



LYON, FRANCE



16<sup>TH</sup> GREENHOUSE GAS CONTROL TECHNOLOGIES CONFERENCE

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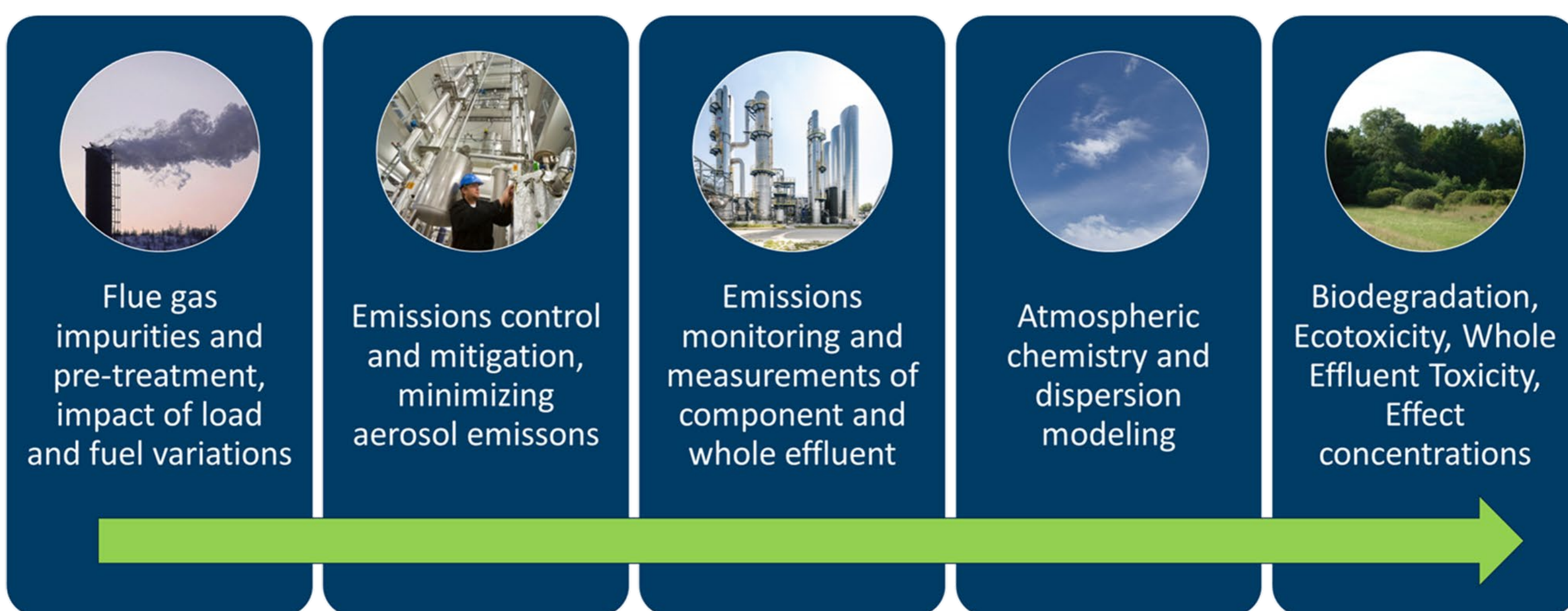


www.scope-act.org



# SCOPE: SUSTAINABLE OPERATION OF POST-COMBUSTION CAPTURE PLANTS

**SCOPE** (Sustainable OPERATION of post-combustion Capture plants) is accelerating the **decarbonisation of industry** by ensuring that emission reductions in amine-based CCUS are technically feasible, cost-efficient, and robust enough to mitigate environmental risks and gain public acceptance. By following the continuous path of the treated gas from source to recipient (see illustration below), SCOPE research is designed to address existing knowledge gaps and facilitate information exchanges that are critical for realising sustainable, environmentally safe CO<sub>2</sub> capture plants.



## What sets SCOPE apart

- SCOPE will **develop efficient online monitoring systems** and effective management guidelines for emissions control and **improve the predictions of amine emissions** by further developing existing models and **validating them against high-quality pilot plant data**.
- SCOPE will integrate science on environmental impact and effects characterisation to **support risk assessment** of amine-based CO<sub>2</sub> capture plants, determining appropriate emissions thresholds and criteria, including fate of emissions and potential human health effects.
- SCOPE will determine policies and practices that strengthen public trust in the governance of amine-based CCUS and establish a **Stakeholder, Policy, Research and Industry NeTwork** (SPRINT) forum to facilitate discussions aimed at closing important knowledge gaps for advancing large-scale deployment of CCUS solutions.

