Kingsbridge Green Hydrogen and Storage Assessment

Hydrogen Innovation Fund Project Details

Proponent: Capital Power

Partner: Northern Cross Energy

Project Type: Feasibility study
Project Total Cost: $300,001
Year Contracted: 2023
Location: Goderich
Status: Open

Project Objectives

The objective of this study is to provide a technical and economic feasibility assessment of co-locating green hydrogen production, underground storage, and electricity generation from hydrogen combustion with Capital Power's existing Kingsbridge wind facility. The study will also assess the potential grid services the resulting combined facility could provide including demand response and peak demand generation utilizing the stored hydrogen.

Outcomes

If successful, the study will provide the foundation for further work to build economic and technical models for a co-located green hydrogen production, underground storage, and combustion facility.

Expected learnings include:

- Assessment of total hydrogen production capability from surplus or curtailed renewable energy in tons/day at the site;
- Assessment of the grid reliability services such as demand response and renewable smoothing that could be provided by the facility

- A model of expected seasonal storage capability of hydrogen for use in dispatchable electricity production during peak demand periods, as well as feasibility of underground hydrogen storage
- Estimated capital cost structure for creating a hybrid wind/hydrogen/storage/generation facility and an expected variable/operating cost structure for green hydrogen at the site;