The project will develop cutting-edge technology **to convert industrial CO_2 into DME (Dimethyl Ether), a valuable gas extensively used in the chemical and energy sectors**, providing an alternative to fossil fuel-derived feedstock.

The technology will employ 3D printed catalysts, multi-channel catalytic reactors and solid oxide electrolyser cells to produce DME in a direct and efficient way, contributing towards the transition to a low-carbon society.

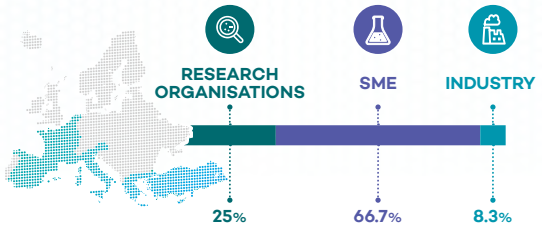
Scaling up the technology could make a decisive contribution to the decarbonisation of industry, taking a major step forward in tackling climate change.

DURATION
42 months

START DATE
01/07/2019

END DATE
31/12/2022

12 PARTNERS from
8 COUNTRIES



Consiglio Nazionale delle Ricerche · ATAE · ECODESIGN company · Hybrid Catalysis · FeyeCon · LGi sustainable innovation · Petkim · ICI CALDAIE · SOLID POWER · vito · tecnalia Inspiring Business · HTF HIGH TECHNOLOGY FILTERS SA · LCE

CO_2FOKUS

ADVANCING CO_2 CONVERSION

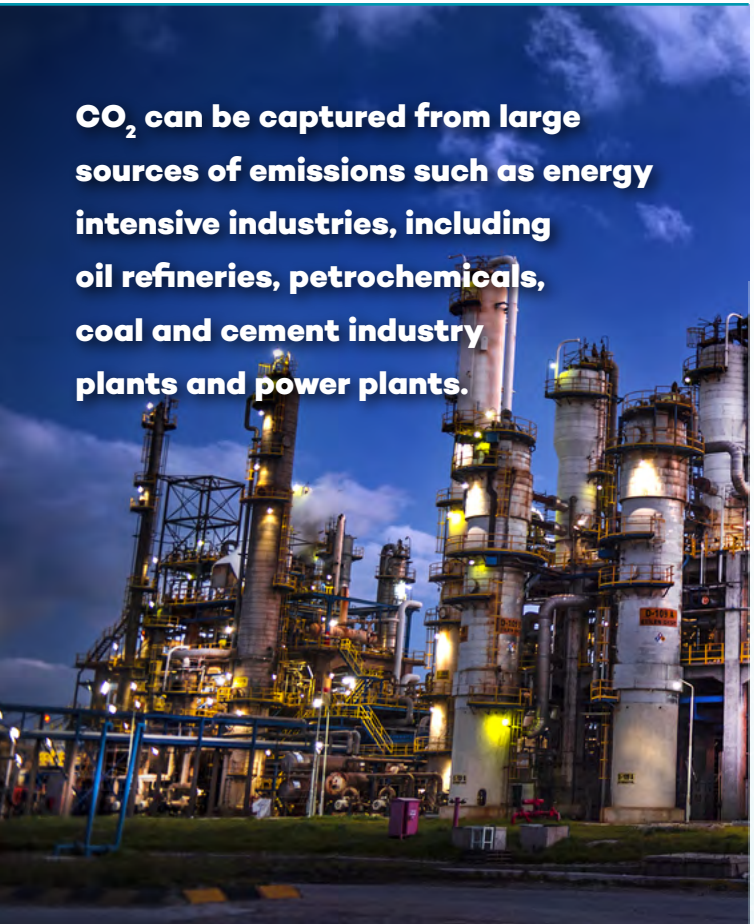
The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement n. 838061

CO_2 utilisation focused on market relevant dimethyl ether production, via 3D printed reactor and solid oxide cell based technologies

www.co2fokus.eu

Global warming is the main environmental challenge to overcome, and **the reduction of atmospheric CO_2 is the only way to limit the greenhouse effect**.

There is a growing interest in CCU (Carbon Capture and Utilisation) technologies, that are able to reduce **greenhouse gas emissions** by capturing the CO_2 produced by fuel combustion in industrial plants and subsequently converting CO_2 into chemicals and renewable fuels.



