# Accelerating the delivery of safe and cost-effective carbon capture

Capturing $CO_2$ from industrial activity and power generation supports our net zero carbon transition. The LAUNCH project, involving science and industry experts from Europe and the USA, is tackling a key barrier to its deployment at scale: the degradation of solvents used in $CO_2$ capture processes.

WP0

## Management, Dissemination and Exploitation

Dissemination will ensure that the resulting tools, technologies and solvent qualification protocol are shared with industry stakeholders.

WP1

## Predicting Degradation

Our results will aid solvent design from lab to full-scale implementation by developing methodologies and models to predict solvent degradation.

WP2

## Controlling Degradation

We will develop generic degradation countermeasures that can be used for various solvent/flue gas combinations, aiding the safe deployment of industrial $CO_2$ capture.

WP3

## Closing Degradation Knowledge Gaps

Detailed research into second and third generation solvents will provide a fundamental understanding of the connection between degradation, corrosion and foaming.

WP4

## Development of Solvent Qualification Programme

Our protocol will align with industry timelines for deploying $CO_2$ capture. LAUNCH's small-scale capture plants will significantly lower the cost and time required for solvent testing.

WP5

## Demonstration of Solvent Qualification Programme

Four large-scale facilities in Germany, the Netherlands, the UK and USA will be used to assess and manage solvent degradation and validate our solvent management technologies.

WP6

## Techno-economic Evaluation

Using benchmark methodologies, we will assess the best solvent degradation control options from a techno-economical aspect; contributing to the technology's maturation and speed of delivery.

## Why is this research important?

- The degradation of chemical absorbents used to capture $CO_2$ from industrial and energy sectors currently results in higher costs for project developers and creates an economic barrier to delivering $CO_2$ capture projects.
- Our aim is to accelerate the uptake of $CO_2$ capture technologies by supporting the development of novel solvents and establishing a fast-track, cost-effective de-risking mechanism to predict and control the degradation of capture solvents.
- Our results will be shared with our stakeholders through a range of events, resources and techniques tailored to fit the relevant sector and target audience.
- Carbon capture and storage (CCS) technology is recognised as an essential route to achieving carbon reduction goals and supporting a global transition to a net zero carbon future.

## What will LAUNCH achieve?

We will deliver the knowledge and tools to allow post-combustion $CO_2$ capture plants to operate in a more controlled and cost-efficient way. Our capture solvent development programme will also accelerate work on new solvent concepts, which will contribute to bringing down costs. We will:

- Improve
- Develop
- Apply
- Provide
- Accelerate

### Innovation front #1: solvent qualification

Protocols and tools for qualifying novel solvents regarding their degradation behaviour; matching solvents to specific flue gases; choosing the best mitigation strategy; 2nd and 3rd generation solvents qualified through the LAUNCH programme.

### Innovation front #2: technology develpment

Technologies for controlling degradation incorporated to LAUNCH rigs and tested at pilot scale Re-design of $CO_2$ capture plants for minimizing degradation.

Accelerating CCS Technologies

The three-year LAUNCH project No. 299662, which began in September 2019, is funded through the ERA-NET Accelerating CCS Technologies 2 (ACT2) initiative, established by the European Commission under the Horizon2020 programme for research and innovation.

Funding has been provided by Netherlands Enterprise Agency (the Netherlands); the Federal Ministry for Economic Affairs and Energy (Germany); Gassnova SF (Norway); and the Department for Business, Energy and Industrial Strategy (UK), with extra funding from the US Department of Energy (USA).