

# EFCE Spotlight Talks

## Section on Energy

25 November

11:00 • 13:00  
CET

### CCU(vs.)S:

**How chemical engineering can shed light on challenges and opportunities of carbon capture and storage (CCS) and carbon capture and utilization (CCU) in a climate positive society ?**



*This webinar addresses the role of carbon capture storage and utilization in the transition to a CO<sub>2</sub> negative society, and discusses the different challenges and opportunities of storing the captured CO<sub>2</sub> vs. reusing it. The need to achieve net-zero global CO<sub>2</sub> emissions by around 2050 and to effectively remove CO<sub>2</sub> from the atmosphere later, lest allowing for an average temperature increase above 1.5 C, has brought carbon capture solutions under the spotlight in many climate mitigation plans. Not only do they allow for abating CO<sub>2</sub> emissions in hard-to-decarbonize industrial processes, e.g. cement and steelworks, but also for tackling emissions from existing fossil fuel assets, e.g. coal plants in Asia.*

*As carbon capture is reclaiming a key role for a timely decarbonization of our society\*, an intense debate has sparked on the specific role of carbon capture and storage (CCS) vs. carbon capture and utilization (CCU) or probably an ingenious combination of both. While the former aims at permanent storage of CO<sub>2</sub> – injected in the deep underground or fixed in stable composites on the ground – the latter aims at reusing CO<sub>2</sub> as (carbon) source for a further production process combination.*

*A sound chemical engineering approach to the discussion, where the analysis of technology details is intertwined with a system perspective from materials selection to the integrated plant level, has the potential of bringing clarity on the challenges and opportunities of the two routes and any potential amalgamation of short- to medium-term carbon storage with utilization. With this webinar, we bring together world-class experts in the field, who share different opinions of CCU and CCS, yet having in common a technology and system perspective.*

*\*International Energy Agency: Energy Technology Perspectives 2020*

### PROGRAM

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| 11:00 am | <b>Welcome and introduction</b><br>Matteo Gazzani, Copernicus Institute of Sustainable Development - Utrecht University - The Netherlands    |
| 11:05 am | <b>Systems engineering considerations in deploying CCUS</b><br>Nilay Shah, Imperial College London - United Kingdom                          |
| 11:30 am | <b>The Chicken-and-Egg problem with carbon capture and utilization</b><br>Andrea Ramirez, TU Delft - The Netherlands                         |
| 11:55 am | <b>The role of CCU and CCS to enable a net-zero-CO<sub>2</sub> emissions chemical industry</b><br>Marco Mazzotti, ETH Zurich - Switzerland   |
| 12:20 am | <b>A net-zero goal or 100% renewables? Environmental trade-offs for a future chemical industry</b><br>André Bardow, ETH Zurich – Switzerland |
| 12:45 am | <b>Last round of questions and conclusions</b><br>Panos Seferlis, Aristotle University of Thessaloniki – Greece                              |

[registration](#)

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