Intelligence MEMOS

From: Beth (Hardy) Valiaho, Charles DeLand and Mac Walton

To: Graydon Smith, Ontario Minister of Natural Resources and Forestry

Date: July 24, 2023

Re: **Ontario Needs to Play Catch-up on Carbon Capture and Storage**

Is Ontario, Canada's manufacturing heartland, going to miss out on the opportunity to decarbonize hard-to-abate sectors of its economy? To avoid doing so, it should strongly consider immediately doing what Alberta did in 2010 and BC announced in late 2022 – clarifying ownership of underground "pore" space in which to store carbon dioxide; specifically declaring all saline aquifer pore space vested in the name of the Crown.

Canada will need to increase annual rates of CO_2 captured and stored permanently by between 12 and 16 times from 2021 levels to hit net-zero 2050 targets, according to the Canadian Energy Regulator's recently released Canada's Energy Future 2023. Adoption of carbon capture, utilization, and storage (CCS/CCUS) technologies and processes can substantially reduce the emission intensity of economically critical parts of the Canadian economy like cement, steel, petrochemical production and refining, fertilizer, pulp and paper, mining, hydrogen, and power generation. CCS provides a bridge to reduce emissions while maintaining production and protecting existing investments including creating and maintaining local jobs. Infrastructure developed for industrial CCS can efficiently serve multiple facilities and sectors.

The federal government sees the potential. In Budget 2021, it committed to expanding storage capacity of greenhouse gases like carbon dioxide from approximately 3 million to 15 million tonnes per year, and according to the IEA, there are currently 27 million tonnes of annual capture capacity planned or under construction in Canada (all in Alberta and Saskatchewan) to be operational by 2030. Ottawa's push to keep pace with the US, UK, and European investments in CCS uses both carrots, including tax incentives and opportunities to generate offset, compliance, and voluntary credits, and corresponding sticks of tightening emission reduction requirements and increasing costs for carbon emissions. This is highlighted by the CCUS Investment Tax Credit whereby CCS projects can recover up to 50 percent (60 percent for direct air capture) of eligible costs incurred between 2022 and 2030, which will halve between 2030 and 2040.

The bad news? Several provinces are still left out, including economically powerful Ontario, lacking the necessary CCS frameworks.

Critical requirements for successful projects include appropriate geological conditions for permanent underground storage of CO_2, large investments, collaboration among industries, technical expertise, public support, and clear and efficient regulatory frameworks that ensure safe and secure carbon storage. Southern Ontario, a major centre of Canadian manufacturing and industry, has geologic storage potential, industries committed to net-zero emission goals, and CCS incentives that are crossing the threshold to draw major investments. What Ontario is missing are adequate regulatory frameworks to consider CCS projects. This includes legal prerequisites like clearly delineating who owns the "pore" space in which CO_2 is stored and how financial incentives stack up and compare with other jurisdictions.

The good news is that other provinces have developed regulatory frameworks alongside innovative projects including Saskatchewan's Boundary Dam Unit 3 CCS facility (2014), Alberta's Quest CCS (operating since 2015), and the Alberta Carbon Trunk Line (2017) have prevented more than 16 million tonnes of CO_2 from being released. These projects have spurred new CCS technologies and processes, project cost reductions, and policy innovations to establish CCS hubs.

Provinces have the jurisdiction and responsibility to ensure that policies and regulatory frameworks are in place to monitor, measure, and verify (MMV) the transportation and storage of carbon dioxide safely and effectively. To date, only Alberta, British Columbia, and Saskatchewan have developed frameworks that answer questions of pore space access and MMV, and other key policy challenges such as the long-term liability of stored carbon. As such, only projects in those three provinces are eligible for the federal tax credit.

Encouragingly, other provinces are starting to make progress. For example, Ontario has issued a roadmap to develop a carbon storage framework. It removed a key barrier last March, eliminating a prohibition on CCS originally put in place in 2010 when it was trying to phase out coal-fired power generation. The province has consulted on and amended the *Oil, Gas, and Salt Resources Act* to enable Ministry of Natural Resources and Forestry to designate, authorize and regulate special projects (i.e. carbon storage projects). It is also finalizing a framework to regulate carbon storage, dealing first with private land and demonstration projects before creating a pathway for industrial scale projects and projects located on Crown land.

But provinces like Ontario need to move much faster and more efficiently.

Major CCS projects typically take up to seven years to plan, build, and complete.

Framework development is only expected to reach the design stage this fall. Needed work will include confirming regulating body approval procedures, risk mitigation, and public consultation. If CCS projects in Ontario are to gain the most benefit from Ottawa's investment tax credit, there is little room for error or time to waste.

Even though each province has its own considerations, the principles are the same everywhere. There are lessons from other provinces that can be applied to expedite (and ensure they get the federal "ok") as quickly as possible. Ontario can and should learn from the western provinces' experiences rather than unnecessarily invent something from the ground up.

CCS investors now look west and south to jurisdictions with settled regulatory regimes in the US and western Canada. But all of Canada needs to be open. Establishing needed frameworks has a small relative cost and a large potential benefit. Ontario, and other provinces, need to move quickly – especially clarifying pore space ownership – to unlock potential CCS benefits.

Beth (Hardy) Valiaho is Vice-President, Policy, Regulatory & Stakeholder Relations at the International CCS Knowledge Centre where Mac Walton is a senior policy analyst, and Charles DeLand is Associate Research Director at the C.D. Howe Institute.

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