

REQUEST FOR FULL PROJECT PROPOSALS  
For CARBON SEQUESTRATION HUBS  
March 3, 2022

## 1. Part A—INTRODUCTION AND OVERVIEW

### 1.1 Introduction

Carbon capture, utilization, and storage (CCUS) technologies are recognized as effective tools for reducing emissions and mitigating the effects of climate change. Carbon sequestration, specifically, the permanent disposal of carbon dioxide in dedicated geologic formations, presents a strategic opportunity for Alberta to achieve its economic and environmental objectives. It will play a key role for a variety of industries, including a clean hydrogen economy, petrochemical development, and enhancing environmental performance in the oil sands.

The Government of Alberta (“Province”) has received a large number of inquiries and significant interest from entities looking to obtain carbon sequestration tenure, or pore space.

At this time, the Province is interested in advancing a strategic hub concept through a competitive process (this “process”) as described below. A carbon sequestration hub will be an area of pore space (“Location”) overseen by a private company that can effectively plan, enable, and undertake carbon sequestration of captured carbon dioxide from various emissions sources. Having an industry steward of the Location, with the oversight of Alberta’s regulatory system, will work toward efficient use of the pore space and support strong modelling, monitoring, and risk management practices. The Province will continue to engage with industry in exploring the potential for other forms of carbon sequestration including the use of mature fields. Current practices for enhanced oil recovery and injection of formation acid gas will remain in place.

Successful proponents will be expected to have the technical, financial, and operational capacity to manage such an important aspect of Alberta’s energy system. Successful proponents will be expected to obtain all necessary regulatory approvals, and ensure the safe and effective operation and closure of the hub, enabling access to pore space and sequestration of emissions from Alberta’s industrial sector at fair rates. This process will not represent the achievement by the proponent of any regulatory requirements related to emissions regulations or operation of the hub.

### 1.2 Approach

In the fall of 2021, the Province requested Expressions of Interest (EOI) from companies interested in developing and operating a carbon sequestration hub in Alberta. These voluntary submissions have helped to inform the Request for Full Project Proposals (RFPP) process. Government received many EOI submissions that illustrated a range of proponents (large and small), emissions sources, and storage scenarios across Alberta. Many of these submissions proposed large sequestration hubs that would manage emissions from a number of large industrial facilities. Other submissions provided insight into smaller, more distributed, sequestration needs and opportunities.

To meet the large interest that has been expressed and move forward in a manageable manner, the province initially requested proposals that would primarily enable sequestration of carbon emissions from Alberta’s industrial heartland region near Edmonton. The Province recognizes the need for timely development of sequestration hubs and allocation of sequestration pore space. With this, the Province now welcomes hub proposals that will enable the sequestration of carbon dioxide emissions in all other regions of Alberta.

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### 1.3 Request for Full Project Proposals

In this process, the Province is Requesting Full Project Proposals (RFPP) from companies interested in building, owning, and operating carbon sequestration hubs in the rest of Alberta, and enabling the sequestration of emissions primarily outside of the industrial heartland region (see Figure 1: RFPP is open to proponents that will enable the sequestration of carbon dioxide emissions primarily outside of Alberta's industrial heartland region (in red).Figure 1).

Full project proposals (FPP) will be evaluated by the Province, and successful proponents will first be invited to enter into an agreement with the Province to further evaluate the identified area of interest. This agreement will be supported by a Monitoring, Measurement and Verification (MMV) Plan). This will

