

Hydro-generator Overhaul

Quartzelec acting as lead contractor delivers the total refurbishment of Unit 1 at a hydro-electric power station, managing all electrical and mechanical aspects

HYDROPOWER STATION | OVERHAUL | NORTH WALES, UK

Our Customer's Challenge

The Maentwrog Hydroelectric Power Station, managed by Nuclear Restoration Services Ltd (NRS), required a comprehensive overhaul of Unit 1 to ensure the continued reliable generation of clean, renewable energy. The 15kV, 11.6MW, 50Hz generator, originally manufactured in 1991, faced risks of future outages without critical maintenance. Additionally, NRS sought to futureproof the unit by integrating advanced monitoring capabilities, including Partial Discharge (PD) diagnostics, to establish a baseline for ongoing maintenance and operational efficiency.

The Quartzelec Solution

Awarded the project through a competitive tender process, Quartzelec undertook a major service overhaul of Unit 1. This complex project incorporated the major service and overhaul of the generator whilst sub-contracting the turbine refurbishment work and required meticulous planning to balance maintenance needs with minimal disruption to the station's operability and safety. The scope involved;

Dismantling and Inspection: The generator was disassembled, and the stator and rotor were transported to Quartzelec's Rugby facility for cleaning, detailed inspections, and testing. Components underwent a core stud tension check and re-varnishing of stator windings.

Turbine Refurbishment: Quartzelec sub-contracted the onsite refurbishment to Green Highland Renewables and managed the process to ensure all components were meticulously cleaned, inspected and tested.

Advanced Monitoring: installing our proprietary LIFEVIEW® PD monitoring system from Quartztec, enabling baseline test value establishment for enhanced operational diagnostics.



Key Benefits

- Enhanced reliability through refurbishment and PD monitoring integration
- Efficient programme delivery leading to completion ahead of schedule
- Collaborative success with both subcontractor and client
- Offering key practical learning opportunities to client apprentices throughout programme

The successful delivery of this project was a testament to the collaboration between all parties. The overhaul and PD implementation ensure continued operation and the long-term generation of clean energy at Maentwrog

Mike Merritt, Maentwrog Station Team Leader

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Future Proof
PD monitoring

5-month
completion

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