THE UNIVERSITY of EDINBURGH

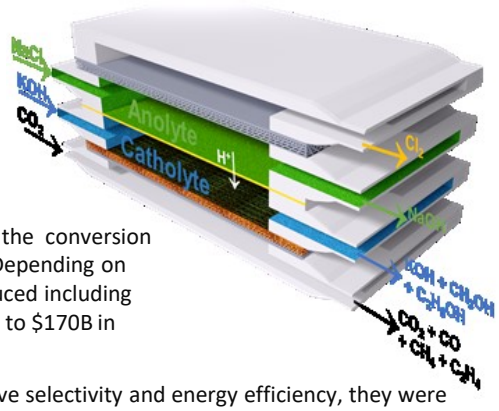
EDINBURGH INNOVATIONS
Infinite possibilities, expertly managed.

ELECTROCHEMICAL CONVERSION OF CO_2 TO RENEWABLE FUELS

Research engineers at the University of Edinburgh is developing a **highly potential electrochemical technology using flow-reactors for low-carbon manufacturing of valuable chemicals and renewable fuels from CO_2**.

Our current challenge is to increase the efficiency of the gaseous phase mass-transport to a commercially viable scale.

To enable the development and scale-up of the technology, we are seeking industry and research partners to **joint-apply for the €3-5M, fully-reimbursable European Commission H2020 call** in *Development of Next Generation Renewable Fuel Technologies from CO_2 and Renewable Energy (Power and Energy to Renewable Fuels)* (**LC-SC3-RES-26-2020**, Deadline: 20 April 2020).



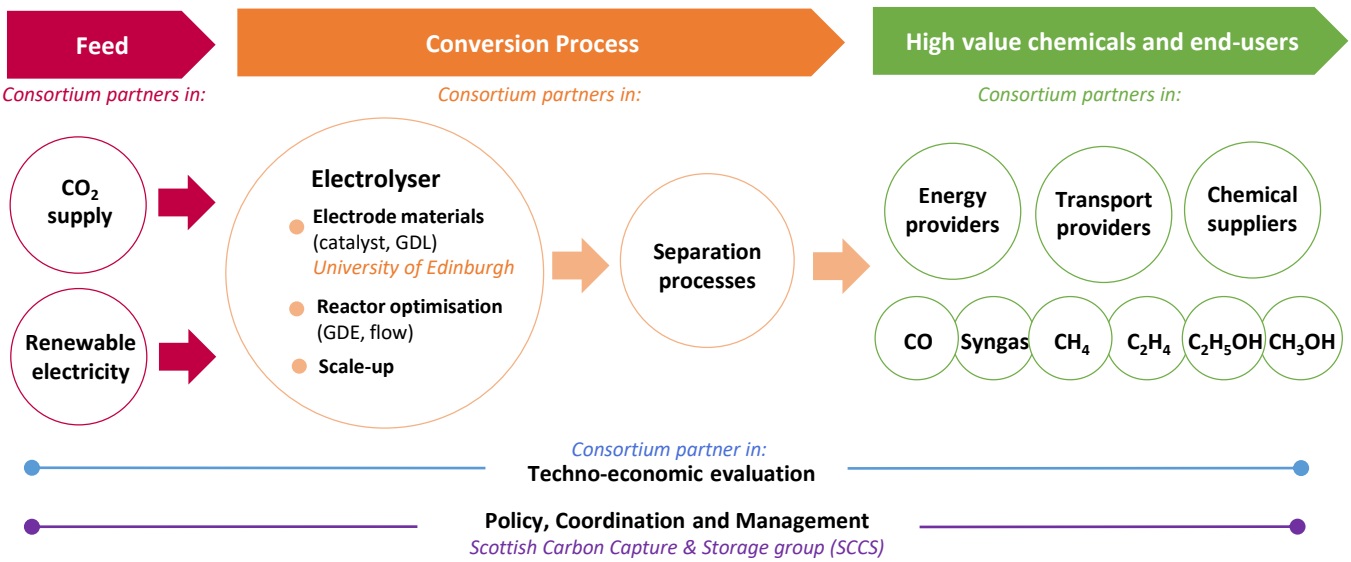
OPPORTUNITY

Electrochemistry enables the (i) production of valuable chemicals from CO_2 and (ii) the conversion of hard-to-store renewable electricity into easy-to-store energy in chemical form. Depending on catalyst, electrolyte or process conditions, a wide variety of chemicals can be produced including CO for syngas, methane, methanol, ethylene or ethanol, each worth between $32B to $170B in global markets (2017).

Whilst most work has been based on the development of electrocatalysts to improve selectivity and energy efficiency, they were conducted under unrealistic conditions using batch reactors with severe mass-transport limitations, thus preventing the optimisation and potential scale-up of the technology.

Teams at Edinburgh are developing an innovative CO_2 utilisation technology using flow-reactor with **scalable approaches to tackle the mass-transport limitations and increase conversion efficiencies**. The technology brings exciting opportunities to improve the decarbonisation of the transport, energy and chemical sectors, thus **creating value from CO_2 emissions**.

H2020 PROPOSAL CONCEPT: FROM SUPPLY TO HIGH VALUE CHEMICALS



Partnering with the internationally renowned **Scottish Carbon Capture & Storage group (SCCS)**, the above is our proposed multidisciplinary consortium of industry and academic specialists covering all the required technical areas to deliver the new technology, from its current Technology Readiness Level, TRL 3 to a working, commercially viable prototype at **TRL 5**.

INTERESTED TO BE A CONSORTIUM PARTNER?

Dr Ignacio Tudela-Montes | Lecturer in Electrochemical Engineering | University of Edinburgh
+44 (0) 131 650 5545 | ignacio.tudela@ed.ac.uk | www.edinburghelectrochemicalengineering.com

Dr Yee-Li Lee | Business Development Executive | Edinburgh Innovations Ltd
+44 (0) 79701 69394 | yee-li.lee@ei.ed.ac.uk | www.edinburgh-innovations.ed.ac.uk

Dr Romain Viguier| Business Development Executive | Scottish Carbon Capture & Storage (SCCS)
+44 (0) 7814 787516 | romain.viguier@sccs.org.uk | W: www.sccs.org.uk