## Test facilities in SCOPE



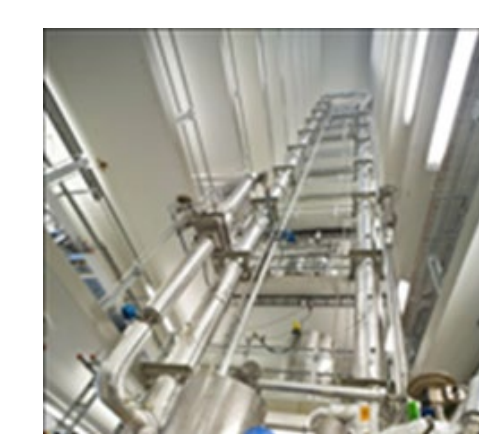
### Hengelo (Twence), Netherlands

- Waste-to-energy plant
- Solvent: 30wt% MEA
- Flue gas: CO<sub>2</sub> 9.5 vol.-%, O<sub>2</sub> 8.3 vol.-%,



### Niederaussem (RWE), Germany

- Lignite-fired power plant, 300 kg CO<sub>2</sub>/h
- Solvent: CESAR1
- Flue gas: CO<sub>2</sub> 15.2 vol.-%, O<sub>2</sub> 5.0 vol.-%



### Tiller CO<sub>2</sub> Lab (SINTEF), Norway

- Biomass or propane incineration: 30-40 kg CO<sub>2</sub>/h
- Solvent: CESAR1
- Flue gas: CO<sub>2</sub> 11vol.-%, O<sub>2</sub> 4vol.-%



