Carbon Capture and Storage Projects Funding Agreements

The sharing of these consolidated, unofficial copies of the agreements that have been signed for carbon capture and storage projects in Alberta is part of the ongoing effort to provide information about carbon capture and storage projects and their development. The agreements are posted for information purposes only and shall not be reproduced in any manner, in whole or in part, except with the prior written consent of the Alberta Government and the appropriate project.

The agreements are legal documents and are separated into a number of sections that cover a range of complex issues that may or may not arise through the course of project development, deployment, and operation.

The agreements are based on the carbon capture and storage program's principles, which were laid out in the 2008 Full Project Proposal the first document in this collection. The goal of the project selection process, which was completed in 2009, was to encourage the development of integrated carbon capture and storage facilities that will capture and permanently store up to five million tonnes of carbon dioxide per year in 2015.

Unofficial copies included are:

Alberta Carbon Trunk Line Consent and Acknowledgment Agreement

Aberta Carbon Trunk Line Project Funding Agreement

Alberta Carbon Trunk Line Knowledge Sharing Schedule
Alberta Department of Energy

Carbon Capture and Storage Program

Full Project Proposals
Information Package

December 2008
Carbon Capture and Storage Fund
Full Project Proposal Process

The purpose of the Full Project Proposal (FPP) process is to allow the evaluation team to review project proposals under the Carbon Capture and Storage Fund (CCSF) in a consistent, fair, and transparent manner in order to identify those projects that best fit with the fund’s objectives.

The deadline for submission of FPPs is March 31, 2009. Submission of a FPP does not imply that the proposed project will be approved for funding under the CCSF.

This information package provides guidance on the requisite contents of a project proposal and necessary supporting documentation. Proposals will be evaluated and ranked according to the criteria outlined in this document. Failure to provide requested information may lead to the rejection of the proposal. The project proposal process is a competitive process as it is expected that more eligible projects will be submitted than there is funding available.

The decision to support specific projects from the CCSF will be announced by June 30, 2009. Such approvals will be conditional upon the execution of a grant agreement; no funding commitments are binding until a grant agreement is in place. The project approval decisions of the Alberta Department of Energy (ADOE) are final and not subject to appeal.

ADOE reserves the right to alter or cancel the currently envisaged process and deadlines at its sole discretion. Any changes will be communicated by formal addendum to this document.
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1. Introduction

In January 2008, the Government of Alberta (GOA) released Alberta’s new Climate Change Strategy. The objective of the Strategy is to ensure that the province remains at the forefront of achieving significant reductions in greenhouse gas (GHG) emissions.

The Strategy takes action on three fronts: implementing carbon capture and storage (CCS); greening energy production; and conserving and using energy efficiently. CCS technology involves capturing carbon dioxide emissions from industrial sources and transporting them by pipeline to sites where they are injected into deep rock formations for permanent storage.

The GOA recognizes that industry’s ability to undertake novel and innovative processes such as CCS is often limited by the related technical and financial risk. Given these risks, support is necessary to demonstrate large-scale CCS. On July 8, 2008, $2 billion was allocated to the CCS Fund (CCSF) to support demonstration projects that undertake to advance the broader adoption of CCS technologies in Alberta.

2. Program Goal and Objectives

The ultimate goal of the CCSF is to encourage the development of three to five large scale integrated CCS facilities that will capture and permanently store up to five million tonnes of carbon dioxide per year by 2015, for a period of at least 10 years. This initiative is an important first step in the broader adoption of CCS in the province and will create the momentum for private sector investment in CCS. By encouraging CCS in Alberta, the CCSF will contribute to the solution for climate change and GHG emission reductions while maintaining Albertans’ quality of life and allowing continued economic growth. In reaching this goal, GHG emissions at facilities such as coal-fired electricity plants, oil sands extraction sites, upgraders, and other large scale industrial facilities will be reduced.

The CCSF provides, in addition to the advancement of CCS, an opportunity to advance additional objectives including:

- Encouragement of new value-added projects to proceed in Alberta on the basis that they will be able to meet the province’s emissions standards for large industrial facilities;
- Enabling the province to take the lead in advancing CCS technology. This leadership will allow Alberta’s CCS industry to market this expertise to other jurisdictions;
- Dissemination of learnings and information developed through the projects supported by the CCSF, which will assist in moving CCS implementation on a wider scale beyond the initial 3 – 5 projects;
- Launch an integrated CCS sector in the province;
• Reduce natural gas consumption for industrial purposes to allow more for export;
• Unlock the energy from low value natural resources and waste products; and
• Achieve additional environmental benefits such as lowering water usage, reducing NOx and SOx emissions and reducing land disturbance.

The general objectives of the CCSF are aligned with the GOA’s priorities plan and specifically the plan’s energy-related priorities:

• Ensure that Alberta’s energy resources are developed in an environmentally sustainable way; and
• Enhance value-added activity, increase innovation, and build a skilled workforce to improve the long-run sustainability of Alberta’s economy.

These objectives will be advanced by encouraging a large scale integrated CCS network through the development of successful CCS projects within Alberta. The GOA desires the CCSF to support CCS projects from more than one sector. Alberta has a vast coal, oil sands and conventional hydrocarbon resource base; the GHG challenge is an issue for all of these sectors.

3. Description of the Program

This program has the following features:
• All projects must be located in Alberta. Any portion of a project outside the boundaries of Alberta will be ineligible under the program.
• Program administration is in two parts: (1) Submission of a full project proposal for consideration and (2) entering into a grant agreement in a form acceptable to ADOE.
• Financial support for projects is constrained by total program funding, the time limit for the program’s results, and project selection criteria.
• The evaluation team comprised of individuals from the Departments of Energy, Environment, Finance and Enterprise, Advanced Education and Technology (AERI), Sustainable Resource Development and Treasury Board, will review the FPPs and advise on the merits of the projects in the context of the project selection criteria. External experts may be consulted on specific aspects of the submitted proposal (technical, financial, etc.) on a confidential basis.
• The Minister of Energy will make the final decision on which projects will receive funding under this program and the level of support that will be available to each.

- Only the incremental CCS costs directly related to the approved project will be eligible under the program. Any costs not directly related to the CCS component of the project will be the sole responsibility of the project proponents. Only those costs specifically approved and detailed in the grant agreement will be eligible under the program, to a maximum funding cap set out in the grant agreement.

- A Fairness Auditor will oversee the full project proposal evaluation phase. The Fairness Auditor will provide a final report to the Minister of Energy before the announcement of successful applicants.

4. Confidentiality and Knowledge Transfer

The ADOE will exercise reasonable efforts to keep the disclosure of information confidential. However, the ADOE is subject to the provisions of the Freedom of Information and Protection of Privacy Act (FOIP Act). Information held within ADOE’s custody or control may be requested under the access provisions (Part I) of the FOIP Act. All access requests submitted to the ADOE must be acknowledged and evaluated against specific exceptions to disclosure outlined in the legislation. One such exception prohibits ADOE from disclosing certain information supplied explicitly or implicitly in confidence where disclosure could reasonably be expected to, among other things, harm significantly the project proponent’s competitive position or would be an unreasonable invasion of your personal privacy (FOIP Act, sections 16 and 17 respectively). If, in response to a request under the FOIP Act, ADOE is considering disclosing a document that may contain information that affects the project proponent’s interests under section 16 or may be an unreasonable invasion of privacy under section 17, the ADOE is required to notify the proponent in advance and provide an opportunity to object. All decisions in relation to a FOIP Access request are reviewable by the Alberta Office of the Information and Privacy Commissioner, upon request of the third party or the applicant.

Nevertheless, knowledge transfer will be a condition of approval under the program, interim and final technical reports and presentations must be submitted to ADOE and will be made available to the public. You may claim confidentiality for such reports for a period of two years from the date the report is required by ADOE, subject to the above noted FOIP requirements.

ADOE requires that technology supported with funding from this program will be widely available. To meet this objective, terms related to intellectual property will be included in the grant agreement.

5. Project Approval

Once projects have been selected for funding, a Letter of Intent, offered by the Minister of Energy and formally accepted by the proponents, will be required prior
to the announcement by the Minister of Energy of the successful projects. The Letter of Intent will not constitute a legally binding funding commitment, but will provide the basis for a grant agreement. The grant agreement must be signed before any funds can be released. Failure of the proponent to enter into a grant agreement in a form acceptable to ADOE by December 31, 2009 will result in the cancellation of the project approval.

6. Funding Principles

In order to manage the Crown’s risk, and to ensure that the program objectives are achieved, the following principles with respect to grant commitments and the disbursement of funds under this program will apply:

- The percentage of total CCS related costs supported by the program will be limited to a maximum of up to 75% of total incremental CCS costs. The actual percentage of incremental costs that the ADOE is willing to support in respect of a particular proposal under the program will be determined during the review of the proposal.
- The initial approved incremental CCS costs and the percentage of costs approved to be supported by the program will determine the maximum total dollar funding for a particular project.
- Increases in costs from the initially established amount will not be eligible for funding under the program.
- Funds disbursed prior to commencement of operations will be limited to a maximum of up to 40% of the total approved funding for the project and will be paid on specific project milestones, as specified in the grant agreement. These funds will only be disbursed when the ADOE is satisfied with the progress of the project’s milestones. Prior to completion of construction, any funds disbursed will be in the form of a conditional grant that will be fully repayable if construction is not completed by a date specified in the grant agreement. The amount of the conditional grant will be backed either on-sight letter of credit or by providing credit assurances deemed to be acceptable by the Crown. If the Crown is not satisfied with the credit assurances provided then the default option is the on-sight letter of credit.
- A maximum of up to 20% of the total approved funding for the project will be paid on commencement of operations.
- The remaining percentage of approved funding (at least 40%) will be disbursed as CO₂ is captured and disposed, over a maximum of 10 years. The calculation of funds to be disbursed will be based on each project’s remaining grant contribution, divided by the expected CO₂ capture volumes (defined in the grant agreement) over a ten year period, and will be disbursed as volumes of CO₂ stored are confirmed by the GOA.
- Total incremental CCS costs upon which funding is determined will be reviewed in the event that other government grants are received to support the project.
After all incremental CCS costs, plus a mutually accepted rate of return have been recovered by the proponent, revenue from the sale of emissions credits, CO$_2$ for EOR, and other revenue streams generated by the capture, transport and storage of CO$_2$ will reduce allowable costs upon which the grant is based.

7. General Conditions Applying to Approved Projects

The following general conditions will apply to all approvals under the program:

- The project proponents must submit annual reports for the duration of the project and as long as injection of CO$_2$ is continuing. Additionally, ADOE has the right to make specific (reasonable) requests for information outside these annual reports. The reports must be written according to professional standards and acceptable to ADOE and include information on progress relative to milestones, construction costs, operational experience and environmental impacts and monitoring, measurement and verification of CO$_2$ storage by the project.
- A final report will also be required at the end of the payment period or at the end of 10 years of CO$_2$ injection.
- The project proponents must provide annual presentations on project construction and operations to ADOE.
- ADOE will be given timely notification of all senior level technical and management meetings related to the project and ADOE or its representatives will have the right to attend these meetings.
- A steering committee including representation from ADOE or its representatives must be set up to oversee the project.
- ADOE will have the right to visit and inspect all project sites upon providing reasonable notice to the project proponents.
- ADOE will have the right to audit records and documents of all approved projects upon the provision of reasonable notice to the project proponents.
- Each grant agreement will include an indemnification for any claims against the Crown arising from an approved project.

8. Evaluation Process

8.1 Full Project Proposal Submission & Evaluation Process

The following is the process for FPP submission and evaluation:

1. FPPs must be received by ADOE by 4:30 p.m. (MST), March 31, 2009, to be considered for evaluation.
2. The Evaluation Team (see 8.2 below) will review the FPPs in the context of the project selection criteria described below. There will be an initial screening (see 8.4 below) followed by an in-depth review.
3. The Evaluation Team provides advice to the Governance Committee (see 8.3 below) on the merits of the proposals.
4. The highest ranked projects from the evaluation criteria may not be accepted given that the Fund’s objective is to support 3 – 5 projects.
with the $2 billion committed. These features of the Fund require some flexibility with respect to the amount that may be committed to any one project. Prior to the final selection, ADOE will negotiate funding amounts with the top ranking projects. If agreement cannot be reached that will allow the objective of 3 – 5 projects within the total Fund limit, the ADOE will move to the next ranked project to attempt to reach a funding agreement.

5. The Minister of Energy will make a decision on projects to approve as well as the specific terms and conditions of approval.

6. The applicant will be advised, in writing, of the decision.

7. A Letter of Intent (LOI) including the details of the terms of the funding commitment, project scheduling, as well as the performance objectives will be offered by the Minister of Energy and accepted by the proponent.

8. The Government of Alberta will announce the successful projects that will receive funding (subject to entering into a grant agreement) by June 30, 2009.

9. A grant agreement is entered into by December 31, 2009. In any event, no funds can be disbursed before a contract has been signed. Failure to sign an agreement by December 31, 2009 will result in the expiration of the LOI and the cancellation of any Government of Alberta commitment to the project.

During the evaluation process, the project proponents may be asked to provide additional information, to respond to questions about the project proposal, or to be available for meetings.

All project proponents who get through the initial screening may be asked to make a presentation to the Evaluation Team. The presentation will be scheduled subsequent to the FPP submission deadline and is intended to provide clarification to questions that the Evaluation Team might have.

A proponent may withdraw its proposal at any stage of the evaluation process.

All communication in relation to this FPP process, including the evaluation process, with the Government of Alberta must be in writing, addressed to Mr. David Breakwell (see section 13 for the address). **Any breach of this requirement may result in the disqualification of your proposal.**

### 8.2 Evaluation Team

An Evaluation Team will be composed of representatives from the Departments of Energy, Advanced Education and Technology (AERI), Environment, Sustainable Resource Development, Treasury Board and Finance and Enterprise. The Evaluation Team may request independent external experts to provide expert evaluation and advice on a confidential basis. The Evaluation Team will review all FPPs in detail, meet with project proponents as necessary, and prepare recommendations to the Governance Committee.
8.3 Governance Committee
Program oversight and support to the Minister of Energy will be provided by a Cross-Ministry Governance Committee chaired by the Deputy Minister of Energy with the Deputy Ministers of Environment, Sustainable Resource Development, Treasury Board, Finance and Enterprise, and Advanced Education and Technology participating. This Committee will oversee the evaluation process to ensure that it occurs in a consistent, fair and transparent manner, and will make the final recommendation of projects to be selected for funding to the Minister of Energy. This Committee will also oversee the ongoing, post-selection phase of the program.

8.4 Initial Screening Criteria
To be considered for evaluation, the project must meet the following mandatory criteria:
1. All integrated components must be located in Alberta;
2. Be sufficiently advanced for CCS to be operational by 2015;
3. Be of sufficient size to contribute significantly to the objective of 5 Mt annually of CO₂ stored by 2015; and
4. Be a fully integrated capture to storage process.

8.5 Evaluation Criteria and Project Ranking
The FPPs will be evaluated using ten evaluation criteria by the Evaluation Team (see Sections 9 and 11 below).

Each FPP must provide information demonstrating how the proposal fits each particular criterion. Each reviewer on the Evaluation Team will assess the proposal against the same performance criterion. The Evaluation Team’s assessment scores will then be used to rank the proposals.

Each criterion consists of four performance levels: D (criterion not met), C (criterion partially met), B (criterion met) and A (criterion exceeded). Each level has an associated allotted weight relative to the maximum score of each of the ten desired criteria. These weights are;

<table>
<thead>
<tr>
<th>Level</th>
<th>Weight</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>80</td>
<td>100%</td>
</tr>
<tr>
<td>B</td>
<td>65</td>
<td>79%</td>
</tr>
<tr>
<td>C</td>
<td>50</td>
<td>64%</td>
</tr>
<tr>
<td>D</td>
<td>0</td>
<td>49%</td>
</tr>
</tbody>
</table>

8.6 Process Amendments
The Minister of Energy reserves the right to alter or cancel the currently envisaged process and deadlines at his sole discretion. The Minister of Energy may, at any time prior to March 31, 2009 amend this FPP by issuing one or more addenda.
8.7 Communications
To manage communications with the project proponents, the Department of Energy has established a share point site. A share point site is a browser-based collaborative tool/workspace and document-management platform that will allow project proponents to view documents. The Department of Energy will provide project proponents with a link and user name. Alberta Energy’s Communication Office will provide the passwords separately (via fax or telephone) to ensure security is maintained. Proponents are encouraged to check the Share Point site regularly for updates. For information regarding this site please contact:

Karen Karbashewski
Public Affairs Officer, Communications
Alberta Energy
Office: 780-644-1773
Fax: 780-422-0698

9. Evaluation Criteria/Weightings

Proposals for integrated CCS projects will first be evaluated using the following mandatory criteria:

<table>
<thead>
<tr>
<th>Mandatory Criteria</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>The project is sufficiently advanced for CO$_2$ disposal to occur by 2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The project is of sufficient size to contribute significantly to the objective of 5Mt of CO$_2$ stored annually, beginning with 2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The project involves a fully integrated capture to storage process.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Those FPPs that meet all the mandatory criteria listed above will then be evaluated using the following criteria:

<table>
<thead>
<tr>
<th>No.</th>
<th>Desired Criteria</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Project partners</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Base facility</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Capture facility</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Proponent’s capability and capacity</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>Project plan</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td>Financial structure and risks</td>
<td>30</td>
</tr>
<tr>
<td>7</td>
<td>Cost sharing structure</td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>Efficiency</td>
<td>15</td>
</tr>
<tr>
<td>9</td>
<td>Ancillary benefits and synergies</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>Portfolio contribution</td>
<td>15</td>
</tr>
</tbody>
</table>

**Total Score (Maximum 155)**

155
10. Project Overview

This section contains requirements for specific project information. The proponents are required to fill out the project overview form and attach additional supporting information with the FPP.

**Confidentiality**

*Please note that the proponents’ names, organizations, project title, non-confidential overview, expected benefits and amount awarded will be public information if the proposal is successful.*

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Project Title</td>
<td></td>
</tr>
<tr>
<td>2. Project proponent(s)</td>
<td>(legal names of companies)</td>
</tr>
<tr>
<td>3. Project Location:</td>
<td>(attach relevant maps)</td>
</tr>
<tr>
<td>a. Capture plant</td>
<td></td>
</tr>
<tr>
<td>b. Pipeline</td>
<td></td>
</tr>
<tr>
<td>c. Storage area</td>
<td></td>
</tr>
<tr>
<td>4. Storage zone (attach relevant maps)</td>
<td></td>
</tr>
<tr>
<td>5. Abstract:</td>
<td>(max. ½ page)</td>
</tr>
<tr>
<td>6. Non-Confidential Overview:</td>
<td>(max. 1 page)</td>
</tr>
<tr>
<td>7. Expected Benefits to Alberta:</td>
<td>(max. ½ page)</td>
</tr>
<tr>
<td>8. Key Words:</td>
<td>(prioritized, max. 15)</td>
</tr>
<tr>
<td>9. Total Incremental CCS Project Cost:</td>
<td></td>
</tr>
<tr>
<td>10. Funding amount Requested from the CCS Fund:</td>
<td></td>
</tr>
<tr>
<td>11. Anticipated start of CO₂ capture.</td>
<td></td>
</tr>
<tr>
<td>12. Project Start Date:</td>
<td>(year/month/day)</td>
</tr>
<tr>
<td>13. Project Completion Date:</td>
<td>(year/month/day)</td>
</tr>
<tr>
<td>14. Has this proposal been submitted to other funding organizations?</td>
<td>(Y/N), if Y, please list their names and contact information</td>
</tr>
</tbody>
</table>

ADOE may contact the other funders listed. If you do not want the ADOE to contact these other organizations, please give your reasoning below:
Information supplied on this page may be used in public summaries and abstracts of CCSF sponsored activities. Do not provide confidential information.

Title *(Maximum ten words)*

Abstract *(Maximum 100 words)*

Confidentiality

Any confidential or proprietary information contained in the project proposal should be specifically identified. Information provided will be subject to the access and privacy provisions of the *Freedom of Information and Protection of Privacy Act* (FOIP).
11. Detailed Evaluation

Proponents must address all items in these criteria, providing supporting documentation for all assertions.

11.1 Project Partners

This section of the FPP outlines the requirement of the program that the proposed CCS project be a fully integrated capture, transportation and storage project, and the project includes qualified partners for the different aspects of the project. Documentation of all third party agreements governing these relationships must be provided.

The project proposal has:

D. …not identified partners and is not a fully integrated CCS project.

C. …identified partners but agreements do not exist for all levels of the integrated project.

B. …demonstrated that the project is fully integrated, MOUs satisfactory to the ADOE are in place among all levels of the integrated project; and each partner has demonstrated a capability of fulfilling its obligation.

A. …demonstrated that the project is fully integrated and formal contracts acceptable to ADOE between the partners are in place.
11.2 Base Facility

This section of the FPP describes the process and technology of the base facility. If the base facility is in place, technology risks related to adding capture facilities should be described. The description of the operational impact of adding capture to existing facilities should be described along with potential costs, components timelines and risk mitigation provided. For new base facilities, a description of its technical challenges, its uniqueness and risks should be described. The selection criteria used to decide on the base technology should be provided. If the technology selected was preferred because of reduced CO₂ production or other emissions, documentation supporting these assertions should be provided. Feedstock required should be described, as well as the security of supply. Energy requirements to run the base facility should be provided and properly documented. If the base facility includes new power generation capacity, a description of necessary transmission capacity should be included.

