

Hibernia Power Generation System Digital Prototype

Background

Emissions from power generation can make up a high percentage of the total emissions from offshore platforms like Hibernia.

Digital twin technology could enable monitoring and simulation of emissions from the power generation system. This would require a twin of both the power generation and electrical distribution systems. Both of which do not exist for Hibernia.

The ability to simulate various power saving scenarios on the Hibernia platform could enable identification of emission reduction opportunities by improving energy efficiency.

Project Objectives

Assess if digital twin technology can be used to both measure emissions and simulate power saving scenarios to model system efficiency.

Funding Amount

\$1,881,376

Summary of Key Results

Hatch successfully built digital twin prototypes of the power generation and electrical generation systems which demonstrated that the technology can measure emissions and simulate various power saving scenarios in a simulated environment.

The study increased the knowledge of implementing digital twin technology to optimize an offshore power generation system. Additionally, the research demonstrated the potential of the digital twin's capability to provide insight into reducing emissions for an offshore installation.

The study also confirmed that further research is required for the technology to monitor near real-time emissions and simulate associated emission reduction scenarios on Hibernia.

Benefits and Next Steps of this Project

Development of this digital prototype expands digitalization of Newfoundland and Labrador's offshore and enhances industry knowledge and capability of developing digital twin technologies to support emission reductions in the offshore.

Further research and development is needed to optimize this technology for practical offshore usage.

*This project was supported with funding from Natural Resources Canada's Emissions Reduction Fund, Offshore RD&D program, which is managed and administered by Energy Research & Innovation Newfoundland & Labrador