

Insights on the funding opportunities and gaps for CCS in Europe

CCS is critical to retaining high- skilled jobs in sectors such as steel and cement in Europe. The development of CCS infrastructure will enable these essential industries to decarbonise in line with the EU's climate change commitments, ensuring their long term survival while creating new opportunities for inward investment. ZEP's previous analysis has shown that the value of CCS to the EU could total €1trillion by 2050.

As small industrial plants lack the expertise or resource to develop their own CO₂ transport and storage, industrial CCS can be developed most effectively at a regional level with "clusters" of energy intensive industries sharing transport and storage infrastructure. There are five industrial clusters identified for development in the SET-Plan Implementation Plan for CCUS under the Commission's Horizon 2020 programme.

Today there are regional bodies working to develop industrial CCS clusters in strategically important locations such as Teesside in the UK and Rotterdam in the Netherlands; for these proposals to progress into concrete projects, access to funding at both an EU and Member State level will be vital.

A recent report commissioned by Industrial Innovation for Competitiveness (i24c) and authored by Element Energy used the case study of a hypothetical industrial cluster in the Port of Rotterdam to assess the current and future funding likely to be available for industrial CCS projects, with the aim of developing a funding pathway to 2030. This short paper aims to highlight the key findings of this work.

The key findings from the report include:

- In the case of Rotterdam, €160m may be enough to fund a low cost "first phase" of an industrial CCS cluster, which would involve capturing existing waste streams of CO₂ and transporting them via new onshore and offshore pipelines to an existing offshore platform for storage. This would decrease risk and capital cost for "phase two", which would bring in captured CO₂ from more industrial sites, including new pipelines for transport with the aim of increasing to 3 million tonnes of CO₂ a year captured and stored. The costs for "phase two" would be around €720 million.
- There are currently four main European funding mechanisms that an industrial CCS cluster could draw from; the EU ETS Innovation Fund; Horizon 2020; the Connecting Europe Facility; and EU Structural Funds. Of these, only Horizon 2020 is available before 2021, meaning there is a significant short term funding gap which will need to be filled by either Member State or private funds.
- Horizon 2020 funding is directed towards research and innovation in improved capture technologies, and a limited amount of funding for CO₂ storage appraisal. Funds from the Connecting Europe Facility are reserved for projects designated as Projects of Common Interest (PCIs) under the Trans-European Networks for Energy (TEN- E) initiative, which in the case of CCS relate to transport of CO₂ across borders. While these activities are valuable they will not in themselves enable the development of a CCS cluster. Therefore access to EU Structural Funds and the Innovation Fund will be key to developing one or more CCS clusters in Europe.
- One area where there is a significant shortfall in funding is for storage appraisal. The report recommends a dedicated fund is set up for storage exploration and appraisal in Europe.
- The Innovation Fund will be open to a range of technologies including CCS, CCU and renewables. The fund has the potential to cover 60% of costs of phase 1&2 of a single CCS cluster. However, as funds will be shared between different projects it is not a given that a CCS cluster would receive funding to the level needed. ZEP supports the recommendation that the fund supports a limited number of larger projects which will provide the greatest impact for industrial decarbonisation.

- In order to be able to expand clusters over time, the initial “phase 1” infrastructure would need to be oversized for the amount of CO₂ captured. Under NER 300, the predecessor to the Innovation Fund, projects were assessed on cost per tonne of CO₂ stored. Using this method, there is no incentive to provide the oversized infrastructure that would enable large scale decarbonisation in the future. Therefore the Innovation Fund should be designed in a way that recognises the CO₂ abatement over the lifetime of a project.
- Based on the availability of EU funds, Member State support will be crucial to developing CCS clusters in the 2020s. In the case of a Rotterdam cluster this could equate to €220m in grant funding pre- construction; €50m/annum operational costs, and risk mitigation. For Member States to provide support for CCS clusters to the level set out in the report, there needs to be a strong governance framework through the Directive on Governance of the Energy Union that enables Member States to effectively plan the CCS deployment required to safeguard their at- risk sectors.
- Currently activities related to Annex II of the ETS are excluded from accessing Structural Funds. This would make a CCS cluster ineligible for funding. However, Member States may be able to apply for funding for these activities as R&I under their Smart Specialisation plans. It is clear that without access to these funds there is a significant gap in the funding pathway laid out, especially if the ambition is to develop more than one CCS cluster in Europe in the 2020s.
- The EU ETS currently does not provide the price certainty needed to include ETS revenues in financial models. However, a government guarantee to top up the ETS price to the EU projected price would overcome this barrier, leading to value of around €1bn in avoided emissions by 2035.

Based on these findings, ZEP recommends the following actions be taken:

- 1) EU Commission to investigate the value of setting up a dedicated fund for storage appraisal. This is a key enabling action for the strategic planning of CCS clusters in Europe.
- 2) The ETS Innovation Fund is designed in a way that ensures maximum impact for industrial decarbonisation to 2050, including the ability to fund critical infrastructure projects.
- 3) The Commission reviews the eligibility criteria for the EU Structural Funds, in particular the European Regional Development Fund which supports investments in the low carbon economy. Developing CCS infrastructure for industry is key to long term sustainable development in regions and needs to be seen in this context.
- 4) A strong Governance framework is put in place to enable Member States to support the development of CCS clusters. As ZEP has noted previously¹ for CCS deployment pathways to be implemented Member States need to have a focus on not just 2030 targets but 2050 targets for decarbonisation. When looking at 2050 it becomes clear CCS is a necessity to meet commitments under the Paris Agreement. The 2050 view contained in the proposed Governance Directive is vital to allow for effective planning for decarbonisation.

¹ ZEP Governance paper