

Södra's position on carbon dioxide capture



Forests, a prerequisite for capturing and utilising carbon dioxide

Forests have been helping to build our country's prosperity for generations. With more than 50,000 family forest owners, Södra is an asset to the country's economy, employment, vibrant rural communities and forest diversity. The raw material of family forestry is used to make wood products, building systems, paper and dissolving pulp, chemicals, energy and much more.

As we continue to refine and develop forest products for a more sustainable society, we occasionally encounter issues and challenges where we see a need for change and knowledge-sharing. In this summary, we highlight the main shifts that we believe are needed to strengthen our competitiveness and contribute even more to the sustainable transition where capturing and utilising carbon dioxide is one important part of the puzzle.

Why capturing and utilising carbon dioxide?

Capturing and utilising carbon dioxide aligns with Södra's long-term strategy to maximise the value of every tree and strengthen our competitiveness. Carbon capture offers us an opportunity to improve profitability while making a positive contribution to the climate. Södra is well positioned, as our pulp production generates biogenic carbon dioxide that can either be permanently stored to create negative emissions (bio-CCS) or used to produce sustainable carbon-based products (bio-CCU).

Negative emissions – essential to mitigate the effects of climate change

Carbon dioxide is a greenhouse gas that contributes to global warming. In Paris in 2015, the world's nations agreed to limit the global temperature increase to 1.5°C. For Sweden to reach net zero emissions by 2045 and meet the goals of the Paris Agreement, fossil emissions must continue to decline. However, some emissions are difficult or costly to reduce, and here the storage of biogenic carbon dioxide (bio-CCS) can play an important role by creating negative emissions.

It is essential that bio-CCS does not displace investments in other unique and potentially more climate-positive

initiatives, or encourage continued use of fossil raw materials. Södra and our partners remain committed to reducing our (negative) climate impact. Carbon storage should be seen as a necessary complement to other initiatives to reach Södra's net zero target by 2040, in line with the Science Based Targets initiative.

Products that can replace fossil raw materials and inputs

Captured carbon dioxide can also be used to produce products that replace fossil raw materials and inputs – known as bio-CCU. The most common solution is to use hydrogen to produce methane or methanol, which can then be upgraded into electrofuels for aviation and shipping, or electrochemicals for plastics and pharmaceuticals.



To realise bio-CCU, major investments are needed across the entire value chain. Södra is seeking partnerships with other actors and sees co-investment in upgrading as a way forward. The most critical factor for bio-CCU is access to large volumes of hydrogen, which in turn requires large amounts of renewable electricity. For this to be economically viable, electricity prices must be competitive with those in other regions.

Potential for Södra

Södra aims to refine and maximise the value of family forestry. We are therefore exploring both permanent storage to create negative emissions (bio-CCS) and the use of captured carbon dioxide to create sustainable products (bio-CCU). The market is expected to accelerate in the 2030s, driven by the need to reach net zero emissions – a goal many companies have set for 2050.

Our pulp mills in Mönsterås, Värö and Mörrum emit around 5 million tonnes of biogenic carbon dioxide annually. In the long term, there are realistic opportunities to capture a significant share of these emissions. What is practically feasible depends on the mills' energy balances and access to fossil-free energy at competitive prices.

What we need to move forward

How this business develops for Södra depends on technological progress, market conditions and political instruments. Södra wants to see policy instruments that focus on more steps in the value chain – from renewable forest raw materials to carbon capture with permanent storage, and future opportunities to use captured carbon dioxide in circular products. To achieve this, Södra needs:

Clarification of bio-CCS accounting at EU level

- Ensure that the voluntary carbon credit system being developed at EU level – the carbon removals certification system – is applicable to bio-CCS.
- Södra believes that carbon sink accounting should continue to be reported under LULUCF to avoid mixing biogenic and fossil emissions. Biogenic products are renewable and, unlike fossil ones, biogenic emissions are expected to continue even after the end of ETS.

Strengthen the potential to produce renewable products from carbon dioxide

- The government should introduce a flexible and long-term policy instrument in the form of a revenue guarantee for domestic production of electrofuels and other renewable fuels.
- The government should expand the proposed legislation on reduced energy tax for carbon capture to also include facilities that separate carbon dioxide for purposes other than storage.
- The government should amend the regulation on the reduction obligation for petrol and diesel so that

electrofuels that meet the sustainability criteria in the EU's Renewable Energy Directive (RED) are also included.

- The government should apply for an exemption from EU state aid rules so that electrofuels meeting the sustainability criteria in RED, like pure and high-blend biofuels, are exempt from energy and carbon dioxide tax.

Infrastructure requirements

- The government should clarify the rules for green credit guarantees to enable support for investments in supporting infrastructure, such as pipelines, intermediate storage and export terminals for captured carbon dioxide.
- The government should clarify the Swedish Energy Agency's mandate for a "National CCS Centre" to coordinate between capture actors and infrastructure investors, with the aim of accelerating investment in carbon dioxide transport infrastructure.
- The government should instruct the Swedish Energy Agency to develop proposals for agreements on the transport and storage of carbon dioxide in other countries, in accordance with existing EU legislation – similar to the agreement between Denmark and Belgium.
- The government should work to clarify the Helsinki Convention so that carbon dioxide is not classified as waste and is permitted to be stored (deposited) under the seabed in the Baltic Sea, including the Kattegat.

CCS stands for Carbon Capture and Storage – a technology used to capture and store carbon dioxide. For Södra, this involves extracting flue gases from the recovery boiler, lime kiln or bark boiler. The carbon dioxide is separated from the flue gases and liquefied to enable transport and eventual storage, most likely beneath the seabed. Bio-CCS refers specifically to biogenic emissions.

CCU stands for Carbon Capture and Utilisation - which means the captured carbon dioxide is used in another application by refining it into a new product. The most common solution is to use hydrogen to produce methane or methanol, which can then be further upgraded.