

Green Hydrogen

The Next Renewable Frontier



Newfoundland and Labrador is uniquely positioned to meet the needs of the rapidly growing European market for green hydrogen

What is Green Hydrogen?

Hydrogen is currently produced globally at scale for various industrial applications, including chemical/steel/concrete manufacturing, oil refining, and more. However, the current means of hydrogen production are carbon intensive and rely heavily on fossil fuels. Green hydrogen in contrast, produced by a process called electrolysis utilizing only renewable energy and water as inputs, emits no carbon when produced. This makes green hydrogen the clean option to help meet global demand for the applications listed above.

Why is Green Hydrogen Important?

Green hydrogen offers the only clear and cost-effective pathway to decarbonizing sectors of the economy that require hydrogen as a feedstock, such as heavy industry and transportation. Green hydrogen can replace hydrogen produced from carbon heavy processes without the need for new and expensive infrastructure, saving needed capital for use in other areas. In transport, green hydrogen can be used in fuel cells to power trucking/shipping/aviation eliminating carbon emissions. Green hydrogen also represents an economic development opportunity for geographies with existing oil and gas infrastructure and workforces, which hold the characteristics and skills needed for green hydrogen production and use.

Replacement opportunity for industry

The 70–90 million tonnes of hydrogen produced today need to be replaced with carbon neutral hydrogen, requiring 180 GWs of renewables (and more as demand for green hydrogen grows). This enormous demand represents an opportunity for industry to advance economic development and decarbonization simultaneously.

Why Pattern Energy?

Experience

Our resources, experience and market credibility position our company to meet the many challenges associated with commercializing gigawatt-scale green fuels export projects in remote locations.

Partnerships

Working with world class partners, local companies, community hosts and residents, local governments, and First Nations, we are committed to making these projects a reality.

Proximity

Pattern Energy's Port of Argentia project is strategically located on the Avalon Peninsula and is one of the closest shipping ports to Europe in the Western Hemisphere.

Argentia Renewables



A Proposed 200 MW wind-powered green fuels production and export facility located at the Port of Argentia

In June 2022, Pattern Energy announced the execution of a five-year option to lease agreement for a dockside facility at the Port of Argentia for development of a green hydrogen and ammonia project. The project would consist of approximately 200 MW wind power built on privately owned Port lands. The wind power would flow into an electrolyzer at the dock where green hydrogen would be produced and used as a feedstock for ammonia production. The final product—carbon-zero green ammonia—would be put onto dockside ships for export to European markets.

2023	2024	2025
Completion of essential on-site wind resource studies, and community, Indigenous, and other stakeholder consultation	Target for final environmental approval	Target for project commercialization (Phase 1)

- Capital investment of approximately \$1.1 billion CAD (including both green fuels and wind power infrastructure), representing one of the largest renewable energy investments in Canadian history.

- Output of at least 240 tonnes/day green ammonia (or about 88,000 tonnes/year) for export to Europe.
- A high voltage transmission line would be constructed from turbines on Port lands to the dockside production facility.
- The Cape Shore Ecological Centre of Excellence would be funded and formed in connection with the project, devoting resources and expertise to the protection of species and biodiversity in the Cape Shore region.



Pattern Energy

Pattern Energy is one of the world's leading renewable energy generation, transmission, and energy storage companies, with operating and development footprints in the United States, Canada, Mexico, and Japan. Our 1,050 MW Western Spirit Wind facility represents the most wind power ever constructed as a single phase in the Americas.

Majority owned by the Canada Pension Plan Investment Board, Pattern Energy is one of Canada's largest operators of wind power with more than 1,800 MW of installed capacity. Our team has brought ten wind facilities to operation across four provinces, including the largest First Nation wind project in the country, creating thousands of jobs and millions of dollars in direct economic benefits to our local communities.

With our experience building renewable energy projects worldwide, we are well-positioned to continue delivering high-quality facilities for years to come. For more information, please visit www.patterncanada.ca