The base facility:

D. …
   i) is at a conceptual design phase and or there is no assurance that the project will be operational by 2015;
   ii) will be based on commercially unproven technology;
   iii) technical challenges and construction/operational risks are not described;
   iv) has not secured a reliable source of feedstock; and
   v) the proposal does not include a description of the operational impact of incorporating the carbon capture technology into the base facility.

C. …
   i) is not expected to be operational until 2016;
   ii) technology has been proven at a pilot stage but has yet to be proven at an industrial scale;
   iii) has technical challenges and construction/operational risks which are described at a high level;
   iv) regulatory approvals have not been submitted;
   v) has identified but not yet secured a reliable source of feedstock; and
   vi) the proposal includes an incomplete description of the operational impact of incorporating the carbon capture technology into the base facility.

B. …
   i) is expected to be operational by 2015;
   ii) is based on commercially proven technology;
   iii) technical challenges and construction/operational risks are fully described and matched with appropriate mitigation strategies;
   iv) has obtained regulatory approvals or a plan is in place to manage the regulatory process;
   v) has a secure source of feedstock to sustain CO₂ capture levels; and
vi) the project plan includes an extensive description of the operational impact of incorporating the carbon capture technology into the base facility.

A. …
   i) and, the base facility will be built and operational in advance of 2015.
11.3 Capture Facility

This section of the proposal describes the process and technology of the capture facility. It includes an overview of capture technology options with strengths and weaknesses, as well as the rationale used for selecting the proposed technology. It also includes a description of its technical construction challenges; its uniqueness and risks are described. Additional energy requirements to run capture and compression are discussed, with a description of the source. The proponent specifies whether or not the technology has been proven at the pilot stage and presents any operational data deemed necessary to understand and evaluate the capture technology. The proponent also specifies the percentage of CO₂ captured from the gas stream.

The capture facility:

D. …
   i) has not been selected or has been selected but the technology has not been tested in a pilot project;
   ii) additional energy requirements and source have not been discussed; and
   iii) the capture process from the gas stream has not been described.

C. …
   i) has been tested at the pilot stage but substantial technical hurdles have yet to be resolved;
   ii) additional energy requirements and source have been partially discussed;
   iii) the rationale for technology selection has not been thoroughly explained; and
   iv) the capture process from the gas stream, including purity levels, has been partially described.

B. …
   i) has been proven at the pilot stage;
   ii) additional energy requirements and source have been fully discussed;
   iii) the rationale for technology selection has been thoroughly explained;
   iv) the proponent has submitted a competitive analysis of the capture options currently available and risk mitigation strategies are fully identified; and
   v) the capture process from the gas stream, including purity levels, has been fully described.

A. … and, the chosen capture technology has been proven at an industrial scale.
11.4 Proponent’s Capability and Capacity

This section of the proposal outlines the proponent’s competency and experience in dealing with the capture and compression, pipelines, and injection processes, assessing reservoir suitability for storage, using CO₂ for enhanced oil recovery (EOR) and any other ability deemed critical for the successful implementation and operation of an integrated CCS project.

The proponents have:

D. …limited competency in the areas listed above; the proponents have not demonstrated experience with projects of this scale;

C. …competency in most of areas necessary to implement an integrated CCS project; the proponents have limited demonstrated experience with projects of this scale;

B. …demonstrated knowledge and experience in the areas listed above and experience with projects of this scale has been supported;

A. …demonstrated significant experience and a proven track record in all of the areas required to implement an integrated CCS project of this scale.
11.5 Project Plan

This section of the proposal includes a description of the systems in place to manage project design, construction and operation of an integrated CCS project. The proponents are expected to outline the mitigating measures for risks during the construction and operation phases for all aspects of the project – capture, transportation and storage. It includes a description of the project management processes such as a steering committee with regular meetings and reporting processes and specified roles and responsibilities. It includes a description of the decisions to be made by the project proponent and partners throughout the design and construction phase that could impact project completion and its composition. Details of the pipeline and storage aspects of the project should be included here. The plan for pipeline design, size, capacity, right-of-way and route need to be provided, with risks to this plan detailed and mitigation strategies articulated. For the storage component, EOR or disposal options should be detailed, with plans provided on pore space access, ownership, surface access, production profiles for EOR and monitoring systems for storage integrity; risks and mitigation strategies should also be provided.

The Project Plan:

D. ...
   i) does not include milestones and risks are not identified;
   ii) does not refer to the establishment of a steering committee; and
   iii) does not address reporting requirements to the ADOE.
   iv) provides inadequate details of the pipeline component including costs; and
   v) storage options have not been described.

C. ...
   i) includes milestones however they not in sufficient detail to manage a projects of this scale and scope; risks are partially identified;
   ii) does not include a steering committee with all partners participating; and
   iii) only partially addresses reporting requirements to the ADOE.
   iv) includes partial pipeline details and costs for the project; and
   v) storage options have been partially described.

B. ...
   i) includes detailed milestones; risk mitigation strategies are fully identified;
   ii) includes a steering committee with fully developed terms of reference and decision making processes; and
   iii) addresses reporting requirements to the ADOE.
   iv) pipeline details and costs are provided for a specific project; and
   v) storage options have been fully described.
A. …
   i) includes detailed milestones and risk mitigation strategies are extensively identified;
   ii) includes a steering committee with regular reporting sessions, specified roles and responsibilities, a fully developed terms of reference and decision making process;
   iii) reporting requirements are fully addressed and the project plan is exceptionally clear and of high quality.
   iv) pipeline description includes details and costs for both a project specific line and an integrated pipeline considering potential available CO₂ in the region; and
   v) storage options have been thoroughly discussed targeting specific storage sites.
11.6 Financial Structure and Risk

This section of the proposal includes a description of the financial structure and risk mitigation strategies set in place for all the components of the project. It includes a detailed cost overview of the all components of the CCS project with a discussion of the level of confidence in all cost estimates. It also includes any factors that might influence the boards of directors’ decision to go ahead with the project. Careful consideration is given to the proponents’ financial ability to manage the project and the financial contingency plan. Operating revenue from the facility must be described and estimates supported; customers for process output should be identified.

For the project:

D. ...
   i) financing is only in place for part of the project and risk mitigation strategies are not included;
   ii) the proponents lack sufficient financial strength to be able to secure financing in the short-term; and
   iii) costs estimates are only at a high level.

C. ...
   i) financing for the integrated CCS project base facility is not complete and risk mitigation strategies have been partially developed;
   ii) the proponent has limited financial ability to secure financing in the short term; and
   iii) costs estimates have been supported by appropriate analysis.

B. ...
   i) financing for the integrated CCS project base facility has been arranged and a fully formulated financing plan for the project is in place; a risk mitigation strategy is well developed,
   ii) the project proponents have the financial strength to manage project financing and contingencies; and
   iii) costs estimates for the project have been thoroughly developed.

A. ...
   i) financing for the entire life cycle of the integrated CCS project is in place and risk mitigation strategies are extensively developed;
   ii) the project proponents have extensive financial strength to manage project financing and contingencies. The proponent also includes a discussion considering how possible market externalities and tightening credit markets could impact the project’s financial viability, with mitigating strategies developed; and
   iii) costs estimates for the project have been extensively developed.
11.7 Cost Sharing Structure

This section of the proposal describes the proponents’ expectations with respect to the contributions of the Government of Alberta necessary for the CCS project to proceed. Section 6, Funding Principles, outlines the Government of Alberta’s cost sharing agreement as: a maximum of up to 75 percent of the total incremental cost to capture, transport and store CO₂; a maximum of up to 40 percent of the approved CCSF funding for the pre-completion stage based on achieved milestones; up to an additional 20 percent of the approved CCSF funding upon construction completion, with the remaining 40 percent of the CCSF funding support to be paid as CO₂ is captured and stored over a maximum period of 10 years. Security to the Crown during construction should be provided by either an on-sight letter of credit or by providing credit assurances deemed to be acceptable by the Crown.

The proposed cost sharing arrangement:

D. …does not meet all the terms outlined in the Funding Principles.

C….. meets all the terms in the Funding Principles but introduces conditions or uncertainties.

B. …meets all the terms outlined in the Funding Principles.

A…provides more favourable cost sharing terms and security (to the Government of Alberta) than those outlined in the Funding Principles.
11.8 Efficiency

This section of the proposal evaluates the efficiency of the project relative to the requested financial support from the CCSF. The measure for efficiency is the level of CO₂ reductions relative to the requested CCSF contribution and it is relative to other CCS solutions within the proponent’s industry.

The requested contribution from the fund, calculated on a per tonne of emissions stored basis, is:

- D. …of extremely high cost, for the specific industry.
- C. …of higher than average cost, for the specific industry.
- B. …of average cost, for the specific industry.
- A. …of below average cost, for the specific industry.
11.9 Ancillary benefits and synergies

This section of the proposal highlights the expectations of the Government of Alberta that the CCS Fund, and the projects it will support, will create ancillary benefits and synergies with respect to government’s strategic goals. There is a desire to support projects from more than one sector, to develop value added processing in Alberta and to disseminate learnings and information developed through the projects supported. The Fund has been established to initiate a wide-scale implementation of CCS in Alberta; where opportunities exist, projects supported should contribute to creating an integrated CCS sector in the province. This section includes a description of the following project characteristics:

- Natural gas consumption for industrial purposes;
- Potential to unlock low-value natural resources and waste products;
- Water usage;
- Potential reductions in NOx and SOx emissions; and
- Potential reductions in land disturbance.

The project’s ancillary benefits and synergies provide:

D. …limited expectations of furthering the Government of Alberta’s strategic goals in addition to CCS.

C. …some expectations of furthering the Government of Alberta’s strategic goals in addition to CCS.

B. …significant expectations of furthering the Government of Alberta’s strategic goals in addition to CCS.

A. …will further the Government of Alberta’s strategic goals in addition to CCS implementation.
11.10 Portfolio Contribution

Government’s objective is to have the CCS Fund support projects from more than one sector. A specific project’s alignment with this objective would mean that:

- The project contributes to portfolio diversification
- The project fits within the desire to fund 3 – 5 projects which in total will result in 5 million tonnes of CO₂ annually being stored, within the $2 billion available in the fund.

D … The project does not fit with government’s diversification objectives and/or funding it will not allow 3 – 5 projects to be funded within the $2 billion limit.

C … The project challenges government’s diversification objectives and risks the ability to fund 3 – 5 projects.

B … The project fits with government’s diversification objectives and will contribute to meeting the volume objectives within the $2 billion commitment.

A … The project has a superior fit with government’s diversification objectives.
12. Project Proponents’ Certification and Signature

The undersigned hereby:

a) verifies the accuracy of their proposal;

b) consents, and has obtained the written consent of any individuals identified in the FPP, to the use of the information in the proposal by the Government of Alberta, employees of the Government of Alberta, and individuals and organizations under contract to provide services to the Alberta Department of Energy, for the purpose of evaluating this application and for any other purpose related to the Carbon Capture and Storage Fund;

c) consents to the proponents names, organizations, project title, abstract, overview, expected benefits and approved funding amount being publicly disclosed if the proposal is selected for funding; and

d) confirms that the Boards of Directors of the proponent corporations have approved the submission and the information contained herein.

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<th>Proponent’s Name – <strong>Capture</strong></th>
<th>Title/Organization:</th>
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<tr>
<th>Proponent’s Name - <strong>Transportation</strong></th>
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<th>Proponent’s Name - <strong>Storage</strong></th>
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13. Submission

In submitting a project proposal, please note the following:

a) Proposals received unsigned, by facsimile, by electronic mail, or after 4:30 p.m. (MST), March 31, 2009, will be rejected.

b) Ambiguous, incomplete, unclear or unreadable applications may also be rejected.

c) Proponents must submit three paper copies of the proposal (including all supporting documentation), and one electronic copy.

d) Proposals must be submitted to either the Calgary or Edmonton office of ADOE and addressed to:

Mr. David Breakwell  
Assistant Deputy Minister  
Alberta Department of Energy  
North Petroleum Plaza  
10th Floor, 9945 – 108 Street  
Edmonton, Alberta T5K 2G6  
ccseoi.energy@gov.ab.ca  

Mr. David Breakwell  
Assistant Deputy Minister  
Alberta Department of Energy  
AMEC Place  
Suite 300, 801 6th Avenue S.W.  
Calgary, Alberta T2P 3W2  
ccseoi.energy@gov.ab.ca
CONSENT AND ACKNOWLEDGEMENT AGREEMENT

THIS CONSENT AND ACKNOWLEDGEMENT AGREEMENT (this "Agreement") dated as of July 5, 2018 and made effective as of the Effective Date is made and entered into by and among:

HER MAJESTY THE QUEEN IN RIGHT OF ALBERTA, as represented by the Minister of Energy (the "Province")

– and –

ENHANCE ENERGY INC., a corporation subsisting under the laws of Alberta ("Enhance")

– and –

NORTH WEST REDWATER PARTNERSHIP, a general partnership organized under the laws of Alberta ("NWR")

– and –

WOLF CARBON SOLUTIONS INC., a corporation subsisting under the laws of Alberta ("Wolf")

– and –

2073215 ALBERTA LTD., a corporation subsisting under the laws of Alberta (the "SPV")

– and –

ROYAL BANK OF CANADA, in its capacity as administrative and collateral agent for the Lenders (as defined below) (in such capacity, together with its successors and permitted assigns, the "Agent")

RECITALS:

A. The Province, Enhance and NWR are parties to the CCS Agreement, as defined below, with respect to the provision of funding for the Project, as defined therein. Enhance has requested the consent of the Province and NWR to the Project Financing Arrangements, as defined below, subject to and in accordance with the terms and conditions of this Agreement.

B. As part of the Project Financing Arrangements, Enhance is concurrently transferring to Wolf the right to construct, own and operate the portion of the Project defined as the Wolf Facilities below, and Wolf has agreed to: (a) acquire such right; (b) undertake the construction and operation of the Wolf Facilities in accordance with the provisions hereof (the "Wolf Investment"); and (c) make the commitments to the Province with respect thereto set out below.

C. Concurrently with, or conditional upon, the effectiveness of this Agreement and the Wolf Investment becoming effective: (a) Enhance and Wolf are entering into a long term midstream service agreement (the "MSA") pursuant to which Wolf will provide compression and
transportation service to Enhance for a committed volume of carbon dioxide for delivery to the Enhance Facilities, as defined below; (b) Wolf is entering into a credit agreement made as of the Effective Date (the "Credit Agreement") by and among Wolf, as borrower, the financial institutions and other persons from time to time party thereto, as lenders (collectively, the "Lenders"), and Royal Bank of Canada, as Agent; (c) Enhance is transferring to the SPV the SPV Portion, as defined below, of the Enhance Facilities; (d) Enhance will amalgamate with Clearbrook Resources Inc. (the "Enhance Amalgamation"); (e) Enhance, Wolf, the SPV and NWR will enter into a series of arrangements providing for the allocation and coordination of their respective responsibilities for constructing and operating their respective components of the Project; and (f) it is appropriate that the CCS Agreement be amended and modified to clarify the application of the CCS Agreement to Enhance, NWR, Wolf and the SPV to align with the structure that will be in effect after completion of the Project Financing Arrangements.

D. As collateral security for the performance of the obligations of the SPV under or pursuant to the MSA and related agreements (including an interim MSA to which the SPV is a party), the SPV is granting to Wolf: (a) a security interest in, all of the right, title, estate and interest of the SPV in, to and under the CCS Agreement; and (b) a floating charge over, and a security interest in, all of the present and future asset, property and undertaking of the SPV, including all of the right, title, estate and interest of the SPV in and to the Project, including the SPV Portion, which SPV security is being collaterally assigned by Wolf to the Secured Parties, as defined below, pursuant to the Credit Agreement.

E. As collateral security for the performance of the obligations of Enhance under or pursuant to the MSA and related agreements, Enhance is granting to Wolf a security interest in all of Enhance’s interests in the present and future shares in the capital of the SPV, which Enhance security will be collaterally assigned by Wolf to the Secured Parties pursuant to the Credit Agreement.

F. It is a requirement of the Lenders under the Credit Agreement that, pursuant to the Security, as defined below, the Secured Parties, as defined below, be delivered and granted, inter alia: (a) a collateral assignment of, and a security interest in, all of the right, title, estate and interest of Wolf and the SPV in, to and under the CCS Agreement; and (b) a floating charge over, and a security interest in, all present and future of asset, property and undertaking of Wolf, including the right, title, estate and interest of Wolf in and to the Project and the Wolf Facilities.

G. It is also a requirement of the Lenders under the Credit Agreement that certain acknowledgements and agreements in respect of the CCS Agreement be provided by the Province to the Agent and the other parties hereto and that the Secured Parties receive certain notice, consent and cure rights, all as set forth herein.

H. It is a condition precedent to Wolf’s obligation to make the Wolf Investment and for the Lenders and the Agent to permit Wolf to incur any of the Secured Obligations, as defined below, that the Province shall have executed and delivered this Agreement.

I. The Province is satisfied that the Project Financing Arrangements and the provisions hereof preserve the spirit and intent of the Carbon Capture and Storage Funding Program and do not negatively impact the interests of the Province.

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the parties hereto, the parties hereto agree as follows:
ARTICLE 1

1.1 Definitions

(1) In this Agreement, unless something in the subject matter or context is inconsistent therewith:

"Abandonment" means:

(a) the permanent cessation or abandonment; or

(b) the suspension for (i) any period of 120 consecutive days or (ii) 180 days, in the aggregate, in any period of 12 consecutive months,

in either case, of all or substantially all of the development, construction, commissioning and operation of the Wolf Facilities and the SPV Portion (for any cause or reason whatsoever, other than a Forced Delay Event or a Stay of Proceedings), in each case, whether voluntary or involuntary (including as a result of an injunction); provided that, such periods shall be deemed not to run while a Forced Delay Event or Stay of Proceedings is continuing, and shall in any event include: (A) the resolution of the board of directors of Wolf (or in respect of any successor of Wolf, the board of directors or other body exercising analogous authority with respect to any person that is not a corporation) authorizing or directing the same; or (B) any publicly announced decision by Wolf to abandon the development, construction, commissioning and operation of the Wolf Facilities, unless, within 60 days following (A) or (B), the Lenders have exercised the Lenders' Step-in Rights or exercised any other rights or remedies under the applicable Secured Debt Documents, including any enforcement of the Security (or are subject to a Stay of Proceedings in respect of any of the foregoing);

"Agent's Cure Periods" has the meaning set out in Section 7.2(b);

"Agent's Performance Default Cure Period" has the meaning set out in Section 7.2(b);

"Agrium" means Agrium Canada Partnership, and any permitted successor thereto;

"Agrium Facilities" means the tie-in facilities and equipment forming part of the Wolf Facilities located on lands owned by Agrium (or its managing partner on behalf of Agrium);

"Agrium Force Majeure" means any event that prevents or delays Agrium from supplying carbon dioxide to SPV which event was not or is not within the reasonable control of Agrium and which by the exercise of due diligence in accordance with prudent practices Agrium was or is unable to prevent, mitigate or overcome, including in each case by reason of: (a) any delay in the construction or commissioning of the Agrium Facilities; (b) an actual involuntary shutdown of Agrium's operations at the adjacent fertilizer production facilities (which, for certainty, shall not include a shutdown for economic reasons); (c) the occurrence of any war, insurrection, armed conflict, act of foreign enemy, revolution, terrorist act, interference by military authorities, explosion, epidemic, fire, flood, weather event, breakdown or failure of machinery or equipment; or (d) any other event that is not attributable to the unavailability of the Wolf Facilities or the SPV Portion or a continuing payment default by the SPV under the Agrium Supply Agreement; provided that any lack of funds for any reason shall not be an event that qualifies as Agrium Force Majeure;
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**Agrium Supply Agreement** means the Interim CO2 Supply Agreement dated [•], 2018 between Agrium and the SPV;

"**Applicable Laws**" means, in relation to any person, transaction or event:

(a) all applicable provisions of laws, statutes, rules and regulations from time to time in effect of any Governmental Authority; and

(b) all Governmental Authorizations to which the person is a party or by which it or its property is bound or having application to the transaction or event;

"**BIA**" means the Bankruptcy and Insolvency Act (Canada);

"**CCAA**" means the Companies’ Creditors Arrangement Act (Canada);

"**CCS Agreement**" means the agreement entitled "CCS Funding Agreement – The Alberta Carbon Trunk Line Project" made the 30th day of September 2010 between the Province, Enhance and NWU, as amended pursuant to an assignment and novation agreement effective December 26, 2011 pursuant to which NWR became a party to such agreement in the place and stead of NWU, and as further amended pursuant to amending agreements dated February 22, 2012, May 10, 2012, June 17, 2014, February 4, 2015 and (where the context so permits or requires) as amended, modified or supplemented hereby, as such agreement may hereafter be amended, modified, supplemented or restated from time to time in accordance with the provisions thereof and hereof;

"**CCS Parties**" means, collectively, the Province, Enhance and NWR;

"**Collateral**" means the interests of Wolf and the SPV in the CCS Agreement, together with any and all other property, personal or real, of Wolf and the SPV (including any equity interests in these entities) which (directly or indirectly by virtue of the collateral assignment by Wolf in favour of the Agent) secures the Secured Obligations;

