

Enbridge Feedback on Proposed Regulatory Provisions for Carbon Sequestration ‘special projects’

ERO #019-7507

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About Enbridge Inc.

At Enbridge, we safely connect millions of people to the energy they rely on every day, fueling quality of life through our North American natural gas, oil or renewable power networks and our growing European offshore wind portfolio. Enbridge Gas, a subsidiary of Enbridge Inc., is Canada’s largest natural gas storage, transmission and distribution company based in Ontario, with more than 175 years of service to customers. The distribution business provides safe, affordable, reliable energy to about 3.9 million homes, businesses and industries and is leading the transition to a clean energy future through net zero emissions targets and investments in innovative low-carbon energy solutions. We’re investing in modern energy delivery infrastructure to sustain access to secure, affordable energy and building on two decades of experience in renewable energy to advance new technologies including wind and solar power, hydrogen, renewable natural gas and carbon capture and storage. We’re committed to reducing the carbon footprint of the energy we deliver, and to achieving net zero greenhouse gas emissions by 2050.

Headquartered in Calgary, Alberta, Enbridge’s common shares trade under the symbol ENB on the Toronto (TSX) and New York (NYSE) stock exchanges. To learn more, visit us at [Enbridge.com](https://www.enbridge.com).

Introduction

Enbridge Inc. and its affiliated companies (Enbridge) appreciate the opportunity to provide comments on the proposed regulatory provisions for 'special projects' using wells to test or demonstrate new and innovative technologies, including carbon storage, aimed to enabling carbon capture and storage (CCS).

In the fight against climate change, experts including the International Energy Agency and the Canadian Energy Regulator agree that carbon dioxide (CO₂) capture and storage/sequestration (CCS) solutions are among the most critical decarbonization technologies¹. In Ontario, Enbridge believes CCS will play a key role to decarbonize industry, including steel and cement manufacturing, petrochemicals, refining and power generation, among others. CCS will also unlock and facilitate production and adoption of “blue hydrogen” or low-carbon hydrogen.

With its extensive and growing experience with CCS projects in other jurisdictions and with gas storage and other related assets in Ontario, Enbridge has an informed perspective of how CCS projects are best enabled to address public interest considerations. Through this lens, Enbridge is providing comments and suggestions on the proposed regulatory provisions.

This submission builds upon previous comments provided by Enbridge including the Summer 2023 (ERO 019-6752) and in response to the MNRF's January 2022 Discussion Paper on Geologic Carbon Storage in Ontario (Discussion Paper). The Executive Summary in this submission includes an overview of 5 key recommendations. The remainder of this document outlines 8 additional issues for consideration and includes an appendix with further details including relevant information provided by Enbridge in previous ERO responses.

Executive Summary and Top 5 Recommendations

Enbridge supports the Government of Ontario's intent to enable CCS in Ontario and we remain committed to continue working with government, local communities, and our partners to help inform next steps. At this time, we believe there are significant considerations that must first be resolved and clarified in order to ensure that CCS is developed safely and efficiently before any actions are taken to unlock the potential for ad-hoc drilling into the Cambrian saline reservoir as is contemplated by the current proposed draft for special projects regulations. The proposed regulations have aimed for speed and flexibility; however, from the lens of large emitters and project proponents, these require greater clarity and alignment toward an overall vision for a safe, efficient, and robust CCS industry in Ontario.

Enbridge and our industry partners recommend that the Government of Ontario first address the larger, more strategic issues related to CCS that have not yet been resolved (e.g. pore space vesting, which Alberta and B.C. have provided best practices to learn from). Not addressing these issues up front adds greater uncertainty and delays for significant investment and job creation in the province while opening the door for potential legal complications and jeopardizing public acceptance.

It is imperative that Ontario gets this right and starts with a strong policy foundation informed by best practices from other jurisdictions like Alberta and British Columbia. Enbridge supports the Ministry of Natural Resources and Forestry (MNRF) and other key ministries in taking a leadership role to support and enable the CCS industry in Ontario. Government's stewardship and strategic control of all Cambrian saline reservoirs suitable for CO₂ storage is needed immediately to ensure the optimal development of this resource.

