

## PRESS RELEASE

Brussels, 19 December 2024

### **New EU Project ICO<sub>2</sub>NIC to Transform Industrial CO<sub>2</sub> Waste into Valuable Feedstock**

*The European Union has awarded €14 million to the ICO<sub>2</sub>NIC project to help advance CO<sub>2</sub> capture and electrochemical conversion to improve economic sustainability.*

Converting industrial CO<sub>2</sub> waste streams into feedstock in an economical and energy-efficient manner is essential for sectors to meet EU climate targets and boost their competitiveness. Many production processes still rely heavily on fossil energy carriers and non-renewable raw materials. Carbon Capture and Utilisation (CCU) can reduce the carbon footprint of products derived from these resources. Additionally, electrifying conversion processes and integrating renewable energy sources can significantly lower CO<sub>2</sub> emissions and energy consumption across sectors.

#### **A Building Block in the EU's Twin Transition**

Launching in January 2025, ICO<sub>2</sub>NIC (*Innovative electrochemical CO<sub>2</sub> Conversion to Versatile Feedstock*) is an EU-funded project within the Process4Planet partnership of the Horizon program. The ICO<sub>2</sub>NIC strategy focuses on promoting CO<sub>2</sub> capture and electrochemical conversion to transform industrial CO<sub>2</sub> waste into valuable feedstock, with the goal of reducing energy consumption, cutting CO<sub>2</sub> emissions and enhancing economic sustainability. The project aims to capture and valorise waste CO<sub>2</sub>, making CCU economically viable, and paving the way for substantial reductions in global emissions. ICO<sub>2</sub>NIC will combine advancements in CO<sub>2</sub> capture technology based on polymer membranes with a new gas diffusion electrochemical cell to convert CO<sub>2</sub> into formic acid. This formic acid will then be processed through biochemical methods to produce high-value goods and materials. ICO<sub>2</sub>NIC will create opportunities for substantial long-term CO<sub>2</sub> capture in the EU refinery sector, supporting decarbonisation efforts.

*"We are excited to launch the ICO<sub>2</sub>NIC project, which will transform industrial CO<sub>2</sub> waste into valuable resources, advancing both sustainability and competitiveness. By integrating renewable energy and innovative technologies, we aim to make CCU economically viable, significantly reducing emissions while creating high-value products. This project is a crucial step toward achieving the EU's climate goals and fostering a more sustainable industrial future"* said ICO<sub>2</sub>NIC Project Coordinator, Bernd Wittgens.

#### **The ICO<sub>2</sub>NIC Consortium**

The ICO<sub>2</sub>NIC consortium will be led by [SINTEF](#) and will establish a comprehensive value chain, from the CO<sub>2</sub> emitter, on-site demonstrator and executor ([TUPRAS](#)) to the end consumers ([TUPRAS](#) and [Procter & Gamble](#)). The process consists of carbon collection and purification ([Cool Planet Technologies](#)), electrochemical conversion to formic acid ([Avantium](#)), followed by bioconversion and up-grading ([b.fab](#) and [NoPalm Ingredients](#)), and the scaling up the fermentation process ([BBEPP](#)) to microbial oils. These

oils and their chemical derivatives will be evaluated by Procter & Gamble and TUPRAS as a feedstock for the Hydrotreated Esters and Fatty Acids (HEFA) process in Sustainable Aviation Fuel (SAF) production. This industrial model could provide a viable economic framework for all stakeholders, even without external financial support, and will be validated through the project's implementation.

By integrating renewable energy systems with digital monitoring and control technologies ([Idener](#)), leading Research and Technology Organisations will validate the concept's cost-effectiveness, environmental performance, and scalability through the development of a strong Technical and Economic Assessment and process design (SINTEF) and Life Cycle Assessment ([TNO](#)). The communication and dissemination of ICO<sub>2</sub>NIC will be led by the European association [CO<sub>2</sub> Value Europe](#), ensuring that the project's findings reach a wide audience and contribute to global efforts in sustainable industrial innovation.

## Acknowledgements



The ICO<sub>2</sub>NIC project has received funding from the European Commission under the Horizon Europe program Ref: 101177459.

## Contacts

### Project Coordinator

Bernd Wittgens, SINTEF, ICO<sub>2</sub>NIC Project Coordinator

Tel: +4792660160

E-mail: [bernd.wittgens@sintef.no](mailto:bernd.wittgens@sintef.no)

### Dissemination

Carmen Liu, CO<sub>2</sub> Value Europe – Dissemination and Communication Team

Tel: +32 494 36 01 44

Email: [carmen.liu@co2value.eu](mailto:carmen.liu@co2value.eu)

Antonio La Manita, CO<sub>2</sub> Value Europe – Dissemination and Communication Team

Tel: +39 380 328 1710

E-mail: [antonio.lamantia@co2value.eu](mailto:antonio.lamantia@co2value.eu)