

South Africa aims to bring pilot carbon capture project online in 2023

South Africa has started geological mapping at the country's first carbon capture and storage (CCS) site, where it plans to inject vast quantities of CO₂ deep underground from 2023, a senior Council for Geoscience official said.



Electricity pylons are seen in front of the cooling towers at the Lethabo Thermal Power Station, an Eskom coal-burning power station near Sasolburg in the northern Free State province, 2 March 2016. Reuters/Siphiwe Sibeko/File Photo

The project will be based around the town of Leandra, Mpumalanga province, in South Africa's north east, a carbon emissions hotspot and home to several coal-fired power stations as well as Sasol's Secunda coal-to-liquids fuel plant, the world's largest.

Releasing around 470-million tonnes of carbon dioxide (CO₂) a year, South Africa is the continent's biggest emitter of greenhouse gases, and coal provides the bulk of its electricity.

CCS is controversial, with environmentalists saying it risks becoming an excuse to continue burning fossil fuels, and could lead to neglect of nature's own carbon capture system, forests, which also sustain biodiversity and rainfall.

Others however see it as essential to meeting the goal of a net carbon zero world economy by 2050. Its most enthusiastic backer is the global coal industry.

SA will still be using coal for a long time

The South African government has repeatedly defended its right to tap into abundant coal deposits even as the country increases its use of renewable energy.

"South Africa will still be using coal for a very long time, so... we need to try and use it responsibly to limit CO2 emissions," David Khoza, the CGS executive manager running the project, said.

The deadline for tapping a \$23m World Bank grant to fund the CCS project was originally set for December this year, but has now been pushed out to June 2023, a bank spokesperson told Reuters.

Khoza said the project will link a pipeline transporting compressed CO2 from major emitting sources such as Secunda directly to the identified injection site that is overlain with an "impermeable rock cap".

Feasibility

"We will test the feasibility of injecting between 10,000 to 50,000 metric tons of CO2 (a year) to a depth of at least 1 km, with the first injection seen late in 2023," Khoza said.

South Africa has approximately 150 gigatonnes of potential storage capacity, mainly in offshore basins on the east and west coast, researchers said.

Sasol said it was working with the CGS, although it said previous assessments showed the associated cost was very high and sequestration may not be economically viable.

"Sasol remains intent to collaborate with a view to learn more about the success factors for CO2 sequestration and explore partnerships for larger scale opportunities," a spokesperson said.

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