European Commission

CHEMICALS

INNOVATION FUND

Deployment of net-zero and innovative technologies

ELECTRA: Demonstration of the world's first industrial-scale electric cracker for VCM production

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

| Project Factsheet

The project aims to demonstrate and operate the world's first industrial-scale electric cracker (e-cracker) at INEOS Inovyn's manufacturing site in Rafnes, Norway. Upon completion, the e-cracker will crack ethylene dichloride (EDC) into vinyl chloride monomer (VCM) with heat generated from renewable electricity, replacing conventional fossil fuel-burning thermal crackers, thereby altogether avoiding the greenhouse gas (GHG) emissions compared to the reference scenario. ELECTRA will produce up to 100 000 tonnes of low-carbon VCM annually, which will be used to produce low-carbon polyvinyl chloride (PVC) across Europe.

Today, most EDC crackers burn fossil fuels to generate the required heat for the chemical reaction of converting EDC to VCM. ELECTRA's innovative e-cracker is a proprietary technology developed with leading European technology suppliers. The technology electrifies this process for the first time, using renewable electricity to generate the heat for the reaction. This will allow the project to reduce

COORDINATOR
INOVYN NORGE AS

LOCATION
Norway

CATEGORY
Energy intensive industries (EII)

SECTOR
Chemicals

AMOUNT OF INNOVATION FUND GRANT
EUR 17,500,000

EXPECTED GHG EMISSIONS AVOIDANCE
99,076 tonnes CO2 equivalent

STARTING DATE
01 April, 2025

FINANCIAL CLOSE DATE
31 January, 2026

ENTRY INTO OPERATION DATE
30 September, 2028

CALL NAME
InnovFund-2023-NZT

** Calculated vs. the 2021-2025 ETS benchmark of 6.84 tCO2e/tH2, not taking into account additional carbon abatement due to substitution effects in the H2 end use application, i.e. conservative estimate.*

almost 100 000 tonnes of CO2 compared to fossil fuel-based VCM crackers during its first five years of operation, the equivalent of the annual emissions of about 62 000 fossil fuel cars in the European Union.

Aligned with the European Green Deal and the REPowerEU Plan, ELECTRA contributes directly to achieving GHG emission reduction targets for 2030 and 2050. It increases Europe's energy autonomy by using renewable energy instead of imported fossil fuels. Moreover, the e-cracker will also reduce nitrogen oxide (NOx) emissions, improving air quality. The operation of the e-cracker will be entirely complementary to future circular economy feedstocks (for example, bio-attributed and circular material). The project will eventually help to increase the resilience of Europe's economy and contribute towards the Green Deal Industrial Plan by adopting an innovative net-zero technology developed in Europe.

The project will directly contribute to sustainable growth in Southern Norway. It is part of a broader plan that could make the Rafnes site one of the world's first carbon-neutral petrochemical production sites by adopting innovative net-zero technologies such as e-crackers. ELECTRA will impact economic growth and job creation during production, construction, installation, and operation. INEOS Inovyn, the project coordinator, estimates that in total 300-400 employees and contractors will be involved throughout the project. Renewable energy-based VCM will benefit consumers by enabling lower-emission PVC products to be added to various everyday applications (from construction and textiles to agriculture and healthcare).

| Participants

INOVYN NORGE AS Norway

Additional information on the [EU Funding and Tenders Portal](#)**.**