



European  
Commission



# INNOVATION FUND

Deployment of net-zero and innovative technologies

eM-Rhone: electroMethanol-Rhône

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

## | Project Factsheet

The eM-Rhône project will integrate several technologies for large-scale e-methanol production beyond the current state of the art. The project will combine renewable hydrogen production, carbon capture from an existing cement plant, and e-methanol synthesis. It aims to demonstrate an optimised synergy between these three mature building blocks to produce e-methanol. This will translate into a 99% relative greenhouse gas (GHG) emission avoidance compared to the reference scenario of methanol production from natural gas.

In practice, 27 kilotonnes per year (kt/y) of renewable hydrogen are planned to be produced using 170 megawatt (MW) Proton exchange membrane (PEM) electrolyzers, powered with renewable energy. The electrolyzers will combine different power purchase agreements that ensure additionality and traceability of the renewable power, while providing flexibility of electrolysis for

### COORDINATOR

ELYSE ENERGY

### LOCATION

France

### CATEGORY

Energy Intensive Industries (EEI)

### SECTOR

Chemicals

### AMOUNT OF INNOVATION FUND GRANT

EUR 115,190,750

### EXPECTED GHG EMISSIONS AVOIDANCE

2,325,243 tonnes CO2 equivalent

### STARTING DATE

01 January, 2024

### ENTRY INTO OPERATION DATE

31 May, 2028

### FINANCIAL CLOSE DATE

31 December, 2025

the e-methanol plant. In order to ensure a continuous e-methanol production, the project will store hydrogen both in gaseous form and, innovatively, in solid state using metal hydrides.

Meanwhile, full-scale carbon capture is planned to be implemented at the Le Teil Blanc cement plant of Lafarge Cement, capturing 195 kt/y of concentrated CO<sub>2</sub> through an innovative cryogenic technology. As a result, the plant will synthesise 138 kt/year of e-methanol using the renewable hydrogen and the captured CO<sub>2</sub>. Innovative monitoring of these building blocks will enable complete synergy and provide a competitive and green solution to the chemical market. This solution is expected to result in 2.3 million tonnes of CO<sub>2</sub> equivalent of greenhouse gases avoided over the first ten years of operation.

Strategically, the project will contribute to the

Renewable Energy Directive and the REPowerEU communication in its goal to roll out renewables, reach a domestic production of renewable hydrogen of 10 million tonnes a year by 2030, and reduce fossil fuel consumption in industry and transport.

The eM-Rhône project will provide the chemical industry and local off-takers with a sustainable low-carbon substitute for fossil fuels. It will thus have a strong impact on the Rhône basin region, creating more than 300 qualified jobs. The investment will further benefit local economy, promoting regional collaboration and supporting the competitiveness of the cement and chemicals industry. The project also has significant scalability potential to double its e-methanol production capacity through the creation of economies of scale and synergies in the context of the wider eM-France Elyse Energy program.

## | Beneficiaries

ELYSE ENERGY

France

LAFARGE CEMENTS

France