CO_2 can be captured from large sources of emissions such as energy intensive industries, including oil refineries, petrochemicals, coal and cement industry plants and power plants.

WHY DIMETHYL ETHER?

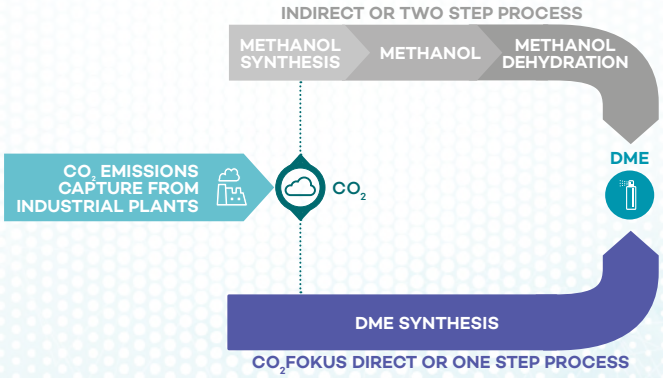
Dimethyl Ether (DME) has many applications in key sectors such as chemical and energy production. The DME production process from CO_2 and H_2 developed in CO_2Fokus is highly suited for operation at industrial sites **with a CO_2 point source**.

DME CAN BE

- A clean energy source with **high combustion quality** and low toxicity
- An intermediate for the **synthesis** of several value-added products (petrol, aromatics and olefins)
- An ether used as **chemical feedstock**

At present, DME is mainly obtained through an indirect process involving the use of fossil fuels such as natural gas or coal.

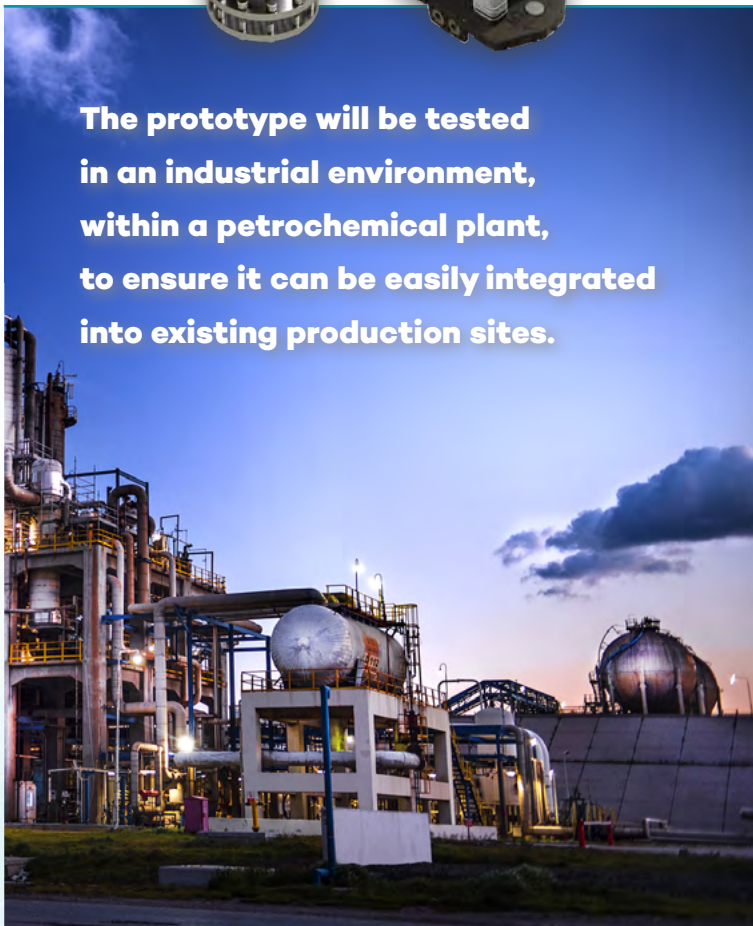
CO_2Fokus aims to develop a direct and more efficient DME production process, reducing both energy consumption and the use of fossil fuels.



CO_2FOKUS TECHNOLOGY

The technology developed includes:

- highly selective and durable catalysts
- 3D printed multi-channel catalytic reactors
- solid-oxide electrolyser cells.



The prototype will be tested in an industrial environment, within a petrochemical plant, to ensure it can be easily integrated into existing production sites.