"**Compressors**" means the compression equipment to be used to increase the pressure of the CO2 captured by the Rectisol Unit, as described in Schedule A, section C of the CCS Agreement, to the pressure necessary for delivery into the ACTL, as described in Schedule A, section B.1.(a) of the CCS Agreement; such compression will be achieved through two compressors, operating in series, which will consist of (a) the NWR Compression Facilities to be co-located with the Rectisol Unit and which will receive CO2 directly from the Rectisol Unit and (b) the main compressor to be located at the inlet to the ACTL and which will receive CO2 from the NWR Compression Facilities and deliver CO2 to the ACTL at the operating pressure of the ACTL;

"**Cooling System**" means the equipment to be located close to the main compressor described in the definition of “Compressors” and which will cool the CO2 that is compressed through such main compressor prior to delivery to the ACTL;

"**Credit Agreement**" has the meaning set out in the recitals to this Agreement;
"Current Schedule" means the most recent anticipated schedule for the Project as set forth in Schedule "A" hereto;

"DBRS" means DBRS Limited and any successors thereto;

"Default" has the meaning set out in the CCS Agreement; provided that, for all purposes hereof:

(a) with respect to Wolf, "Default" shall consist of and be limited to each of the Termination Events with respect to Wolf and each of the other events and circumstances set out in Sections 3.4(a)(i), 3.4(a)(iii) and 3.4(a)(iv); and

(b) with respect to the SPV, "Default" shall consist of and be limited to each of the Termination Events with respect to the SPV and each of the other events and circumstances set out in Sections 3.4(a)(ii), 3.4(a)(iii) and 3.4(a)(iv);

"Default Notice" has the meaning set out in Section 7.1(a);

"Effective Date" has the meaning set out in Section 1.6;

"Enhance Amalgamation" has the meaning set out in the recitals to this Agreement;

"Enhance Default" means any Default by Enhance of any provision of the CCS Agreement;

"Enhance Facilities" means, collectively, all aspects of the Project referred to in Schedule "A" to the CCS Agreement as the storage component of the Project, including the "Injection Facilities" and the "Storage Sites" (each as defined in Section B.4 of such Schedule "A");

"Enhance Step-in Rights" means the rights granted to Enhance pursuant to the MSA to do such acts and things in relation to the Wolf Facilities as may be required to remedy any failure of Wolf to complete the steps it is obligated to complete thereunder, including in time to achieve Enhance Commercial Operation Date and Substantial Completion (Enhance) in accordance with the Current Schedule;

"Excluded Events/Defaults" means, collectively:

(a) any Insolvency Event;

(b) any Incurable Default; and

(c) any other Default which cannot be cured through the exercise of commercially reasonable efforts,

provided that, for certainty, any Payment Default of Wolf or the SPV, and any Forced Delay Event, are acknowledged and agreed to not be Excluded Events/Defaults;

"Finance COD" means the first date on which the requirements set forth in either Section 1(a) or 1(b) of Schedule "D" to the CCS Agreement have been achieved by any one or more of Enhance, the SPV and Wolf (but, for certainty, without any requirement for the carbon dioxide to be injected in more than one Storage Site);
"Forced Delay Event" means the occurrence and continuation of any one or more of the following:

(a) an Agrium Force Majeure;
(b) a NWR Force Majeure;
(c) the occurrence of any war, insurrection, armed conflict, act of foreign enemy, revolution, terrorist act, interference by military authorities, explosion, epidemic, fire, flood, weather event, breakdown or failure of machinery or equipment or other event that was not or is not within the reasonable control of Enhance, Wolf or the SPV; provided that any lack of funds for any reason shall not be an event that qualifies as a Forced Delay Event; or
(d) the failure to obtain any approval from the Alberta Energy Regulator required to inject carbon dioxide in the Storage Sites, in each of the foregoing cases, after having used commercially reasonable efforts to obtain such approval,

provided that, in each case, that the occurrence or continuation of the same prevents, delays or interrupts the ability of Enhance, Wolf, the SPV or NWR to complete the steps or otherwise take any action necessary for such person(s) to achieve the Enhance Commercial Operation Date or NWR Commercial Operation, in either case, on or before the Outside Date or would reasonably be expected to prevent, delay or interrupt their respective ability to do so after the applicable person(s) have used all commercially reasonable efforts to complete such steps or take such action;

"Forced Delay Extension Notice" has the meaning given to it in Section 4.1;

"Forced Delay Period" has the meaning given to it in Section 4.1;

"Governmental Authority" means any federal, provincial, state, regional, municipal or local government or any department, agency, board, tribunal or authority thereof or other political subdivision thereof and any entity or person exercising executive, legislative, judicial, regulatory or administrative functions of, or pertaining to, government or the operation thereof;

"Governmental Authorization" means an authorization, order, permit, approval, grant, license, consent, right, franchise, privilege, certificate, judgment, writ, injunction, award, determination, direction, decree or demand or the like issued or granted by law or by rule or regulation of any Governmental Authority;

"Insolvency Event" means:

(a) any proceeding for the reorganization, recapitalization or adjustment, readjustment or marshalling of the assets or liabilities of Wolf, the SPV, Enhance or NWR, any bankruptcy, insolvency, receivership, interim receivership, petition or assignment in bankruptcy, or assignment for the benefit of creditors under any Insolvency Laws of or with respect to Wolf, the SPV, Enhance or NWR or any similar case or proceeding relative to Wolf, the SPV, Enhance or NWR, including any proceeding under any Insolvency Laws;
(b) any liquidation, dissolution, adjustment, readjustment or marshalling of the assets or liabilities of Wolf, the SPV, Enhance or NWR, reorganization, compromise, arrangement with creditors, plan of arrangement or other winding up of or relating to Wolf, the SPV, Enhance or NWR, in each case whether or not voluntary and whether or not involving bankruptcy or insolvency (and, including, for certainty, similar proceedings under the arrangement provisions of any applicable corporate law (in any case which involves the alteration, amendment, conversion, compromise, satisfaction or discharge of obligations of any or all creditors));

(c) without limiting the generality of the foregoing, any enforcement or realization under or pursuant to the Security, including any receivership or sale process pursuant thereto; or

(d) any other proceeding, or the initiation of any proceedings: (i) of any type or nature in which substantially all claims of creditors of Wolf, the SPV, Enhance or NWR are determined and any payment or distribution is or may be made on account of such claims; or (ii) in relation to any of the foregoing, whether any of the foregoing is voluntary or involuntary, partial or complete, and includes any such proceedings initiated or consented to by any of Wolf, the SPV, Enhance or NWR;

"Insolvency Laws" means the BIA, the CCAA, the Winding-up and Restructuring Act (Canada), Title 11 of the United States Code entitled "Bankruptcy" or any other liquidation, conservatorship, bankruptcy, assignment for the benefit of creditors, moratorium, reorganization, receivership, insolvency, arrangement or similar laws of Canada, the United States of America or any other applicable jurisdiction from time to time that have become applicable to any of Wolf, the SPV, Enhance or NWR or any of its properties or liabilities;

"Interim MSA" means the Interim Midstream Services Agreement dated the Effective Date between Wolf and the SPV;

"Investment Grade Rating" means a rating equal to or higher than the following ratings from any one of the following rating agencies: (a) Baa3 from Moody's; (b) BBB- from S&P; or (c) BBB (low) from DBRS;

"Lenders" has the meaning set out in the recitals to this Agreement;

"Lenders’ Step-in Rights" means the respective rights granted to the Agent and the other Secured Parties pursuant to the Secured Debt Documents to do such acts and things in relation to the SPV Portion or the Wolf Facilities, as the case may be, as may be required to remedy any failure of the SPV or Wolf to complete the steps it is obligated to complete in time to achieve the Enhance Commercial Operation Date and Substantial Completion (Enhance) in accordance with the Current Schedule;

"Moody's" means Moody's Investors Service, Inc. and any successors thereto;

"MSA" has the meaning set out in the recitals to this Agreement;

"Notice of Default" means, as the case may be, a Notice of Wolf Default, a Notice of Enhance Default, a Notice of NWR Default or a Notice of SPV Default;
"Notice of Enhance Default" means a Notice of Default issued by the Province to Enhance specifying an Enhance Default;

"Notice of NWR Default" means a Notice of Default issued by the Province to NWR specifying a NWR Default;

"Notice of SPV Default" means a Notice of Default issued by the Province to the SPV specifying an SPV Default;

"Notice of Wolf Default" means a Notice of Default issued by the Province to Wolf specifying a Wolf Default;

"NWR Commercial Operation" means the achievement of Commercial Operation by NWR;

"NWR Compression Facilities" means the booster compression facilities forming part of the Wolf Facilities and which forms part of the facilities described as the "NWU CO2 Compression Facility" in Schedule "A" to the CCS Agreement;

"NWR Default" means any Default by NWR of any provision of the CCS Agreement;

"NWR Force Majeure" means any event that prevents or delays NWR from supplying carbon dioxide to the SPV which event was not or is not within the reasonable control of NWR and which by the exercise of due diligence in accordance with prudent practices NWR was or is unable to prevent, mitigate or overcome, including in each case by reason of: (a) any delay in the construction or commissioning of the NWR Compression Facilities or NWR's adjacent refining facilities; (b) an actual involuntary shutdown of NWR's adjacent refining facilities (which, for certainty, shall not include a shutdown for economic reasons); (c) the occurrence of any war, insurrection, armed conflict, act of foreign enemy, revolution, terrorist act, interference by military authorities, explosion, epidemic, fire, flood, weather event, breakdown or failure of machinery or equipment; or (d) any other event that is not attributable to the unavailability of the Wolf Facilities or the SPV Portion or a continuing payment default by the SPV under the NWR Supply Agreement; provided that any lack of funds for any reason shall not be an event that qualifies as NWR Force Majeure;

"NWR Supply Agreement" means the Interim CO2 Supply Agreement dated the Effective Date between NWR and the SPV;

"NWU" means North West Upgrading Inc., a corporation subsisting under the laws of the Province of Alberta;

"Outside Date" means the definition provided for in clause (v) of the definition of "Termination Event" set forth in Section 6.3 of the CCS Agreement, after giving effect to the amendment to such definition set forth in Section 3.5(a) hereof (that is, the Outside Date is December 31, 2020) and, as extended, if applicable, in accordance with the provisions hereof;

"Payment Default" has the meaning set out in Section 7.1(b);

"Performance Default" has the meaning set out in Section 7.1(b);
"Project Closing Notice" means a joint written notice from Wolf and Enhance to the other parties hereto which confirms that all of the conditions precedent for their respective benefits set out in the Project Coordination Agreement have been fulfilled or waived and each of them is ready, willing and able to complete the Transaction (as defined therein);

"Project Coordination Agreement" means the Project Development and Coordination Agreement dated the date hereof between Enhance and Wolf;

"Project Financing Arrangements" has the meaning set out in Section 2.1;

"Project Termination Notice" means a joint written notice from Wolf and Enhance to the other parties hereto which confirms that the Project Coordination Agreement has been terminated in accordance with its terms;

"Qualified Transferee" means a person that:

(a) has the legal capacity, power and authority, and has all requisite permits and other Governmental Authorizations, to become a party to, and to assume and perform all of the obligations and liabilities of, Wolf or the SPV, as the case may be, under, the CCS Agreement;

(b) (i) has an Investment Grade Rating or whose obligations in respect of the CCS Agreement and this Agreement has been guaranteed by a person with an Investment Grade Rating; or (ii) has demonstrated, to the satisfaction of the Province (acting reasonably), that such person has the financial resources available to it that are sufficient to enable it to assume and perform all of the obligations of Wolf or the SPV, as the case may be, under the CCS Agreement pursuant to this Agreement;

(c) has demonstrated, to the satisfaction of the Province (acting reasonably) and after the Province has been provided such documents as may be reasonably necessary to demonstrate the same, that such person employs or has subcontracted with reputable persons experienced in the construction and operation of pipelines, in the case of Wolf, or oil and gas exploration and production, in the case of the SPV, that are sufficient to enable it to assume and perform all of the obligations of Wolf or the SPV, as the case may be, under the CCS Agreement pursuant to this Agreement; and

(d) the Province is satisfied, acting reasonably, that there is no legal impediment or other material conflict that prevents the Province from entering into an agreement such as the CCS Agreement with such person;

"Replacement Agreement Option Period" has the meaning set in Section 7.3;

"Replacement CCS Agreement" has the meaning set out in Section 7.3;


"Second Default Notice" has the meaning set out in Section 7.2(a);

"Secured Debt Documents" means, collectively, the following:
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(a) all Documents (under and as defined in the Credit Agreement), including, for certainty, the Security Documents; and

(b) all Lender Financial Instruments (under and as defined in the Credit Agreement); and

(c) all Cash Management Documents (under and as defined in the Credit Agreement);

"Secured Obligations" means, collectively and at any time and from time to time, all present and future obligations, liabilities and indebtedness (absolute or contingent, matured or otherwise) of Wolf and its subsidiaries to or in favour of any one or more of the Secured Parties under or pursuant to the Secured Debt Documents and including the principal of, and all interest, fees, legal and other costs, charges and expenses owing or payable on or in respect of, any and all such obligations, liabilities and indebtedness and any enforcement thereof;

"Secured Parties" means, collectively, the Agent, the Lenders, the Hedging Affiliates (as defined in the Credit Agreement) and the Cash Managers (as defined in the Credit Agreement);

"Security" means, as the context requires:

(a) the Security Documents;

(b) the Security Interests, rights, interests and benefits created or arising pursuant to such assignments, mortgages, debentures, pledges, guarantees, control agreements, deeds of trust and other security agreements; or

(c) the Collateral charged under or subject to such assignments, mortgages, debentures, pledges, guarantees, control agreements, deeds of trust and other security agreements;

"Security Documents" means any and all assignments, mortgages, debentures, pledges and other security agreements (including, to the extent any Security Interests are created thereunder, subordination and intercreditor agreements), guarantees of whatsoever kind now, heretofore, or hereafter executed and delivered by Wolf, the SPV or Enhance in favour of any or all of the Secured Parties (including in favour of the Agent on their behalf) or now, heretofore, or hereafter existing as security on or against any Collateral in favour of any or all of the Secured Parties (including in favour of the Agent on their behalf), in each case, which secure payment or performance of the Secured Obligations;

"Security Interest" means mortgages, charges, pledges, hypothecs, assignments by way of security, conditional sales or other title retentions, security created under the Bank Act (Canada), liens, encumbrances, security interests or other interests in property, howsoever created or arising, whether fixed or floating, perfected or not, which secure payment or performance of an obligation;

"SPV Construction Account" means any bank account located in the Province of Alberta which is designated as the “SPV Construction Account” by notice in writing from the Agent to the other parties to this Agreement (other than NWR) from time to time;
"SPV Default" means any Default by the SPV of any provision of the CCS Agreement, to the extent assumed by the SPV pursuant to the provisions of this Agreement;

"SPV Funding Payments" means the portions of the Instalments listed in Schedule "B" hereto which are specified in such Schedule to be payable to the SPV, subject to the applicable milestones being met;

"SPV Portion" means, collectively, that portion of the Enhance Facilities that is required to be in place in order to achieve both of the tests set forth in Section 1 of Schedule "D" to the CCS Agreement, as more particularly described in Schedule "C" hereto;

"Stay of Proceedings" has the meaning set out in Section 4.2;

"Substantial Completion (Enhance)" means the first date on which:

(a) both of the Compressors and the Cooling System have been installed on their foundations at their respective locations where they will be operated as part of the capture and transportation activities required to achieve NWR Commercial Operation; provided that, for certainty, such facilities shall not be required to have been commissioned or otherwise made operational; and

(b) Wolf, the SPV and/or Enhance have otherwise completed all of the Wolf Facilities and the SPV Portion that are required to achieve the requirements set forth in both Sections 1(a) and 1(b) of Schedule “D” to the CCS Agreement subject to the proviso in subsection (a) of this definition and excluding the activities described in Part 2 of Schedule “D” of the CCS Agreement;

"Wolf Construction Account" means any bank account located in the Province of Alberta which is designated as the "Wolf Construction Account" by notice in writing from the Agent to the other parties to this Agreement (other than NWR) from time to time;

"Wolf Default" means any Default by Wolf of any provision of the CCS Agreement, to the extent assumed by Wolf pursuant to the provisions of this Agreement;

"Wolf Facilities" means, collectively, (a) the Enhance Capture Facilities referred to in Section B.2 of Schedule "A" to the CCS Agreement (other than the right and obligation to acquire carbon dioxide supply from Agrium and NWR), and (b) the transportation components of the Project referred to in Section B.3 of Schedule "A" to the CCS Agreement;

"Wolf Funding Payments" means the portions of the Instalments listed in Schedule "B" hereto which are specified in such Schedule to be payable to Wolf, subject to the applicable milestones being met;

"Wolf Investment" has the meaning set out in the recitals to this Agreement;

"Wolf Letters of Credit" means all Letters of Credit provided by Wolf pursuant to Section 3.3; and

"Wolf Step-in Rights" means the rights granted to Wolf pursuant to the Interim MSA to do such acts and things in relation to the SPV Portion as may be required to remedy any failure of the
SPV to complete the steps it is obligated to complete thereunder, including in time to achieve Finance COD and Substantial Completion (Enhance) in accordance with the Current Schedule.

(2) In addition, capitalized terms used herein without express definition shall, unless something in the subject matter or context is inconsistent therewith, have the same meanings as are ascribed to such terms in the CCS Agreement on the date hereof. All references in the CCS Agreement to NWU shall mean and refer to NWR.

1.2 Headings; Articles and Sections

The division of this Agreement into Articles and Sections, the table of contents contained herein and the insertion of headings are for convenience of reference only and shall not affect the construction or interpretation of this Agreement. The terms “this Agreement”, “hereof”, “hereunder” and similar expressions refer to this Agreement and not to any particular Article, Section or other portion hereof and include any agreement supplemental hereto. Unless something in the subject matter or context is inconsistent therewith, references herein to Articles and Sections are to Articles and Sections of this Agreement.

1.3 Number; persons; including; successors; in writing

Words importing the singular number only shall include the plural and vice versa, words importing the masculine gender shall include the feminine and neuter genders and vice versa, words importing persons shall include individuals, partnerships, associations, trusts, unincorporated organizations, Governmental Authorities and corporations and vice versa and words and terms denoting inclusiveness (such as “include” or “includes” or “including”), whether or not so stated, are not limited by their context or by the words or phrases which precede or succeed them. References herein to any person shall, unless the context otherwise requires, include such person’s successors and permitted assigns. References herein to “in writing” or “written” includes printing, typewriting or any electronic means of communication capable of being visibly reproduced at the point of reception, including facsimile.

1.4 References to Agreements and Enactments

Reference herein to any agreement, instrument, licence or other document shall be deemed to include reference to such agreement, instrument, licence or other document as the same may from time to time be amended, modified, supplemented or restated in accordance with the provisions of this Agreement if and to the extent such provisions are applicable; and reference herein to any enactment shall be deemed to include reference to such enactment as re-enacted, amended or extended from time to time and to any successor enactment.

1.5 Schedules

The following Schedules attached hereto form an integral part of this Agreement:

Schedule “A” – Current Schedule;

Schedule “B” – Allocation of Funding Instalments;

Schedule “C” – SPV Portion; and
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Schedule "D" – CCS Agreement Interpretation Protocol and Dispute Procedure.

1.6 Conditions to Effectiveness or Termination

This Agreement shall only become effective on the date on which the Project Closing Notice is delivered to the other parties hereto (the "Effective Date"); provided that:

(a) neither Wolf nor Enhance shall deliver the Project Closing Notice to the other parties hereto unless the closing of such Transaction (as defined in the Project Coordination Agreement) will occur promptly after such delivery and the Effective Date shall be deemed to have not occurred if such closing does not occur promptly after such delivery; and

(b) this Agreement shall never become effective and shall be deemed to be null and void if (i) the Project Termination Notice is delivered to the other parties hereto prior to the Effective Date or (ii) the Effective Date has not occurred by December 31, 2018 (or such later date as may be agreed to by all of the parties hereto).

ARTICLE 2
CONSENTS TO THE PROJECT FINANCING ARRANGEMENTS

2.1 Consent to the Project Financing Arrangements

The Province hereby irrevocably consents to each of the following (collectively, the "Project Financing Arrangements"):

(a) the transfer and assignment to Wolf of the Wolf Facilities and the right to receive the Wolf Funding Payments;

(b) Wolf becoming the operator of the Wolf Facilities;

(c) the transfer and assignment to the SPV of the SPV Portion and the right to receive the SPV Funding Payments;

(d) the SPV becoming the operator of the SPV Portion until the transfer and assignment of the SPV Portion from the SPV to Enhance (or the amalgamation of the SPV and Enhance in lieu of such transfer and assignment);

(e) the transfer and assignment of the SPV Portion back to Enhance (or the amalgamation of the SPV and Enhance in lieu of such transfer and assignment) at any time after the later of: (i) the Enhance Commercial Operation Date; and (ii) the date that NWR Commercial Operation has been achieved;

(f) the granting and, if applicable, the exercise of the Enhance Step-in Rights under the MSA and the granting and, if applicable, the exercise of the Wolf Step-in Rights under the Interim MSA;

(g) NWR becoming the operator of the NWR Compression Facilities;

(h) Agrium becoming the operator of the Agrium Facilities; and
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(i) the Enhance Amalgamation.

2.2 Limited Effect of the Project Financing Arrangements

Each of the CCS Parties hereby acknowledges and agrees that neither the entry into of this Agreement nor the implementation of the Project Financing Arrangements:

(a) results in or requires a change to the Project Plan except as expressly provided in this Agreement; or

(b) releases Enhance or NWR from any of their respective obligations, or otherwise amends, modifies or derogates from any of their respective rights or obligations, under the CCS Agreement, except as expressly provided for in this Agreement.