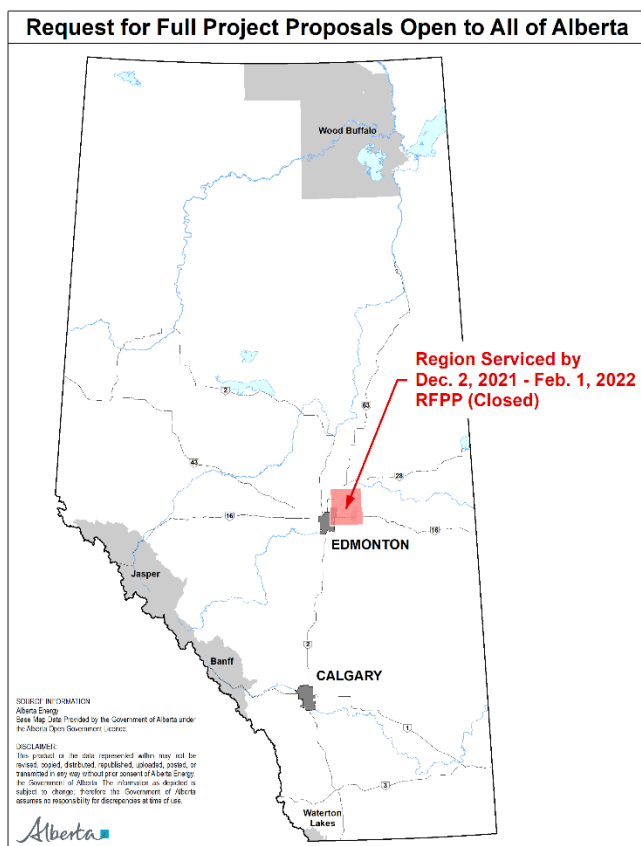


Figure 1: RFPP is open to proponents that will enable the sequestration of carbon dioxide emissions primarily outside of Alberta's industrial heartland region (in red).

further define and establish the suitability and capacity of the Location as a carbon sequestration hub. This process will ultimately facilitate the granting of a carbon sequestration agreement ("Agreement") to the successful proponent(s), establish the boundaries of the Location, and facilitate the hub manager role. The intent of this Agreement will be to:

1. grant the successful proponent the right to drill wells, conduct evaluation and testing, establish monitoring baselines, and inject captured carbon dioxide into deep subsurface formations within previously defined zones for sequestration, while also:
2. placing requirements on the agreement holder that include:
  - managing the development of the hub and the efficient use of the pore space;
  - ensuring open access to affordable use of the hub where appropriate; and
  - provide just and reasonable cost recovery to the Agreement holder.

**For additional information on the intended Agreement provisions, conditions and requirements please see Appendix A.**

All required regulatory approvals are the responsibility of the proponent and will not be granted through this process. This process does not represent a guarantee or certification for the Location's suitability for sequestration.

To strengthen the integrity of a carbon management system for Alberta, the Province may select more than one proposal to service specific regions. This can be in response to a demonstrated current or

future demand, it can provide contingency sequestration options, and it can further enable competitive service rates.

#### 1.4 Eligibility and Exclusions

- The process is open to proposals that will service and enable the sequestration of carbon dioxide emissions from multiple (including third party) facilities and provide open access to the hub.
- Proposals should primarily target emissions that are outside of the region serviced by the December 1, 2021 RFPP (see Figure 1).
- Proponents agree to work with the Province to establish terms and conditions of a hub manager, should they be successful, including those outlined in Appendix A.
- It is not a requirement to have participated in the 2021 Request for Expression of Interest.
- This process is only intended to provide access to subsurface formations (i.e., pore space) to undertake and enable carbon sequestration as defined in Part 9 of the *Mines and Mineral Act* and the Carbon Sequestration Tenure Regulation. Carbon sequestration in this document refers to the permanent disposal of carbon dioxide, deeper than 1,000 metres, with no associated hydrocarbon recovery (e.g., injection into a saline aquifer).
- Carbon dioxide must be captured from facilities located within Alberta.
- Projects that inject carbon dioxide as part of enhanced oil recovery (i.e., carbon dioxide EOR), or formation acid gas injection, will continue to operate under current mineral rights tenure systems – such rights will not be granted through this process.
- This process will only grant rights to use pore space owned by the Crown in Right of Alberta. Rights to pore space within rights owned by the Federal government on behalf of First Nations or in National Parks Federal lands cannot be granted under this process.
- The Province reserves the right to not consider RFPP submissions that do not meet the eligibility (e.g., location, depth, providing open access) or present challenges that may arise following standard review practices by the Province.

