Canada’s First Private Nuclear Generator Chooses GSE for Simulator Upgrades
Bruce A Generating Station Upgrades Units 2 and 3 with new high-fidelity predictive models

GSE was chosen by Bruce Power, Canada’s first private nuclear generator, to upgrade the simulators for units 2 and 3 of the company’s Bruce A generating station. The upgrade provides new high-fidelity predictive models that enable more realistic and dynamic training for plant operators and new instructors.

During the project, GSE:

- Replaced the primary heat transport and boiler systems with RELAP5-HD™ real-time thermohydraulic solution to provide accurate results for all modes of plant operation.
- Replaced the reactor core model with GSE’s REMARK™ real-time multi-group reactor simulation.
- Replaced a sub-channel thermohydraulic model with GSE’s JTopmeret™ two-phase fluid modeling tool for each fuel bundle to achieve proper reactivity feedback.
- Replaced the calandria, maintenance cooling, feed and bleed, main feedwater, PHT pump seals and annular gas systems with JTopmeret.
- Integrated its SimExec™ simulation platform with the Western Services 3KEYMASTER platform to improve how Bruce Power authors its own simulation system.

In addition, GSE performed on-site pre-tests and final tests, which included startup, shutdown, transients, malfunctions and emergency tests. GSE also supported Bruce Power in preparing the training scenarios.

“This project marks GSE’s first CANDU (CANada Deuterium Uranium) reactor simulator upgrade, and was delivered successfully on time, on budget and on spec,” said Mahmoud Nazem, Project Manager for GSE. “This shows that GSE has the right technology and resources to simulate complex systems such as CANDU-type plants.”

GSE’s new models overcame technical deficiencies that existed in the simulators before the upgrades. The new simulators enable our operators to train in new scenarios that did not exist prior to the upgrade.

CYNTHIA MERCANTI
Section Manager Simulator Support
Bruce Power
About GSE Systems

GSE Systems, Inc. is a world leader in real-time high-fidelity simulation, providing a wide range of simulation, training, consulting and engineering solutions to the power and process industries. Its comprehensive and modular solutions help customers achieve performance excellence in design, training and operations. GSE’s products and services are tailored to meet specific client requirements such as scope, budget and timeline. The Company has over four decades of experience, more than 1,100 installations, and hundreds of customers in over 50 countries spanning the globe.

Information about GSE Systems is available at www.gses.com.

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