

# Emergency Diesel Generator (EDG) Qualification

Certifying equipment safety using a comprehensive approach

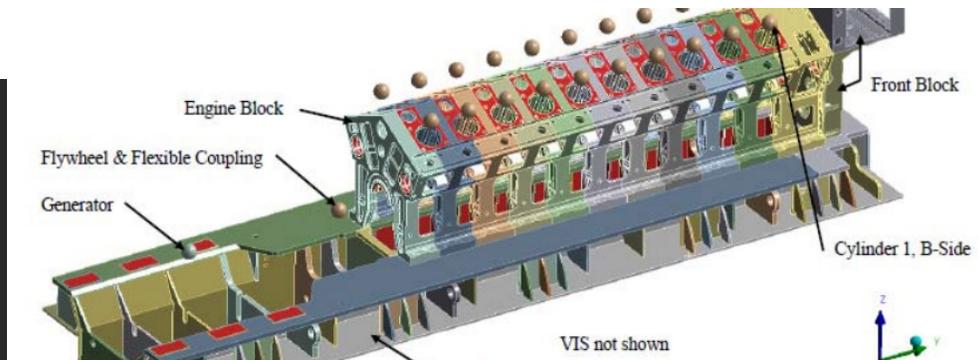


EDGs provide backup power for nuclear plants in the event of a plant trip and grid wide power outages. Nuclear regulatory bodies require that safety related equipment (e.g. EDGs) be qualified to demonstrate that components can perform their safety function during normal operation and accident conditions and can operate reliably over their service life. Qualification is demonstrated through a combination of simulating loading conditions with physical testing, analytical methods and the review of operating experience.

## 01 THE CHALLENGE

### Qualifying highly complex EDGs

The challenge for qualifying EDGs stems from their size and complexity. While much of the qualification process for EDGs is accomplished through prototype testing, some requirements, such as seismic, cannot be easily demonstrated through testing. MPR employs novel methods for EDG qualification by analysis and has successfully qualified EDGs to various international regulatory standards around the world.



## 02 THE SOLUTION

### Interfacing with the EDG vendor, nuclear plant owner/operator, and regulatory body

MPR provides a holistic solution by interfacing with the EDG vendor, the nuclear plant owner/operator, and the regulatory body. Key steps in this solution process include: determining applicable regulatory requirements, developing a plan for addressing all requirements through analysis supplemented by limited testing, executing analyses for the EDG and its subcomponents and providing real time support to our customers throughout the licensing process. MPR's unique analytical capabilities for qualifying safety-related nuclear equipment include (but are not limited to):

- Dynamic Stress Analyses
- Electrical Transient Analyses
- Aging and Reliability Analysis
- Component Safety Classification Review, FMEA and Single Point Vulnerability Studies



## 03 THE RESULTS

### A streamlined EDG qualification

MPR has experience qualifying EDGs for international regulators in the United Kingdom, South Korea, India, and the United Arab Emirates. These qualifications have currently been accepted by regulators for 3 PWR plants and are in progress for 3 additional plants. To succeed in these various application areas, MPR implements analytical methods that are based on our depth of past successful qualification projects while tailoring the effort for each unique situation. MPR streamlines EDG qualification by reducing risk for the EDG vendor and nuclear plant owner/operator, taking full ownership of the process, and serving as the primary point of contact for EDG qualification.