Power Generation

CONTROL UPGRADES

Aging mechanical hydraulic turbine control (MHC) and analog voltage regulators were operating past their intended lifecycle.

GE Upgrades and Automates Vintage Equipment for Improved Performance

CUSTOMER

A leading U.S. power company owns and operates 53 power generating units.

CHALLENGE

A leading U.S. power company's New York facility was in a reinvestment period, which included upgrading 1950s turbines. The existing mechanical hydraulic turbine control (MHC) and analog automatic voltage regulators (AVRs) were past their intended life cycles. The facility operators were concerned with the increasing maintenance, ongoing reliability and support for unit controls.

GE AS PART OF THE SOLUTION

GE conducted an upgrade of the MHC to a Mark VIe control system with Triple Modular Redundant (TMR) architecture and TMR field instrumentation for trip inputs. The upgrade also included mechanical modifications to facilitate the removal of the MHC controls. A key component to GE's success and support of the customer's long-term plant documentation of the new system was GE's engineering design package, which included:

- Existing plant drawings that are affected by the upgrade
- Details the modifications to the existing drawings
- Cable/conduit/tray/power details needed for the new equipment
- "As-installed" versions of the new systems integrated into the plant

The site team was pleased with the design package and noted it was a lacking component on a previous upgrade of a non-GE machine with another vendor.

TECHNOLOGY HIGHLIGHTS

- A new Hydraulic Power Unit (HPU) to supply high pressure fluid to new valve actuators
- An on-line testable and maintainable 2-out-of-3 Trip Manifold Assembly (TMA) which supports removal of overspeed protection bolts
- Three EX2100e AVRs supporting HP, LP, and Spare excitation controls
- A steam seal regulator and other TMR speed, temperature, and pressure sensing instrumentation

MODERN
OPERATIONS FOR TURBINES AND AVR SYSTEMS

ENHANCED
RUNNING RELIABILITY

HOLISTIC
SOLUTION TO TURBINE ISSUES

Another example of how GE is improving the health of industry.

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