

Portland Engineering can provide Process, DDC, and Controls Integration for Power Station Upgrade Projects and Portland Engineering has completed comprehensive control system upgrades to existing power stations that provide steam, chilled water, and electricity. PEI can combine information and control features from different vendors using various communication protocols integrated into one package for operators' use. PEI can provide full installation and integration of new programmable logic controllers for balance of plant controls, operator interfaces and instruments, development of the control strategies, and start-up services.

Recent Power project objectives have included expanding chilled water and steam plants to meet the needs of the campus, providing a backup electrical supply for the campus, and developing the ability to generate income through furnishing excess power to the utility.

PEI has designed control architecture and provided all components, including complete control panel designs. Our engineers have devised frameworks that provided redundant control system in the event of a primary controller failure with system architecture that provides full redundancy, from the process I/O up to the PLC, significantly minimizing the possibility of a plant outage. We have developed completely new operator interface systems employing Wonderware Archestra and we have created all new control strategies and functionality for power plants with design incorporating specific control enhancements requested by plant operators and technical staff, significantly improving efficiency. We facilitate smooth system integration, we work with operations to define and improve design of the HMI system including standards development, graphical layout, and navigation.

In addition to the Wonderware HMI, PEI has installed new historian data acquisition and reporting systems using Wonderware. We've used redundant Allen-Bradley ControlLogix controllers to provide balance of plant controls designed by PEI and an HMI system that included two operator work stations, one remote work station, and three read only work stations for supervision. Each of the primary operator work stations used one bank of eight 19" monitors and a second bank of three 42" wall-mounted monitors.

PEI performs extensive operational readiness testing (ORT) on each plant subsystem using the installed equipment and simulator programs we develop specifically on a project by project basis. This procedure ensures that the various system controls are fully functional prior to start-up and commissioning. The sequencing of projects often requires flexibility in our integration schedule in order to complete the upgrade efficiently. We establish a plan of implementation for all integration, start-up and installation services that would accommodate changes to the schedule as necessary. All process controls are verified, witnessed, and documented; residency is established to ensure availability of continuous support; and extensive time on-site is invested to ensure that the needs of the client are met.