## 2. Part B —GUIDELINES FOR SUBMISSION OF FULL PROJECT PROPOSAL

Expressions of interest are requested from companies or groups of companies, wishing to apply to be the successful developer and manager of a carbon sequestration hub.

The Province reserves the right to amend, suspend, postpone, or cancel the outlined process and deadlines, or this RFPP at its sole discretion.

### 2.1 Guidelines for Submission of Full Project Proposal

#### A. Submitting the Full Project Proposal

- **Length:** Full project proposals are encouraged to not exceed 50 pages. More details can be provided as appendices if required. The Energy Carbon Capture email inbox has an individual message size limit of 100 MB.
- **Format: INFORMATION IN THE RFPP IS TO BE ORGANIZED IN THE FORMAT PROVIDED IN TABLE 1 BELOW TO FACILITATE THE REVIEW OF SUBMISSIONS.**
  - Applications will be accepted between April 25 and May 2, 2022. Please submit one electronic submission in PDF format to the e-mail address below. The Province must

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receive all materials on May 2, 2022 by 2:00 p.m., MDT, (“Closing Date and Time”).  
Submissions received after the Closing Date and Time will not be considered.

Email: carboncapture.energy@gov.ab.ca

Subject Line: Carbon Hub Full Project Proposal – Company Name

### *B. Submission Criteria*

The headings listed below are the criteria that proponents must include in their FPP submission.

- 1. Title of the Proposed Project.**
- 2. Name, Address, and Affiliation of the Principal Applicant(s).**
- 3. Contact Information:** Project Leader and key team members.
- 4. Detailed Information Requirements outlined in Table 1 below** (FOLLOW THE ORGANIZATIONAL STRUCTURE IN TABLE 1 TO FACILITATE THE REVIEW OF SUBMISSIONS).

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**Table 1 - Detailed Information Requirements**

	Criteria	Description
<b>1.0 – General Overview (Weighting 2.13%)</b>		
1.1	<b>Overview</b>	A high-level overview of the project configuration and execution strategy: location, a brief justification of the requested hub area size, scope, schedule, cost estimate, proximity to CO <sub>2</sub> sources, project proponents, financing plan, etc.
<b>2.0 – Business Model (Weighting 31.91%)</b>		
2.1	<b>Economic Analysis</b>	Outline proposed project life cycle economics. This may include information such as assumptions on capital cost, operating cost, reclamation costs, maintenance costs, cash flow, grants, and revenue generation including scenario analysis. Must include estimates for Capital Efficiency (estimated capital cost for the injection and storage facility divided by the annual injection capacity, in dollars per tonne) and Operating Efficiency (estimated operating cost for the injection and storage facility divided by the annual injection capacity, in dollars per tonne).
2.2	<b>Financing</b>	Summarize proposed financing arrangements for the project. This may indicate the status of all such arrangements and the proponent's expectation regarding probability and amount of funding.
2.3	<b>Commercial Strategy</b>	Outline commercial strategy and/or business plan. This may include the approach to setting reasonable service rates for clients, soliciting and accepting additional volumes of CO <sub>2</sub> .
2.4	<b>Financial History</b>	The Proponent's financial capability, past financial performances over the previous three (3) years. Also, an overview of all current ongoing business activities of entities comprising the proponent that may be relevant for the successful execution of its project.
2.5	<b>Socio-economic Benefits</b>	Provide details of the project's ancillary benefits. This may include potential Crown revenue, socio-economic benefits such as employment, positive social impacts to the community surrounding your project's sites (including communities through which pipelines are built), or positive environmental outcomes in addition to the reduction of CO <sub>2</sub> in the regions associated with the proposed project.
2.6	<b>Benefits to Indigenous Communities</b>	Proponents should describe how the proposed project will benefit First Nations, Metis communities, and Indigenous Albertans (e.g., incorporate or enable participation of Indigenous communities within the context of skills training, employment, business development, community investment, private sector partnerships, and major project participation).

