

Press Release

May 13, 2026

Page 1 | 4

HYreland Project Confirms Ireland's High Potential

Green hydrogen from the Emerald Isle

Excellent wind potential, strong government support, and other favorable factors could make Ireland a key player in the hydrogen economy. This is the conclusion of the HYreland project, which analyzed the technological, economic, and environmental potential for green hydrogen and its synthesis products on the island. For exports to Germany, the most favorable option is via pipeline transport to the ports of Rotterdam or Stade, provided it is available.

In the project, the Fraunhofer ISE researchers used a specially developed and validated methodology to determine which locations on the island are suitable for renewable energies and large-scale power-to-X production. They looked at which innovative approaches offer cost reduction potential and how Ireland compares to other potential hydrogen producers. Liquid hydrogen, ammonia, methanol, dimethyl ether (DME), and Fischer-Tropsch (FT) products such as e-kerosene (SAF) were examined. In addition to local production costs, transport and delivery costs to Rotterdam, Duisburg, and Stade by ship or pipeline were also calculated.

The Irish project partner, Ireland's foremost energy company ESB (Electricity Supply Board) had already preselected the two locations Aghada Generating Station on the south coast and Moneypoint Generating Station on the west coast. Their economic viability in terms of PtX production potential was examined in a detailed techno-economic analysis using the "[H2ProSim](#)" simulation toolbox developed at Fraunhofer ISE.

Favorable conditions despite slight cost disadvantage

One finding of the study is that in terms of production costs of green hydrogen, Ireland is on par with or only slightly above other potential export countries such as Morocco, South Africa, and Brazil. "There are a number of other aspects that speak in favor of Ireland as a location," explains project manager Christoph Hank from Fraunhofer ISE. For example, the government is promoting electricity generation from renewable energies because the country's electricity demand is expected to grow by 30 percent by 2030 due to the operation of data centers. As an island nation, Ireland must buffer the fluctuating generation from renewable energies in its own country, and green hydrogen production offers a flexible and responsive electricity consumer for this purpose. (the hydrogen production was simulated in the project on an hourly basis, taking into account fluctuations in wind and solar generation). Other favorable factors supporting hydrogen production in Ireland include a well-trained workforce, existing experience in the construction, operation, and maintenance of large-scale generating

plants, legal certainty and a favorable climate for finance and investment, especially in the context of capital-intensive hydrogen projects.

May 13, 2026

Page 2 | 4

Its proximity to mainland Europe also makes Ireland a promising candidate for exporting green energy sources to Germany. According to the simulations of the researchers, the most cost-effective export option is to transport hydrogen by pipeline to Stade and Rotterdam. Using this route, the hydrogen supplied to Germany would cost between €160 and €205 per megawatt hour, including transport costs.

Urban areas as preferred locations

HYreland analyzed the entire republic of Ireland, both onshore and offshore, for its suitability for renewable energy and PtX production. In a GIS-based analysis, the researchers identified several regions with well-developed power grids, high wind power potential, and potential local customers as suitable locations: the region around Cork in the south, the southeast of Waterford, the northeast of Wicklow, Dublin, the region around Moneypoint Generating Station on the west coast, and central/north Limerick. The Aghada Generating Station site in County Cork, pro-posed by Irish partner ESB, is ideally suited for power-to-X projects. Thanks to its proximity to potential local customers (the Aghada power plant, the Whitegate refinery, and Cork Airport), as well as export options via a future pipeline or by ship from the Port of Cork, the region is promising for the production of sustainable aviation fuels. The nearby Midleton Distillery represents an option for sourcing bio-based CO₂ and, in combination with the aforementioned infrastructure connections and proximity to the Whitegate Refinery, serves as a highly suitable base for an industrial SAF project. For all locations, it is important that there are local customers for hydrogen and its derivatives. These can be refineries and power plants,” explains Lucas Edenhofer, expert for GIS analyses at Fraunhofer ISE.

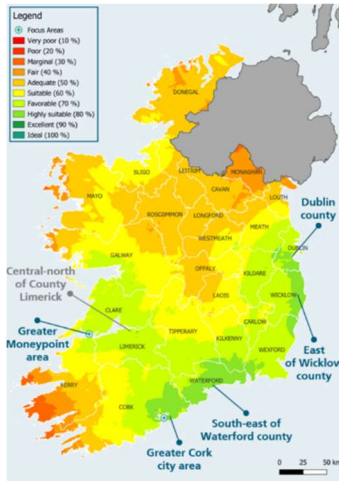
Acknowledgements for the HYreland project

On November 7, 2025, the project was honored with the German-Irish Business Award. This award, presented for the first time, recognizes companies that are particularly committed to social responsibility and the promotion of economic relations between Germany and Ireland. “Winning this award in such a broad and competitive field is testament to the exceptional work we have done together. This achievement is not only an accolade for HYreland, but also reflects the commitment, expertise, and team spirit of each and every member of our team,” explains Keelan Glennane from Irish project partner ESB. The HYreland project was also accredited by the UN Decade of Ocean Science for Sustainable Development in recognition of its impact.

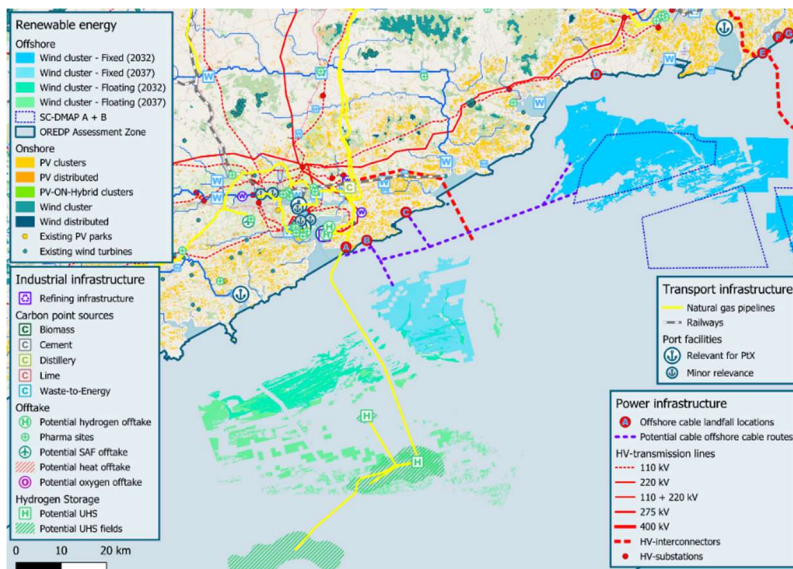
The results of the project will be presented in detail at the World Hydrogen Summit in Rotterdam on May 20, at 4 p.m. by Friedrich Mendler “International Green Hydrogen Supply Chains: From Vision to Cost Reality – The HYreland Project as a Practical Example.”

More information

<https://www.ise.fraunhofer.de/en/research-projects/hyreland.html>



Urban areas in the south, southeast, and east of Ireland are particularly suitable for the production, use, and export of hydrogen and its synthesis products. © Fraunhofer ISE



Analysis of infrastructure for hydrogen production, use and transport at the Aghada site, County Cork. ©Map material: OpenStreetMap



The port of Rotterdam could become a hub for the import of hydrogen (derivatives) from Ireland. © stock.adobe.com/Nataraj

May 13, 2026

Page 4 | 4

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