### Alkmaar (HVC), The Netherlands

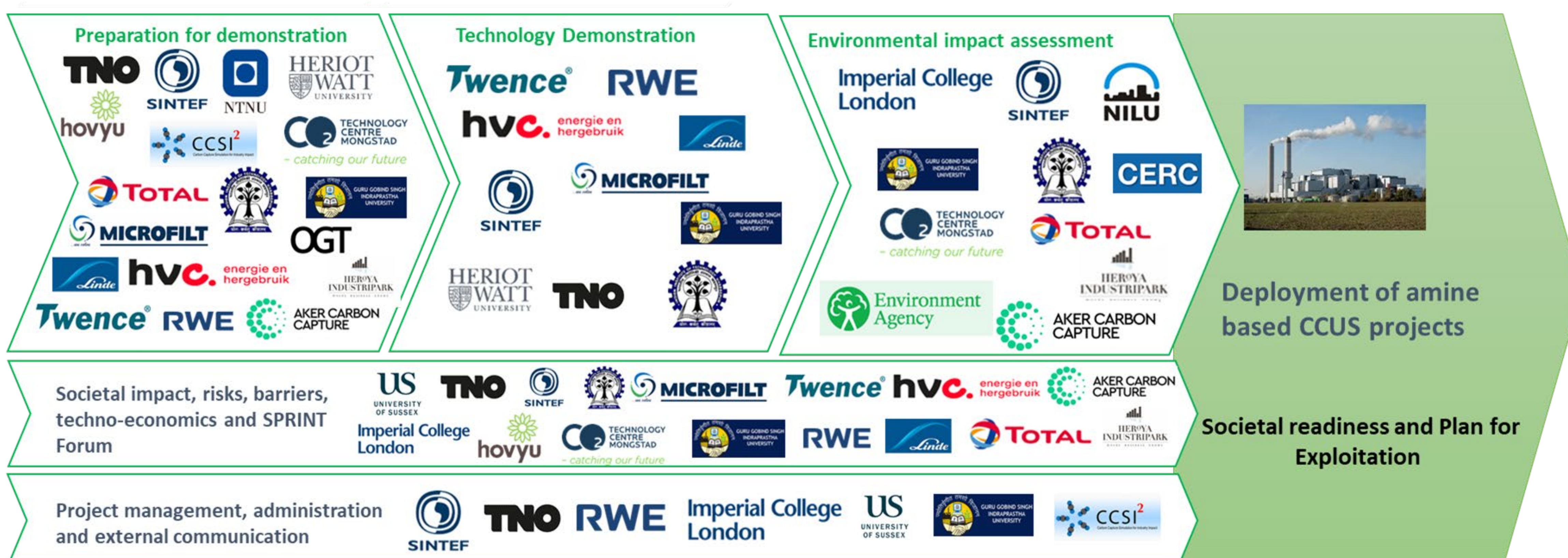
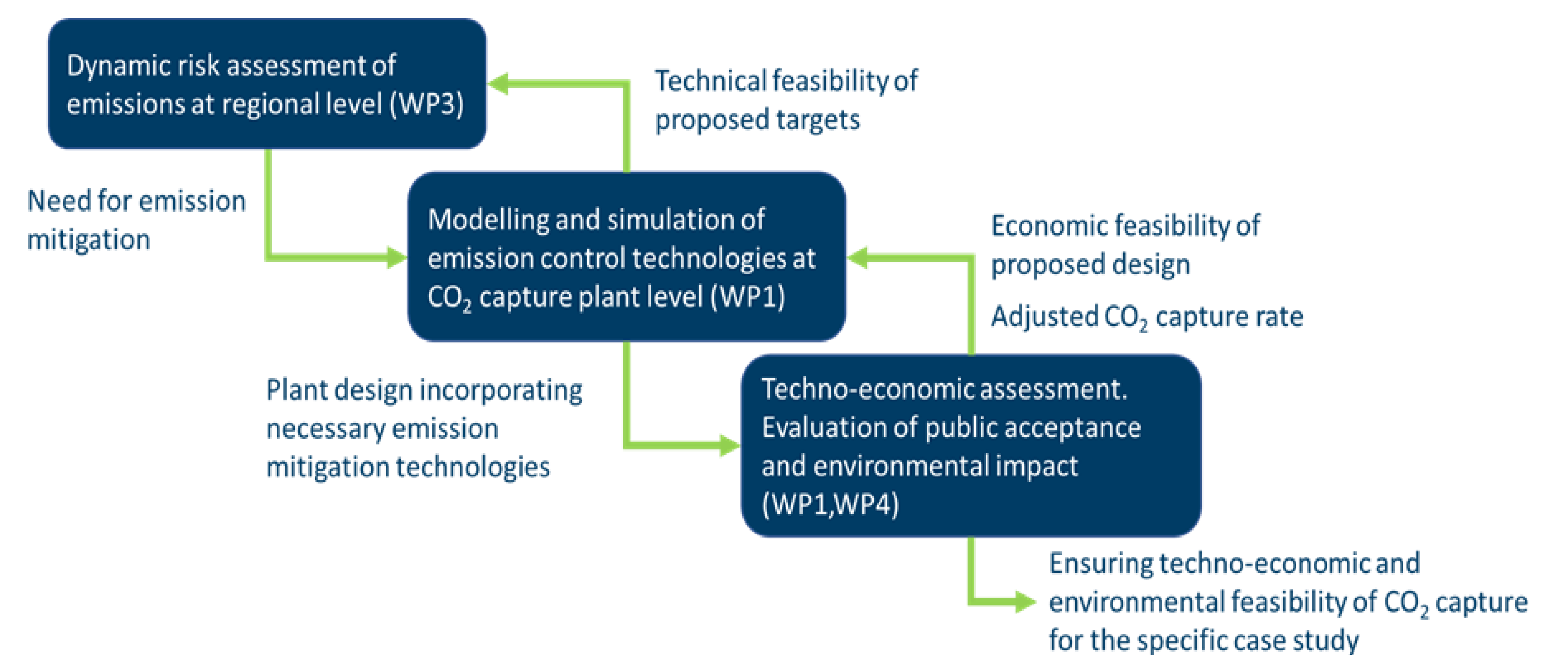
- Waste-to-energy plant 540 kg CO<sub>2</sub>/h
- Solvent: MDEA/Piperazine blend
- Flue gas: CO<sub>2</sub> 15,3 vol.-%, O<sub>2</sub> 5.6 vol.-%



### Tuticorin site, India

- Alkali Chemicals and Fertilizers: 60 kt CO<sub>2</sub>/y
- Solvent: CDRmax (Proprietary solvent of Carbon Clean Ltd)
- Flue gas: CO<sub>2</sub> ~ 12 vol.-%, O<sub>2</sub> 8 vol.-%

## Multilevel approach



## Project facts

**Project period:**

Oct 2021 – Sept 2024

**Total budget:**

6M €

**Partners:**

24 (19 from Norway, The Netherlands, UK, and Germany, 2 from USA and 3 from India)

## Contact

Hanne Marie Kvamsdal, PhD  
SINTEF Industry, Process Technology, Post O. Box  
4760 Torgarden, 7465 Trondheim, Norway | e-mail:  
Hanne.Kvamsdal@sintef.no

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