In addition, each of the parties hereto, other than the Province (the "Other Parties"), hereby acknowledges and agrees that neither the entry into of this Agreement nor the implementation of the Project Financing Arrangements releases any of the Other Parties from any of their respective obligations, or otherwise amends, modifies or derogates from any of their respective rights or obligations, under any other agreement, document or instrument entered into among or between, or delivered by, such Other Parties.

2.3 Undertakings and Acknowledgements by Wolf to the Province

Without limiting or otherwise derogating from any of Enhance’s obligations to the Province under the CCS Agreement, Wolf hereby undertakes to the Province to assume and carry out the following obligations of Enhance under the CCS Agreement that relate to the Wolf Facilities:

(a) to construct, commission and operate the Wolf Facilities, including, for certainty, to the extent necessary to achieve Finance COD and Substantial Completion (Enhance), in each case to the extent related to the Wolf Facilities;

(b) to provide the Province with all information relating to Project Costs and Project Revenues allocated or attributable to the Wolf Facilities as if Wolf were a Recipient;

(c) to comply with the provision of Section 5.1 of the CCS Agreement with respect to the Wolf Facilities, mutatis mutandis, including the provision of Reports in accordance with such Section;

(d) to grant to the Province a perpetual, worldwide, transferable and royalty free right to produce, reproduce and publish the Project Results relating to the Wolf Facilities upon the terms set out in Section 5.1(l) of the CCS Agreement;

(e) to comply with Sections 3.3 (which reporting will only be provided by Wolf if and to the extent this reporting is not provided by the Recipients in their updated Project Timeline), 3.4 (which reporting will only be provided by Wolf if and to the extent this reporting is not provided by the Recipients in their amended Projected Payments Schedule), 3.5, 3.6, 3.8, 4.4 (which repayment obligation will be limited to only that portion of any Instalments paid to Wolf and will only apply if and to the extent the CCS Agreement is permitted by this Agreement to be terminated as against Wolf prior to the later of Finance COD and Substantial Completion (Enhance)), 4.7, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 7.1, 7.2, 7.3 and 7.7.
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...
4.4 (which repayment obligation will be limited to only that portion of any Instalments paid to the SPV and will only apply if and to the extent the CCS Agreement is permitted by this Agreement to be terminated as against the SPV prior to the later of Finance COD and Substantial Completion (Enhance)), 4.7, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 7.1, 7.2, 7.3 and 7.7 (which certification will only be provided by the SPV if and to the extent this certification is not provided by or on behalf of Enhance, in which case, such certification shall only be in respect of Project Costs and Project Revenues for the SPV Portion) of the CCS Agreement, mutatis mutandis, in each case, in respect of the SPV Portion only, and construed as if the SPV was a Recipient; provided that, the obligations of the SPV under these Sections shall be several and the Province may only pursue a remedy against the SPV in respect of the actions or inaction of the SPV under any of such Sections; and

(b) to comply with Sections 2.3, 2.4, 2.5, 2.6 and 2.7 of the CCS Agreement in all respects, mutatis mutandis, and construed as if the SPV was a Recipient; provided that, (i) the obligations of the SPV under such Sections shall be several and (ii) the Province may only pursue a remedy against the SPV in respect of the actions or inaction of the SPV under any of such Sections.

The SPV acknowledges to the Province that:

(c) the SPV’s entitlement to receive any portion of any Instalment is subject to compliance with Sections 4.2(b), 4.2(d), 4.3(a), 4.5 and 4.6 of the CCS Agreement;

(d) the CCS Agreement may be terminated as against the SPV in accordance with Sections 6.4 and 6.5 thereof if and to the extent such termination as against the SPV is permitted by this Agreement (and, for such limited purpose, the SPV will be treated as a Recipient); and

(e) the Province shall be entitled to disclose such information as permitted in Section 7.4 of the CCS Agreement.

The Province acknowledges and agrees that the SPV shall have no responsibility or liability for any aspect or component of the Project not expressly provided for in this Agreement.

ARTICLE 3
CONSEQUENTIAL MODIFICATIONS OR CLARIFICATIONS

3.1 Project Costs and Project Revenues

All:

(a) capital and operating costs of the Project that are incurred (or expended) and paid by either Wolf or the SPV, as determined in accordance with Section 3.5 of the CCS Agreement, shall be deemed to be Project Costs incurred (or expended) and paid by Enhance for purposes of determining the Funding payable to Enhance pursuant to the CCS Agreement; and

(b) amounts received or earned (or deemed received or earned) by Wolf or the SPV that, if received or earned (or deemed received or earned) by Enhance, would constitute Project Revenues, as determined in accordance with both Section 3.6 and the Project Plan as
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set forth in Part D of Schedule “A” of the CCS Agreement, including a deemed pipeline rate, toll or tariff calculated in accordance with Section 3.6 (b)(iv) of the CCS Agreement to the extent that Enhance, Wolf or the SPV transport carbon dioxide on the Wolf Facilities (the “deemed toll”), shall be deemed to be Project Revenues received or earned (or deemed received or earned) by Enhance for purposes of determining the Funding payable to Enhance pursuant to the CCS Agreement,

provided that, notwithstanding the foregoing (except for the deemed toll):

(c) any capital and operating costs incurred or paid by any of Wolf, the SPV or Enhance to any of Wolf, the SPV or Enhance;

(d) any amounts received or earned (or deemed received or earned) by any of Wolf, the SPV or Enhance from any of Wolf, the SPV or Enhance; or

(e) any toll or tariff incurred or paid by Enhance or the SPV to Wolf for transportation services on the ACTL pursuant to the MSA or the Interim MSA,

in each case, pursuant to any transaction between any of Enhance, Wolf and the SPV shall not be considered Project Costs or Project Revenues for purposes of the CCS Agreement.

For clarity, it is acknowledged by the parties hereto that Article 4 of the CCS Agreement is intended to be construed as follows:

(f) each of the references in Section 4.1 of the CCS Agreement to “75% of Project Costs” is not intended to override Section 4.2(b) of the CCS Agreement which permits each of the Instalments specified therein (which are all of the Instalments which are payable prior to a Recipient achieving Commercial Operation) to become payable based on a cap formula which increases such percentage to 100% of Project Costs for purposes of calculating the maximum amount of such Instalments; in addition, notwithstanding anything to the contrary contained herein or in the CCS Agreement, the references in Section 4.1 (and Section 4.1 only) of the CCS Agreement to “Project Costs” and “Project Costs incurred and paid” are intended to be construed as references to Project Costs incurred and paid or intended to be incurred and paid over the entire Term;

(g) the entitlement of the Province to reduce the maximum amount of the Funding in accordance with the proviso in Section 4.1 of the CCS Agreement is solely intended to give the Province the discretion whether to deduct any Other Public Funding from “75% of Project Costs” for the purposes of calculating the maximum amount of the Funding and such proviso is not intended to affect any of the Project Costs which can be included in the calculation of “75% of Project Costs”;

(h) the calculations and caps required by Section 4.2 of the CCS Agreement are intended to be based on and shall only include 100% or 75%, as applicable, of then aggregate Project Costs incurred and paid by the applicable Recipient and 100% of the then aggregate Other Public Funding received or receivable by such Recipient, in each case at the applicable time of calculation, and shall not include any future Project Costs or future Other Public Funding which may be incurred and paid or received or receivable, as applicable, thereafter during any future portion of the Term (and, for the purposes of this
Section 3.1(h), the word “receivable” means that the provider of such Other Public Funding has become unconditionally obligated to provide such Other Public Funding to such Recipient;

(i) any obligation of a Recipient to repay an excess amount pursuant to Section 4.4(b) of the CCS Agreement will remain unaffected and will continue to apply notwithstanding that such Recipient has previously received any Instalment(s) made pursuant to Section 4.2 of the CCS Agreement; and

(j) the calculations required by Section 4.7 of the CCS Agreement are intended to be based on and shall only include 100% of the then aggregate Project Costs incurred and paid by the applicable Recipient and 100% of the then aggregate Project Revenues received or earned (or deemed received or earned) by such Recipient, in each case at the applicable time of calculation, and shall not include any future Project Costs which are incurred and paid or any future Project Revenues which are received or earned (or deemed received or earned) in each case after such time during any future portion of the Term.

For all purposes of Section 7.7 of the CCS Agreement, an officer of Wolf or SPV with a Chartered Professional Accountant designation (or if a Default exists, a representative of the Secured Parties or an officer of a receiver or receiver-manager appointed pursuant to the enforcement of the Security with such designation) may certify the Project Costs and Project Revenues applicable to the portions of the Project for which the SPV and Wolf are respectively responsible (and, for such limited purpose, each of the SPV and Wolf will be subject to Section 7.7 of the CCS Agreement).

3.2 Assignment and Direction of Wolf Funding Payments and SPV Funding Payments

In recognition of the assignment thereof to Wolf and the SPV respectively, Enhance hereby directs the Province to pay the Wolf Funding Payments directly to Wolf and the SPV Funding Payments directly to the SPV, and the provisions of this Section 3.2 shall be good and sufficient authority for the Province so doing. In order to comply with the requirements of the Credit Agreement, Wolf hereby directs the Province to pay the Wolf Funding Payments directly to the Wolf Construction Account and the SPV hereby directs the Province to pay the SPV Funding Payments directly to the SPV Construction Account. The balance of the Instalments which the CCS Agreement currently provides will be paid to Enhance shall continue to be paid to Enhance in accordance with the CCS Agreement. The above directions may not be amended, modified, supplemented, waived, rescinded or revoked in any way without the prior written consent of Wolf, the SPV and the Agent.

3.3 Existing Letter of Credit; Delivery of Other Letter of Credits

(a) Conditional upon Wolf providing a Letter of Credit in the amount of $4,500,000 which meets the requirements of Section 4.5(a) of the CCS Agreement, the Province will return the Letter of Credit in the same amount previously provided to the Province on behalf of Enhance pursuant thereto and take all steps required on the part of the Province to cancel such Letter of Credit.

(b) For certainty, Wolf acknowledges to the Province that it intends to provide on behalf of Wolf, Enhance and the SPV the Letters of Credit required to be provided to the Province
as a condition precedent to the payment of any Instalment to Wolf, Enhance or the SPV pursuant to Section 4.5(a) of the CCS Agreement (pursuant to drawdowns by Wolf under the credit facilities established by the Credit Agreement). The Province acknowledges that the ability of Wolf to provide such Letters of Credit may be limited to the extent that Wolf cannot satisfy the conditions precedent for the issuance of letters of credit under and pursuant to the terms of the Credit Agreement.

(c) For certainty, Wolf will not be providing any Letters of Credit on behalf of NWR.

3.4 Termination Rights

(a) The Province, Wolf and the SPV agree that, notwithstanding anything to the contrary in the CCS Agreement (including under Article 6 thereof) or otherwise and except as expressly provided hereby (including pursuant to Section 3.4(b) hereof), the Province shall only have the right to terminate the CCS Agreement as against Wolf or the SPV (including, for certainty, pursuant to the exercise of its rights upon the occurrence of a Termination Event or otherwise) for the following prior to the date which is the earlier of:

(i) the Outside Date; and (ii) the latest of: (A) the date all of the Wolf Letters of Credit are returned and cancelled; (B) the date all of the Wolf Funding Payments are received by Wolf and (C) the date all of the SPV Funding Payments are received by the SPV:

(i) as against Wolf, upon the occurrence and continuance of a Termination Event consisting of:

(A) a failure of Wolf to comply with its obligations under Section 2.3 hereof which Wolf has failed to cure; or

(B) the occurrence of any event described in clauses (i) through (iv) of the definition of “Termination Event” in the CCS Agreement with respect to Wolf,

in each case, subject in all respects to compliance by the Province with the procedural requirements for termination set forth in Article 6 of the CCS Agreement and the additional requirements and limitations set forth herein;

(ii) as against the SPV, upon the occurrence and continuance of a Termination Event consisting of:

(A) a failure of the SPV to comply with its obligations under Section 2.4 hereof which the SPV has failed to cure; or

(B) the occurrence of any event described in clauses (i) through (iv) of the definition of “Termination Event” in the CCS Agreement with respect to the SPV,

in each case, subject in all respects to compliance by the Province with the procedural requirements for termination set forth in Article 6 of the CCS Agreement and the additional requirements and limitations set forth herein;
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(iii) as against Wolf and the SPV, if Finance COD is not achieved by the Outside Date; or

(iv) as against Wolf and the SPV, if there is an Abandonment prior to Finance COD,

and, thereafter, the Province shall be permitted to exercise all of its termination rights under the CCS Agreement in accordance with the terms thereof. In addition to, and to give further effect to, the foregoing, the 120 day period referred to in Section 6.4 of the CCS Agreement shall not commence with respect to Wolf or the SPV until the date which is the earlier of:

(i) the Outside Date; and (ii) the latest of: (A) the date the Wolf Letters of Credit are returned and cancelled; (B) the date all of the Wolf Funding Payments are received by Wolf and (C) the date all of the SPV Funding Payments are received by the SPV.

(ii) Notwithstanding anything to the contrary herein (including Section 3.4(c) hereof below) or in the CCS Agreement (including, for certainty, Section 6.5(c) of the CCS Agreement), the Province shall not be entitled to draw, or otherwise present or claim under, any of the Wolf Letters of Credit prior to Finance COD, except upon a termination of the CCS Agreement pursuant to Section 3.4(a)(i), 3.4(a)(ii), 3.4(a)(iii) or 3.4(a)(iv) hereof. For greater certainty: the Province shall not be entitled to draw, or otherwise present or claim under, any of the Wolf Letters of Credit prior to Finance COD for any reason whatsoever, except as provided for in the immediately preceding sentence (including as a result of any failure or other breach or violation of Enhance to perform or otherwise satisfy any of its obligations to the Province under, pursuant or relating to the CCS Agreement); and (ii) upon achievement of Finance COD, the Province shall return to the Agent, and take all steps reasonably requested by the Agent to facilitate the cancellation of, the Wolf Letters of Credit pursuant to and in accordance with Section 3.5(e) hereof.

(b) Notwithstanding Section 3.4(a) hereof, but, subject to Section 6.6 of the CCS Agreement, nothing herein shall impair any rights that the Province may have to terminate the CCS Agreement as against Enhance only or as against NWR in accordance with, but subject to, the terms thereof; provided that, any such termination against Enhance or NWR, as the case may be, shall not prevent or interfere with Wolf's or the SPV's entitlement to the Wolf Funding Payments or the SPV Funding Payments, as the case may be, or the return and cancellation of the Wolf Letters of Credit to the Agent in accordance with the terms hereof.

3.5 Other Amendments and Clarifications

Each of the CCS Parties confirms, acknowledges and agrees that, notwithstanding anything to the contrary in the CCS Agreement:

(a) the definition of "Termination Event" in the CCS Agreement shall be amended by deleting clause (v) thereof and replacing same with the following:

"(v) if either or both of the Recipients fail to achieve Commercial Operation by December 31, 2020 (the "Outside Date");"
Section 3.5(b) of the CCS Agreement shall be amended by deleting clause (v) thereof and replacing same with the following:

"(v) [intentionally deleted];"

for purposes of Section 3.5(b)(vi) of the CCS Agreement, where the applicable Recipient would otherwise be Enhance, references to the Recipient shall include Wolf or the SPV, as applicable;

d) interest expense incurred during construction of the Project on indebtedness incurred to pay Project Costs (including, for certainty, standby fees, stamping fees for bankers’ acceptances, letter of credit issuance fees and other amounts payable in respect of the establishment of the credit facilities under the Credit Agreement) or otherwise comply with the CCS Agreement (including interest expense incurred pursuant to the credit facilities under the Credit Agreement in respect of credit advanced for such purposes) qualifies as a Project Cost;

e) upon:

(i) certification by the Independent Engineer that one of the tests for Finance COD set forth in either Section 1(a) or (b) of Schedule "D" of the CCS Agreement has been met (but, for certainty, without any requirement for the carbon dioxide to be injected in more than one Storage Site) and that the relevant portion of the Enhance Facilities (being the SPV Portion) and the Wolf Facilities utilized to meet such test have been constructed, installed and completed substantially in accordance with their design specifications described in or developed in accordance with the Project Plan, and

(ii) receipt by the Province of the line item statement of Project Costs and Project Revenues in respect of the Wolf Facilities and the SPV Portion as described in Section 4.3(b)(ii) of the CCS Agreement, accompanied by certification by Enhance (or by Wolf or a representative of the Secured Parties in accordance with the last sentence of Section 3.1 hereof) (for certainty, except to the extent such certification is delivered by Wolf or the SPV, or a representative of the Secured Parties, in respect of the Project Costs and Project Revenues in respect of the Wolf Facilities and the SPV Portion as aforesaid, Enhance shall be responsible for delivering to the Province the line item statements of Project Costs and Project Revenues for each of the Enhance Facilities, the Wolf Facilities and the SPV Facilities pursuant to Section 4.3(b)(ii) of the CCS Agreement),

then (A) the Province shall not and shall not be entitled to draw on or otherwise utilize the Wolf Letters of Credit, (B) the Wolf Letters of Credit shall be returned by the Province to the Agent, without any further or other conditions being applicable, no later than 30 days following the date on which clauses (i) and (ii) above have been satisfied and such Wolf Letters of Credit shall be cancelled (the surrender of which is referred to in Section 4.5(e) of the CCS Agreement) and (C) subject to Section 3.6 of this Agreement, the Funding referred to in Section 4.2(c) of the CCS Agreement which is allocated to Enhance and Wolf shall become payable and, for certainty, notwithstanding that only the portion
of the Project Plan of Enhance to which the Independent Engineer’s certification applies will have been completed at that time (for certainty, Section 4.5 of the CCS Agreement as it pertains to NWR shall not be amended by the foregoing); and

(f) any amounts invested in or lent to, or other credit support provided to, Wolf, directly or indirectly in any manner, by Canada Pension Plan Investment Board or any of its affiliates shall not be “Other Public Funding” for purposes of the CCS Agreement.

3.6 Deferral of Certain Funding on Commercial Operation

Notwithstanding anything in the CCS Agreement or in this Agreement to the contrary, the Province, Wolf and Enhance agree that the Instalment otherwise payable by the Province to Enhance and Wolf upon the Enhance Commercial Operation Date shall not be payable until the later of the achievement of (a) Finance COD and (b) Substantial Completion (Enhance), as certified by the Independent Engineer. For certainty, nothing in the foregoing sentence restricts the requirement that the Wolf Letters of Credit be returned and cancelled by the Province upon the achievement of Finance COD and receipt of the certifications provided for in Section 3.5(e) of this Agreement.

3.7 Acknowledgement In Favour of NWR

The Agent (on behalf of the Secured Parties) and each of the other parties hereto acknowledge and agree that, without derogating from the express provisions hereof, but, for certainty, nothing in this Agreement or in any of the other Secured Debt Documents or Project Financing Arrangements shall in any way constitute NWR a guarantor of the Secured Obligations and it is the intention of the parties that such documents and arrangements are not intended to constitute a guarantee or any other form of financial assistance by NWR to any of the Secured Parties, Wolf, Enhance or the SPV with respect to the Secured Obligations or any other debt or other obligation of Wolf, Enhance or the SPV.

3.8 CCS Agreement Remains in Full Force and Effect

Except as amended, modified or supplemented hereby, the parties hereto (other than the Agent) confirm, acknowledge and agree that the CCS Agreement remains in full force and effect, unamended.

3.9 Continued Pipeline Access

After the achievement of both the Enhance Commercial Operation Date and Substantial Completion (Enhance), Wolf shall not sell, transfer, convey or assign the entirety of or any portion of the Wolf Facilities to a third party unless that third party executes a consent and acknowledgment agreement with the Province, in form and in content as acceptable to the Province, acting reasonably, that the third party will continue to comply with the obligations imposed by Section 3.8 of the CCS Agreement.

3.10 Financial Inspection Prior to Each Instalment

(a) Notwithstanding anything to the contrary in this Agreement or the CCS Agreement and in addition to the obligations in Sections 4.3(a) and 4.3(b) of the CCS Agreement, within 30 days after the Province pays an Instalment which is payable prior to or upon Enhance
achieving Commercial Operation to any or all of Enhance, Wolf or the SPV, such recipient(s) must provide to the Province a certificate from a major accounting firm (the “Inspector”) certifying that, based on the invoices and other records made available by such recipient(s) to the Inspector, (A) the detailed line item statement (by category) of the Project Costs and Project Revenues paid or received to date is accurate and complete and the Project Costs have been paid by such recipient(s) and that the Project Revenues and the total Other Public Funding have been received by such recipient(s), all as of the date of submission of the payment request. For clarity, this inspection must be compliant with the Canadian Auditing Standard as set forth by the Auditing and Assurance Standards Board. This obligation shall not replace the obligation of such recipient(s) to provide the certification in Sections 4.3(a)(ii) and 7.7 of the CCS Agreement.

(b) After an Instalment is paid to any or all of Enhance, Wolf or the SPV, the Province shall not be required to pay a subsequent Instalment to any or all of Enhance, Wolf or the SPV until the certificate referred to above has been provided to the Province in respect of such preceding Instalment.

(c) The Inspector’s costs for the performance of the obligations in this Section 3.10 shall be borne by Enhance, or if Enhance is unable, then by Wolf or SPV, but in any event shall be deemed to be a Project Cost for the purposes of Section 3.5 of the CCS Agreement.

