Nuclear Automation Product Portfolio

Background

Westinghouse is a global leader in the supply and support of nuclear plant instrumentation and control (I&C) upgrades, engineering services, plant modernizations and new plant design.

The Westinghouse Nuclear Automation product portfolio covers all areas of system operation over the life of the plant. Products include instrumentation, safety systems, control systems, plant information systems, diagnostics and monitoring systems, engineering services for functional upgrades, control system analysis and optimization, and operating margin recovery.

Description

Westinghouse teams with utilities to perform I&C modernization program studies. A summary of the products and services for each phase of the system life cycle include:

- Planning – I&C modernization studies that determine the upgrade approach

- Functional Design – Functional upgrades, fault-tolerant designs, self-test/calibration and automation

- System Design – Open architecture, modular design and communication networks

- System Supply – Integrated platforms for protection, control, information systems and monitoring systems

- Licensing – Licensing services that minimize licensing risk

Control Room

- Installation – Installation services within scheduled outage windows

- Startup – Startup support that results in flawless system startup and fine tuning

- Operation – Spare parts, software updates, field service, engineering services and training

Building blocks for protection, control and information systems permit easy expandability and system integration.

The building blocks used for single system retrofits, large-scale I&C modernization programs and new plant designs are based on commercial products adapted and enhanced for nuclear applications. This approach allows customers to start with a single system and to expand across the entire plant nuclear steam supply system, balance of plant and turbine.

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The building blocks include:

- Redundant communication networks (safety and nonsafety)
- Redundant hardware controllers
    - Virtual controllers
    - Input/output (I/O) modules
- Specialized I/O modules for turbine and loop modulation
- Native bus modules – FieldBus, ProfiBus
- Variety of workstations – operator, engineer, historian
- Data links – custom, OPC
- Test interfaces
- Complete software application libraries
- Nuclear application programs
- Cyber security products
- Electromechanical solutions for steam turbines and feed pumps

Benefits

Westinghouse has migrated its various products into its current set of standardized platforms for protection and control.

Past designs give the current generation system its verified and validated safety system software, nuclear application programs, functional design, testing methods, cabinet design features and I/O module design. The standardized platforms provide significant benefits in staffing optimization, reduced training, inventory and human-machine interface efficiencies.

Open architecture incorporates advances in digital technology and interfaces with all types of equipment; older systems can readily incorporate new technologies.

The Westinghouse Nuclear Automation product portfolio provides customers with products, services and technologies that help meet their performance needs.