

Bremner: A Strathcona County Hydrogen Community

To help reduce emissions from space and water heating, ATCO and Qualico are developing an innovative hydrogen energy system for new homes in the community of Bremner. In a first for North America, Qualico and ATCO will take advantage of hydrogen as a zero-carbon replacement for natural gas space heating, water heating, cooking, and other appliances. Qualico and ATCO will use this funding to conduct a Front End Engineering Design (FEED) study that will help determine optimal equipment and design choices for the hydrogen energy delivery system, and will construct at least one demonstration home to test and validate design and equipment choices ahead of wider deployment.



RECIPIENT:

ATCO



PARTNERS:

Qualico



TOTAL BUDGET:

\$4,722,000



AI HCOE FUNDING:

\$2,000,000



PROJECT DATES:

MAR 2023 –

MAR 2025



PROJECT TRL:

Start: 7

End: 9

APPLICATION

This study is a stepping-stone towards providing Albertans with choices for decarbonized space and water heating solutions. If this study proves the hydrogen home energy system to be an attainable alternative for customers, it will set the stage for expanding hydrogen space and water heating to other new and existing residential communities. The goal is for homeowners to have a financially and functionally equivalent experience while eliminating end-use greenhouse gas and carbon monoxide emissions.



CLEAN RESOURCES

CLEAN TECHNOLOGY

HYDROGEN

PROJECT GOALS

- Determine the optimal equipment and design choices for the new hydrogen energy delivery system to facilitate deep decarbonization of space and water heating in Alberta communities.
- Assess, estimate cost of, and select optimal equipment and design solutions.
- Construct one or more demonstration homes to test and validate design and equipment choices, prior to deployment at scale.

BENEFITS TO ALBERTA

If this study proves that the Bremner community can be built at scale with hydrogen space and water heating, then significant second order benefits will emerge including:

- Public will have a low-carbon alternative to full electrification for their home heating needs.
- Incubation of a made-in-Alberta hydrogen appliance industry, which could include both technical design and manufacturing employment opportunities.
- Creation of demand for hydrogen and enable growth in Alberta’s nascent low-carbon hydrogen economy.
- The reduction of greenhouse gas emissions and/or the avoidance of growth in greenhouse gas emissions.
- Compliance with the Canadian Net-Zero Emissions Accountability Act.
- Minimize the financial burden of the Carbon Tax on customers.



2 Students Trained



1 - 3 Project Jobs



23 - 100 Future Jobs



1 New Product/Service



N/A kt/yr Project GHGs Reduced



140,000 – 150,000 kt/yr Future GHGs

JAN 2023

A feasibility assessment has been completed. Detailed costing, economics, and demonstration site-selection are underway. By the end of the project, it is expected that ATCO and Qualico will know at what price point net-zero hydrogen homes can be offered into the marketplace and determine competitiveness of said product.