

EPC – Welland Powerhouse

Background

Existing late 1950s generating station that ESAC addressed 2003 upgrade as EPC subcontractor and 2020 major upgrade as EPC contractor, in both cases working directly with client engineering and operations. The major upgrade addressed SCADA software manufacturer change as the first new application within an existing organization. Original upgrade of generators synchronizing, PLC controls, SCADA and Condition Monitor. Major upgrade new fiber linked synchronizing, units' protection, exciter, governor, PLC controls, SCADA and Condition Monitor including main substation PLC controls and SCADA. Installation addressed with client preferred local contractor under ESAC supervision and commissioning collaborated efforts with operations addressing safety and in-service requirement. Objective of an application standard based on the current technologies of all suppliers permitting technical staff transfer for future support and maintenance.

Approach and Methodology

A modular overbuild design approach accommodated one generator [Existing or upgraded] always in-service. This supported a zone isolation of a single generator with its' respective main substation interface. Experiences from the first unit commissioned would be addressed in design updates and implementation of the second unit, which resulted in completion ahead of schedule. Numerous minor 'add-ons' completed over the years from the original upgrade were final system incorporated. To minimize any common systems outage all wiring was addressed with the new upgrade ready for device/equipment final connection and commissioning for in-service.

Key Challenges

Addressing new SCADA software functional standards. How a system section could be isolated and upgraded for in-service. Achieving generator proper operation from synchronized full load rejection to island loaded. Designing the overall system that technical details of sections blocks supports an installation and commissioning procedure.

Ongoing Support

Providing annual technical support and maintenance programs that address any new operational issues or corporate requirements. In this manner, the system is kept fresh with software or configuration updates and knowledge transfer.