



# **INNOVATION FUND**

Deployment of net-zero and innovative technologies

IRIS: Innovative low caRbon hydrogen and methanol production by large Scale carbon capture

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

# | Project Factsheet

Sustainable hydrogen and e-methanol production through deep refinery decarbonization

The IRIS project aims to reduce the carbon footprint of the Agioi Theodoroi refinery, by applying carbon capture technology on its Steam Methane Reformer (SMR). This will allow the refinery to become a large ultra-low-carbon hydrogen producer. The bulk of the captured carbon will be sequestered in an offshore storage facility in the North Aegean Sea, while a small amount will be utilised to produce 10 000 tonnes of e-methanol per year, which will be used as an energy carrier for both mobility and industrial applications. The implementation of the project will result in the avoidance of 89% of the relative greenhouse gas (GHG) emissions compared to the reference scenario.

The IRIS project will incorporate a number of industrial processes on a scale not applied before

# COORDINATOR

MOTOR OIL (HELLAS) DIILISTIRIA KORINTHOU A.E.

### **LOCATION**

Greece

#### **CATEGORY**

Carbon capture and geological storage (CCS)

#### **SECTOR**

Refineries

# **AMOUNT OF INNOVATION FUND GRANT**

EUR 126,790,000

## **EXPECTED GHG EMISSIONS AVOIDANCE**

8,585,470 tonnes CO2 equivalent

#### **STARTING DATE**

01 January, 2024

# **ENTRY INTO OPERATION DATE**

30 June 2028

#### **FINANCIAL CLOSE DATE**

30 June, 2025

at an independent refinery. Its main innovative aspect is the integration of advanced technologies, engagement of multiple stakeholders, and the formation of the basis for a first-of-its-kind South-eastern European model plant for carbon capture, use and storage (CCUS). The post-combustion capture technology that has been selected for IRIS will allow for both unperturbed hydrogen production and continuous high-pressure steam generation. The CO2 fraction contained in the SMR flue gas will be captured at a rate of 95%.

Besides its use within the refinery, the produced hydrogen will be used as fuel in transport applications. E-methanol will be directed to maritime applications as a low carbon substitute for marine fuels. As a result, the IRIS project as a whole will avoid 8.58 million tonnes of CO2 equivalent absolute emissions over the first ten years of operation. In this way the environmental impact of the project will be maximized, achieving both explicit decarbonisation through emission reduction and implicit decarbonisation through low-

carbon, EU Taxonomy compliant, fuel production.

The project will contribute to the European goals to achieve climate neutrality by 2050. It will notably contribute to the Net-Zero Industry Act goal of achieving 50 Mt/y CO2 storage capacity by 2030, as well as to the REPowerEU goal of reducing fossil fuel consumption in industry and transport.

Furthermore, IRIS will promote the scalability of the CCUS chain to two more refinery units, that could further decrease the total refinery carbon footprint by another 25%. Through communication and dissemination activities, other regional refineries also develop similar decarbonisation could strategies or contribute towards creating a shared infrastructure hub, extending the impact of the project beyond its current boundaries. IRIS will also positively impact the regional economy, creating up to 2 000 job opportunities during construction and 21 permanent jobs during the project's operating lifetime.

# | Participants

MOTOR OIL (HELLAS) DIILISTIRIA KORINTHOU A.E.

Greece