



Summary of panel discussion and questions from the audience

Developing a well-functioning EU market for negative emissions – towards an EU certification of carbon removals

Tuesday 15 March 2022 | 10.00-11.30

What principles are important to develop a well-functioning EU market for negative emissions?

Stockholm Exergi mentioned that the market today is not yet mature, and it is important to look at where negative emissions should take part, it cannot be part of the EU Emissions Trading System (ETS) but should perhaps be part of the Effort Sharing Regulation. The importance of distinguishing between carbon removal and carbon reduction was underlined.

Other important principles mentioned were the need to make the future certification system tradable and traceable as well as ensuring the permanence of the carbon removal, which was underlined throughout the webinar. Stockholm Exergi suggested that the higher the permanence the higher the price should be.

The European Commission agreed that it needs to be clear how long the carbon dioxide will be stored and that we need several different solutions; from temporary storage in products to more long-term geological storage. Here the additionality was underlined since investors should not pay for something that would have happened anyway.

Looking at the public sector and the local political level, what would you say is needed from the local political side to develop a well-functioning EU market for carbon emissions? And how can cities use negative emissions?

The City of Stockholm underlined the importance of financing coming from different sources and for the need to scale up. Support from the EU is an important part as well as the harmonisation of the EU legislation. It is important for cities to implement systems for negative emissions and to show that they work. Cities can be test beds for new technologies. Cities have historically been emitters and it is time to reverse this and give back by removing CO₂. BECCS is one tool to do this.

Fortum Oslo Varme continued on the same issue, stressing that the public sector can take the first step and that other financial actors then should follow, while then also pointing to the polluter pays principle and how the municipal tax can be part of the financing.

Could you clarify the process of developing the upcoming EU legislation on certification of carbon removals?

On 15 December 2021, the European Commission adopted a communication on sustainable carbon cycles, which sets out short-term actions to on the one hand upscale carbon farming as a business model and on the other encourage new industrial value chains for the sustainable capture, recycling, transport, and storage of carbon. To address this, a proposal for a certification system for carbon removals is expected by the end of 2022. On 31 January 2022, the Commission organised a conference to gather decision-makers and experts to share their experiences on the topic, which can be watched [here](#). A [public consultation is open until 2 May](#) for all stakeholders to share their views before the proposal is presented at the end of 2022. Linked to the proposal the Commission will develop a methodology for BECCS and DACCS.

What is the Commission's view on the possibilities of using products from the pulp and paper industry? The biomass used for the products are also used for energy production leading to large possibilities for BECCS and negative emissions.

The European Commission would like to see more small-scale projects on this. At the end of March, a [call for small-scale projects under the Innovation Fund](#) is expected to open where the pulp and paper industry will have big potential.

Connected to a well-functioning market for negative emissions, is of course storage and the necessary infrastructure to transport the CO₂. What are your views on how open and non-discriminatory access can be ensured for the transport infrastructure?

Secure and permanent storage is crucial, and according to the CCS-directive non-secure storage counts as emissions. The cost of transporting the captured CO₂ needs to be lower to further incentivise the market. In addition, there is a need to develop the value chain for transport and storage as well as cross-border transport and monitoring of the storage. Fortum Oslo Varme suggested the project [Northern Lights](#) as a good example to address the challenges with transporting CO₂ to the storage sites.

Regarding the 800 000 tonnes of emissions removed as presented by Stockholm Exergi, does this consider the emissions from the energy used for capture, storage, transportation, and geological storage, as electricity production has its own CO₂ emissions (carbon intensity of energy production). It is as said, important to consider the carbon balance and sustainability of the full value chain. To this end, could the electrical energy used in CCS, instead remove more carbon emissions by trading this energy with countries that have higher CO₂ emissions for energy production (i.e., coal-fired nations)?

Stockholm Exergi: We take into account the whole value chain. All actions to decrease CO₂ such as Bio-CSS, BioChar, DACCS etc. need input of energy which often is electricity. The decarbonisation of society will need tremendous amounts of renewable energy, for example the steel industry will have a huge need for electricity to produce hydrogen which will replace coal. Only in Sweden the calculations show that there is a need of 100-150 TWh more electricity if we are to decarbonise the transport and industry sector.

From a Swedish perspective, we cannot transport all electricity produced in Sweden to other countries, there are and will be bottlenecks etc. Our CHP with CCS have more impact on the Swedish prices as such than Swedish export capacity. But again, we need to both reduce fossil emission and remove CO₂ and we should remove CO₂ in the most cost-efficient way. Bio-CCS will be a competitive solution to abate emissions of CO₂ in the atmosphere.

It is important with high ambitions regarding carbon removal to send a strong signal to the industry to invest in this area. It is also one part of the solution for companies to reach their climate goals.

Would you be able to comment on the Swedish level of ambition for CCS? It was mentioned that there is a potential of CSS of 30 mton/year but is only aiming for 3 mton/year by 2030. So the ambition in 8 years from now is only 10% of the total potential.

Stockholm Exergi: A couple of years ago CCS was not discussed publicly as a serious and needed pathway towards net zero emissions. We can see that the political ambitions have not yet taken into account the possibilities we have identified in the last years.

Are there any environmental risks with CCS that you need to handle?

Fortum Oslo Varme: With amine technology there is a potential for emissions of nitramines, transforming into nitrosamines in the atmosphere, but this is thoroughly tested, addressed, and easily handled with filters before emitting the flue gas from the stack.

Regarding the technology needed for BECCS, are we ready, technology wise, to go online as soon as the regulatory and financing framework is in place?

Fortum Oslo Varme: Yes, we are ready technology wise, the capture technology is tested and proven both in Oslo and Stockholm (two different technologies), and the storage part is also demonstrated over 25 years, stripping CO₂ from natural gas and storing it permanently in geological formation.