¹ International Energy Agency, *Net Zero by 2050: a Roadmap for the Global Energy Sector* (October 2021, 4th rev.), pp. 47, 60, 79-80; Canadian Energy Regulator, *Canada's Energy Future 2021* (2021), pp. 10, 16, 60, 76-78.

Enbridge recommends the Government of Ontario swiftly implement the following 5 actions as listed here before advancing the provisions in the ERO proposal:

1. The Government of Ontario must leverage best practices (e.g. those from Alberta and British Columbia) and assume control and stewardship over the Cambrian saline reservoir in Southwestern Ontario – under both private and public lands, together. Vesting the Cambrian saline reservoir pore space, like Alberta did in 2010, would send a strong signal that Ontario is serious about being actively involved in managing this precious resource for the benefit of all Ontarians. This action should be taken upfront and before moving ahead with any regulations as proposed in this ERO. This would also signal that Ontario would only review and approve any CCS project after a thorough technical and safety review. This was recommended in the joint policy memo released in summer 2023 by the C.D. Howe Institute and the International CCS Knowledge Centre available online [here](#).
2. Release the draft framework for commercial-scale geologic carbon storage projects before allowing any incremental well penetrations into the Cambrian reservoir (via special projects designation or otherwise). The framework should ideally include signals that Ontario intends to:
 - a. Initiate a Request for Proposal (RFP) type of process to receive competitive proposals for evaluation of the Cambrian reservoir for CCS. Approve RFP's based on a scoring system across all eligibility requirements (see Eligibility Requirements for Special Projects below), evaluation rights (similar to the Alberta process) and,
 - b. Subsequently regulate and approve large scale commercial CCS projects to facilitate cost effective open access regional hubs under both private and public land and,
 - c. Provide a potential path or process for the CCS Hub operator to transfer the long-term liability from the CCS Hub operator back to the crown after a successful implementation of an approved closure plan.
 - d. Ensure that participants in each part of the CCS value chain (capturing, transporting, and storing of CO₂) can monetize the value of the emission reduction benefits so as to adequately incentivize commercial-scale projects.
3. Signal other legislative amendments to set up CCS success, including amending the Mining Act to allow for permanent CO₂ storage on Crown land and regulatory amendments including for the Emissions Performance Standards (EPS) to provide non-registered emitters the ability to create credits and offsets through CCS. These are outlined below and in previous submissions.
4. Merge the currently bifurcated “private” then “public” land processes. Over two-thirds of the potential Cambrian reservoir is under Crown land and any CO₂ injections near the shoreline boundary will result in a CO₂ pressure rise under both the nearby private and public land. This bifurcated approach is not required and does not reflect the hydraulic reality of CO₂ plumes and pressures.
5. Work with the Government of Canada to ensure that Ontario becomes eligible for incentives, including the CCS Investment Tax Credit as soon as possible.

Drilling CCS evaluation wells is costly but necessary in order to gather further data on Ontario's pore space potential, and the province has one chance to get the development of a legal and regulatory framework right. Without setting the stage for the strategic vision of how CCS will work in Ontario, there are significant uncertainties, and it is difficult to attract the serious investment with the requisite safety, financial, and technical expertise needed to drill and evaluate while these larger issues remain unclear. Without clarifying the above issues, any projects that do move ahead to drill and conduct injection tests with these uncertainties will likely be involved in litigation if they were ever to propose converting those wells into commercial operation, while also undermining public acceptance of CCS.

Outstanding Issues for Further Consideration

Enbridge remains committed to continue working with government, local communities, and our partners to help inform next steps for a CCS framework in Ontario. Building upon the 5 recommendations outlined above, there are several additional issues that require further consideration and consultation with industry:

