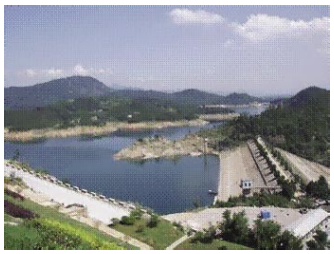
OPENpredictor™ FOR TWO **CHINESE HYDRO POWER PLANTS**



Alstom Hydro Power has once again selected OPENpredictor™ for advanced condition monitoring of hydro power plants. The system is going to monitor the hydro turbine-generator sets at two peak/pump storage power plants in China currently under construction:

- The Huizhou hydro power plant in the Guangdong province with 8 turbine-generator units
- The Bailianhe hydro power plant in the Hubei province with 4 similar units.

At moments of low power demand the machines will be used as electric motor-pumps to fill an artificial lake. When the region's power demand is high the water will be released, and the machines will operate in turbine-generator mode. According to Aurélie Py, Project Manager, Alstom Hydro Power, "OPENpredictor™ was chosen due to a combination of attractive technical qualities and commercial conditions."

Integration with control system

In total 12 reversible Francis hydro turbine-generator units, each with a capacity of approx. 300 MW will be monitored. The advanced processing capabilities of the online monitoring system will provide warnings at the central control room about machinery problems in an early stage of development.

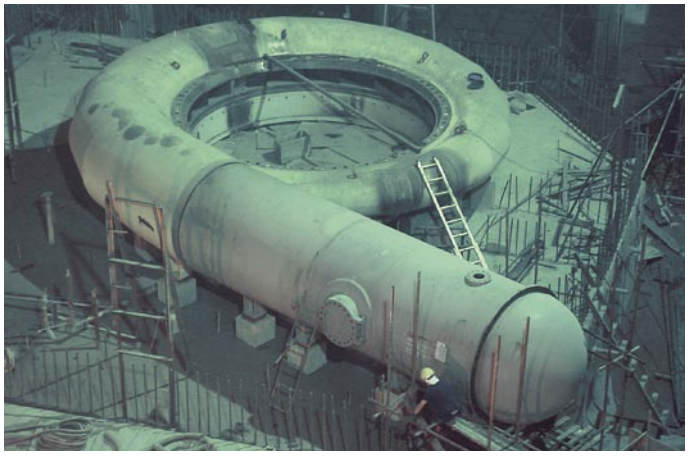
"The integration of the system with ALSPA, Alstoms' control system, allows separation of information for operators and maintenance engineers", says

Henk Smith, responsible for the project in Rovsing Dynamics.

Complex monitoring conditions

The integration of process data into OPENpredictor™ facilitates close monitoring of all machine operation, transient and gradient states to follow their respective dynamic behavior and report identified changes.

"The complex machine operation from a monitoring perspective, with both pump and turbine operation, and more than 20 different operational/gradient states, requires a dedicated approach to efficiently monitor the critical components of these machines", says Henk Smith.



A spiral case from one of the hydro power plants under construction

Construction of the upper reservoir of the hydro power plant Bailianne.

Right info at the right time

High emphasis is placed on automated fault identification to minimize expert involvement, as the machines are typically very reliable. By separating information flows, the right people will get the right information at the right time.

Monitored components comprise the shafts, bearings, generator stator, rotor, and head cover. With this information the power plant operator is able to optimize the operational condition and decide on prioritization of maintenance tasks to the best economical moment. This will increase machine component life time and reduce maintenance and downtime costs, justifying the investment.

OPENpredictor™ was previously installed to monitor turbines and generators at hydro power plants in Mexico, Peru and Ukraine in connection with upgrades carried out by Alstom Hydro Power.