(d) It is acknowledged and agreed by the Province that:

(i) (A) $75,065,000 of historical Project Costs were previously incurred and paid by Enhance prior to January 1, 2015, (B) $115,380,000 of historical Project Costs were previously incurred and paid by NWR (or NWU) prior to October 1, 2015, (B) all of such historical Project Costs were previously inspected to the satisfaction of the Province prior to the date hereof and (D) none of such historical Project Costs will require any further inspection or certification pursuant to this Section 3.10; and

(ii) any Project Costs which were or are incurred and paid on or after January 1, 2015 (in the case of Enhance, Wolf or the SPV) or October 1, 2015 (in the case of NWR or NWU) will be subject to inspection and certification pursuant to this Section 3.10; provided that, after any Project Costs or Project Revenues have been inspected and certified pursuant to this Section 3.10 in connection with the payment of any Instalment, no further inspection or certification of such Project Costs or Project Revenues will be required pursuant to this Section 3.10.

3.11 Acknowledgement of Contingent Reduction of Funding and Allocation Thereof

For clarity, each of Wolf, the SPV and Enhance acknowledges and agrees that:

(a) the Province’s obligation to contribute the Funding pursuant to the CCS Agreement and this Agreement to Wolf, the SPV and/or Enhance may be reduced in accordance with the CCS Agreement as amended, supplemented and/or clarified by this Agreement; and

(b) in the event that any such Funding which includes any Wolf Funding Payments and/or
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SPV Funding Payments is so reduced, the Province’s obligations to pay any applicable Instalment (or portion thereof) to any of Wolf, the SPV and/or Enhance shall be reduced on a pro rata basis based on the respective entitlements of Wolf, the SPV and Enhance, as applicable, to such Instalment as set forth in Schedule “B” hereto.

3.12 No Fettering of Province’s Powers

Notwithstanding anything contained herein to the contrary, nothing in this Agreement will unduly fetter the Province’s executive discretion, in the Province’s capacity as a sovereign entity, to pursue any amendments of its legislation or subordinate legislation or enact new legislation, which may have a direct or indirect effect on this Agreement.

ARTICLE 4
OUTSIDE DATE

4.1 Extension of Outside Date for Forced Delay Event

At any time prior to the Outside Date, any of Wolf, the SPV, Enhance, the Agent or NWR may give a notice (a “Forced Delay Extension Notice”) to the Province and the other parties hereto that it has determined that a Forced Delay Event has occurred. The Forced Delay Extension Notice shall provide reasonable details of the nature of a Forced Delay Event and a good faith estimate of the period of delay in achieving Finance COD that is reasonably expected to result from such Forced Delay Event as compared to the Current Schedule assuming the use of reasonable commercial efforts by Wolf, Enhance, the SPV or NWR, as applicable, to minimize such delay. The party providing the Forced Delay Extension Notice shall provide the Province with such additional information as the Province may reasonably request with respect to the Forced Delay Event and the basis for the aforementioned estimate. Upon the Forced Delay Extension Notice being given, the Outside Date will, subject to the immediately following sentence of this Section 4.1, automatically be extended day-for-day during the period which the Forced Delay Event continues (the “Forced Delay Period”), subject to the right of the Province to either dispute the length of the Forced Delay Period or if the event in question can be characterized as a Forced Delay Event (for certainty, by appropriate civil process and without regard to Section 8.1 of the CCS Agreement), and, in any event, the Forced Delay Period shall be increased by the period of time required to finally resolve such dispute. Notwithstanding the foregoing, or any other provision hereof to the contrary, in no event shall the extension of the Outside Date resulting from all Forced Delay Events exceed 120 days in the aggregate; provided that such maximum extension shall be extended to 240 days in the aggregate if any of such Forced Delay Event(s) consist of Agrium Force Majeure(s) and/or NWR Force Majeure(s).

4.2 Extensions for Lender Requirements – Stay of Proceedings; Enforcement or Insolvency Event

If and for so long as the Agent and the Lenders would, in accordance with the terms of the Security, have the right to enforce the Security or their rights and remedies pursuant to Applicable Laws or Enhance would, in accordance with the MSA, be entitled to exercise the Enhance Step-in Rights or Wolf would, in accordance with the Interim MSA, be entitled to exercise the Wolf Step-in Rights, and the Agent and the other Secured Parties or Wolf or Enhance, as the case may be, are stayed or otherwise precluded from enforcing the Security or their rights and remedies pursuant to Applicable Laws or the Enhance Step-in Rights or the Wolf Step-in Rights, as the
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case may be, by reason of or in connection with an Insolvency Event (including by reason of any order of a court of competent jurisdiction) (any such circumstance being a "Stay of Proceedings"), then the Outside Date will automatically be extended, day-for-day by that number of days equal to the period of time that the Stay of Proceedings remains in effect. In addition, if and to the extent that the enforcement or realization on the Security or any Insolvency Event interferes with the exercise of the Lenders' Step-in Rights or makes it impracticable or commercially unreasonable to exercise the same or to advance the construction and completion of the Project, the SPV Portion or the Wolf Facilities, then the Outside Date will automatically be extended, day-for-day by that number of days equal to the duration of such period that it has been interfered with or been impracticable or commercially unreasonable to exercise the Lender Step-in Rights or otherwise advance the construction or completion of the SPV Portion or the Wolf Facilities.

4.3 Restriction on Certain Rights in respect of Wolf and the SPV

(a) Notwithstanding any provision hereof or of the CCS Agreement to the contrary, the Province shall not be entitled to withhold payment of any portion of any SPV Funding Payments or Wolf Funding Payments payable to the SPV or Wolf, respectively, pursuant to Section 3.2 hereof as a result of, or pursuant to, the provisions of Section 4.8 of the CCS Agreement, unless (i) in the case of SPV Funding Payments, the SPV is in Default (as defined in Section 6.3 of the CCS Agreement) of its obligations under Section 2.4 hereof and such Default is continuing (and, for certainty, the Province shall be entitled to withhold such payments to the SPV in the event of such a continuing Default), and (ii) in the case of Wolf Funding Payments, Wolf is in Default (as defined in Section 6.3 of the CCS Agreement) of its obligations under Section 2.3 hereof and such Default is continuing (and, for certainty, the Province shall be entitled to withhold such payments to Wolf in the event of such a continuing Default). Furthermore, the Province shall not be entitled to make any set-off against or any deduction or reduction whatsoever of any portion of any amounts payable to Wolf or the SPV under or pursuant to the CCS Agreement and this Agreement for, in respect of, or as a result of any default, action or inaction by Enhance or NWR under, pursuant or relating to the CCS Agreement or this Agreement.

(b) For greater certainty, nothing in this Section 4.3 restricts any entitlement of the Province to withhold payment of any portion of the Instalments payable to Enhance or NWR as listed in Schedule "B" hereto if and to the extent permitted by Section 4.8 of the CCS Agreement.

ARTICLE 5
ACKNOWLEDGEMENTS, CONSENTS AND AGREEMENTS FOR SECURED PARTIES

5.1 Notice

The Province acknowledges that, pursuant to the Security, the Agent has been or will be assigned and granted a Security Interest in all of the right, title, estate and interest of Wolf and the SPV in, to and under the CCS Agreement as modified hereby to the Agent.
5.2 Consent

The Province hereby acknowledges and irrevocably consents to (a) the grant of a Security Interest by Wolf and the SPV to the Agent subject to the terms hereof in all of their respective right, title, estate and interest in and to the CCS Agreement, and (b) the absolute assignment by Enhance of the Wolf Funding Payments to Wolf and the SPV Funding Payments to the SPV.

5.3 Acknowledgement; Certain Province Agreements

The Province hereby acknowledges and confirms to, and agrees with, the Agent (on behalf of and for the benefit of the Secured Parties) as follows:

(a) The Secured Parties and their nominees shall incur no liability or obligation to the Province solely by virtue of the assignment and grant of a Security Interest in the CCS Agreement or other Collateral.

(b) The grant of the Security shall not constitute a default by Enhance, Wolf or the SPV, or a breach of any of their respective obligations under the CCS Agreement or cause the termination of the CCS Agreement.

(c) The Province will not sell, assign or transfer any of its rights under the CCS Agreement (by operation of law or otherwise) or this Agreement except to a person in compliance with the terms of the CCS Agreement and provided that:

   (i) such person has executed and delivered a consent and acknowledgement agreement in favour of the Agent in the same form and content, *mutatis mutandis*, as this Agreement, and

   (ii) the Province remains party to the CCS Agreement and remains liable for all of the Province’s obligations thereunder.

(d) The Province will not:

   (i) terminate the CCS Agreement except in accordance with the terms of the CCS Agreement and the provisions hereof, including after giving the Agent the opportunity to cure as provided in Article 7; or

   (ii) until the date which is the earlier of: (A) the Outside Date; and (B) the later of: (x) the date all of the Wolf Letters of Credit are returned and cancelled; (y) the date all of the Wolf Funding Payments are received by Wolf and (z) the date all of the SPV Funding Payments are received by the SPV, amend, supplement, modify or waive (or provide a consent to like effect) any provision of the CCS Agreement without the prior written consent of the Agent, such consent not to be unreasonably withheld; provided that: (A) the Province shall be entitled to: (x) provide waivers of a breach by Enhance, Wolf or the SPV of their respective obligations under the CCS Agreement as amended, modified and supplemented hereby (so long as any conditions thereto do not, in effect, amend, supplement or modify any provision of the CCS Agreement) and (y) consents and waivers of an administrative or minor nature; and (B) any amendment, supplement, modification or waiver (or the provision of a consent to like effect) of any provision...
of the CCS Agreement that solely relates to the obligations of, or solely affects, NWR, shall not require the consent of the Agent.

(e) Subject to Section 3.6 hereof, the Province hereby irrevocably agrees to make all Wolf Funding Payments and SPV Funding Payments in accordance with Section 3.2 above or, if the Province has been notified in writing by the Agent (with a copy to Wolf or the SPV, as the case may be) that: (i) in the case of Wolf Funding Payments, an "Event of Default" under and as defined in the Credit Agreement has occurred and is continuing; or (ii) in the case of SPV Funding Payments, the SPV is in default under the Interim MSA or other agreements to which it is a party with Wolf or the Agent, in each case, to such other person and/or at such other address or account as the Agent may from time to time specify in writing to the Province and all payments made by the Province shall be accompanied by a statement stating that such payments are made under the CCS Agreement. Each of Enhance, Wolf and the SPV hereby irrevocably instructs the Province, and the Province accepts such instructions, to make all payments stated to be due and payable to Enhance under the CCS Agreement as set forth in the immediately preceding sentence. Any payment made by the Province to the Agent in connection with this Agreement, whether or not accompanied by such a statement, shall be fully credited against a corresponding amount of the Province’s payment obligations under the CCS Agreement and each of Enhance, Wolf and the SPV hereby releases the Province from any and all liability to them for making such payments. For greater certainty, nothing in this Section 5.3(e) applies to the Instalments payable to Enhance or NWR as listed in Schedule “B” hereto.

(f) In addition to and without limiting Section 5.3(d) above and notwithstanding any other provision hereof to the contrary, in the event of an Excluded Events/Defaults in respect of Wolf or the SPV, the Province shall not be entitled to terminate the CCS Agreement as a consequence of such Excluded Events/Defaults if and for so long as the Agent and the Lenders are diligently enforcing or attempting to enforce the Security or are stayed or otherwise precluded from enforcing the Security and their rights and remedies pursuant to Applicable Laws or an Insolvency Event (including pursuant to any order of a court of competent jurisdiction).

5.4 Capacity of Agent

This Agreement is granted to the Agent in its capacity as administrative and collateral agent under the Security and all of the covenants, representations, warranties, rights, benefits and protections made or given in favour of the Agent hereunder are acknowledged to be for the joint and several benefit of the Agent and the other Secured Parties.

ARTICLE 6
REPRESENTATIONS AND WARRANTIES

6.1 Representations and Warranties

(1) The Province hereby represents and warrants in favour of the other parties hereto, as of the date of this Agreement, the following:
(a) The Province, as represented by the Minister of Energy, has all necessary power, capacity and authority to execute and deliver this Agreement and the Province has all necessary power, capacity and authority to perform its obligations under this Agreement and the CCS Agreement.

(b) The execution, delivery and performance by the Province of this Agreement and the CCS Agreement have been duly authorized by all necessary action on the part of the Province.

(c) This Agreement has been duly and validly executed and delivered by the Province.

(d) Each of this Agreement and the CCS Agreement (assuming the due authorization, execution and delivery by, and binding effect on, each of the other parties to this Agreement and the CCS Agreement) constitutes a legal, valid and binding obligation of the Province enforceable against it in accordance with its terms, except as the enforceability thereof may be limited by bankruptcy, insolvency, reorganization or moratorium or other similar laws relating to the enforcement of creditors’ rights generally and by general equitable principles.

(e) The CCS Agreement is in full force and effect as against the Province and are unamended (except, for certainty, in the case of the CCS Agreement, as provided for in this Agreement).

(f) The Province has not consented under section 94 of the Financial Administration Act (Alberta) to any assignment of the Instalments or any other payment under the CCS Agreement, other than under this Agreement.

(g) The Province has not received any notice that it is in default under any covenant or obligation under the CCS Agreement and, to its knowledge, is not aware of any default by the Province of any of its obligations under the CCS Agreement that has occurred as of the date hereof.

(h) To the knowledge of the Province, none of Enhance, Wolf, the SPV or NWR is in default under any material covenant or obligation of this Agreement or the CCS Agreement as of the date hereof after giving effect to the assignment to the Agent of the CCS Agreement pursuant to the Security and after giving effect to the acknowledgment of and consent to such assignment by the Province (as evidenced by this Agreement).

(i) The Province has not received notice of any prior sale, transfer, assignment, hypothecation or pledge of the CCS Agreement by Enhance, Wolf or the SPV.

(2) Each of Wolf, Enhance and the SPV and NWR hereby represents and warrants in favour of the Agent and the Province, as of the date of this Agreement, the following:

(a) It is duly formed and validly existing under the laws of Alberta and has the requisite power to carry on its business as currently being conducted and as proposed to be conducted by it.
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(b) It has all necessary power, capacity and authority to execute, deliver and perform its obligations under this Agreement and the CCS Agreement as modified by this Agreement.

c) The execution, delivery and performance by of this Agreement by it have been duly authorized by all necessary action on its part and it has duly and validly executed and delivered this Agreement.

d) This Agreement constitutes its legal, valid and binding obligation enforceable against it in accordance with its terms, except as the enforceability thereof may be limited by bankruptcy, insolvency, reorganization or moratorium or other similar laws relating to the enforcement of creditors’ rights generally and by general equitable principles.

e) This Agreement and the CCS Agreement are each in full force and effect as against it and are unamended (except, for certainty, in the case of the CCS Agreement, as provided for in this Agreement).

(f) None of the execution and delivery of this Agreement, the consummation of the transactions herein contemplated or compliance with its obligations or the terms and provisions hereof shall conflict with or result in a breach of, or require any agreement which has not already been obtained under:

   (A) its constating documents;

   (B) any Applicable Laws or regulation, order, writ, injunction or decree of any court; or

   (C) any agreement or instrument to which it is a party or by which it is bound or to which it is subject, or constitute a default under any such agreement or instrument.

(g) It has obtained all permits, licenses, approvals and consents with respect to the entry into and performance of its obligations under this Agreement as required by Applicable Laws in effect as of the date hereof, except to the extent not yet required.

(h) It is not in violation of any Applicable Laws or judgment entered by any Governmental Authority which violations, individually or in the aggregate, would materially and adversely affect its performance of any of its obligations under this Agreement or the CCS Agreement. There are no legal or arbitration proceedings or any proceeding by or before any Governmental Authority now pending or (to its knowledge) threatened against it which: (i) question the validity, binding effect or enforceability of the CCS Agreement or any action taken or to be taken pursuant thereto or any of the transactions contemplated thereby or (ii) if adversely determined, could reasonably be expected to have a material adverse effect on its ability to perform its obligations under this Agreement or the CCS Agreement.
6.2 Survival of Representations and Warranties

The representations set out in this Agreement shall survive the execution and delivery of this Agreement, notwithstanding any examinations or investigations which may be made by the parties hereto or their respective legal counsel or other advisors.

ARTICLE 7
RIGHTS OF AGENT

7.1 Right to Receive Notice; Other Information

(a) The Province shall, concurrently with (or forthwith after) any delivery made by the Province to:

(i) Wolf of a Notice of Wolf Default;
(ii) SPV of a Notice of SPV Default;
(iii) Enhance of a Notice of Enhance Default; or
(iv) NWR of a Notice of NWR Default,

deliver to each of the other parties hereto, including the Agent, a notice (a "Default Notice") that it has delivered such Notice of Default, together with a copy of such Notice of Default (and other information relating to such default in reasonable detail to the extent not provided for in such Notice of Default).

(b) To the extent such Default Notice is in respect of a Notice of Wolf Default or Notice of SPV Default, such Default Notice shall specify whether the applicable Wolf Default or SPV Default, as the case may be, is a failure to meet a payment obligation of Wolf or the SPV, as the case may be, arising under or pursuant to the CCS Agreement (a "Payment Default") or any other performance or other default by Wolf or the SPV, as the case may be (a "Performance Default").

(c) For the avoidance of doubt, the Province shall not be required to monitor any of Wolf, the SPV, Enhance or NWR but shall be required to provide a Default Notice for a Wolf Default, SPV Default, Enhance Default or NWR Default concurrently with (or forthwith after) providing a Notice of Default with respect thereto.

(d) In assessing whether or not to exercise its rights hereunder and under the Secured Debt Documents:

(i) if the Agent, despite its commercially reasonable measures to obtain from Wolf, Enhance or the SPV pertinent information relative to the CCS Agreement, is unable to obtain such information or, acting reasonably, wishes to confirm such information, the Agent may request the Province to:

(A) confirm information provided by Enhance, Wolf or the SPV; or
(B) supply information not provided by Enhance, Wolf or the SPV;
upon receipt of a request from the Agent under Section 7.1(d)(i) hereof, the Province shall as soon as is practicable respond to such request for information to the extent that the information sought is known by or reasonably available to the Province; and

the Province shall not incur any liability or obligation to the Agent, Wolf, Enhance or the SPV in respect of information supplied or confirmed to the Agent under Section 7.1(d)(ii) hereof, or cooperation provided pursuant to the next paragraph, except to the extent that a senior official of the Province knew that the information supplied or confirmed was incorrect or misleading in a material respect and the Agent relied on such incorrect or misleading information to its detriment.

In addition, but subject to Section 7.1(d)(iii) above, the Province will provide reasonable cooperation to the Agent in furnishing information reasonably requested by the Agent in relation to any remedial plan being considered by the Agent.

7.2 Cure Period for Defaults

(a) Right to Cure and Cure Period for Payment Defaults.

(i) In addition to and without limitation to any other rights or obligations the Province may have under this Agreement or the CCS Agreement, and without waiving or releasing Wolf or the SPV from any obligation under this Agreement or the CCS Agreement or any other instrument, in respect of an uncured Payment Default, the Province shall provide written notice of such failure to cure (in this Section 7.2(a), the “Second Default Notice”) to the parties hereto, including the Agent. A Second Default Notice may be provided at any time that is not earlier than the date a Default Notice is given hereunder in respect of such Payment Default.

(ii) Upon receipt of the Second Default Notice, the Agent or its nominee shall have the right, but not the obligation, to cure or mitigate or cause to be cured or mitigated such Payment Default listed in the Second Default Notice within 60 days of the date of receipt of the Second Default Notice; provided that no such curing of a Payment Default shall be construed as an assumption by the Agent of any covenants, agreements or obligations of either Wolf or the SPV under or in respect of the CCS Agreement. The applicable cure period pursuant to this Section 7.2(a)(ii) is hereinafter referred to as the “Agent’s Payment Default Cure Period”.

(iii) Until the expiry of the Agent’s Payment Default Cure Period, the CCS Agreement shall remain in full force and effect and the Province shall not and shall not be entitled to terminate the CCS Agreement or exercise or enforce any and all other rights and remedies as may otherwise be provided for in the CCS Agreement.

(b) Right to Cure and Cure Period for Performance Defaults.

(i) The Agent or its nominee shall have the right, but not the obligation, to cure or mitigate or cause to be cured or mitigated the applicable uncured Performance
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Default within 180 days of the date of receipt of the applicable Default Notice; provided that no such curing of a Performance Default shall be construed as an assumption by the Agent or its nominee of any covenants, agreements or obligations of Wolf or the SPV under or in respect of the CCS Agreement or this Agreement. The applicable cure period pursuant to this Section 7.2(b) is hereinafter referred to as the "Agent’s Performance Default Cure Period" and the Agent’s Payment Default Cure Period and the Agent’s Performance Default Cure Period are hereinafter collectively referred to as the "Agent's Cure Periods" and, individually referred to as an "Agent's Cure Period". In the event that the applicable Performance Default shall not be reasonably capable of being cured by the Agent within the Agent’s Performance Default Cure Period and if the Agent or its nominee shall, as soon as reasonably practicable after the date of receipt of such applicable Default Notice, initiate action to cure such Performance Default and, so long as the Agent or its nominee thereafter continues to diligently attempt to complete the curing thereof, the Agent’s Performance Default Cure Period shall be extended to a date which is no later than 270 days after the date of receipt by the Agent of the applicable Default Notice.

