



European Commission



MANUFACTURING OF COMPONENTS FOR PRODUCTION OF RENEWABLE ENERGY OR ENERGY STORAGE

INNOVATION FUND

Deployment of net-zero and innovative technologies

GIGA-SCALES: GIGA-watt SCaling of advanced ALkaline water Electrolyser Separators

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

| Project Factsheet

The GIGA-SCALES project will establish a pioneering industrial-scale hydrogen membrane production plant, with up to 20 gigawatt (GW) capacity. The project introduces the latest generation of ZIRFON membranes which can boost stack electrical efficiency and reduce renewable electricity needs for electrolytic hydrogen production. This technology is expected to achieve 100% relative greenhouse gas avoidance compared to the reference scenario. Centrally located in Europe near major hubs and ports, the manufacturing plant will strategically anchor the value chain, ensuring reliable short-term supply to regional and European electrolyser manufacturers.

The GIGA-SCALES project is a first-of-a-kind commercialisation of hydrogen membrane production and represents a major step towards a more ecologically responsible future. The project has an unmatched production scale of 20GW, and

COORDINATOR

AGFA GEVAERT NV

LOCATION

Belgium

CATEGORY

Energy intensive industries (EII)

SECTOR

Manufacturing of components for production of renewable energy or energy storage

AMOUNT OF INNOVATION FUND GRANT

EUR 11,031,000

EXPECTED GHG EMISSIONS AVOIDANCE

6,129,995 tonnes CO2 equivalent

STARTING DATE

01 April, 2023

ENTRY INTO OPERATION DATE

30 September, 2025

FINANCIAL CLOSE DATE

31 December, 2023

includes automated, defect-free production lines specifically designed to overcome current bottlenecks. This, plus the use of the highly efficient ZIRFON membranes, will reduce the Levelised-cost-of-hydrogen (LCoH) while setting new industry benchmarks. With the planned entry into operation already set for October 2025, the project will avoid an estimated 6.13 million tonnes of CO₂ equivalent greenhouse gases over the first ten years of operation. Its energy-efficient practices are projected to save a total of 157 terawatt-hours (TWh) of renewable electricity, which is equivalent to an additional greenhouse gas emission reduction of 27.60 million tons of CO₂ equivalent.

The project is located in the heart of Europe's value chain, in the Northern part of Belgium, 10km from the Port of Antwerp-Bruges and 100km from the Port of Rotterdam, two major hotspots for future

large-scale hydrogen production and distribution. The project has potential to advance the EU's clean tech hydrogen manufacturing leadership by shifting from pilot to full-scale production. This augments the value chain by answering industry hesitations with substantial membrane production, lowered hydrogen costs, and stakeholder collaboration.

The project is set to create between 1000 and 2000 direct and indirect jobs in various sectors. By enhancing renewable hydrogen production and reducing costs, the initiative attracts businesses and investments, enhancing local and regional economies. Moreover, it opens broader integration of renewable hydrogen technologies, unlocking further potential for scalability and impact. By using new technology, cutting harmful emissions, and bringing social and economic advantages, the project moves us towards a more environmentally friendly future.

| Participants

AGFA GEVAERT NV

Belgium