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Classification: Public

<b>3.0 - Project Configuration and Execution (Weighting 27.66%)</b>		
<b>3.1</b>	<b>Project Execution</b>	Provide the most recent copy of a draft of the project execution plan with at a minimum of a Level 1 schedule. Also, please provide the tentative dates of further Levels. Provide the timeframe in which carbon dioxide injection would commence. If a phased approach is being put forward, outline the anticipated timeframes for development of each subsequent phase.
<p><b>Notes:</b></p> <ul style="list-style-type: none"> <li>• The Province will not be implementing a mandatory in-service, or start-up, date as part of this process. However, proposals will be reviewed and assessed for when they will be able to provide carbon sequestration services to the region. Greater weighting will be given to projects that can provide carbon sequestration services to the region in a shorter period of time. Note that proposals must ensure that appropriate time is included for the regulatory process (e.g., consultation, baseline monitoring, etc.)</li> <li>• Carbon capture and transportation infrastructure will not be within the scope of the final carbon sequestration agreement. However, it is expected that the proponent will provide an understanding of how carbon dioxide transportation will be addressed.</li> </ul>		
<b>3.2</b>	<b>Project Design Details</b>	Provide the most recent copy of the design basis memorandum (DBM), or similar document that shows details for the initial design and system operation.
<b>3.3</b>	<b>Risks and Mitigations</b>	<p>Identify, at a high level, all key project and sequestration risks (including within the geosphere, hydrosphere, atmosphere, and biosphere) and anticipated mitigation measures. Examples of geosphere risks include containment, capacity, injection pressure, injectivity, generation of induced seismicity, and impacts to other subsurface users and/resources within the zone of pressure influence.</p> <p>Please also provide MMV Plan information, including:</p> <ul style="list-style-type: none"> <li>• Anticipated capacity targets based on the best available public data prior to conducting the evaluation.</li> <li>• An initial assessment of the following: <ul style="list-style-type: none"> <li>○ Potential impacts to the activities and operations of other subsurface pore space users (including mineral recovery)</li> <li>○ Potential biosphere, geosphere, atmosphere and hydrosphere impacts</li> <li>○ Anticipated project capacity, containment, injectivity and injection pressure characteristics and potential for induced seismicity generation</li> <li>○ Expected requirements for monitoring plume containment and conformance</li> <li>○ Legacy wells and other features of interest to containment</li> </ul> </li> <li>• Project plan, timeline, modeling and site characterization activities that will be conducted to evaluate each of the following elements of the project risk assessment: <ul style="list-style-type: none"> <li>○ Risks to the activities and operations of other subsurface pore space users (including mineral and heat recovery)</li> <li>○ Biosphere, geosphere, atmosphere and hydrosphere risks</li> <li>○ Capacity, containment, injectivity, injection pressure and induced seismicity generation risks</li> <li>○ Legacy well and subsurface feature assessment</li> </ul> </li> <li>• An assessment of the MMV techniques and technology that will be considered to monitor and evaluate conformance, containment and induced seismicity.</li> </ul>

