

SCOPE - Sustainable OPEration of post-combustion Capture plants

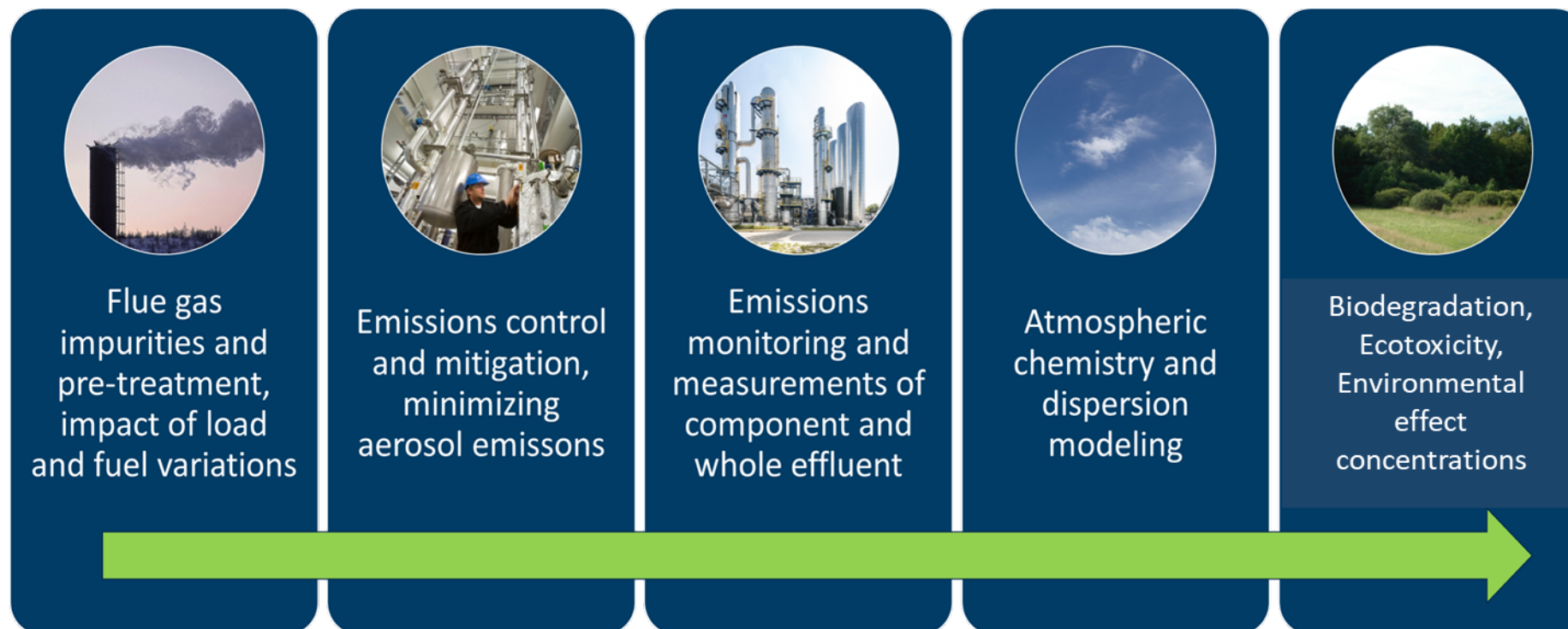
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08/02/2023

SCOPE – Sustainable OPEration of post-combustion Capture plants

Building upon ACT 1: ALIGN-CCUS and ACT2: LAUNCH: Follow the continuous path of the treated gas from source to recipient and ensure a sustainable and environmentally safe operation of the capture plant



