



Kilgallioch Windfarm

Our Client, Kirby Engineering, on behalf ScottishPower Renewables, were required to provide a control system to monitor and control the HV infrastructure at Kilgallioch Windfarm, which is located in and around Kilgallioch and Purgatory Forests, 5 kilometres south of Barrhill, South Ayrshire.

The specification required the design, build and commissioning of a PLC system to monitor and control the equipment associated with the HV infrastructure to 3 substation switchboards, 96 wind turbines. The PLC system was required to interface with each of the turbines HV substation as well as various other infrastructure components and the existing SCADA system.

Our Solution

Our team of expert engineers got to work, we designed and installed bespoke control panels for each of the turbines. We then provided a master PLC and state of the art communications software which would be used to send signals between the substation and the 96 turbines.

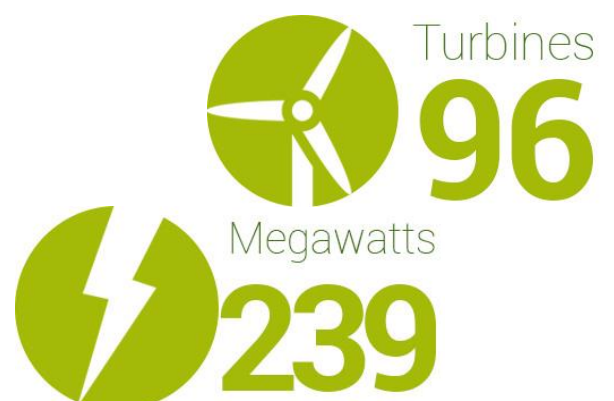
The system was programmed to interact with each control panel, and send information back to a Power Quality Meter (PQM) which enabled the customer to monitor the quality of energy, as well as quantity.

In addition, we programmed the PLC to interface with various building services and items of equipment within the substation utilising the advantages of the communications software.

Aim & Objectives

This project aimed to construct a control system to facilitate the operation and control of a centralised PLC (SCADA) system which integrated with existing equipment, capable of interfacing with multiple turbines.

- To deploy a fully integrated supervisory PLC (SCADA) system that would allow an operator to control and monitor the wind turbines from a central, remote location.
- To facilitate the operation and monitoring of the windfarm's electrical 33kV systems and low voltage auxiliary systems.



Benefits

- The new communications software has implemented new capabilities which are simply not available with the majority of legacy protocols.
- Our solution provided an increase in efficiency of the SCADA system, enabling a substantial saving in time and costs.
- We provided 3 Generation Management Systems with added Modbus comms which allowed for seamless connection to the SCADA via PLC.

Laplace Initiative

- Laplace successfully implemented a complex variety of industrial communications protocols, and presented all of this data to the customers SCADA system.
- The increased efficiency of the SCADA system was due to Laplace's creation of a clear & concise PLC database, which allowed one-point connection.
- Our combination of expertise in automation systems, and energy optimisation manifests itself throughout the project, giving us the ability to produce visible results.

