

## **Optimizing and Evaluating the Performance of Power and Thruster Plant in DP Vessels with an Integrated Vessel Simulator**

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### **Abstract**

ABB has developed a unique Integrated Vessel Simulator (IVS) integrating vessel motion simulation and power system simulation for vessels with electric propulsion. The simulation tool is ideal for design, optimization and evaluation of diesel-electric propulsion system. Time domain simulation, dynamic positioning capability analysis, estimated short circuit level, and estimated harmonic distortion level are some of the features included in the simulator. An example of capability plot is shown. The power system simulator has been verified with full-scale measurements from sea-trials of the semi-submersible drilling rig West Venture, owned by Smedvig, where ABB delivered total integrated automation, positioning and power system. The performance of the simulator is excellent, with good correspondence with measured results.

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