3.4	<b>Design Capacity</b>	Annual volumes (in million tonnes per annum, MTPA) that the project has been designed to inject, the capacity of associated infrastructure connecting the injection location to the emitting facilities, and the total useful life of the project. In cases where a phased approach is proposed, outline the annual sequestration volume for each phase.
3.5	<b>Secured Volume</b>	Annual volumes (for each phase, where applicable) the project has secured, either through an anchoring project or agreement/s with third-party emitters such as: <ul style="list-style-type: none"> <li>• a non-binding Letter of Intent (LOI);</li> <li>• a Memorandum of Understanding (MOU); or</li> <li>• a contract.</li> </ul>
<b>Notes:</b> <ul style="list-style-type: none"> <li>• It is not a requirement to have prior agreements with emissions facilities (i.e., anchoring emissions), however, such agreements may be a consideration during proposal review and evaluation.</li> <li>• If there are agreements in place between a proponent and an emissions facility and the proponent is not successful, it is expected that a successful proponent would undertake meaningful and reasonable negotiations to accommodate those emissions. Such requests to access the hub will be in consideration a number of elements which are outlined in Appendix A.</li> </ul>		
<b>4.0 - Project Location (Weighting 17.02%)</b>		
4.1	<b>Surface and Subsurface Areas</b>	<p>Outline the geographic extent of the project including the legal land description. Include current geological and reservoir engineering understanding of the proposed reservoir and cap rock, including the level of confidence in reservoir suitability, the rationale for the identified zones, and the technical justification for the proposed geographic extent of each area and geologic zone of interest. Describe each proposed reservoir as well as its associated geological cap rock and under-burden.</p> <p>Altogether, this should be supported by data where available (e.g. cores, logs, pressure transient analyses, minifrac, and local/regional analogues). Describe how this data supports the project's annual expected injection volumes as described in section 4.2 Storage Efficiency.</p> <p>Provide a map showing the extent of the requested area complete with a legal description, and include all subsurface maps and currently available geological descriptions.</p>
<b>Notes:</b> <ul style="list-style-type: none"> <li>• Please include one area of interest per submission. If multiple areas of interest are being considered, please submit one FPP for each.</li> <li>• In cases, where there are overlapping interests/hub proposals, the department will work to select the strongest proposal. However, appreciating the expertise of strong proponents, the intent is to structure sequestration agreements to enable industry partnerships should proponents seek to subsequently work together.</li> </ul>		
4.2	<b>Storage Efficiency</b>	Provide the project's expected annual injection volumes in Mt of carbon dioxide (for each phase, in cases where a phased approach is proposed) and the total area being requested in hectares.



4.3	<b>Potential Sub-surface Conflicts</b>	Describe any integration or potential conflicts with surface and subsurface operations and known resources (existing and potential) in the identified surface and subsurface zone(s) of interest. Itemize these potential surface (sensitive areas, no access areas, etc.) and subsurface (e.g., existing and potential resource development, disposal / storage activities, mineral ownership, etc.) conflicts and provide mitigation options. Outline the subsurface zone of interest for operations and the proposed stratigraphic interval. Please include an annotated 'type' well log.
<b>Notes:</b> Successful proponents are expected to work to identify and address potential subsurface interactions and conflicts including potential third-party compensation.		
<b>5.0 - Proponent's Operational Capacity (Weighting 17.02%)</b>		
5.1	<b>Execution Experience</b>	Discuss and demonstrating experience in developing, constructing, and operating projects that are similar in scope and scale to the sequestration hub being proposed. Provide a listing of previous or current projects. Demonstrate subsurface expertise and/or carbon sequestration experience, experience in infrastructure development, pipeline related experience, and experience with injection facilities and wells (e.g., AGD, waste and water disposal, CCUS, CO2-EOR, SAGD, and gas storage).
5.2	<b>Personnel and Organizational Structure</b>	<p>Provide the organizational structure of the hub proponent and functions of each department. If the proponent is a consortium or joint venture or partnership, outline the legal structure of the arrangement, indicate which corporate entities will comprise the proponent and outline the respective roles that all such entities will contribute, including consultants.</p> <p>Provide information on all the top management, technical staff, and external consultants that demonstrates experience and the breadth of roles on the project team required for the development and operation of the proposed carbon sequestration hub.</p>
5.3	<b>Consultation and Regulatory Experience</b>	<p>Provide a plan and demonstrate the ability to ensure robust, non-standard, ongoing, public and Aboriginal consultation. How will the proponent safeguard public confidence in carbon capture and storage moving forward?</p> <p>Also, provide a clear understanding of the regulatory process and approvals required by the successful proponent after an evaluation is granted, including the associated timelines, and any potential non standard requirements unique to large scale carbon sequestration.</p>
<b>6.0 - Emissions Policy (Weighting 4.26%)</b>		
6.1	<b>Emissions Policy</b>	Outline a plan to manage the elements of the emissions policy environment (e.g., carbon pricing, offsets, or tax credits) that effect the economic viability considerations. Approach to generation and management of any carbon credits resulting from the project.
<b>Note:</b> <ul style="list-style-type: none"> <li>The Province will not be prescribing how any carbon credits will be managed by a sequestration hub under this process. However, it is expected that the proponent will demonstrate they have a strong understanding of current and emerging crediting schemes and a reasonable process to ensure appropriate flowback and meet quantification and verification requirements.</li> </ul>		