(ii) Until the expiry of the Agent’s Performance Default Cure Period, the CCS Agreement shall remain in full force and effect and the Province shall not and shall not be entitled to exercise its rights to terminate the CCS Agreement against Wolf or the SPV or exercise or enforce any and all other rights and remedies as may otherwise be provided for in the CCS Agreement against Wolf or the SPV. For certainty, if Finance COD is not achieved by the Outside Date, the Agent or its nominee shall nevertheless have the full Agent's Performance Default Cure Period beyond the Outside Date to remedy or cure such Default by Wolf or the SPV (that is, the CCS Agreement shall remain in full force and effect with respect to Wolf and the SPV and the Province shall not and shall not be entitled to exercise its rights to terminate the CCS Agreement against Wolf or the SPV or exercise or enforce any and all other rights and remedies against Wolf or the SPV as may otherwise be provided for in the CCS Agreement due to Finance COD not having been achieved until the date which is 181 days (or, if applicable, 271 days) after the Outside Date).

(iii) If and to the extent that the Agent permits Enhance or Wolf to exercise Enhance Step-in Rights or Wolf Step-in Rights, as the case may be, in order to cure a Payment Default or Performance Default and Enhance or Wolf, as the case may be, is exercising such Enhance Step-in Rights or Wolf Step-in Rights, as the case may be, with the consent of the Agent, references to the Agent in subparagraphs (a)(i), (a)(ii), (b)(i) and (b)(ii) of this Section 7.2 include Enhance or Wolf as applicable, and the curing of any such Default by Enhance or Wolf, as applicable, shall have the same effect hereunder as a cure effected by or on behalf of the Agent, mutatis mutandis.

(c) Suspension of Cure Periods during Stay of Proceedings. If the Agent or its nominee (as applicable) are prohibited by any Applicable Laws or stay or other process or injunction issued by any court or other authority having jurisdiction of any proceeding relating to any Insolvency Event involving Wolf, SPV, Enhance or NWR from continuing the cure of a Wolf Default or SPV Default, as the case may be, or from otherwise exercising any of
their rights or remedies under the Security, then the times specified herein for the exercise by the Agent of any right or benefit granted to it hereunder (including the Agent’s Cure Periods) shall be extended for the period of such prohibition to the extent that it is prohibited from exercising the rights under the Security; provided that the Agent continues to diligently pursue such rights or remedies (to the extent permitted) in such proceeding or otherwise.

(d) **Deemed Extension of Outside Date within the Agent's Cure Period.** Notwithstanding anything herein to the contrary and in addition to the other extensions of the Outside Date contemplated hereby, to the extent the Outside Date expires within an Agent's Cure Period, the Outside Date will automatically be extended, day-for-day, until the expiry of the Agent's Cure Period in respect thereof (it being the express intention of the parties that: (i) the Agent shall have the ability to cure any and all SPV Defaults and Wolf Defaults during an Agent's Cure Period regardless of whether the Outside Date has occurred or not; and (ii) the Province shall not, except as expressly contemplated by this Agreement, be able to exercise any of its rights as against Wolf or the SPV prior to the expiry of the Outside Date and, in any event, during an Agent's Cure Period in accordance with the provisions hereof).

(e) **Defaults Deemed Cured.** Once a Wolf Default or SPV Default, as the case may be, has been cured in all material respects by Wolf or the SPV, as the case may be, or the Agent or its nominee, there shall no longer be deemed to be any default under the CCS Agreement in respect of any such default so cured. No curing or attempt to cure any Wolf Default or SPV Default shall be construed as constituting the Agent or its nominee or any of the other Secured Parties as a mortgagee in possession or as an assumption by the Agent or its nominee or any of the other Secured Parties of any of the covenants, obligations or agreements of Wolf or the SPV, as the case may be, under the CCS Agreement.

7.3 **Agent’s Option Upon Termination**

If the interests of Wolf and/or the SPV in the CCS Agreement, which interests have been created by this Agreement, shall be terminated in or as a consequence of any insolvency proceedings or Insolvency Event in respect of any of Enhance, NWR, Wolf or the SPV, then, the Agent may, by written notice to the Province, require the Province to enter into a new contract with a person designated in writing by the Agent (provided such person is a Qualified Transferee) and any Non-Defaulting Recipient which provides a written request to the Province and the Agent to be a party to such new contract, in form and substance the same as the interests of Wolf and/or the SPV in the CCS Agreement which have been created by this Agreement and taking into account and accounting for all prior performance by the Province and Enhance, NWR, Wolf or the SPV, as the case may be (the "Replacement CCS Agreement"), and such Replacement CCS Agreement shall be entered into and have a date that is within 90 days of the date such person has demonstrated to the Province the matters set forth in subparagraphs (c), (d) and, if applicable, (b)(ii) of the definition of Qualified Transferee; provided that: (a) the Agent has cured in all material respects any other Wolf Defaults or SPV Defaults, as the case may be, outstanding as of the date of such Replacement CCS Agreement (other than Excluded Events/Defaults); and (b) performance of the Replacement CCS Agreement, in all material respects, will commence promptly following the date of such Replacement CCS Agreement. In the event that such insolvency proceedings, Insolvency Event or the obtaining of any approvals, consents or permits...
from any Governmental Authority prevent the entering into of the Replacement CCS Agreement within such 90 day period (the "Replacement Agreement Option Period") or the performance thereof and if the Agent or its nominee shall, within such period, initiate action to permit the entering into of such Replacement CCS Agreement and diligently attempt to complete the same, the Replacement Agreement Option Period shall be extended so long as the Agent or its nominee continues to diligently attempt to complete the same, provided that, in all events, (A) the term of the Replacement CCS Agreement shall not exceed ten years after the Enhance Commercial Operation Date and (B) no Instalment shall in any event become payable beyond December 31, 2025. For clarity, unless agreed otherwise by the Province, the Qualified Transferee, Enhance and NWR, the Replacement CCS Agreement shall not include (i) the interests of Enhance in the CCS Agreement (except and to the extent that such interests are also interests of Wolf and/or the SPV) and (ii) the interests of NWR in the CCS Agreement.

7.4 Right Upon Credit Agreement Default

Upon receipt by the Province of written notice from the Agent that an Event of Default (as defined in the Credit Agreement) has occurred and is continuing, the Agent or its nominee shall be entitled, pursuant to Section 7.5 hereof, to exercise any and all rights and obligations of Wolf hereunder and under the CCS Agreement in accordance with their respective terms and the Province shall comply with such exercise in accordance with and subject to its obligations hereunder and under the CCS Agreement. Upon receipt by the Province of written notice from the Agent that the SPV is in default under the MSA or other agreements to which it is a party with Wolf or the Agent, the Agent or its nominee shall be entitled, pursuant to Section 7.5 hereof, to exercise any and all rights and obligations of SPV hereunder and under the CCS Agreement in accordance with their respective terms and the Province shall comply with such exercise in accordance with and subject to its obligations hereunder and under the CCS Agreement. Without limiting the generality of the foregoing, the Agent, its nominee and any permitted assignee thereof shall have the full right and power to enforce directly against the Province (subject to all of the Province’s rights, remedies, counterclaims and defenses under the CCS Agreement) all obligations of the Province under the CCS Agreement and otherwise to make all demands and give all notices and make all requests required or permitted to be made by Wolf and the SPV thereunder provided such nominee or permitted assignee, as the case may be, assumes Wolf's or the SPV’s, as the case may be, obligations pursuant to Section 7.5 hereof. Upon receipt by the Province of a written notice of an Event of Default pursuant to this Section 7.4, the Province shall not accept any assignment notice from any person other than the Agent, its nominee or any Qualified Transferee. Each of Wolf and the SPV acknowledges and agrees to the foregoing and further acknowledges and agrees that, following the receipt of a notice described in this Section 7.4 from the Agent, the Province shall incur no liability to Wolf, Enhance or the SPV in connection with actions contemplated in this Section 7.4.

7.5 Transfer of Rights

(a) Subject as provided herein and provided that any transfer of Wolf's or the SPV's interest under the CCS Agreement or this Agreement is to a Qualified Transferee that assumes all of the obligations of Wolf or the SPV, as the case may be, thereunder and cures or rectifies all Wolf Defaults or SPV Defaults, as applicable (other than Excluded Events/Defaults), the Province shall consent to the transfer of Wolf's or the SPV's interest under the CCS Agreement and this Agreement pursuant to the exercise of the Agent's remedies under the Security. Upon any transfer in accordance with the immediately
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preceding sentence, the Province agrees that it shall recognize the Agent's nominee or assignee, as the case may be, as Wolf or the SPV, as the case may be, under the CCS Agreement and this Agreement.

(b) The Province hereby covenants and agrees to provide any required consents, execute and deliver such agreements, instruments and other documents and take any other steps and actions as may be reasonably required by the Agent to assign, or evidence the assignment of, the right, title and interest of Wolf or the SPV, as the case may be, in and to the CCS Agreement and this Agreement, provided no such agreement, instrument, document, step or action shall require the Province to take on any liability or obligation, or derogate from any right or entitlement, except as set forth in the CCS Agreement or this Agreement.

(c) The Security Interest granted by Wolf or the SPV, as the case may be, in the CCS Agreement and this Agreement is not intended to operate as a transfer or absolute assignment of Wolf's or the SPV's, as the case may be, right, title, estate and interest in and to the CCS Agreement and this Agreement. Accordingly, nothing herein shall render the Agent or any other person for whom the Agent is in law responsible or liable for the fulfillment or non-fulfillment of any of the covenants, agreements, obligations, terms or conditions contained in the CCS Agreement or any of the covenants, agreements, obligations, terms or conditions of Wolf or the SPV hereunder or pursuant hereto, unless and until the Agent expressly agrees to assume or become liable for the same.

(d) In connection with the exercise of its rights and remedies under the Security, the Agent shall not cause or support, and shall use commercially reasonable efforts to support any application or proceeding by the Province to oppose, in each case, to the extent within its rights under or arising from the Security, the assignment or transfer of all or any portion of the Collateral to any person except a person that has agreed to be a party to the CCS Agreement and to assume, subject as provided in Section 7.5(e) hereof, all of the obligations of Wolf or the SPV, as the case may be, thereunder. If the CCS Agreement shall be terminated in or as a consequence of any insolvency proceedings or Insolvency Event of Wolf, the SPV, Enhance or NWR, the Agent shall, to the extent within its rights under or arising from the Security, use all commercially reasonable efforts to support any application or proceeding by the Province to require any nominee or assignee of the Collateral, or any portion thereof, to enter into a Replacement CCS Agreement with the Province in form and substance the same as the CCS Agreement (but, subject as provided in this Agreement, taking into account and accounting for all performance by the Province and Enhance, NWR, Wolf or the SPV, as the case may be, as of the date of such new agreement).

(e) Notwithstanding anything in the CCS Agreement to the contrary, the Province confirms, acknowledges and agrees for the benefit of the Agent, the other Secured Parties and any nominee, assignee or transferee of Wolf's or the SPV's interest in the CCS Agreement pursuant to this Agreement (provided such nominee, assignee or transferee is a Qualified Transferee) that upon the transfer of Wolf's or the SPV's interest under the CCS Agreement pursuant to the exercise of the Agent's remedies under the Security in accordance with this Agreement or in connection with any Insolvency Event and without limiting the obligations of such nominee, assignee or transferee to cure or rectify all Wolf Defaults or SPV Defaults, as the case may be, (other than Excluded Events/Defaults):
(i) such nominee, assignee or transferee shall not be liable for, assume, or be obligated to pay, any damages or other amount (excluding, for certainty, any Funding repayable by Wolf or the SPV to the Province pursuant to Section 4.4 of the CCS Funding Agreement) to the Province in respect of any Default by Wolf, the SPV or Enhance, as the case may be, under the CCS Agreement or hereunder or in respect of any Excluded Events/Defaults, nor shall the Province assert or be entitled to any right of set-off, counterclaim, deduction or reduction of amounts payable by the Province under the CCS Agreement in respect of such damages or other amounts;

(ii) such nominee, assignee or transferee shall not be liable for, assume, or be obligated to pay, any damages or other amount (excluding, for certainty, any Funding repayable by Wolf or the SPV to the Province pursuant to Section 4.4 of the CCS Funding Agreement) to the Province in respect of the obligations to be assumed under the CCS Agreement or hereunder, to the extent such damages or other amounts arose from an event, circumstance, act or omission occurring prior to such assignment or transfer;

(iii) such nominee, assignee or transferee shall not be obligated to cure or rectify any Excluded Events/Defaults; and

(iv) the Province shall not be entitled to condition or withhold its consent to assignment of the CCS Agreement to such nominee, assignee or transferee by or in respect of any of the foregoing (provided, for certainty, such assignment shall be to a Qualified Transferee).

For certainty, nothing in this Section 7.5(e) shall relieve Wolf or the SPV, as the case may be, of any obligations under the CCS Agreement or this Agreement, nor shall anything in this Section 7.5(e) limit, restrict or affect in any manner the ability of the Province to assert a claim against Wolf or the SPV, as the case may be, or in any proceedings relating to any Insolvency Event in respect of Wolf or the SPV (including filing a proof of claim, voting, receiving dividends and participating as a stakeholder) for the full amount of the damages to which it may be entitled under the CCS Agreement or this Agreement, provided that the Province’s claim in such insolvency proceeding shall be subordinate to the claims secured by the Security.

7.6 Province Acknowledgement re: Assigned CCS Agreement/Replacement CCS Agreement

In respect of any assignment of the CCS Agreement or the entering into of any Replacement CCS Agreement, the Province hereby acknowledges and agrees that:

(a) to the extent the Province has drawn, or otherwise presented or claimed under, any of the Wolf Letters of Credit previously delivered to the Province in respect of this Agreement or the CCS Agreement, as the case may be, the Province shall be required to provide to the assignees of this Agreement or the CCS Agreement, as the case may be, or persons party to any Replacement CCS Agreement, in each case, in the place and stead of Wolf and/or the SPV, as the case may be, the same Funding thereunder as is payable to Wolf and the SPV for the Wolf Funding Payments and SPV Funding Payments, respectively (it being acknowledged by the Province that this will restore the original Funding requirement and
require the payment by the Province of the same Funding to such assignees or parties as had been previously paid to Wolf and the SPV; provided that, one or more of such assignees or parties shall have provided replacement Letters of Credit to the Province for such Funding in accordance with the assigned CCS Agreement, such Replacement CCS Agreement or such new contract); and

(b) unless the Lenders have expressly agreed (in their sole discretion) that the Wolf Letters of Credit previously delivered by Wolf to the Province in respect of this Agreement or the CCS Agreement, as the case may be, shall continue as Letters of Credit issued for purposes of the assigned Agreement or CCS Agreement or any Replacement CCS Agreement, as the case may be, then the Province shall only be entitled to draw or claim under, or otherwise utilize, such previously delivered Wolf Letters of Credit prior to assignment of the CCS Agreement or this Agreement or entering into of a Replacement CCS Agreement (and shall not, and shall not be entitled, to draw or claim under, or utilize, such Wolf Letters of Credit otherwise and shall return the same to the Agent for cancellation); provided, however, that the foregoing shall not, and is not intended to, relieve any assignee of Wolf or the SPV of the obligation to deliver Letters of Credit as (i) a condition of receiving any Instalment (including in respect of Instalments made to Wolf, the SPV or Enhance prior to the assignment of the CCS Agreement or this Agreement or entering into of a Replacement CCS Agreement) or (ii) a condition precedent to such assignment or the entering into of a Replacement CCS Agreement.

ARTICLE 8
MISCELLANEOUS PROVISIONS

8.1 CCS Agreement

(a) All Security Interests on, to or against any of the Collateral which may be held by, or created in an manner in favour of, the Province relating to the payment or performance of any of Wolf's or the SPV's obligations pursuant to the CCS Agreement shall be in all cases subordinated to the Security; provided that, for certainty, such subordination shall not affect the Province's entitlement to draw upon and retain the proceeds of the Wolf Letters of Credit if and to the extent permitted by this Agreement.

(b) The Agent shall not commence, initiate or participate in any action or proceeding to challenge the validity or enforceability of the CCS Agreement or any rights or obligations set forth therein.

(c) The Agent will not support, and it will use commercially reasonable efforts to support the application of any of the other parties hereto to oppose, any action of any court-appointed receiver or of any person in an insolvency proceeding or a bankruptcy proceeding that does not honour the terms of the CCS Agreement.

(d) The Province agrees that it shall not commence, initiate or participate in any action or proceeding to challenge the validity or enforceability of the Secured Debt Documents or the Security or any rights or obligations set forth therein.
Each of Enhance, Wolf, the SPV and NWR acknowledges and agrees that no act, disclosure, or undertaking of the Province as required by this Agreement, or undertaken made in good faith by the Province in furtherance of its obligations in this Agreement, shall result in a breach or Default of the Province under the CCS Agreement. Without limitation to the foregoing and notwithstanding anything to the contrary in the CCS Agreement or the Secured Debt Documents, each of the parties hereto shall be entitled to disclose Confidential Information of Enhance, Wolf, the SPV or the Province, as the case may be, to another party hereto to the extent reasonably necessary for the purposes of this Agreement.

8.2 Dealings with Wolf, Enhance, the SPV and NWR

The Province acknowledges and agrees with the Agent that, except as may otherwise be set forth herein, the Agent and the other Secured Parties shall be entitled to do the following:

(a) agree to any change in, amendment to, waiver of, or departure from, any term of any of the Secured Debt Documents, including any amendment, renewal, restatement or extension of any such document;

(b) grant time, renewals, extensions, releases, discharges, waivers or other indulgences or forbearances to any person under or in respect of any of the Secured Debt Documents;

(c) change, whether by addition, substitution, removal, succession, assignment, grant of participation, transfer or otherwise, but in accordance with the applicable Secured Debt Documents, the Agent;

(d) acquire, give up, vary, exchange, release, discharge or otherwise deal with or fail to deal with any Security;

(e) abstain from taking, protecting, securing, registering, filing, recording, renewing, perfecting, insuring or realizing upon any Security; and/or

(f) otherwise deal freely with Wolf, SPV, Enhance, NWR and all other persons and security as the Agent and the Secured Parties may see fit in their sole discretion,

all of which may be done without notice to or consent of the Province and without impairing, releasing or otherwise affecting any rights or obligations of the Province under the CCS Agreement and hereunder or any rights or interests of the Agent hereunder.

8.3 Continuing Agreement

(a) Subject as expressly provided herein, this Agreement shall operate and apply, and remain in full force and effect, in all events and circumstances and the rights and obligations of the parties hereunder shall be absolute, irrevocable and unconditional in all events and circumstances. Without limiting the foregoing, this Agreement shall apply and operate notwithstanding:

(i) dissolution, bankruptcy, insolvency, arrangement with creditors, receivership, winding up, liquidation or other creditor proceedings in respect of Wolf, Enhance,
SPV, NWR or any other person, whether voluntary or involuntary and including any Insolvency Event;

(ii) any proposal made by or in respect of Wolf, Enhance, SPV, NWR or any other person under the BIA;

(iii) any proposed compromise, arrangement or liquidation by or in respect of Wolf, Enhance, SPV, NWR or any other person under the CCAA or any other Applicable Laws;

(iv) any sale of all or substantially all of the property and assets of Wolf, Enhance, SPV, NWR or any other person;

(v) the enforcement or realization of the Security or any part thereof or the dates or the sequence of commencement or completion of any proceedings to enforce the Security or any part thereof;

(vi) the dates of the creation, execution, delivery, filing, recording or registration of any of the Security;

(vii) the failure to file, record or register any of the Security or to maintain such filings, recordings and registrations;

(viii) the date of attachment or perfection of any of the Security or the perfection or non-perfection of any of the Security;

(ix) any amendment, modification, supplement or change or waiver of or consent under the terms of any of the Secured Debt Documents; and

(x) any other fact or circumstance whatsoever which at law or equity could affect the effectiveness of the provisions hereof.

(b) Without limiting the generality of Section 8.3(a) hereof, this Agreement shall remain in full force and effect without regard to, and the obligations of the parties hereunder shall not be affected nor impaired by:

(i) any exercise or non-exercise or delay in exercising by any of them of any right, remedy, power or privilege under or in respect of any Security or other documents;

(ii) any waiver, consent, extension, indulgence or other action, inaction or omission by any of them under or in respect of any Security or other documents;

(iii) any merger, consolidation, amalgamation, dissolution or winding up or any of the parties hereto into or with any other person; or

(iv) any insolvency, bankruptcy, liquidation, reorganization, arrangement, composition, winding up, dissolution or similar proceedings, or proceedings having similar effect, involving or affecting any party hereto.
It is intended that this Agreement be of a continuing nature and this Agreement shall apply to all past, present and future obligations and the Secured Debt Documents. This Agreement shall remain in full force and effect notwithstanding the fact that, at any time, Wolf, SPV, Enhance, NWR or any other person may not have any outstanding obligations to the Agent and the other Secured Parties.

8.4 Notices

Any notice, consent, approval or other communication under any provision of this Agreement or, in the case of Wolf and the SPV, under any provision of the CCS Agreement to the extent Wolf and the SPV has agreed to comply with such provision pursuant to, in the case of Wolf, Section 2.3 hereof, and, in the case of the SPV, Section 2.4 hereof, must be in writing to be effective, and is effective when delivered by any means, including e-mail (if applicable) or fax transmission, to the following respective addresses:

(a) if to the Province: to the address(es) indicated in the CCS Agreement;

(b) if to Wolf: 

Attention: 
Email: 
Facsimile: 
with a copy to:

(c) if to the SPV: 

Attention: 
Email: 
Facsimile: 
with a copy to:

(d) if to Enhance: to the address indicated in the CCS Agreement;

(e) if to NWR: to the address indicated in the CCS Agreement;

(f) if to the Agent: 

Attention: 
Facsimile: 
with a copy to:
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Attention:  
Facsimile:  

Any party may change its address information by giving notice to the other parties in the above manner.

