

This abstract will be presented during LNG2023 conference on 10-13 July in Vancouver, Canada among many other innovative projects, ideas and outlooks. LNG2023 will provide a unique platform for the global LNG industry and key stakeholders to discuss, debate, and showcase the latest industry developments and opportunities.



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## HYDROGEN PRODUCTION AND BLENDING FOR GAS TURBINE

Enbridge Gas and Siemens Energy are collaborating on development of hydrogen production facilities and hydrogen fueled gas turbine compression units. The goal of the project is to reduce scope 1 greenhouse gas emissions from compression operations and scope 3 emissions associated with gas turbines. Hydrogen will be produced on site by electrolysis, using electricity produced by a turbo-expander instead of an existing natural gas pressure let-down system.

The first phase of the project involves a desktop pre-FEED study to define a conceptual reference design and examine technical and economic feasibility. The main elements of the pre-FEED study include:

- Design and performance assessment of the integrated hydrogen production and utilization facility, the turbo-expander providing power to the electrolyzer, compression/storage, hydrogen blending, waste heat recovery, and other related systems such as the feed water and wastewater treatment for the electrolyzer, including preliminary sizing of major sub-systems, and identification of utility requirements.
- Assessment of R&D and equipment changes to allow existing gas turbine to operate with maximum %H<sub>2</sub> blended into the natural gas fuel supply for the turbine.

This paper/ presentation summarizes the key challenges and overall results for this pre-FEED study including high-level technical and economic comparisons for multiple conceptual solutions and provides a systematic approach for evaluating feasibility.

To view the full conference agenda, visit <https://www.lng2023.org/lng-programme-overview>