



The Fair Isle Project

Fair Isle is the most geographically remote inhabited island in the United Kingdom. It lies 24 miles from the Shetland Mainland, and has permanent population of around 60 people. It is most famous for its bird life, traditional crafts, and stunning scenery.

Until very recently the island operated with limited power, with their electricity non-existent between the hours of 11.30pm-7.00am. Even when the power was in use throughout the day it was disruptive and temperamental, based on wind conditions. The island wanted to implement 24-hour power, not only for its existing inhabitants, but to also try and draw more of a population to the island and strengthen the economy.

<https://www.bbc.co.uk/news/uk-scotland-45812273>



Aim & Objectives

The overall aim of this project was to provide the Fair Isle with 24-hour power.

- To design and install a Coherent Monitoring System which would monitor the power distribution across the island.
- To build a PLC which would utilise various sources of energy by integrating them into one power distribution unit.

Our Solution

Our team of expert engineers got to work designing and building a complex PLC control panel which would enable integrated power distribution, with monitoring capabilities.

This PLC provided the capabilities to integrate and utilise wind, battery, solar, and diesel power. The power collected from each energy source is fed into the power grid where the SCADA system we designed and commissioned monitors the power quality and distribution.

We also set up a critical alarm system which communicates to specific personnel to alert them any abnormal conditions. They can then access the system remotely to fix any problems or change anything on the system to fit conditions.

Benefits

- Successfully implementing 24-hour power has been a massive benefit to the local community. There is now a reliable source of power which is not disruptive to the everyday life of the residents.
- This will have knock on benefits to the economy, by making the island more appealing to potential residents, and tourists.

Laplace Initiative

- Laplace successfully implemented a complex variety of industrial communications protocols, and presented all of this data to the customers SCADA system.
- We successfully built a complex critical alarm system bespoke to our client which communicates any abnormal conditions, and enabled a remote connection.
- The system we have put in place utilises various energy sources in the most efficient manner, storing, monitoring, and distributing power as needed.