For purposes of Section 7.6 of the CCS Agreement, Wolf and SPV hereby designate the following individuals as having the authority to communicate to any of the other parties to the CCS Agreement any notice, approval, consent, waiver or other communication under the CCS Agreement:

(a) in the case of Wolf:

(b) in the case of the SPV:

8.5 Applicable Laws; Jurisdiction; Attornment; Waiver of Jury Trial

(a) This Agreement shall be governed by the laws in force in Alberta, including the federal laws of Canada applicable therein.

(b) The parties hereto each hereby attorn and submit to the exclusive jurisdiction of the courts of the Province of Alberta in regard to legal proceedings relating to this Agreement (for certainty, notwithstanding Section 8.1 of the CCS Agreement); provided that, in respect of any matter where an interpretation of the CCS Agreement is required in respect of any legal proceedings relating to this Agreement, the parties shall, firstly, use the protocol and procedure consistent with the protocol and procedure established pursuant to Section 8.1 of the CCS Agreement, as set forth in Schedule “D” hereto (and, for such limited purpose, each of the SPV and Wolf will be subject to Section 8.1 of the CCS Agreement) and, in the event that disputes arise out of or in connection with such interpretation that are not resolved through such protocol and procedure, all such disputes shall be finally resolved by arbitration with a panel of three arbitrators pursuant to the then current National Arbitration Rules of the ADR Institute of Canada Inc. or, if the parties so agree with respect to a particular dispute, the then current Simplified Rules of the ADR Institute of Canada Inc. The place of the arbitration hearing required pursuant to this Section 8.5(b) shall be Edmonton, Alberta. Any decision rendered by the panel of arbitrators in respect of any interpretation matter in respect of the CCS Agreement may be entered in any court having jurisdiction, or application may be made to such court for judicial recognition and enforcement of such decision.
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(c) For the purpose of all legal proceedings in respect of this Agreement, this Agreement shall be deemed to have been performed in the Province of Alberta and the courts of the Province of Alberta shall have the exclusive jurisdiction to entertain any action arising under this Agreement and shall not be subject to the arbitration provisions in Section 8.5(b) hereof. For certainty, it is the express intention of the parties hereto that this Agreement and all matters which are the subject of this Agreement, save and except for the interpretation of the CCS Agreement itself, shall be dealt with by and through courts of competent jurisdiction, and shall not be subject to arbitration.

(d) To the extent permitted by Applicable Laws, each of the parties hereto hereby irrevocably waives all right to trial by jury in any action, proceeding or counterclaim (whether based on contract, tort or otherwise) arising out of or relating to this Agreement or the actions of the Agent or any other Secured Party in the negotiation, administration, performance or enforcement thereof.

8.6 Amendment and Waiver

No amendment of this Agreement is effective unless made in writing and signed by a duly authorized representative of each party hereto. No waiver of any provision of this Agreement is effective unless made in writing, and any such waiver has effect only in respect of the particular provision or circumstance stated in the waiver. No representation by any of the parties with respect to the performance of any obligation under this Agreement is capable of giving rise to an estoppel unless the representation is made in writing.

8.7 Subsequent Financings

The Province hereby agrees that in the event (a) the Agent realizes upon the Collateral pursuant to the Secured Debt Documents, or (b) any of Wolf or its subsidiaries obtains any replacement or additional financing, it shall execute and deliver, upon the request of the Agent or Wolf or its subsidiary, as the case may be, an agreement in the same form and content, mutatis mutandis, as this Agreement, with the lender or lenders to the person who acquires the Collateral as a result of such realization or with the lender or lenders who provide such replacement or additional financing to Wolf or such subsidiary (or with any collateral trustee on behalf of such lender or lenders).

8.8 Additional Assurances

Each party agrees to from time to time do all such acts and provide such further assurances and instruments as may reasonably be required in order to carry out the provisions of this Agreement according to their spirit and intent.

8.9 Entire Agreement

Unless otherwise stated in this Agreement, this Agreement constitutes the entire agreement between the parties in connection with its subject matter and supersedes all prior representations, communications, negotiations and understandings concerning the subject matter of this Agreement. No party has relied on any representation except as expressly set out in this Agreement.
8.10 Termination of Agreement With Respect to Secured Parties

The rights and obligations of the Agent and the other Secured Parties created by this Agreement shall in each case terminate and shall be of no further force and effect upon the earliest to occur of:

(a) all Secured Obligations and the Security being paid and satisfied in full and in cash and the credit facilities under the Credit Agreement being fully cancelled;

(b) the written agreement of the Agent and the Province and notice of such agreement being given to the other parties hereto; and

(c) the satisfaction in full of all of the Province’s obligations under the CCS Agreement at the end of the Term thereof and the termination of the CCS Agreement.

For clarity, nothing in this Section 8.10 terminates, reduces or otherwise affects:

(d) those terms of this Agreement which are stated or intended to survive or be re-instated after the foregoing termination;

(e) any of the rights or obligations of any of the CCS Parties under the CCS Agreement;

(f) any of the rights or obligations of any of the parties under this Agreement which are not rights or obligations of the Secured Parties; or

(g) any of the rights or obligations of any of the parties under any of the Secured Debt Documents (other than this Agreement).

8.11 Severability

Any provision of this Agreement which is invalid, prohibited or unenforceable in any jurisdiction shall not invalidate the remaining provisions hereof and any such invalidity, prohibition or unenforceability in any jurisdiction shall not invalidate or render unenforceable such provision in any other jurisdiction.

8.12 Negotiated Document

This Agreement is the result of negotiations between the parties hereto and has been reviewed by legal counsel to each of the parties hereto and is the product of all of the parties hereto. Accordingly, this Agreement is not to be construed against any party merely because of its involvement in the preparation of this Agreement.

8.13 Authorization; Agreement to Benefit

By its signature, the Agent hereby represents and warrants to the other parties hereto that it is duly authorized to execute this Agreement for and on behalf of the Secured Parties and that such Secured Parties are bound hereby. The Agent is entering into this Agreement as agent for and on behalf of the other Secured Parties and, accordingly, each of the other Secured Parties shall be entitled to the benefit hereof and be subject to the obligations hereof as if it was a party hereto.
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(and, in particular, shall be entitled to rely upon the representations and warranties of the Province set forth herein).

8.14 Enurement

This Agreement shall:

(a) be binding upon each of the parties hereto and each of the other Secured Parties and each of their respective successors and permitted assigns; and

(b) enure to the benefit of and be enforceable by each of the parties hereto and each of the other Secured Parties and each of their respective successors and permitted assigns, including any permitted assignee of some or all of the Secured Debt Documents.

8.15 Time of the Essence

Time shall be of the essence in this Agreement.

8.16 Paramountcy

In the event of any conflict or irreconcilable inconsistency between the provisions of this Agreement and the provisions of the CCS Agreement, the provisions of this Agreement shall prevail to the extent of such conflict or irreconcilable inconsistency.

8.17 Counterparts

This Agreement may be executed in counterparts, in which case (i) the counterparts together shall constitute one agreement, and (ii) communication of execution by fax or other electronic transmission shall constitute good delivery.

[Remainder of this page intentionally left blank.]
IN WITNESS WHEREOF, each party by its respective officers or other representatives thereunto duly authorized have caused this Agreement to be duly executed and delivered as of the date first written above.

HER MAJESTY THE QUEEN IN RIGHT OF ALBERTA, as represented by the Minister of Energy

By: 
Name: 
Title: 

ENHANCE ENERGY INC.

By: 
Name: 
Title: 

By: 
Name: 
Title: 

WOLF CARBON SOLUTIONS INC.

By: 
Name: 
Title: 

By: 
Name: 
Title: 

2073215 ALBERTA LTD.

By: 
Name: 
Title: 

By: 
Name: 
Title: 

Signature Page to the Consent and Acknowledgement Agreement (Province of Alberta)
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NORTH WEST REDWATER PARTNERSHIP

By: ________________________________________________
Name: 
Title: 

By: ________________________________________________
Name: 
Title: 

ROYAL BANK OF CANADA, as Agent

By: ________________________________________________
Name: 
Title: 

By: ________________________________________________
Name: 
Title: 

Signature Page to the Consent and Acknowledgement Agreement (Province of Alberta)
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CCS FUNDING AGREEMENT – THE ALBERTA CARBON TRUNK LINE PROJECT

made the 30th day of September, 2010

BETWEEN:

HER MAJESTY THE QUEEN IN RIGHT OF ALBERTA, as represented by the Minister of Energy

(the “Province”)

AND:

ENHANCE ENERGY INC., a body corporate incorporated under the laws of Alberta, and NORTH WEST REDWATER PARTNERSHIP, a body corporate incorporated under the laws of Alberta

(collectively the “Recipients” and individually a “Recipient”)

PREAMBLE:

In response to the Full Project Proposals Information Package issued by the Province under its Carbon Capture and Storage Program, the Recipients submitted a proposal in respect of “The Alberta Carbon Trunk Line Project”. The Province has agreed to contribute funding of up to $371.25 million to Enhance and up to $123.75 million to NWU towards their respective costs of carrying out such project, and the Province and the Recipients have reached agreement on the terms and conditions upon which such funding will be provided.

The Province and the Recipients therefore agree as follows:

1. INTERPRETATION

1.1 Defined Terms

In this Agreement, the following expressions have the following meanings (and where applicable, the plural or the singular thereof have corresponding meanings):

“Affiliate” means a body corporate that is affiliated with another body corporate within the meaning of the Business Corporations Act (Alberta), as amended from time to time, and includes with respect to any partnership or limited partnership: (i) any corporation with which any of the partners thereof is affiliated (within the foregoing meaning), and
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(ii) the partnership or limited partnership itself if the respective body corporate or an affiliate of the body corporate (within the foregoing meaning) owns more than 50% of the interest in the partnership or limited partnership;

“Agrium” means Agrium, a general partnership registered under the laws of Alberta whose partners are Agrium Products Inc., Viridian Fertilizers Limited and Agrium Inc., being the owner and operator of a fertilizer manufacturing plant located in Redwater, Alberta;

“Business Day” means a day other than a Saturday, Sunday or statutory holiday in Alberta;

“CCS” means carbon capture and storage, being the capture, transportation and geological sequestration of carbon dioxide;

“Commercial Operation” means achievement of successful culmination of the commissioning process for the Project by a Recipient, such that the elements of the Project which are the sole or primary responsibility of such Recipient has achieved operations on a continuous basis for at least thirty days as described in Schedule “D”;

“Enhance” means Enhance Energy Inc., being one of the Recipients;

“Enhance Commercial Operation Date” means, subject to amendment in accordance with Section 6.6(f)(ii), the date when Enhance achieves Commercial Operation as certified by the Independent Engineer in accordance with Section 4.3(b)(i);

“Fiscal Year” means the fiscal year of the Province, being the period from April 1 of a calendar year to March 31 of the following calendar year;

“FOIP Act” means the Freedom of Information and Protection of Privacy Act (Alberta), including any amendments from time to time;

“FPP” means the document dated December 2008 entitled “Carbon Capture and Storage Program: Full Project Proposals Information Package” issued by the Province with respect to full project proposals for funding under the Province’s Carbon Capture and Storage Program as more particularly described in such document;

“Funding” means the grant funding to be contributed by the Province under this Agreement, as more particularly described in Section 4.1;

“Independent Engineer” means an independent engineering firm as more particularly described in Section 4.3;

“Instalments” means the instalments of the Funding contemplated by Section 4.2;
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“Letter of Credit” means any letter of credit described in Section 4.5;

“NWU” means North West Redwater Partnership, being one of the Recipients;

“Other Public Funding” means, at any time, the amount of funding that has been contributed or committed in respect of the Project, or a part thereof (applying, where appropriate, a reasonable allocation of such funding if it is partly in respect of the Project and partly in respect of operations or activities outside or beyond the Project), by any entity that is a government or a not for profit entity that is funded primarily by government (including without limitation in each case the Province and the Government of Canada), but excluding any such funding provided to the Recipients pursuant to this Agreement;

“Parties” means the Province and the Recipients;

“Project” means the project referred to as “The Alberta Carbon Trunk Line Project” described in the Project Plan;

“Project Costs” means, for each respective Recipient, all capital and operating costs of the Project from January 1, 2009 to the end of the Term, determined in accordance with Section 3.5;

“Project Milestones” are the events specifically listed as Project Milestones in the Project Timeline and the Projected Payment Schedule;

“Project Plan” is the document attached as Schedule “A” to this Agreement, and includes any amendments made in accordance with Section 3.2;

“Project Results” means the information to be provided pursuant to Section 5.1, in the form prescribed by Schedule “E”;

“Project Revenues” means, for each respective Recipient, revenues of the Project during the Term, determined in accordance with Section 3.6;

“Project Timeline” is the document attached as Schedule “B” to this Agreement, and includes any updated Project Timeline delivered in accordance with Section 3.3;

“Projected Payment Schedule” is the document attached as Schedule “C” to this Agreement, as amended annually in accordance with Section 3.4;

“Term” means, subject to amendment in accordance with Section 6.6(f)(ii), the period from and including the date of execution of this Agreement to and including the date that is the earlier of (i) ten years after the Enhance Commercial Operation Date, or (ii) the date of termination of this Agreement.
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1.2 Section References

References in this Agreement to Sections of this Agreement are to the correspondingly numbered provisions of this Agreement. References to Schedules are to the corresponding Schedules listed in Section 1.3.

1.3 Schedules

The following Schedules attached to this Agreement are part of this Agreement:

Schedule “A” – Project Plan
Schedule “B” – Project Timeline
Schedule “C” – Projected Payment Schedule
Schedule “D” – Commercial Operation
Schedule “E” – Form of Project Results

In addition, the documents which are expressly incorporated by reference in the Schedules are a part of the respective Schedule (and therefore a part of this Agreement).

In the event of any conflict or inconsistency between any of the Schedules and any provision of the body of this Agreement, the body of this Agreement shall prevail.

1.4 Entire Agreement

This Agreement is the entire agreement between the Province and the Recipients regarding the Project and the Funding, and supersedes any previous agreements, negotiations and understandings. There are no agreements, representations, warranties, terms, conditions or commitments regarding the subject matter of this Agreement except as expressed in this Agreement.

1.5 Currency

In this Agreement, all references to dollar amounts are in Canadian currency.

1.6 FPP Process

By entering into this Agreement, the Recipients waive any objection to the process followed by the Province pursuant to the FPP, including any variance between this Agreement and any other funding arrangements entered into by the Province pursuant to the FPP.
2. THE RECEPIENTS

2.1 Recipients’ Obligations

Subject to Section 2.2, the obligations of the Recipients as set out in this Agreement shall be joint and several.

2.2 Several Obligations

The following obligations are the several obligations of the Recipients, and the Province may pursue any remedy only against the applicable Recipient in respect of such obligations:

(a) the obligations set out in Section 2.7;
(b) the obligations of Enhance set out in Section 3.8;
(c) the certification set out in Section 4.3(a), (b) and (c);
(d) the repayment of Instalments set out in Section 4.4;
(e) the provision of the Letter of Credit or alternative security contemplated by Section 4.5; and
(f) indemnification pursuant to the indemnity provided by Section 5.6, but only to the extent expressly set out therein.

2.3 Assignment

Neither this Agreement nor any right or benefit or payment under it will be assignable by either of the Recipients, whether as security or otherwise, except with the prior consent of the Province, which consent shall not be unreasonably withheld. Notwithstanding the foregoing, the Recipients may assign any amount of the Funding as security for the repayment of any loans or other credit facilities acquired by the Recipients directly and solely to finance the Recipients’ costs in respect of the Project.

2.4 Change in Control

Any change in the control of either of the Recipients or of the Project, as evidenced by any of the following:

(a) the disposition of all or substantially all of a Recipient’s assets to another person;
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(b) the disposition by a Recipient of any of its respective interest in the Project that results in such Recipient having less than or equal to 50% of its respective original interest in the Project;

(c) a change in the shareholdings of a Recipient (as applicable) such that any person becomes the owner, directly or indirectly, of a majority of the issued and outstanding voting shares;

(d) a change in the person who is responsible for operating any facilities arising from the Project from the person responsible as originally identified in the Project Plan;

(e) a change in the shareholding of any general partner of the Recipient (as applicable) such that any person not, directly or indirectly, wholly-owned by the same ultimate parent of the Recipient, becomes the owner, directly or indirectly, of a majority of the issued and outstanding shares; or

(f) the addition or removal of a general partner of the Recipient, regardless of whether such change involves an Affiliate of a general partner, other than the addition and removal of a general partner where the removed general partner and the added general partner are both, directly or indirectly, wholly-owned by the same ultimate parent.

shall require the prior consent of the Province, which consent shall not be unreasonably withheld.

Notwithstanding the foregoing, and subject to compliance with Section 2.5(b) and (c), the Province hereby consents to the assignment by NWU of the upgrader proposed by NWU (as set out in the Project Plan), and all associated tangible and intangible assets, together with the rights and obligations of NWU under this Agreement to a general partnership of which Canadian Natural Resources Limited and NWU (or their respective Affiliates) will be the partners, with the anticipated closing of such transaction occurring on or about November 1, 2010. In the event that such transaction does not close by December 31, 2010, NWU shall thereafter immediately provide notice to the Province and the aforementioned consent shall no longer be of force or effect.

2.5 Consent to Assignment or Change in Control

It shall be reasonable for the Province to withhold consent to an assignment under Section 2.3 or a change in control under Section 2.4 unless:

(a) the applicable Recipient establishes, to the satisfaction of the Province, that the assignee or resulting person with control of such Recipient or of such Recipient’s original interest in the Project, as the case may be, has, to the extent the nature of such assignee’s or person’s investment requires it, the financial
resources, knowledge, expertise and intent to carry out such Recipient’s obligations under this Agreement or to otherwise cause such Recipient to carry out such obligations;

(b) in the event of an assignment, that the assignee has undertaken in writing to assume and carry out the obligations of the applicable Recipient under this Agreement; and

(c) the applicable Recipient and the assignee or resulting person with control of such Recipient or of such Recipient’s original interest in the Project, as the case may be, agree to such additional terms and conditions as the Province may reasonably require in order to give effect to the spirit and intent of this Agreement.

2.6 Disposition of a Minority Interest in Project

A Recipient shall be entitled to dispose of any of its respective interest in the Project without the consent of the Province, subject to Section 2.4 and to the following:

(a) such disposition shall not cause or result in a change to the Project Plan;

(b) such disposition shall not release the Recipient from any of its obligations under this Agreement (including without limitation any obligations relating to such disposed interest) and the Province shall only look to the Recipient to carry out such obligations;

(c) for greater certainty, all Project Revenues and Project Costs associated with such disposed interest shall continue (or shall be deemed) to be the Project Revenues and Project Costs of the Recipient; and

(d) the Recipient shall provide notice of such disposition to the Province within a reasonable period of time thereafter.

2.7 Contractual Relationships

Each of the respective Recipients shall, upon execution of this Agreement and thereafter on an ongoing basis (and in any event within 30 days of a request from the Province from time to time), provide to the Province a summary of the key contractual relationships anticipated to be integral to the carrying out of the Project (in reasonable detail with respect to the identity of the other contracting parties and the purpose and subject matter of the relationships, but without the obligation to provide copies of contracts or otherwise disclose specific contractual provisions) that have been entered into or are proposed to be entered into by each of the Recipients. Any subsequent replacement of any key contractual participant shall require the prior written consent of the Province, which shall
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not be unreasonably withheld (having regard to the respective qualifications, competence, experience and other relevant attributes of the contractual participant).

3. THE PROJECT

3.1 Recipients’ Project

This Agreement is not intended to create and does not create any relationship of joint venture, partnership or agency between the Province and the Recipients or either of them. The Project is solely the undertaking and enterprise of the Recipients, and the Province will not by this Agreement acquire any right, title, interest or security interest (other than rights arising under the Letters of Credit or any alternative security as contemplated under Section 4.5) in the Project or any assets comprising the Project. Except as expressly set out in this Agreement, the Province does not by this Agreement assume any risk, liability, duty of care or obligation in respect of the Project.

3.2 Changes to Project Plan

The Parties mutually intend and agree that (i) the Project Plan defines for various purposes the boundaries of the Project in respect of which the Province has agreed to provide the Funding to each of the Recipients, and (ii) the Recipients should have an adaptive capacity to make modifications to the Project Plan that do not materially affect the Province’s interests under this Agreement. The Parties therefore agree as follows:

(a) the Recipients shall notify the Province of all proposed changes to the Project Plan;

(b) the Province shall agree to amend the Project Plan in accordance with changes proposed by the Recipients if:

(i) the proposed changes are not material to the interests of the Province under this Agreement; or

(ii) the proposed changes, although potentially material to the interests of the Province under this Agreement, are such that, in the circumstances and having regard to the intentions of the Parties as expressed in this Agreement and the expressed objectives of the Province’s Carbon Capture and Storage Program as set out in the FPP, it would be unreasonable for the Province not to agree to such changes.

3.3 Changes to Project Timeline and Project Milestones
Throughout the Term, the Recipients shall deliver to the Province an updated Project Timeline highlighting changes from the previous Project Timeline or else affirming the absence of changes,

(a) in a timely manner upon the Recipients becoming aware of material changes in the expected schedule for the Project, as well as

(b) in any event at the end of each quarter of the calendar year.

Updates to the Project Timeline may alter the dates by which Project Milestones identified in the Project Timeline are anticipated to be achieved, but the Project Milestones so identified shall not be altered except with the prior consent of the Province.

