

August 23, 2024

Ministry of Natural Resources
Development and Hazard Policy Branch
Public Input Coordinator
300 Water Street
Peterborough, ON
K9J 8M5
Canada

Delivered via E-mail

Re: Submission Re: Regulatory Framework for Commercial-Scale Geologic Carbon Storage Projects in Ontario (ERO Number 019-8767)

CELA writes to provide our comments in respect to ERO Posting Number 019-8767 in respect of a regulatory framework for commercial-scale geologic carbon storage projects in Ontario. In part this provincial proposal is aimed at supporting a hydrogen economy in Ontario. It is also framed as supporting industrial reduction of net emissions by considering carbon storage as a reduction from their carbon emissions. The posting states: “We are seeking feedback on the design of a regulatory framework for commercial-scale geologic carbon storage projects in Ontario that would enable the development of technology-ready commercial-scale projects and the continued testing and demonstration of newer carbon storage technologies.”

CELA has reviewed the discussion paper and the background references posted.

CELA recommends that additional commercial-scale carbon storage projects and consideration of newer carbon storage technologies proceed very slowly if at all. Precaution should be the hallmark of this question. There are many risks related to carbon storage technologies; risks to the environment and to human and ecosystem health. As noted in a recent publication (Larkin et al¹), the uncertainty ranges in relation to these risks are very large, from minor to catastrophic potential across almost all of the named risk scenarios and consequences. Larkin et al also cited technical risks in terms of performance of the various technologies; such as uncertainties related to containment over time, storage capacity, and long term performance of the storage repositories. Hazards include risks to the atmosphere or shallow subsurface from abrupt or gradual migration from the storage facility; with potential gradual or abrupt impacts on life including those such as suffocation; impacts on burrowing animals and plant roots. Releases to the atmosphere also provide risks to human and ecosystem health; and of course undo the stated purpose of sequestering carbon with its atmospheric contribution to climate change. Other risks from migration include contamination of drinking water (municipal and non-municipal) and other fresh water sources; heaving of ground; induced seismicity and many others. Extensive similar considerations are detailed in the academic literature.

¹ Larkin, Patricia et al. 22 *Int. J. Risk Assessment and Management* No. 314 (2019)

As stated by Naomi Oreskes in a recent Scientific American commentary (March 1 2024), carbon sequestration and storage technologies are “another dangerous distraction” in relation to seeking solutions to climate change. The uncertainties in relation to the hazards and their consequences; and the potential severity of those consequences dictate that much additional technical work and study is required in order to understand these issues and potentially reduce uncertainties. Given the gravity of the consequences of failure, and the potential de facto irreversibility of the projects once constructed, the Ontario government should exercise extreme caution before it gives the green light to commercial projects or new storage projects.

Among other requirements in any consideration of projects, should the government proceed, would be the necessity for a highly rigorous, case by case, site specific regulatory approval including:

- Application of Ontario’s Environmental Assessment Act to this sector; and provision that specific facility applications be designated for public hearing
- Hearing processes that include qualified decision makers; and requirements for the application of the rules of evidence and rigorous testing of such evidence
- Participant funding for members of the public and Indigenous communities to participate in the regulatory process from start to finish
- Provision that approval requests must be posted on the Environmental Registry of Ontario for public comment and right of appeal, together with making available substantial background studies to members of the public and extensive disclosure obligations
- Extensive site-specific assessment of the particular locale, its geology, hydrogeology, historic and contemporary human land uses, populations, and ecosystems
- In depth evaluation of potential for migration from the storage site; adequacy of cap-rock; potential for fracturing of cap-rock for example in induced seismicity circumstances and other issues related to long term containment
- Evaluation of surrounding drinking water and fresh water resources and consequences of contamination
- Requirements for testing and validating assumptions made in prior studies in a step-wise fashion if any approvals are considered
- Regulatory mechanisms to withdraw approvals; or to vary approvals or add any terms and conditions required to protect human health and the environment at any time including post-approval
- An ongoing oversight mechanism relating to the approvals
- Stringent monitoring and public reporting
- Establishment of a follow-up program with sufficient resources and public reporting
- Rigorous financial assurances
- Establishment of local funded public liason committees in relation to any potential facility from a very early stage of consideration of approval.

The above is a mere outline of some of the essentials of a credible regulatory framework. Should the Ontario government decide to proceed further, we recommend that a detailed regulatory framework be drafted for public input. CELA is available for additional advice and input at any time.

We trust that the foregoing is of assistance.

Submitted by:
Canadian Environmental Law Association

A handwritten signature in black ink, appearing to read 'T. McClenaghan', written over a faint rectangular box.

Theresa A. McClenaghan
Executive Director and Counsel

Cc Assistant Auditor General / Commissioner of the Environment Ontario Tyler Shultz by email
tyler.schulz@auditor.on.ca