## 2.2 Communications with the Province

During the RFPP process, comments or requests for information by proponents to the Province concerning this process, excluding usual government business meetings with proponents, can be made through the email address [carboncapture.energy@gov.ab.ca](mailto:carboncapture.energy@gov.ab.ca).

## 2.3 Enquiries

Interested parties may address questions of clarification on this RFPP to the Province in writing by email to the following email address: [carboncapture.energy@gov.ab.ca](mailto:carboncapture.energy@gov.ab.ca). The Province will endeavour to respond but shall not be obligated to reply to inquiries.

The proponent has the responsibility to notify the Province, in writing, of any ambiguity, divergence, error, omission, oversight, contradiction, or item subject to more than one interpretation in this RFPP, as it is discovered, and to request any instruction, decision, or direction necessary to prepare their proposal.

Verbal responses to enquiries are not binding on any party.

## 2.4 Clarification of Submissions

Following the closing date, the Province may, but shall not be obligated to, contact or meet with any or all proponents for the purpose of seeking clarification relative to their submissions.

## 2.5 Conflict of Interest

On or before the Closing Date and Time of this RFPP, proponents must fully disclose to the Province, in writing, the circumstances of any actual, possible or perceived conflict of interest in relation to the proponent, all team members or any employee, sub-contractor or agent, if the proponent were to become the successful proponent for the project. The Province shall review any submissions by proponents under this provision and may reject any proposal where, in the opinion of the Province, the proponent, any team member, employee, sub-contractor or agent is, could be, or could be perceived to be in a conflict of interest if the proponent were to become the successful proponent for this project.

## 2.6 Confidentiality

All applications, and communications related to the applications submitted in the RFPP process are confidential and shall be maintained in confidence and kept secure by the Province. Information may be shared within departments of the Province, with Cabinet, and others supporting the process (e.g. consultants in the review process under confidentiality agreements).

## 2.7 Freedom of Information and Protection of Privacy Act (Alberta) (FOIP)

Proponents acknowledge that:

- FOIP applies to all information and records relating to, or obtained, generated, created, collected or provided under, the RFPP, any FPP, and which are in the custody or under the control of the Province. FOIP allows any person a right of access to records in the Province's custody or control, subject to limited and specific exceptions as set out in FOIP.

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- A proponent, if it considers portions of its proposal to be confidential, shall identify those parts of its proposal to the Province considered to be confidential and what harm could reasonably be expected from disclosure. The Province does not warrant that this identification will preclude disclosure under FOIP.
- In the event of a request for access under FOIP, the Province will provide any affected proponent notice and an opportunity to object to the disclosure of information that may be confidential.
- The personal information collected through the application process of the “Carbon Sequestration Hub Request for Full Project Proposal” is for the purpose of evaluating suitability of the applicant/business to become a Carbon Sequestration Hub. This collection is authorized by section 33(c) of the Freedom of Information and Protection of Privacy Act and section 8 of the Government Organization Act.
- For questions about the collection of personal information, please contact [carboncapture.energy@gov.ab.ca](mailto:carboncapture.energy@gov.ab.ca).