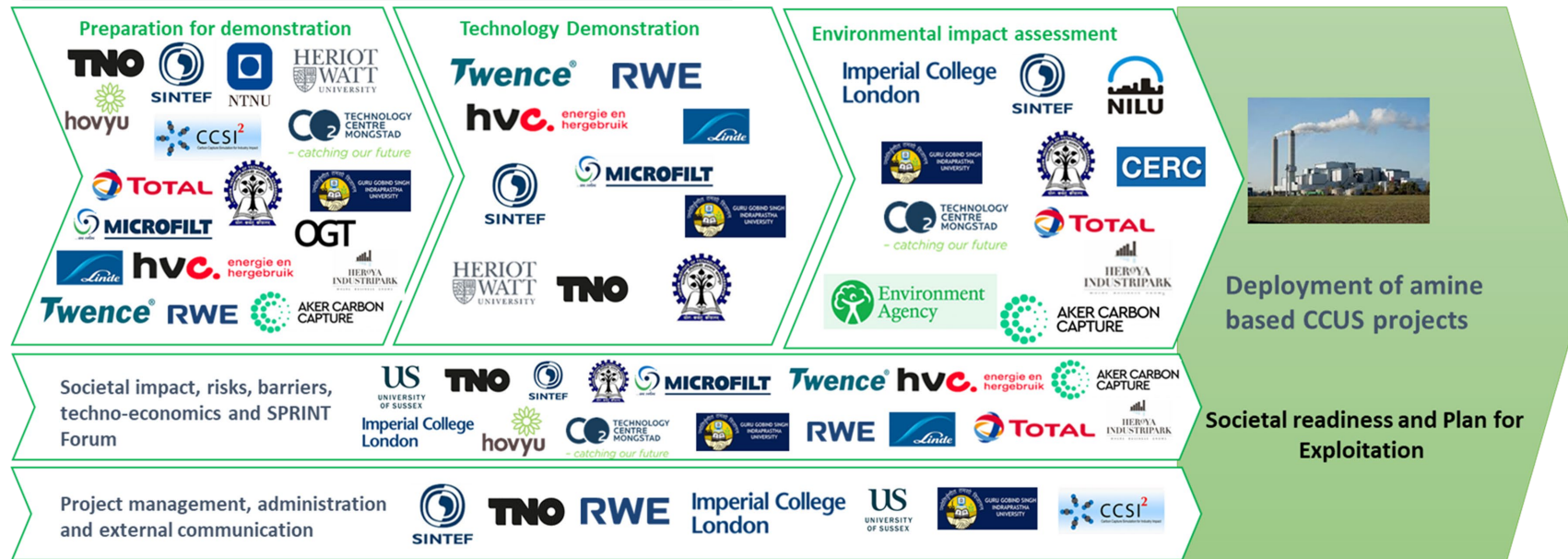
SCOPE – is accelerating the decarbonisation of industry

- **Objective:** ensure that emission reductions in amine-based CCUS are technically feasible, cost-efficient, and robust enough to mitigate environmental risks and gain public acceptance
- **Collaboration:** Interdisciplinary group of experts from academia, research, technology providers and end-users of the technology

Timeline:
01.10.2021-
30.09.2024

Budget: € 6 M
Funding from ACT
€ 3.7 M

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



SCOPE test facilities: small pilots to larger demonstration plants



Tiller CO₂ Lab (SINTEF IND), NO

Biomass or propane incineration: 30-40 kg CO₂/h
 Solvent: CESAR1 (blend of AMP and PZ)
 Flue gas: CO₂ 11 vol.-%, O₂ 4 vol.-%
 Focus in SCOPE: Emission monitoring



Alkmaar (HVC), NL

Waste-to-energy plant 540 kg CO₂/h
 Solvent: MDEA/Piperazine blend
 Flue gas: CO₂ 11.3 vol.-% (dry), O₂ 4.1 vol.-% (dry),
 Focus in SCOPE: Emission mitigation, effect of particles in the flue gas on emission



Niederaussem (RWE), DE

Lignite-fired power plant: 300 kg CO₂/h
 Solvent: CESAR1 (blend of AMP and PZ)
 Flue gas: CO₂ 15.2 vol.-%, O₂ 5.0 vol.-%
 Focus in SCOPE: Long-term test campaigns and various emission mitigation tools



Tuticorin site, India

Alkali Chemicals and Fertilizers: 7.5 t CO₂/h
 Solvent: CDRmax (Proprietary solvent of Carbon Clean Ltd)
 Flue gas: CO₂ ~ 12 vol.-%, O₂ 8 vol.-%
 Focus in SCOPE: Emission measurement



Hengelo (Twence), NL

Waste-to-energy plant 500 kg CO₂/h
 Solvent: 30% MEA,
 Flue gas: CO₂ 9.5 vol.-%, O₂ 8.3 vol.-%,
 Focus in SCOPE: Emission mitigation, effect of particles in the flue gas on emission



Mongstad (TCM), NO

Flue gas from CHP and cracker: 10 t CO₂/h
 Solvent: CESAR1 (blend of AMP and PZ)
 Focus in SCOPE: Results from previous campaigns for comparison and emission limits

Acknowledgements

This project is funded through the ACT programme (Accelerating CCS Technologies), ACT 3 Project No 327341. Financial contributions made by the Research Council of Norway (RCN), Ministerie van Economische Zaken en Klimaat the Netherlands, Department for Business, Energy & Industrial Strategy (BEIS) UK, Forschungszentrum Jülich GmbH, Projektträger Jülich (FZJ/PtJ) Germany, Department of Energy (DOE) USA and Department of Science and Technology (DST) India are gratefully acknowledged. Cash contribution from Norwegian industry partners to the Research partners in Norway is also acknowledged.

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