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Finland's North Ostrobothnia could produce at least 10% of the EU's zero-emission hydrogen

According to a study by the VTT Technical Research Centre of Finland, North Ostrobothnia in Finland should be able to produce at least 10% of the EU's zero-emission hydrogen in 2030. Its significant wind power capacity makes North Ostrobothnia a very promising region for hydrogen production. Decentralised hydrogen production in connection with wind farms and the transmission of hydrogen through pipelines could also free up electricity transmission network capacity and rationalise land use. In order to boost the hydrogen economy, broad cooperation between local actors is needed.

Hydrogen production from renewable energy in North Ostrobothnia could be enough to meet the targets set by the Finnish government's Hydrogen Policy Statement, in which Finland aims to produce at least 10%, or one megatonne, of the EU's zero-emission hydrogen in 2030. The region's renewable electricity production continues to grow strongly, and wind and solar power can be used to produce hydrogen from water with no emissions. In addition to the already significant wind power capacity, planned wind farm projects will amplify wind energy production in North Ostrobothnia.

Hydrogen pipelines to replace missing high voltage lines

Limited electricity transmission capacity may put the brakes on increasing wind and hydrogen generation capacity in North Ostrobothnia. In the future, large amounts of energy could be cost-effectively transported in the region if hydrogen, produced in a decentralised manner in wind farms, were to be transported by pipeline, for example from inland to the coast for final use as hydrogen or as a raw material to produce Power-to-X products. Such hydrogen production could also free up transmission grid capacity for new wind farms. Building hydrogen pipelines requires much less land than building high voltage transmission lines.

New hydrogen gas pipelines are already being planned. These pipelines would connect North Ostrobothnia to the pan-European hydrogen gas pipeline network. Gasgrid Finland, among others, is involved in the development of three different hydrogen infrastructure projects that, if implemented, would connect North Ostrobothnia to markets such as Sweden and Germany.

Interviews with hydrogen actors and a workshop to identify the drivers and barriers in the region

VTT investigated the drivers and barriers to the development of the hydrogen economy in the region from the perspective of new business by interviewing potential actors in the region. An identified barrier is the "chicken and egg" problem of technology uptake: there are no investments



in green hydrogen production unless there is a demand for green hydrogen, and uncertainty about the availability of zero-emission hydrogen hinders investment in the hydrogen industry.

One possible way to tackle this problem could be to develop partnerships and joint projects more extensively across the hydrogen value chain to secure both supply and demand. The advantage of developing a regional ecosystem is that several local actors from different parts of the potential hydrogen value chain create synergies to boost the regional hydrogen economy.

The report will be presented in Oulu on 22 March

The aim of the study carried out by VTT was especially to support regional actors in the future hydrogen business. The study examines the prospects of the hydrogen economy in North Ostrobothnia through, among other things, planned hydrogen and wind power projects and potential actors in the hydrogen value chain. It also presents scenarios for future hydrogen production and utilisation in the region.

The results of the study can be used as a basis for more detailed analyses to support the development of the hydrogen economy in North Ostrobothnia and Finland. The study has been produced as part of the [National Hydrogen Network](#) and [R4H2 - REACTions for Hydrogen projects](#) managed by the Raahe Region Development and funded by the Council of Oulu Region.

The “Pre-study on transition to hydrogen economy, specifically in Northern Ostrobothnia” study will be presented at the event “Northern Power - H2 NOW!” organised by BusinessOulu, in which the BotH2nia network participates as a partner, in Tullisali at Tyrnäväntie 16 in Oulu, Finland on 22 March at 15.15.

Further information

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Photo: https://www.epressi.com/media/mediabankfiles/816/files/photo-wind-turbines-on-the-coast-of-raahe_leena-tormala.jpg

Photo caption and information: North Ostrobothnia produces 41% of Finland's wind power (2022) and the growth will continue. The picture features windmills off the coast of Raahe. Photo by Leena Törmälä