

EPC – Otter Rapids Generating Station

Background

This hydro-electric plant located on the Abitibi River, required an integrated protection and control system including generators condition monitoring. With the generating station in a remote location, reliable central integrated control (i.e. quick high-water conditions requiring spill way operations) is essential.

Approach and Methodology

As an EPC (Engineering, Procurement & Construction) project, which ESAC designed/developed the RFP and managed the electrical subcontractor. An older in-service generating station, the upgrades required an “over-build” design solution to minimize plant and unit downtime by deploying in zones. Existing were multiple areas/equipment distributed system with redundant master communications for system reliability and plant SCADA that is ported directly to central SCADA to ensure operations consistency. ESAC established design standards in evolving OPG staff and system documentation ensuring plant-to-plant common understanding and skills requirement. Generator modes, select-check-confirm control process, water to energy including losses reporting for efficient operations and management of large geographically placed generating stations.

Key Challenges

Encountered challenges include existing drawings, custom fitting of condition monitoring unit mechanical monitoring sensors and safely deploying an “over-build” solution. Additionally, generator systems tuning and interfaces for new digital control operating modes. Managing changeovers and level of detailed cross checking with transferring control on a per zone basis. With a constant focus on project longevity, long term planning for upgraded system scalability was considered.

Ongoing Support

Ongoing support has been provided for system changes such as new dam safety sluice gate operations and remote-controlled gates addition. Additional support includes hardware/software upgrades and system troubleshooting plant group P&C technical support.