1. The ERO posting is silent on the larger issues identified above. In order to attract capital to advance CCS in Ontario, the government needs to address and clarify their intent to support and enable the CCS industry on a larger scale. For example, without government control of all Cambrian saline reservoir pore space, any private landowner within the radius of a pressure rise could potentially litigate to stop a project from increasing the reservoir pressure under their land. This would limit project development to smaller, uncoordinated activities, potentially leading to incremental abandoned wells and additional unnecessary perforations in the Cambrian saline reservoir that will need to be managed post-closure. Large emitters who invest in small-scale projects will ultimately need to find additional near-term solutions for GHG emission reductions.
2. The draft regulations state that CO₂ injections are not covered by the Oil, Gas and Salt Resources Act (OGSRA) and that the special projects process is optional. Ontario needs oversight of all CO₂ projects to ensure all actions are undertaken by competent proponents (i.e. world-class safety, financially solvent, technical experts).
3. There is no plan in place for the government to evaluate competing projects. This ad-hoc process will invite less robust applications to apply quickly (likely targeting a smaller area of review) and will likely fail to facilitate an optimal resource use.
4. There is no clear path for accessing the pore space needed to achieve utility scale open access hubs that straddle crown and private lands. To achieve low-cost, CCS projects will need to be large in order to realize economies of scale. The proposal places the onus on a proponent to secure “all needed rights” in an “area of review”, but then provides little guidance on what rights are needed and how large an area of review should be.
5. There is no clear process to ensure needed spacing between projects is provided to minimize well interference.
6. The applications require a significant amount of detail to be shared “at a minimum” and this implies significant discretion to require even more. Clarity on what is required is needed to help remove this uncertainty. A clear process or form, similar to the Alberta RFP will be helpful. Additional suggestions are provided in the Appendix attached to this submission.
7. The Carbon Storage Surface Area Boundary (CSSAB) is a good concept, however, the “furthest lateral extent of the storage complex” plus a buffer area is too vague. A CO₂ plume could ultimately (over time) extend 5 to 10 km from a wellbore. A meaningful pressure rise in the reservoir could extend two or three times further. Any proponent trying to advance a utility scale hub will need many hundreds of square kilometers. Acquiring these land rights in advance of a special project application (with the understanding that applications could be submitted January 1, 2024 without any pause or changes in regulations from what is currently being proposed) will be impossible to achieve without Crown control or vesting of the pore space or allowing the project proponent to acquire all land rights for the CSSAB as part of a commercial-scale sequestration application (see two-stage process recommendation below). If vesting or control is delayed, smaller projects may move ahead, and will jeopardize larger and likely more economically efficient projects that will provide open access to dozens of additional large emitters.

8. The community and stakeholder engagement needed for broader acceptance of CCS is significant and should be part of the review for transitioning from an evaluation project to a commercial project (see two-stage process recommendation below). Requiring this amount of engagement, notice and reporting for the evaluation stage may add additional layers of complexity, cost, and will need to be factored into the timing of project proponents submitting applications for evaluation.

The impact of enabling a positive environment for CCS developments is evident in jurisdictions like Alberta and BC. As has been noted, both provinces have taken the required steps to safely and effectively to plan and prepare for the storage of carbon underground. In doing so, they have also both unlocked an additional avenue for Indigenous economic participation in their provincial economies. Given the compelling investment conditions in Alberta, Enbridge was able to form a partnership agreement with the First Nations Capital Investment Partnership (FNCIP, comprised of Alexander First Nation, Alexis Nakota Sioux Nation, Enoch Cree Nation, and Paul First Nation) and Lac Ste. Anne Métis Community that will see the co-development and co-ownership of the Open Access Wabamun Carbon Hub (the Hub). The FNCIP was formed to pursue ownership in major infrastructure projects with commercial partners that share Indigenous values, particularly those that pertain to sustainability, reliability, and cooperation. Enbridge, as a leader in underground transportation and storage in Ontario, has relationships with over 45 distinct Indigenous Groups in the province and is among the best positioned to meaningfully include a variety of Indigenous Groups in future CCS developments.

Conclusion

Enbridge appreciates the opportunity to provide feedback and recommendations on the proposed regulations for special projects to test or demonstrate new or innovative activities, such as geologic carbon storage, and to safeguard people and the environment. Enbridge requests consideration of the recommendations outlined in this document and welcomes the opportunity to continue discussions on these important considerations in further detail. If you have any questions or require additional information, please do not hesitate to contact Brad Lattanzi, Government Affairs Strategist (Bradley.Lattanzi@enbridge.com).

