channel Islands Electricity Grid (CIEG) is the joint venture between Jersey Electricity and Guernsey Electricity. The two islands cover nearly 80% of their electricity consumption by imports from EDF (Electricity de France) via submarine cables. There are two 90,000 Volt power cables that supply power to Jersey and on to Guernsey. The first was installed in 1987 and is capable of supplying up to 50 MW of power. The second was commissioned in 2000 and can provide the islands with up to 85 MW. The supply from EDF is from St Remy des Landes and comes ashore in Jersey at Archirondel.

CIEG now supplies 75% of the Channel Island's annual power demand and meets the full island load for 9 months of the year.

Mission Critical Tasks

The submarine cables are a kind of lifeline for Jersey and Guernsey with many demanding business customers, as well as the residential load. A sophisticated monitoring, protection and load shedding scheme had to be developed to protect this supply.

Thus all the important substations including the one on the French mainland are equipped with fully redundant substation control systems (SCS), which act as front-end servers for the CIEG SCADA system. These systems transmit their information via IP-based LAN/WAN connections to the control center in La Collette. There, the MicroSCADA and the Automatic Load Shedding System initiate the actions required in the power-grid. Additionally, relays and related teleprotection equipment support a reliable and secure power supply to the Channel Islands.



IP and Teleprotection on the same network

ABB has implemented a communication network based on well proven solutions:

- FOX-platform offering an easy to maintain network structure with access and backbone functionality, based on plug-in cards, providing integrated SDH/PDH, voice, pulse-to-voice frequency pilot signaling, legacy-data and IP-connectivity. Among others, the following cards are used in ABB's solution for CIEG:
  - TEBIT is a teleprotection plug-in card which carries all the signals for operational-tripping, trip-marking for ALS, ALS-driven load shedding and reporting of breaker-status
  - NEMCA provides emergency phone and voice services
  - UNIDA interfaces to data-services
  - OTERM guarantees the integration of older types of communication equipment, which means that earlier investments are protected
  - LECA2 for HDSL backup connections, some even run along the high-voltage cable
- Routers interconnected over the FOX-network make use of its fast traffic protection capabilities providing high network resilience.
- UNEM as the overall Network Management System, allows efficient supervision and control of the communication as well as the teleprotection network. It is also connected to a management center in England for remote alarm monitoring and support.

Potential for growth

CIEG sees today's communication network as a solid base for future growth. The FOX-platform and ABB's communication concept stand for highest flexibility and reliability.

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