



INNOVATION FUND

Driving clean innovative technologies towards the market

Project Air – Production of sustainable methanol as raw material for chemical products by first-of-a-kind Carbon Capture and Utilization process integrated with world scale electrolysis unit

The Innovation Fund is 100% funded by the EU Emissions Trading System



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Project summary

Project Air, coordinated by the Perstorp Group, and its partners Fortum and Uniper, is a critical enabler for the European chemicals industry to become carbon neutral. The project will have far-reaching effects throughout many industrial value chains, and will contribute to ending Europe's dependence on imported fossil fuels. A combination of a carbon capture and utilisation (CCU) process for converting CO₂, residue streams, renewable hydrogen and biomethane is used to create the first-of-a-kind, large-scale production of sustainable methanol. The project is expected to lead to a relative decrease of 123% in greenhouse gas (GHG) emissions avoidance in comparison with conventional methanol synthesis.

COORDINATOR

Perstorp Oxo AB

BENEFICIARIES

Fortum Sverige AB, Sydkraft AB

LOCATION

Stenungsund, Sweden

SECTOR

Chemicals

GHG EMISSION AVOIDANCE

4.06 Mt CO₂ eq

AMOUNT OF THE INNOVATION FUND GRANT

EUR 97 000 000

RELEVANT COSTS

EUR 247 371 000

TOTAL PROJECT COSTS

EUR 585 191 000

ESTIMATED CAPEX

EUR 255 321 000

STARTING DATE

1 January 2023

PLANNED DATE OF ENTRY INTO OPERATION

1 January 2027

“Enabling a climate neutral chemical industry”

Project Air will produce sustainable methanol for chemical manufacturing. Methanol is one of the most important chemical raw materials, being used in the production of acetic acid, formaldehyde and olefins.

The green hydrogen needed for the process will be produced in a new electrolysis plant, which will use waste-water, improving the circularity. The syngas production (a mixture of hydrogen and carbon monoxide) will come from a variety of feeds, including imported biogas and residual streams from existing processes on site.

The project's proposed novel operation structure will allow for several raw material streams to be converted into one consistent base chemical output stream. Perstorp will become the first chemical producer globally to replace all fossil-based methanol (200 000 tonnes annually) with sustainable methanol as a chemical raw material in its European facilities.

Once completed, the project will reduce greenhouse gas emissions by more than 4.06 Mt CO₂ equivalent over ten years, which is equivalent to the annual emissions of circa 215 000 new cars running on fossil fuel.

“Driving the transformation to a more sustainable European industry via sustainable methanol”

Producing chemical products based on sustainable raw materials is expected to have a positive ripple effect throughout industrial value chains. In line with the European Industrial Strategy, Project Air supports the development of “transition pathways” for the chemicals sector.

The project also resonates with the objectives of the EU Circular Economy Strategy and Action Plan, and the ‘Fit for 55’ package, by capturing and utilising CO₂, as well as recovering and utilising internal residue streams. Hence, Project Air will also contribute to Renewable Energy Directive (RED II) targets, as well as the REPowerEU Plan. Further, Project Air's methanol production is far more energy efficient than conventional processes, contributing to the Energy Efficiency Directive (EED) targets.

The local conditions are good for importing CO₂ captured from neighbouring industries in the local chemical cluster to increase production capacity. Also, the existing close co-operation between the chemical industries in the region ensures that knowledge and experience gained from Project Air can be easily shared.

Project Air is estimated to lead to around a 15% increase in the production site workforce compared to present operations. In addition, the project is creating a new sustainable platform for further innovation and development, creating new direct R&D jobs in the methanol end-users, and additional indirect jobs through new R&D at other companies and universities.