

# Motor Control Centers Take Center Stage



## Our MCC experience makes us a clear leader in the nuclear industry.

**Motor Control Centers (MCCs) are vital to the operation and control of nuclear power plants.**

A significant and growing problem within the global nuclear industry is the aging of MCC components. Obsolescence of various components within the MCCs such as molded case circuit breakers, starters, relays, heaters, contactors, etc. is impacting the reliability of MCCs to perform their intended function.

**Many OEMs have sold off product lines or merged with other companies.**

This has complicated the procurement of replacement parts needed to maintain the reliability of MCCs. The combination of aging installed equipment, component obsolescence, and surveillance testing (typically

required by technical specifications) is forcing many plants to aggressively address MCC refurbishments or face unplanned outages due to the unavailability of critical motors.

### **MCC SQUARED ... AWAY**

**At Paragon, our experience in the manufacture of MCCs makes us a leader in the nuclear industry, but we don't rest on our laurels.**

Every project is new to us, and we make a point to ensure that each MCC is meticulously designed and engineered to meet the varied demands of each facility.

Alternately, our expertise allows us to efficiently and effectively repair, refurbish, or retrofit any MCC, adding years to the life of existing equipment.

## You can count on us to deliver.

**At Paragon, we do whatever it takes to ensure our customers get the best products.**

**We stand ready to support the nuclear industry with a solid guarantee of service, standard-setting craftsmanship, and quality.**



(817) 284-0077 | [www.ParagonES.com](http://www.ParagonES.com)

# We Think Outside the Cubicle.

Paragon offers replacements for most legacy MCCs.  
All MCC cubicles are designed and fabricated by Paragon.



Paragon has supplied thousands of MCC replacement cubicles for ITE 5600 Series, GE 7700 Series, Westinghouse Type W Series, Cutler Hammer F-10, 9800 Series, Cutler-Hammer DC cubicles, and more.

Replacement requires identification of suitable replacements, design drawings, dedication, qualification, layout design, and fabrication.

Many components – and in some cases entire cubicles – are no longer available or not supported by the OEM.

## THE THREE Rs

Paragon offers a variety of MCC services from full replacement to refurbishment of existing components. Paragon also retrofits existing MCCs by replacing stabs, latches, and structural components for better seismic rigidity. Paragon maintains a large selection of OEM motor control centers, which are used both for seismic qualification and to ensure proper fit.

Many standard OEM designs will not pass rigorous nuclear seismic testing requirements. When OEM motor control centers are specified, Paragon designs and installs special braces and supports before performing qualification testing.

## THE CHOICE IS YOURS

Paragon can install any manufacturer's components into the cubicles based on the original design space requirements. Many OEMs will not build an MCC with another OEM's components. Regardless of manufacturer, every component is dedicated in accordance with the methods of EPRI 3002002982 (an update of EPRI NP-5652) prior to installation in the cubicle.

## QUALIFICATION

Paragon has qualified MCC cubicles for both mild and harsh environments. All qualification is performed to the plant-specific requirements in accordance with IEEE Standards 323-1974 and 344-1975. Paragon uses control and power wiring qualified per the applicable requirements of IEEE Standard 383.

## QUALITY ASSURANCE

Paragon assumes responsibility for all nuclear-specific requirements such as qualification and quality assurance for all CCs, which are supplied in accordance with Paragon's 10CFR50 Appendix B, 10CFR21 and ASME NQA-1 Quality Assurance Program. Paragon supplies the following comprehensive documentation with each MCC order.

- Layout drawings for each type of cubicle
- Wiring diagrams
- Bill of Materials (BOM)
- Qualification Report
- Certification of Conformance

All engineering, fabrication, testing, and documentation generation is performed at the Paragon, Fort Worth, Texas corporate facility.

