

# Hydro Generator Overhaul & Vibration Investigation

Quartzelec successfully overhauled and resolved high vibration issues on a 21,000kW Siemens-Schuckert Hydro-Generator, completing a full rebuild, alignment, and testing within five months, ensuring improved operational performance.

POWER GENERATION | IRELAND

## Our Customer's Challenge

An energy provider based in Ireland faced a significant challenge with high vibration levels on the 21,000kW Hydro Generator, impacting its reliability and long-term performance. The issue required a comprehensive solution to identify the root cause and implement corrective measures. With a tight operational schedule, the client called upon Quartzelec to carry out a full generator overhaul, including rotor removal, detailed inspections, and advanced engineering analysis. The critical challenge lay in addressing the out-of-tolerance rotor shaft run-out whilst ensuring minimal downtime and maintaining the unit's operational integrity for future use.

## The Quartzelec Solution

Quartzelec performed a complete overhaul of the Hydro Generator, where the generator rotor was removed for a detailed laser scan of the shaft and coupling faces, enabling precise identification of the out-of-tolerance shaft run-out which was contributing to the high vibration levels.

Thorough inspections, electrical testing, cleaning, repairs, rebuilding, realignment and in-depth engineering analysis was completed and all heavy lifts were managed on-site within the Turbine Hall, ensuring the work adhered to strict timelines.

The five-month project resulted in significantly reduced vibration levels, restoring the generator to reliable operation until its next scheduled outage.



## Key Benefits

- **Significant Vibration Reduction:** Post-overhaul vibration levels were substantially improved, ensuring smoother and more reliable generator performance
- **Enhanced Equipment Longevity:** Addressing the root cause of the vibration issue reduces stress on components, extending the lifespan of the hydro-generator
- **Minimal Downtime:** The entire overhaul was completed within five months, aligning with the client's operational requirements, minimising disruption
- **Tailored Engineering Expertise:** Quartzelec's advanced diagnostics, precise rebuild procedures, and on-site capabilities provided a custom solution, restoring confidence in the generator's long-term performance



Laser  
Scanning  
& Analysis

Comp.  
Overhaul &  
Rebuild

Vibration  
Root Cause  
Identification

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