

FACTSHEET CCS

INFORMATION ABOUT CCS – CARBON CAPTURE AND STORAGE

STORAGE EXPLORATION IN EAST GERMANY

If CCS technology is to be commercially available from 2020, suitable underground storage must be found in good time for the carbon dioxide captured in the power stations. Such geological formations are the subject of the exploration programme that Vattenfall will implement in the German federal state of Brandenburg in the next few years.

Potential in Brandenburg

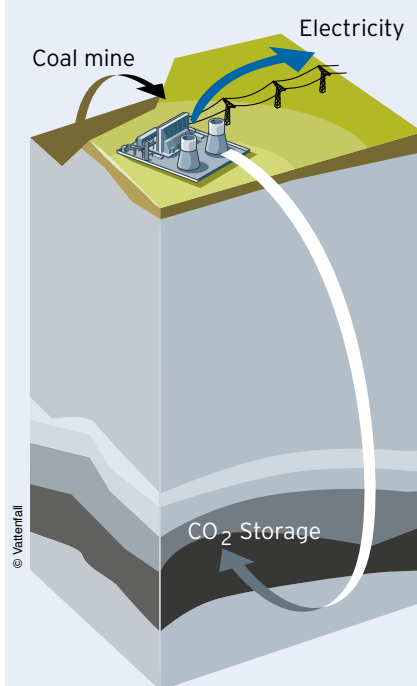
Saline aquifers - deep stone strata containing saltwater - have the greatest potential worldwide for the underground storage of carbon dioxide, CO₂. They have the necessary conditions for sealing in the greenhouse gas permanently and safely because gas-impermeable covering strata of salt or clay often enclose them.

These saline aquifers also exist in the east of Brandenburg, quite close to the Jämschalde power plant where Vattenfall plans to build a CCS demonstration plant that will be in operation no later than 2015. Vattenfall will, in the next few years, examine two underground formations near Beeskow and Neutrebbin in greater detail. The stone strata are at a depth of 1 200 to 1 500 metres and, as things stand today, are suitable for the storage of CO₂.

Exploration programme in three parts

An exploration programme for a deep underground study will consist of three parts, after the approval process has been concluded. Firstly, an underground

CARBON CAPTURE AND STORAGE (CCS)



CCS stands for the technologies used to capture and store the carbon dioxide (CO₂) generated in combustion processes, for example in a power plant. Essentially, three different processes are available: Oxyfuel, Postcombustion and Precombustion (IGCC). Today, all three technologies are available in the Vattenfall Group. The common aim of all these processes is to produce a concentrated stream of CO₂, compress it and then store it underground instead of releasing it into the atmosphere.

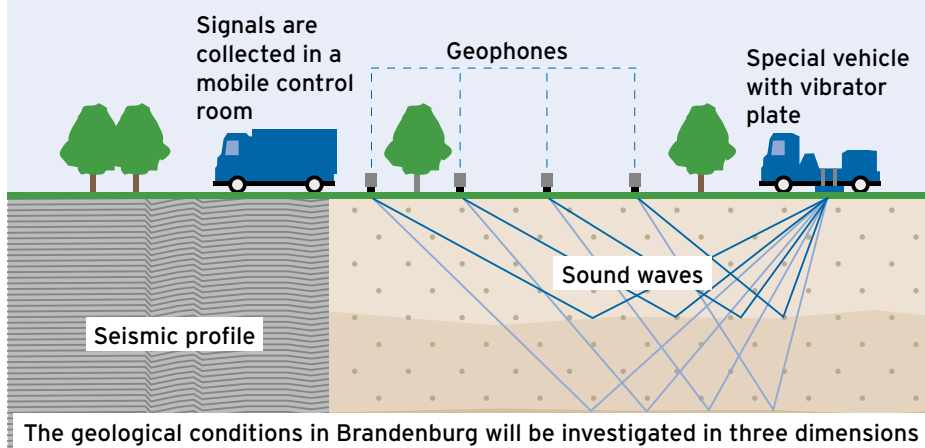
geological profile will be created in a seismic investigation using vibrations that are reflected by the various underground strata. In parallel, drilling to a depth of 1 400 metres will take place in the study area. The drilling will produce samples of the subsoil that will be tested for their properties. Parameters such as permeability and porosity are important here. Following the seismic study and the drilling, brine (water with a high salt content) will be removed from the aquifers and subsequently reinjected in an operational test procedure. In this way, the specific suitability of the stone

strata studied for the storage of CO₂ can be determined.

The effects on people and the environment of the exploration programme will be minimised. The project will be implemented in close cooperation with the relevant local public authorities and public agencies and, above all, in an open, active dialogue with the local population. Ensuring this dialogue, an exhibition centre where information is displayed and discussions are being encouraged has been set up in the region.



Seismic investigations using vibrations



As at: April 2010

Read more about Vattenfall's project on CCS at www.vattenfall.com/ccs