



Danish response to the European Commission's call for evidence for an industrial carbon management strategy – carbon capture, utilisation and storage deployment

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Denmark welcomes the opportunity to comment on the European Commission's Public Consultation on industrial carbon management – carbon capture, utilisation and storage deployment (CCUS).

Along with a deep, rapid, and sustained effort to reduce greenhouse gas emissions, a substantial amount of removals of CO₂ from the atmosphere will be needed, as the EU approaches climate neutrality. It is important that the EU's climate efforts are designed to incentivize this in the most cost-effective way.

Denmark sees carbon capture and storage (CCS) as a central tool in achieving CO₂ reductions in the hard to abate sectors, as well as achieving negative emissions. Denmark also considers carbon capture and utilisation (CCU) as an essential technology to produce enough green fuels and chemicals for the transition of hard to abate sectors such as aviation, shipping and industry.

Denmark applauds the initiative on a communication on an EU strategy for the creation of a single market for CO₂ transport, utilisation and storage services by 2030. This paper highlights some of the most urgent thematic areas, which we believe should be addressed in an upcoming strategy.

1. Scope of the initiative and definitions

The call for evidence uses different terms for the initiative. However, it is our understanding that the strategy will focus on technological carbon capture, transport, utilisation and geological storage with a focus on capture in the hard-to-abate sectors.

Given the importance that biogenic carbon capture and storage (BECCS), direct air capture carbon capture and storage (DACCS), pyrogenic carbon capture and storage (PyCCS) and biogenic CO₂ for climate-neutral fuels and plastics can play in efforts to reach net zero by 2050 at the latest, Denmark emphasizes the need to include these sources of CO₂ in any analysis leading to a strategy.

To the extent that the communication will address wider issues of carbon management, it may be useful to clearly define the understanding of the technical terms used in the resulting communication e.g. what is included in the term "CCU"

2. Focus on establishing full value chains

The CCUS value chains will consist of different operators from capture, transport, utilisation and storage. This calls for an analysis, which recognizes interdependencies between the different parts of the chain and considers how to best address regulatory and economic barriers for a European single market for CCUS.



Key elements of such an analysis could include:

- Possible means to encourage investments in the different parts of the value chain.
- Cost assessments of different value chains in terms of resulting negative emissions.
- Liabilities in the different parts of the value chain.
- The financial potential of voluntary carbon credits in a mature CCS market.
- Needs for financial support to full value chain projects in existing EU funding schemes.
- Identification of required framework developing a common European market for CO₂.

More generally, Denmark finds it important that the need for a full CCUS value chain approach is recognised across the current and future EU regulatory framework.

Current ETS prices are not sufficient to drive the not-yet established CCS value chain. This means that first movers in any part of the value chain will need to take disproportionate risks. However, rising carbon prices including ETS, lower technology costs and the development of a mature CCS market, are likely to lead to a balance between ETS cost savings and the costs of CCS-gained CO₂ reductions. At least for emitters whose emissions are all part of the ETS system.

However, first movers in any part of the value chains could be reluctant to implement their part for the chain unless other parts are in place.

The analysis and communication could therefore consider possible models on how best to encourage private investments in all parts of the CCUS value chain.

3. Cross-border infrastructure

Denmark has a huge geological storage potential, extending beyond our own needs. Given this, Denmark has the potential and the political ambition to become a hub for storage of CO₂ from European emitters beyond our national borders.

Several storage projects are under development in the North Sea Area, including on Danish territory. Current estimates of known projects at different stages of development, suggest a future potential annual injection capacity of up to more than 50Mt CO₂ by 2032 in Denmark. The success of these projects depends on a variety of factors such as the geology, development of transport infrastructure and the economic feasibility for the different parts of the value chain.

A prerequisite for making use of Denmark's geological storage potential and fulfillment of national ambitions to serve as a hub for storage of European CO₂ is to enable an efficient cross-border transport infrastructure, which could also help ensuring sufficient amount of carbon for green fuels and plastics.



With a view to enable cost efficient and relevant cross border infrastructure the Commission may want to consider in its work inclusion of e.g.:

- Analyzing barriers for the development of a common European market for transport of CO₂ for both utilisation and storage,
- Creating a geographical overview of needs for cross border infrastructure.
- Assessing investment needs and costs of a trans-European CO₂ transport infrastructure by 2030 and by 2050.
- Exploring other thematic areas related to enabling relevant cross border infrastructure.

4. BECCS and DACCS integration in the ETS

The EU climate regulation does not currently provide market-based economic incentives for technological carbon removal.

In Denmark's view, the appropriate response to this challenge is to strengthen and extend carbon pricing to technological carbon removal in order to make it the primary instrument for ensuring compliance with and delivery of the EU's climate target.

To reach the EU's objective of climate neutrality, a substantial amount of CO₂ removal from the atmosphere is needed to counterbalance residual emissions. However, there are currently no economic incentives in the EU's climate regulation for scaling up and delivering negative emissions through technological solutions. The Commission should prioritize the development of methodologies for BECCS and DACCS in the certification framework for carbon removals. Moreover, the Commission should assess a range of policy options for further incentivizing the development and deployment of technological carbon removal technologies, while at the same time retaining high ambitions for conventional emission reductions.

This could include integrating negative emissions technologies in the ETS – for example by allocating revenue to installations that generate negative emissions certified through robust and transparent carbon accounting. This should include a carbon management framework to ensure that the creation of new allowances is based on physical carbon removal, to prevent an increase of net emission.

5. UNFCCC

While formats for reporting of negative emissions (BECCS) in national communication to the UNFCCC are currently being developed for sectors with fossil and process emission, there is not yet a UN format for reporting of negative emissions from BioCCS and DACCS.

The analysis and strategy could act as a lever for the EU to ensure that the necessary methodological guidance and reporting formats for any technological carbon capture and storage resulting in negative emissions are developed under the UNFCCC.