Appendix – Additional Information

Eligibility Requirements for Special Projects

Enbridge recommends that the designation of special projects be conducted through a robust request for project proposal that requires detailed information, including but not limited to a Business Model, Project Description & Location, Proponent's Operational Capacity, Risk & Mitigation, MMV Planning, Consultation & Regulatory Experience along with capability to provide open access CCS solutions for large emitters. On March 3, 2022, the province of Alberta issued a Request for Full Project Proposals for Carbon Sequestration Hubs which provides a good starting point for detailed information requirements for special projects with respect to evaluating eligibility.

Designating proposed projects to observe, test, assess, pilot or demonstrate a CCS activity should be evaluated with a high standard of care with successful project proponents required to have the technical, financial and operational capacity to manage such an important component of Ontario's energy system. Project proponents must be able to obtain all necessary regulatory approvals and ensure the safe and effective operation and closure of the project to protect the integrity of Ontario's sequestration assets while protecting the public and environment.

Applying for and Authorizing Special Projects

For the authorization of special projects, Enbridge recommends that all special projects that involve the drilling of wells for observation, testing, piloting or demonstrating sequestration be approved alongside a Risk Management Plan that demonstrates knowledge of the subsurface, how protection and integrity of the aquifer is preserved, the initial requirements of the MMV plan and develops the contingencies required to manage changes to plans as the project progresses including response to protection of the public and environment.

Enbridge is concerned that without knowing the details around how a special project is authorized, there may not be a method of resolving competitive projects that is in the best interest of the province. Enbridge supports a competitive process where project proponents that are interested in a 'special project' are awarded and authorized based on merit and capability and not on a queue or an ad-hoc basis.

Special projects are likely to be the potential pre-cursors to full scale commercial projects and therefore should be assessed, evaluated, and compared based on their likelihood of achieving utility scale commercial success, should the evaluation prove successful.

A pivotal next step in advancing CCS in Ontario is better characterization of Ontario geology, specifically the regional Cambrian saline reservoir that extends from the north shore of Lake Erie southwest across the lake and towards the Windsor-Essex region as well as north of Sarnia in Lambton County. Enbridge supports the timely advancement and establishment of criteria for special projects to ensure CCS remains a viable near-term GHG reduction solution for Ontario's large emitters including the hard-to-abate industries.

It is imperative that special projects are evaluated, and due consideration is placed on maximizing data collection while ensuring that infrastructure for short-term projects is planned to be utilized for full-scale projects with a focus on optimizing well efficiency and pore space over the long-term. With special projects estimated to cost millions to tens of millions of dollars, the designation of proposed projects must consider how to better characterize the subsurface in the short-term while at the same time ensuring adequate separation between individual projects to maximize injectability for the long-term.

Starting the evaluation of special projects with an ultimate end state in mind, the Crown should strongly consider the extent of the storage areas required and approve special projects based on optimal spacing requirements within the regional aquifer so that the projects, once converted to full-scale operations, do

not cause interference with each other. Approving special projects without a long-term development plan for a defined storage area would ultimately require more infrastructure and significantly more cost over the long-term unnecessary.

Enbridge is strongly recommending for the MNR to enable CCS development in Ontario under a two-staged approach. Stage 1: Special Projects Evaluation Approval and Stage 2: Advancement of Special Projects to Commercial Sequestration. It is unclear when reviewing the draft ERO regulations whether or not a project proponent must satisfy the requirements of a sequestration license by first demonstrating that an evaluation project has proven technically and economically feasible and is underpinned by commercial commitments to facilitate the construction of hub scale facilities to move to Stage 2 approval.

Stage 1 'Special Projects' Evaluation Approval – Use a RFP system for an equitable and competitive process to ensure that all projects are being evaluated against the proposed criteria (see Eligibility Requirements for Special Projects above), enabling the MNR to select the projects that provide the maximum amount of long-term benefit for Ontario large emitters while ensuring that pore space evaluation rights are being awarded to project proponents who have demonstrated previous experience and success in drilling, testing, and monitoring subsurface conditions. If a systematic and controlled intake process is not established to review Special Projects for evaluating and ranking carbon storage project requests, it will not be possible to ensure that the lowest cost, maximum benefit projects are awarded for development.

