

Halton Hills Hydrogen Blending

Hydrogen Innovation Fund Project Details

Proponent: Portlands Energy Centre L.P. (Operating as Atura Power)

Partner: None

Project Type: New Facility

Project Total Cost: \$12,641,900

Year Contracted: 2023

Location: Halton Hills

Status: Open

Project Objectives

The objective of this project is to demonstrate the performance of large gas turbines when co-firing a blend of hydrogen and natural gas.

Located at Atura Power's Halton Hills Generating Station, the pilot will blend up to 15% hydrogen with natural gas to feed two combined cycle gas turbine units to explore impacts on operations, equipment functionality, turbine responsiveness, and potential impacts to market participation. Hydrogen is expected to be sourced from The Niagara Hydrogen Centre (NHC) at the Sir Adam Beck II hydroelectric generation facility, which is scheduled to come online early 2025. The project aims to provide data and analysis to support the decarbonization of natural-gas based electricity production in Ontario.

Outcomes

If successful, this project will validate a use case for hydrogen as a supplement to natural gas for electricity generation.

The expected learnings include:

- Demonstration of the blended facility's ability to continue to provide wholesale grid services such as energy, and operating reserve
- Analysis of blending effects on combustion performance and generator operational characteristics
- Quantification of greenhouse gas emission reductions resulting from blending hydrogen with natural gas
- Economic analysis of hydrogen blending at various percentages vs. traditional natural gas combustion considering factors such as carbon pricing, and associated benefits to Ontario ratepayers