

# Storage of carbon dioxide a vexed question

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In Sweden alone, 52 million tons of carbon dioxide is emitted every year. To mitigate the negative impacts of greenhouse gases, carbon dioxide sequestration has come to the fore as a hot new method.

However, the process is heatedly debated, and according to doctoral candidate Mårten Lind at the Royal Institute of Technology (KTH) in Stockholm, it is of the utmost importance that energy companies not use the method as an excuse to delay conversion to more environmentally friendly energy forms.

Carbon dioxide capture and sequestration, abbreviated CCS, has been put forward by scientists, energy companies, and governments as a solution to climate problems related to the constantly rising use of fossil fuels.

What's more, several of Europe's largest energy companies are committing to the method, companies that are strongly dependent on coal as a fuel.

Mårten Lind, a doctoral candidate at KTH and the author of a new dissertation about the capture and sequestration of carbon dioxide, says that the method can be one of several ways to reduce emissions. But this is only on the condition that there is a responsible strategy in place so that the technology does not create more problems than it solves.

“The method must not be used as an excuse for continued use of fossil fuels. Each crown invested in this method should be accompanied by much larger investments in long-term solutions, such as renewable

energy sources,” says Mårten Lind.

The dissertation concludes, among other things, that the development of CCS should continue, but that large-scale tests, involving all steps in the process from capture to sequestration, are needed in order for the method to gain acceptance and to assess whether the technology as a whole is an interesting alternative.

“At present, testing often focuses on only one link in the chain at a time and on a relatively small scale. This is not enough to shed light on the many uncertainties that exist,” says Mårten Lind.

There are many different ways to use CCS. One method in particular has proven to be more popular and more commercially developed than the others.

“There’s a method called post-combustion capture. It separates carbon dioxide from the smoke gases in industries and power stations and in principle be installed directly in connection with the smoke stack. However, this technology is often associated with many drawbacks, such as high consumption of energy and the use of toxic chemicals,” says Mårten Lind.

In his dissertation he presents other methods that involve a higher degree of integration between the power station and the capture step, which enables the use of more compact and inexpensive facilities with more efficient and environmentally friendly capture.

Carbon dioxide capture and sequestration is a controversial method, and even if the capture could be carried out in a more environmentally friendly, efficient, and inexpensive manner, there would be strong resistance from the environmental movement. Many CCS projects around the world have had to be discontinued early owing to massive

protests.

“There is justified concern that the technology will siphon off funding from wind power and other more sustainable environmentally friendly alternatives and that [carbon dioxide](#) sequestration, like nuclear waste, would create problems for future generations,” says Mårten Lind.

Questions surrounding CCS involve both technological and societal perspectives, which the dissertation reflects.

Source: The Swedish Research Council

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