Storage and/or evaluation areas should be awarded in large enough aerial extents or blocks of land that it is incumbent on the operator to ensure that infrastructure is being planned, optimized, and located appropriately for the estimated life of the storage area while at the same time locating special projects to minimize transportation requirements for regional emitters. Enbridge, who is working closely with many large emitters, will ensure that infrastructure is carefully designed and placed within the storage area to maximize well efficiency and pore space for the benefit of minimizing impacts on the environment, reducing infrastructure requirements and minimizing costs for large emitters.

Stage 2 'Advancement of Special Projects to Commercial Projects' – Pending a successful project evaluation in Stage 1, requirements such as land rights within the Area of Review needed for conversion to a full-scale commercial sequestration project should be deferred until Stage 2 review. In addition, before advancement to Stage 2, the framework needs to provide a potential path or process for the CCS Hub operator to transfer the long-term liability from the CCS Hub operator back to the Crown after a successful implementation of an approved closure plan. In most jurisdictions, a post-closure stewardship fund is established at the start of Stage 2 to collect and provide additional funding for long-term monitoring and maintenance of the site.

Enhancing Protection of the Public and the Environment

Enbridge is supportive of the points listed in the ERO posting on enhancing protection of the public and the environment. Adding and expanding authority for inspectors to help protect the public and the environment is appropriate. Enbridge would encourage the province to go much further and consider the larger issues around protection of the public and the environment as it relates to facilitating utility scale CCS. Specifically:

1. A "whole of government" approach is needed to ensure alignment and consistency to best enable and support the development of a CCS industry in Ontario. The scope of "protecting the environment" should consider how best to maximize the overall quantity of CO₂ in Ontario to be captured and not released into the environment and instead, be permanently sequestered. Additional steps should include:
 - a. The EPS needs to be amended to allow offsets whereby non-EPS registered emitters participating in CCS are able to create and sell offset credits to EPS registered emitters.

Currently only the ~360 large emitters in Ontario are able to reduce their exposure to carbon charges using sequestration of CO₂. Others should be able to participate.

- b. The Mining Act should be amended to allow the long-term storage or sequestration of CO₂ on Crown land. Enbridge estimates that two thirds of the saline aquifer pore space that may be suitable for CCS currently lies under Crown land in the Great Lakes.
 - c. The Ministries of Economic Development, Energy and Finance should also be involved to help facilitate and implement a CCS framework that helps Ontario's industry stay competitive and continue to grow.
2. Enbridge would encourage the government to amend the current Roadmap plans from the bifurcated approach with private land first and then Crown land later to merge these two tracks of work. The saline aquifer pore space currently considered the best and largest target for CCS in Ontario is a regional aquifer – stretching hundreds of kilometers and laying under thousands of square kilometers. Unlike traditional oil or natural gas reservoirs or natural gas storage reservoirs, (with a known and limited areal extent), injecting CO₂ into a regional aquifer will likely result in a plume that could develop and extend under dozens of private properties and, if the well is close to the shoreline of a Great Lake, it could easily extend under the Crown land there. We encourage a plan that begins with the end in mind. To best protect the environment, we need to maximize the quantity of CO₂ sequestered over time. Enbridge supports an approach that would best facilitate large utility scale projects that have the best potential to drive costs down, via economies of scale, to achieve more affordable GHG reductions.
 3. Given the relatively small area of the province that has potentially good geology for CCS and the magnitude of the industry and emissions, and that the Government already controls the pore space under Crown land, Government should be taking a more assertive and strategic stewardship role in managing all saline aquifer pore space in Ontario, including that under private land. Other provinces like Alberta and recently British Columbia have recognized the importance of this stewardship role of government and have vested (or announced their intentions to vest) the pore space on behalf of all their industry and residents. Vesting the pore space will clearly put the management of this limited resource in the hands of the Ontario government and allow for strategic optimization and planning of how best to manage and develop CCS capacity in Ontario. This will also help expedite the timing of CCS development and provide certainty to CCS project developers that access to suitable pore space will be through a robust and competitive process whereby the province has significant influence over how the resource is developed and optimized.

In our response to a previous ERO posting 019-6752 (available in the link [here](#)), Enbridge submitted specific comments around Crown vesting or control of pore space in saline aquifers. The key points and rationale for vesting or provincial control remain valid.