## 2.8 Claims for Damages or Compensation

Notwithstanding any other provision in this RFPP, a proponent who responds to this RFPP agrees that any claim for damages or compensation of any kind related directly or indirectly to a breach of contract or other cause of action arising from:

- the RFPP process;
- the evaluation of proposals; or
- a decision by the Province not to proceed with the RFPP process shall be limited to the proponent’s actual RFPP preparation costs. “FPP preparation costs” are the actual costs borne by a proponent to prepare and submit its FPP. By submitting an FPP a proponent acknowledges and accepts this limitation.

## 2.9 Full Project Proposal Acceptance/Rejection

The Province is not required to accept any FPP, and may reject any or all FPPs.

## APPENDIX A – Additional details on the intended Agreement

The following is an overview of some of the rights and conditions that proponents must agree to for their FPP to be considered in this process.

- Proponents will be invited to enter into an initial agreement that is intended to afford the successful proponent the right to conduct evaluations and testing, including the drilling of wells and injection of substances as approved by the Alberta Energy Regulator, into deep subsurface reservoirs within the location of the evaluation agreement to evaluate the geological or geophysical properties of the deep subsurface reservoirs for the purposes of determining their suitability for use for the sequestration of captured carbon dioxide.
  - Issuance of an agreement to conduct evaluations does not guarantee the proponent will be issued an Agreement to undertake sequestration. Proponents will approach the Province for an Agreement to sequester carbon dioxide and include evidence that the Location is suitable for the sequestration of captured carbon dioxide.
- The final Agreement would be issued under Section 9 of the *Mines and Minerals Act* and reflect existing provisions within Part 9 of the *Mines and Minerals Act*, as well as aspects of the Carbon Sequestration Tenure Regulation such as:
  - Agreement term of 15 years (renewable through application)
  - Obligations to pay into the Post-closure Stewardship Fund (for all carbon dioxide injected into the Location, including by a third party).
  - Measurement, monitoring, and verification planning and reporting (for all carbon sequestration activities occurring in the Location, including third party).
  - An initial and updated closure plan
- An agreement holder will have an obligation to enable open access to parties subject to fair and reasonable cost recovery in providing:
  - carbon sequestration services; and
  - access by a third party to sequestration pore space within the Location to undertake injection. Considerations include the capacity of the Location, cost and benefits over other options (e.g., financial and environmental), and potential impacts on the activities of the agreement holder.
- The agreement holder will provide regular reporting to the province on the status of potential additional volumes and access requests.
- As the agreement holder works to develop the hub, they will provide regular reporting to the Province. This can provide an understanding of carbon management service needs in the region and facilitate further carbon sequestration management planning.
- The Province will work to ensure that the Location in the Agreement is being used to its proposed full potential and will have the right to amend the Agreement or the Location in the Agreement as required or determined by the Province.
- An agreement holder will be subject to future regulatory structures and mechanisms as they evolve that will ensure affordable service rates and open access to the hub with a just and reasonable cost recovery. Objectives for economic regulation include:
  - Mitigating market power – Preventing agreement holder from controlling access exerting unreasonable conditions as a result of market position.

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- Public good – achieving efficient development of CCS infrastructure to reduce costs, support CCS development, reduce the environmental impact of the pipeline system, minimize safety risks and support development of EOR markets.
- As carbon sequestration evolves and its value is better understood, an agreement holder will be subject to future regulatory structures that may require additional revenue to the Crown for the use of public pore space. Such structures would account for the costs of CCUS as well as a fair return on investment.
  - The Crown will not seek any additional revenue for use of public pore space for at least the next five years.
- Positive benefits to the community surrounding a project and extended positive economic, social and environmental regional outcomes associated with the proposed project are an expectation of the Province.
  - Successful proponents will be required to adhere to the outcomes agreed upon with the Province as part of the development of the Agreement.