Federal Plan to Create Direct Air Carbon Capture & Storage Projects Offset Credits for GHG Emitters

For Canada to achieve its ambitious climate change goal of net-zero emissions by the year 2050, new technologies will have to play a pivotal role. One particularly promising solution is called direct air carbon capture and storage (DACCS), a process that captures carbon dioxide (CO_2) directly from the air and stores it in geological formations under the ground. However, industry interest in DACCS projects has been lukewarm given their costs and relatively small scale. On January 28, the Government of Canada took new regulatory action to spark interest by allowing industry to earn federal greenhouse gases (GHG) offset credits for undertaking DACCS projects. Here's a quick briefing on the Ministry of Environment and Climate Change Canada's (ECCC) new Direct Air Carbon Dioxide Capture and Geological Storage offset protocol (Draft Protocol).

The Fourth Federal GHG Offset Protocol

Under Canada's federal carbon pricing system, GHG emitters can earn what are called carbon offset credits that they can use or sell to meet their regulatory obligations or capitalize on

as an additional stream of revenues. Federal regulations specify which project activities are eligible. The 3 current federal protocols are:

1. The Landfill Methane Recovery and Destruction Protocol, which applies everywhere in Canada except BC, Alberta, and Québec.
2. The Reducing Greenhouse Gas Emissions from Refrigeration Systems Protocol, which applies nationwide.
3. The Improved Forest management on Private Land protocol, applicable in all provinces and territories except BC.

The Draft Protocol on DACCS would become the fourth federal offset protocol.

Project Eligibility Requirements

To be eligible under the Draft Protocol, the DACCS project:

- Must have a start date, defined as the date of the first injection in the storage site, of no later than January 1, 2022.
- May not be registered in any other offset credit system or based in a province with an equivalent offset regime.
- Must be a new project, in other words, the project site's capture facility must not have previously captured CO_2 .
- Must be located in a single province or territory that has sufficient laws governing the permanent storage of captured CO_2, which currently include only Alberta, BC, and Saskatchewan.
- Must be at a project where the GHG removals are additional, that is, not required by law.
- Must be at a project site that includes only one capture facility and one injection infrastructure—aggregated DACCS projects aren't eligible.

Project Technology Requirements

In terms of technology, CO_2 must be captured directly from the atmosphere at the site capture facility and must not have been injected into any storage reservoir or used for purposes other than CO_2 geological storage before the project start date. However, project proponents may use any specific direct air capture process including chemical, mechanical, or electrochemical processes. They may also use any type of geological storage reservoir, provided that the captured CO_2 isn’t used for enhanced oil recovery.

Renewable Energy Requirements

Renewable energy used for an eligible DACCS project must be generated specifically for the project and must not be displaced or removed from the grid or pre-existing end users. Renewable energy procured for the project must be produced in the project’s province or territory. If renewable energy is supplied through the grid, the project and energy production facility must be connected to the same grid within the project’s province or territory.

Single Proponent Requirement

A DACCS project must have a single proponent who’s legally responsible for the project and offset credits issued. That doesn’t necessarily mean that there must be single ownership of all parts of the projects. Thus, for example, the capture, transport, and storage components may be separately owned. However, agreements, contracts, and partnerships between and among all entities involved in the project will have to be coordinated to ensure compliance with the protocol, regulations, and other applicable rules, for example, with respect to authorizations, exclusive entitlement, measurement, and data and permanence monitoring.

Risk Management Requirements

Release of CO_2 from the storage reservoir into the atmosphere or subsurface migration outside the storage reservoir may result in reversal of an offset credit. To guard against risk of release, companies involved in DACCS projects must identify reversal risks throughout the lifetime of the project, as well as monitor the permanence of GHG removals within the project site.

The Draft Protocol provides that the proponent must monitor the permanence of its project's GHG removals for 100 years after the end of the last crediting period. However, it also highlights that in some CO2 geological storage regulatory frameworks, long-term liability for a site may be transferred to the government when the project reaches its post-closure phase, which can be as soon as 10 to 50 years post-injection.

Next Steps

ECCC will be taking public feedback on the Draft Protocol over a 60-day period that ends on March 28, 2025. It will then rely on the public comments to issue a final version. The agency is also reportedly considering a separate engagement to look into allowing for DACCS offset projects on provincial Crown land and public land in the territories.