CO2FOKUS
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

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

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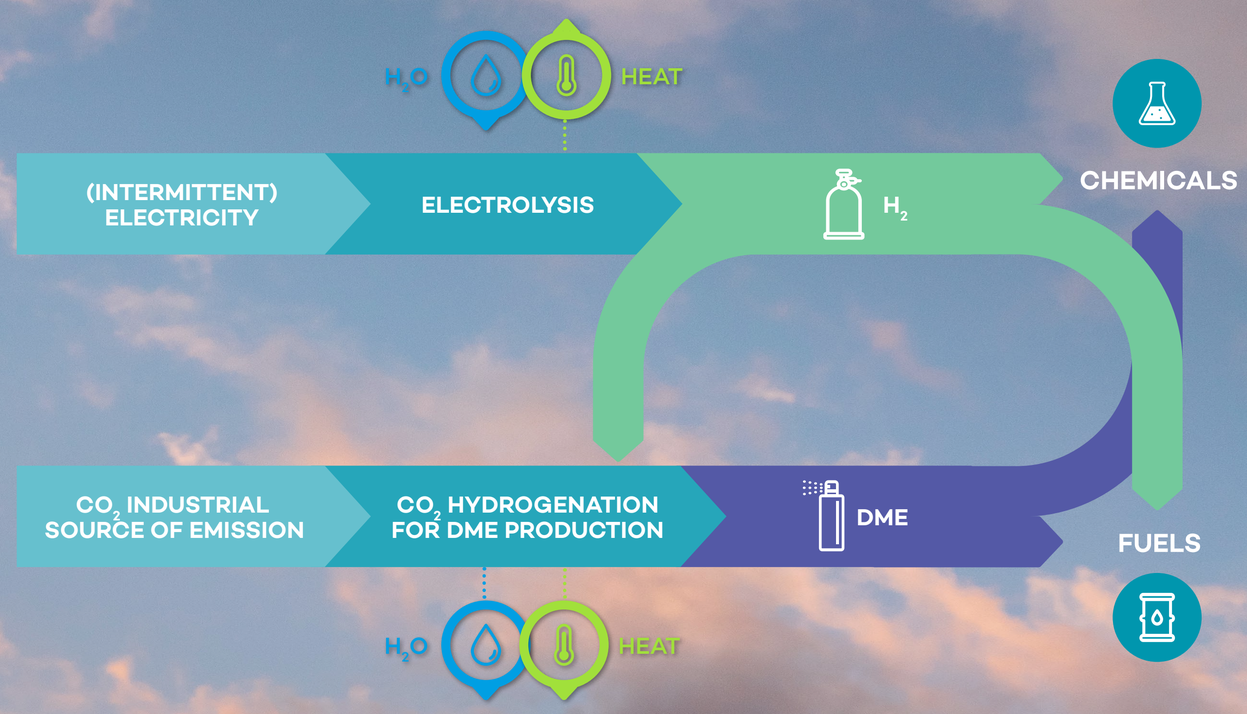
CONCEPT

At present, DME is commercially produced through an indirect, two-step process involving the production of methanol and its subsequent dehydration.

This process is energy intensive and requires substantial capital and infrastructure investments. CO2Fokus will demonstrate the viability of a single-step process involving the direct and continuous synthesis of DME from industrial CO_2 and H_2 in a more efficient way.



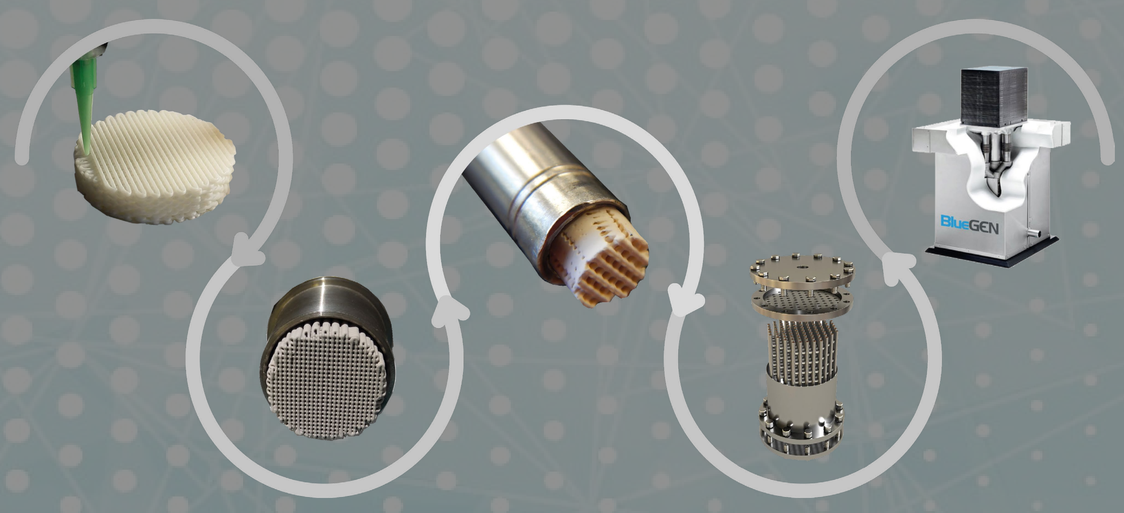
APPROACH

The project will develop cutting-edge technology able to directly convert industrial CO_2 into DME, a valuable gas extensively used in the chemical and energy sectors fostering an alternative to fossil fuel derived feedstock by:

Employing innovative 3D printed multichannel catalytic reactors with > 30 tubes, > 1500 N L/h CO_2/H_2 feed, > 30% CO_2 conversion

Optimising solid oxide electrolyser cells with a power consumption of ca. 3.5 kW in co-electrolysis mode and 50% conversion

Integrating and testing them in an industrial environment of large industrial CO_2 point sources



ADVANCE BEYOND STATE-OF-ART

- Effective controlled deposition of catalyst particles
- Due to their large surface to volume ratio and controlled macrostructure, millichannel reactors offer enhanced mass and heat transfer and 10-20% increase in reaction performance

TECHNICAL ACCEPTANCE ENABLERS

- Tackle potential technological and industries' concerns
- Provide technical guidelines for companies
- Tasks are put in place to provide analysis of environmental, financial and regulatory requirements

RESEARCH ORGANISATIONS 25%

SME 66.7%

INDUSTRY 8.3%

12 PARTNERS

8 COUNTRIES

1 July 2019 STARTING DATE

42 MONTH

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