Future-Ready Motor Generator Set Control Power Cabinets

Modernizing a critical control power platform for long-term reliability and lifecycle sustainment

Motor Generator (MG) sets and the associated Control Power Cabinets provide critical control power for rod drive systems in pressurized water reactor (PWR) plants. As these systems age, many utilities face growing challenges related to component obsolescence, limited supplier support, and legacy cabinet designs that introduce maintenance risk and single-point vulnerabilities (SPV).

To address these challenges, Westinghouse has innovated an updated design of its MG Set Control Power Cabinets for Rod Drive Power System (RDPS) and Control Element Drive Mechanism Control System (CEDMCS) power supply applications. This modernized offering delivers an engineered refresh of a proven platform, incorporating design enhancements found in the AP1000® and updated documentation to support today's nuclear plant operations. The cabinets are applicable to both Westinghouse Electric Company and Combustion Engineering PWR plants.

Original MG Cabinet (left) vs.
Next Generation Replacement MG Cabinet (right)

Engineered Modernization for Obsolescence and SPV Elimination

The updated MG Set Control Power Cabinets are designed as direct replacements for original Westinghouse control cabinets, maintaining the existing footprint and plant interfaces while eliminating long-standing obsolescence and single-point vulnerabilities. Each cabinet continues to control its own MG set, preserving system redundancy and continuity of operation.

Obsolete components such as voltage regulators, synchronizers, and timer relays have been replaced with modern, currently manufactured technologies. In parallel, known single-point vulnerabilities associated with legacy rectifiers and relays have been eliminated, reducing the risk of common-cause failures and strengthening overall system reliability. This approach allows plants to modernize a critical control power system without extensive installation impacts or major plant modifications.

The elimination of obsolete components and long standing single-point vulnerabilies include:

Obsolescence Eliminated	**SPV Eliminated**
Voltage Regulator	BOV Rectifier
Type X Synchronizer	AV Relay
Timer Relays	IRV Relays

Reliability, Diagnostics, and Maintainability Enhancements

Beyond component replacement, the modernized cabinets incorporate targeted enhancements to improve reliability, diagnostic clarity, and long-term maintainability.

Key benefits include:

- **Improved reliability** through available cabinet health monitoring and MG temperature and vibration monitoring
- **Maintainability-focused design**, with clearer labeling and a service-friendly layout that reduces troubleshooting time
- **Enhanced diagnostics**, including panel-mounted human-machine interface (HMI) indications and time-stamped event recording
- **Modernized documentation**, with updated drawings and bill-of-materials structures supporting configuration control and procurement
- **Lifecycle support readiness**, addressing obsolescence while maintaining compatibility with common plant interfaces

The ultimate goal of the new system is to streamline installation and maintenance activities, improve diagnostic visibility, and provide a robust path for long-term operations.

Commitment to Long-Term Operations

In support of long-term operation and obsolescence management, Westinghouse has established an MG Experience Lab at its New Stanton facility. The lab features operating prototype units and original MG sets, providing the capability to support customer-specific needs and troubleshooting services. This investment reinforces Westinghouse's commitment to sustaining critical MG set control power systems across the operating PWR fleet.

Proven Experience, Reliable Path Forward

Westinghouse developed the original MG sets and control cabinets installed throughout much of the global PWR fleet. That experience underpins the modernized MG Set Control Power Cabinet offering, which preserves proven system architecture while incorporating lessons learned and modern design practices.

As nuclear operators plan for extended operating lives, modernized MG Set Control Power Cabinets provide a practical, low-risk solution to address obsolescence, improve reliability, and support continued safe operation of rod drive power systems.

Contact Us!

To learn more about the **Westinghouse Parts Business** and our MG Control Cabinet solutions, please contact our Electrical Parts Product Engineer, Ken Angeletti, at angelekl@westinghouse.com

https://info.westinghousenuclear.com/westinghouse-parts-business

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Motor Generator Control Cabinets

Modernized control cabinets engineered to eliminate obsolescence and support **reliable long-term operation**.

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