

Case study: Robert-Bourassa



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In a remote location, reliable monitoring and protection is a must

Canada is one of the world's largest producers of hydropower – which supplies 60% of the country's electricity needs. Robert-Bourassa, built on La Grande River in Northern Quebec, features the world's largest underground generating station, with two power plants that can generate 7722 MW of electricity from 22 Francis turbines.

The challenge

At Meggitt, we have provided high quality solutions for Hydro-Quebec for many years. In 2012, Hydro-Quebec was looking to further enhance monitoring systems at the Robert-Bourassa hydro power plant. As the dam is around 1300 kilometres north of Montreal and therefore takes many hours to reach by road, highly reliable protection was vital.

The solution

Hydro-Quebec selected Meggitt's rack-based VM600 with sensors to provide integrated turbomachinery protection and condition monitoring for the Robert-Bourassa installation.

Our VM600 machinery protection system provides machinery protection in a powerful, digital and versatile system. We adapted it to suit the scheme's precise requirements.

Each of the 22 Francis turbines is equipped with state-of-the-art proximity probes and vibration accelerometers from the Vibro-Meter® product range, which are ideal for machines rotating at lower speeds. Our TQ 402 eddy current sensors provide a contactless measurement of the shaft radial relative vibration, while the TQ 403 eddy current sensors provide a contactless measurement of the turbine runner band radial clearance. The bearings' axial absolute vibrations are measured with low-frequency high-sensitivity piezoelectric 799LF accelerometers.

The benefits

- > This single solution is **more convenient and easier to manage**. It also included integrating other process parameters into the platform, i.e. interfacing with sensors in other fields such as pressure and temperature sensors.
- > **Abnormal machinery conditions are quickly detected** by the VM600 machinery protection system and sensors – which can shut down a machine instantly when there is an extreme event.
- > **Operators are warned** when critical vibrations and other parameters of turbine condition are detected, providing trending information on the life of the turbine.
- > **Plant efficiency is optimised** as a result of installing this solution, and it gives operators peace of mind.

Here to help

Meggitt's complete machinery monitoring solutions from the Vibro-Meter® range, including hardware, software and sensors, are uniquely tailored to the needs of the hydro market. Our systems monitor some of the largest hydroelectric power stations in the world. To discuss how our solutions can work for you, email us at energy@ch.meggitt, call us on +41 26 407 11 11 or visit our website at www.vibro-meter.com



VM600 rack-based machinery protection system and TQ403 proximity probe

Meggitt Sensing Systems

Our product competencies and services:
Avionics displays | Condition monitoring | Inertial sensors | Ignition systems | Motion and position sensors
Performance sensing | Power systems | Sensors

Vibro-Meter®

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extreme environments

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At-a-glance

- > Robert-Bourassa is one of the world's largest hydroelectric schemes.
- > Hydro-Quebec selected Meggitt's rack-based VM600 with sensors to provide integrated turbomachinery protection and condition monitoring at the scheme.
- > We adapted the solution to suit its precise requirements.
- > All vibration and process parameters are integrated into one platform.
- > Meggitt is a leading provider of high-performance sensing and monitoring systems.



Vibro-Meter®

Contact

Meggitt Sensing Systems

Rte de Moncor 04, 1701 Fribourg, Switzerland
Tel: +41 26 407 11 11 | energy@ch.meggitt.com | www.vibro-meter.com | www.meggitt.com

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