3.4 Projected Payment Schedule

On or before December 1 of each Fiscal Year during the Term, the Recipients shall deliver to the Province an amended Projected Payment Schedule highlighting changes in the expected timing and amount of requests for the payment of any Instalments to each of the Recipients or else affirming the absence of changes, as reasonably determined by the Recipients having regard to the state and progress of the Project, except that:

(a) the Recipients shall not amend the expected timing and amount of Instalment payments that fall within the then current Fiscal Year if such amendment would project a greater total amount of Instalments payable to a Recipient during such Fiscal Year than the total amount originally forecasted in the preceding Projected Payment Schedule; and

(b) amendments to the Projected Payment Schedule shall not change:

(i) the milestones which are required to be met in order for each Instalment to be paid, except with the prior consent of the Province; or

(ii) the calculation of the actual amount of such Instalment;

as determined in accordance with Section 4.2.

In addition to the foregoing, for the purposes of the Province’s cash management planning within each Fiscal Year the Recipients shall provide an update to the Province in respect of the expected timing and amount of requests for the payment of any Instalments within such Fiscal Year as set out in the Projected Payment Schedule,

(c) in the event that the Recipients become aware of any material changes, as well as
(d) on or before March 31, June 30 and September 30 of the applicable Fiscal Year.

Such updates shall not constitute an amendment to the Projected Payment Schedule.

3.5 Project Costs

Project Costs are costs that have been expended or incurred by the respective Recipients from January 1, 2009 to the end of the Term directly in furtherance of the Project, and shall be limited to and determined in accordance with the following:

(a) the Project Plan, including without limitation the facilities, activities and operations identified in the Project Plan, sets out the boundaries of the Project for the purpose of determining the scope and range of Project Costs incurred by the respective Recipients;

(b) subject to clause (a) above, a cost is a Project Cost of the applicable Recipient only to the extent that:

(i) the cost reflects the actual cost of such Recipient in respect of the Project, net of any bonuses, allowances, rebates or other collateral consideration returned to such Recipient;

(ii) the cost has been paid by or on behalf of such Recipient;

(iii) subject to subclause (iv) below, the cost is in respect of goods or services actually received (and not pre-paid) by such Recipient;

(iv) the cost is in respect of a deposit for goods or services to be delivered or provided to such Recipient prior to its achievement of Commercial Operation, so long as:

(A) the amount of such deposit is reasonable having regard to applicable industry standards; and

(B) any subsequent refund or credit of such deposit (or part thereof) is subtracted from Project Costs upon receipt by such Recipient;

(v) the cost is not disproportionately greater than the corresponding value or anticipated value to the Project;

(vi) if the cost was incurred in a transaction with a person who is not “at arm’s length” (as defined in the Income Tax Act (Canada)) to such Recipient (including without limitation a transaction with the other
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Recipient), the amount of the cost does not exceed the fair market value of the goods or services thereby provided to the Project; and

(vii) if the cost was expended or incurred jointly by the Recipients, the costs have been reasonably allocated by the Recipients by mutual agreement between them as communicated to the Province together with an explanation of the basis for such allocation;

(c) subject to clauses (a) and (b) above, where a cost is incurred partly for purposes of the Project and partly for purposes outside or beyond the Project, then:

(i) subject to subclause (ii) below, such cost must be reasonably allocated between the Project and the non-Project use, having regard to the amount of such cost that would have been incurred had such Recipient not pursued the Project; and

(ii) a cost in respect of the salary or benefits of an employee shall be allocated based upon the time spent by the employee during the relevant period in furtherance of the Project relative to the total time spent in providing services to such Recipient, as supported by timesheets maintained and submitted by the employee or by such other records created and maintained by the employee to document such time in accordance with standard industry practices;

(d) notwithstanding any of the foregoing, Project Costs must not include any of the following:

(i) any costs incurred prior to January 1, 2009;

(ii) goods and services tax or any other value-added tax paid by or on behalf of either of the Recipients;

(iii) any payment to a director, or any remuneration, bonus or benefits paid to any executive officer (including any chief executive officer, chief operating officer or chief financial officer by whatever title that position is held, and any vice-president) of either of the Recipients or of any Affiliate of either of the Recipients, except for any allocated (in accordance with clause (c)(ii) above) and reasonable salary and benefits (excluding, for greater certainty, bonuses and any other form of compensation whatsoever) paid to an executive officer which is commensurate with applicable industry standard salary rates and benefits having regard to:

(A) the specific services provided by the executive officer in furtherance of the Project; and
(B) the experience and expertise of the executive officer in providing such services;

(iv) any payments in the nature of termination or severance pay and any benefits under a stock option plan;

(v) costs of litigation, judgments, interest on judgments, penalties or fines;

(vi) entertainment costs, sponsorship fees, charitable donations or any other costs incurred to generate goodwill or promote good community relations in respect of the Project (with the exception of costs incurred to promote public education and public confidence in regard to CCS in Alberta);

(vii) costs incurred in the investigation, removal, decommissioning or remediation of environmental contamination or hazards;

(viii) costs in respect of loss of opportunities that might have been pursued but for the Project;

(ix) any consideration paid to an investor in the Project (or any part thereof) in the nature of a return on investment or equity;

(x) subject to clause (c)(ii) above, costs in respect of the Recipients’ overhead, including without limitation all “corporate” and other general costs not exclusively in respect of the Project.

The onus shall at all times and for all purposes be exclusively on the Recipients to affirmatively demonstrate to the satisfaction of the Province, acting reasonably, that a particular cost of a Recipient qualifies as a Project Cost in accordance with the foregoing, and the Province in that regard may require such explanations, supporting documentation and other evidence as it is reasonable to require in relation to any particular Project Cost or class or category of Project Costs.

3.6 Project Revenues

Project Revenues are revenues received or earned (or deemed received or earned) by the respective Recipient during the Term directly arising from the Project, and shall be determined in accordance with the following:

(a) the Project Plan, including without limitation the facilities, activities and operations identified in the Project Plan, sets out:
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(i) the boundaries of the Project for the purpose of determining the revenues received by the respective Recipient that constitutes Project Revenues of the respective Recipient; and

(ii) subject to the other provisions of this Section 3.6, the specific anticipated revenues of the respective Recipient;

(b) Project Revenues include:

(i) all Funding, Other Public Funding, monetary credits, contractual payments, sale proceeds, commissions, bonuses and other payments or consideration of any kind whatsoever that become due and payable to the respective Recipient in respect of the Project, excluding any such consideration which is associated with the disposition by the respective Recipient of any of its interest in the Project;

(ii) the fair market value of all credits (including without limitation tax credits or any other amount based upon taxes avoided), allowances, offsets and other consideration of any kind whatsoever that the respective Recipient receives or earns based upon the achievement of reductions in the emission of carbon dioxide into the atmosphere due to the sequestration of carbon dioxide under the Project, whether achieved by such Recipient or by any other person (including the other Recipient); and

(iii) to the extent that the respective Recipient uses any captured or acquired carbon dioxide for its own account, the fair market value of the carbon dioxide (and such value shall be deemed to have been received or earned by the Recipient directly arising from the Project);

(iv) in the case of Enhance, to the extent that Enhance transports carbon dioxide on its pipeline for its own account, a deemed pipeline rate, toll or tariff representing the fair market value of the associated transportation service (and such value shall be deemed to have been received or earned by Enhance directly arising from the Project), except that the rate of return component of the associated deemed pipeline rate, toll or tariff shall be equal to the “return allowance rate” as defined in the Oil Sands Allowed Costs (Ministerial) Regulation (excluding any amendments made after the date of this Agreement) made under the Mines and Minerals Act (Alberta) plus 2% per annum;

(c) amounts that, although due and payable to a Recipient in respect of the Project, are written off reasonably as being uncollectable, shall thereupon no longer be included in Project Revenues of such Recipient; provided, however, that in the event any such amounts are subsequently collected, the amount collected shall then be included in Project Revenues of such Recipient;
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(d) where payment for goods, services or anything generated by a Recipient is structured over time rather than becoming payable as such consideration is delivered, whether through leases or any other deferral arrangements, the consideration payable to such Recipient shall be deemed to be received in proportion to and concurrently with delivery of the consideration provided by such Recipient;

(e) where amounts are received or earned pursuant to a transaction with a person who is not “at arm’s length” (as defined in the Income Tax Act (Canada)) to a Recipient (including the other Recipient), the greater of (i) the amount received or earned and (ii) the fair market value of the consideration provided by such Recipient shall be included in Project Revenues; and

(f) where revenues are received or earned jointly by the Recipients, such revenues shall be allocated 75% to Enhance and 25% to NWU, subject to a reasonable contrary allocation by mutual agreement between the Recipients as communicated to the Province together with an explanation of the basis for such allocation.

The Recipients shall promptly provide to the Province such explanations, supporting documentation and other evidence as the Province may reasonably require in relation to any particular Project Revenue, or in relation to any particular contractual relationship or transaction which may have an impact upon the determination of Project Revenues, including without limitation a copy of all agreements and other documents relating to contractual relationships and transactions outside of the Project (such as agreements and documents relating to enhanced oil recovery operations) for the purposes of verifying the fair market value of any goods, services or anything generated by a Recipient which is transferred by the Recipient to another person or which is used for the benefit of the Recipient. Such verification may include assessing whether the transfer of goods, services or anything generated by such Recipient to another person, which is relied upon as a reference to determine the fair market value of another transaction or deemed transaction under the Project, has occurred at fair market value having regard to the subject matter and structure of the associated contractual relationships and transactions outside of the Project.

3.7 Carbon Dioxide Sequestration

From the Enhance Commercial Operation Date until the end of the Term, the Recipients shall implement a measurement, monitoring and verification plan as part of the Project, and as more particularly described in the Project Plan, that will accurately (having regard to the then state of knowledge in respect thereof):

(a) measure the mass of carbon dioxide:
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(i) captured and delivered from the NWU plant facility and the Agrium plant facility (as identified in the Project Plan) to Enhance’s pipeline (as identified in the Project Plan) for geological sequestration; and

(ii) injected into the target geological formation (as identified in the Project Plan);

(b) monitor and track the location and movement of the sequestered carbon dioxide plume, including any movement of carbon dioxide out of the target geological formation; and

(c) monitor for and measure the mass of carbon dioxide that:

(i) fails to reach the target geological formation upon injection; or

(ii) escapes or is extracted from the subsurface (including without limitation as a consequence of the commingling of carbon dioxide with oil recovered in any carbon dioxide flood enhanced oil recovery operation);

in accordance with, and in order of preference in the event of a conflict between any of the following:

(d) any prevailing standards established by law, including without limitation the requirements of any competent regulatory authority;

(e) applicable methods derived from the measurement, monitoring and verification of the geological sequestration or storage of carbon dioxide or other compounds in other projects worldwide; and

(f) applicable methods derived from ongoing scientific inquiry and technological advancement, whether by the Recipients or other persons.

Such measurement, monitoring and verification plan shall continually evolve during the conduct of the Project to account for the Recipients’ experiences and learnings in carrying out the Project and to account for any developments arising from the requirements, standards and methods, as the case may be, referenced in clauses (d) through (f) above. At all times, the measurement, monitoring and verification plan shall be developed, implemented and amended to the satisfaction of the Province, acting reasonably.

3.8 Enhance Pipeline Access

Upon Enhance achieving Commercial Operation, Enhance shall at all times offer as a service to third parties open access to Enhance’s pipeline (as described in the Project Plan) for the transport of the carbon dioxide of third parties, subject to the following:
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(a) Enhance shall not unjustly discriminate between any persons in the gathering, transport, handling or delivery of carbon dioxide by means of such pipeline, nor shall Enhance unjustly discriminate in favour of its own carbon dioxide;

(b) Enhance shall charge just and reasonable rates or tolls for the transport of such carbon dioxide having regard to the cost of providing such service based upon the following:

   (i) capital costs shall be net of the total amount of Funding and Other Public Funding paid to Enhance which can be reasonably allocated to such capital costs, and such net capital costs shall be amortized over the expected useful lifespan of the pipeline based upon industry standards and appropriate methods and rates;

   (ii) operating costs shall be net of the total amount of the Funding and Other Public Funding paid to Enhance which can be reasonably allocated to such operating costs;

   (iii) for greater certainty, the total amount of Funding and Other Public Funding paid to Enhance shall be reasonably allocated to reduce either capital costs or operating costs for the purposes of determining such rates or tolls;

   (iv) Enhance shall be entitled to a rate of return on such costs in accordance with industry standard rates of return for oil and gas and other products pipelines in the oil and gas industry, taking into account all relevant considerations including, without limitation, the risks assumed by Enhance and the third party shippers pursuant to their service agreements and Enhance’s cost of capital in respect of the Project; and

   (v) Enhance shall not be entitled to charge third party shippers a toll in respect of the portion of the pipeline capacity, and the net capital, net operating costs and rate of return reasonably allocated to such capacity, which is used by Enhance to transport its own carbon dioxide;

(c) Enhance shall be entitled to impose reasonable terms and conditions related to all operational matters such as the nature and location of receipt and delivery points, and the quality and pressure specifications of all substances delivered to and transported on the pipeline; provided, however, that Enhance shall itself comply with such requirements in relation to the transport of its own carbon dioxide; and

(d) Enhance shall provide such service in a safe and efficient manner.
Enhance acknowledges and agrees that the foregoing shall be subject at all times to the requirements of any future applicable laws, regulations, rules, codes, bylaws, orders, directives and other requirements of any competent authority relating to carbon dioxide pipelines and the regulation thereof.

4. **THE FUNDING**

4.1 **Province’s Obligation**

In consideration of the Recipients carrying out the Project, the Province agrees, subject to the provisions of this Agreement, to contribute to the Recipients in respect of the Project grant funding (the “Funding”) as follows:

(a) to Enhance, an amount that is the lesser of $371.25 million and 75% of Project Costs incurred and paid by Enhance; and

(b) to NWU, an amount that is the lesser of $123.75 million and 75% of Project Costs incurred and paid by NWU;

provided that the Province may at any time in its discretion by notice to a Recipient reduce the maximum amount of the Funding to such Recipient to an amount not exceeding: (i) 75% of the Project Costs of such Recipient, less (ii) Other Public Funding received by such Recipient. Where Other Public Funding is received jointly by the Recipients, the amount of such Other Public Funding shall be allocated 75% to Enhance and 25% to NWU, subject to any reasonable contrary allocation by mutual agreement between the Recipients as communicated to the Province together with an explanation of the basis for such allocation.

4.2 **Instalments of the Funding**

Subject to Sections 4.3 through 4.8, the Province shall pay the Funding to the respective Recipients in the following instalments (collectively, the “Instalments”):

(a) subject to clause (b) below, 40% of the Funding allocated to each Recipient will become payable in the following instalments and amounts upon such Recipient achieving the following Project Milestones (as specifically identified in Schedules “B” and “C”):

(i) in the case of Enhance:

   - Project Milestone #1 - $37.1 million
   - Project Milestone #2 - $22.3 million
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Project Milestone #3 - $26.0 million
Project Milestone #4 - $29.7 million
Project Milestone #5 - $33.4 million

(ii) in the case of NWU:

Project Milestone #1 - $9.9 million
Project Milestone #2 - $19.8 million
Project Milestone #3 - $19.8 million

(b) the aggregate Instalments paid and payable to a Recipient pursuant to clause (a) above must not at any time exceed:

(i) the then aggregate Project Costs of such Recipient; less

(ii) the then total amount of any Other Public Funding received or receivable by such Recipient;

(c) subject to clause (d) below, an amount equal to 60% of the Funding allocated to a Recipient less all Instalments paid to such Recipient pursuant to clause (a) above will become payable upon such Recipient achieving Commercial Operation, except that:

(i) if such Recipient is NWU; and

(ii) NWU has achieved Commercial Operation before Enhance;

then notwithstanding any other provision of this Agreement (but subject to Section 6.6) such amount (which shall continue to be subject to clause (d) below) shall not be payable to NWU (and shall be withheld by the Province) unless and until Enhance has also achieved Commercial Operation;

(d) the aggregate Instalments paid and payable to a Recipient upon such Recipient achieving Commercial Operation shall not exceed:

(i) 75% of the aggregate Project Costs of such Recipient; less

(ii) the total of any Other Public Funding received or receivable in respect of the Project by such Recipient;
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as of the time Commercial Operation is achieved by such Recipient;

(e) in the event that the calculation and cap set out in clause (d) above results in the aggregate Instalments paid and payable to a Recipient being less than 60% of the Funding to such Recipient:

(i) in the case of Enhance, as of and upon the achievement of Commercial Operation by Enhance; and

(ii) in the case of NWU, as of and upon the achievement of Commercial Operation by both NWU and Enhance;

then the remaining balance of such 60% of Funding to such Recipient shall become payable in instalments thereafter, at a frequency no more than bi-monthly, upon notice to the Province, with the amount of each such instalment calculated as the then remaining unpaid balance of such 60% of Funding to such Recipient which does not cause the aggregate Instalments paid and payable to such Recipient (excluding any Instalments paid and payable under clause (f) below) as of such time to exceed:

(iii) 75% of the aggregate Project Costs of such Recipient as of such time; less

(iv) the total of any Other Public Funding received or receivable in respect of the Project by such Recipient as of such time;

(f) subject to clauses (g), (h), (i) and (j) below, upon Enhance achieving Commercial Operation the remaining balance of the Funding (in this Section 4.2, the “Remaining Collective Funding”), comprised of the following amounts commingled together for the purposes of this clause (f):

(i) 40% of the Funding to Enhance; and

(ii) 40% of the Funding to NWU, except that such remaining balance of Funding to NWU shall not constitute a portion of the Remaining Collective Funding unless and until NWU has also achieved Commercial Operation;

will become payable in up to 10 annual Instalments to the Recipients, with each such Instalment being divided and allocated between the Recipients based upon their joint direction to the Province together with an explanation of the basis for such allocation, on the anniversary date of the Enhance Commercial Operation Date, each of which annual Instalments shall be calculated as follows:

(iii) the Remaining Collective Funding;
multiplied by:

(iv) the net tonnes of carbon dioxide sequestered in year;

divided by:

(v) 16.79 million tonnes of carbon dioxide;

wherein the “net tonnes of carbon dioxide sequestered in year” shall be calculated based upon the following:

(vi) the total mass of carbon dioxide injected into the target geological formation (as identified in the Project Plan) in the immediately preceding year; less

(vii) the total mass of carbon dioxide that has escaped or has been extracted from the subsurface during such year;

all as measured in accordance with the measurement, monitoring and verification plan described in Section 3.7;

(g) the allocation of annual Instalments by the Recipients between them shall be made on a reasonable and consistent basis without regard to the “Net Revenue Position” of either of the Recipients pursuant to Section 4.7, and with respect to the allocation to NWU, based upon the total mass of carbon dioxide captured and delivered from the NWU plant facility (as identified in the Project Plan) to Enhance’s pipeline (as identified in the Project Plan) in the relevant year;

(h) the calculation of “net tonnes of carbon dioxide sequestered in year” shall exclude the mass of carbon dioxide that Enhance has sourced (directly or indirectly) from another project which is the recipient of funding under: (i) any other funding arrangements entered into by the Province pursuant to the FPP, or (ii) any future grant agreement pursuant to the Carbon Capture and Storage Funding Act (Alberta) to the extent that the other recipient has received funding from the Province based upon the geological sequestration of such mass of carbon dioxide, as reasonably determined by the Province;

(i) in the event that the calculation of “net tonnes of carbon dioxide sequestered in year” is a negative amount for any year, no Instalment to either Recipient shall be payable for such year and the absolute value of such amount shall be deducted in calculating the “net tonnes of carbon dioxide sequestered in year” for the following year; and
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(j) no Instalment shall in any event become payable beyond December 31, 2025, and the total of all Instalments paid to a Recipient shall not exceed the amount of the Funding allocated to such Recipient as set out in Section 4.1.

4.3 Certification as Precondition to Payment

The following shall be conditions to the obligation of the Province to pay the Instalments:

(a) the obligation of the Province to make payment of Instalments upon a Recipient achieving its respective Project Milestones shall be conditional on such Recipient delivering to the Province a request for payment accompanied by:

(i) certification by an independent engineering firm (the "Independent Engineer") selected by the Province in consultation with the Recipients, both acting reasonably, that the Project Milestone has been achieved; and

(ii) a detailed line item statement (by category) of Project Costs and Project Revenues of such Recipient together with certification as contemplated by Section 7.7 of such Project Costs and Project Revenues and of the total Other Public Funding that has been paid or has become payable in respect of the Project to such Recipient, all as of the date of certification by the Independent Engineer pursuant to subclause (i) above;

(b) the obligation of the Province to make payment of an Instalment upon a Recipient achieving Commercial Operation shall be conditional on such Recipient delivering to the Province a request for payment accompanied by:

(i) certification by the Independent Engineer that:

(A) Commercial Operation has been achieved by such Recipient; and

(B) the facilities of such Recipient have been constructed, installed and completed substantially in accordance with their design specifications as described in the Project Plan and as set out in any design specifications developed in accordance with the Project Plan;

(ii) a detailed line item statement (by category) of Project Costs and Project Revenues of such Recipient, together with certification as contemplated by Section 7.7 of such Project Costs and Project Revenues and of the total Other Public Funding that has been paid or has become payable in respect of the Project to such Recipient, all as of the date of certification by the Independent Engineer pursuant to subclause (i) above;
(c) the obligation of the Province to make payment of any Instalment described in Section 4.2(e) shall be conditional on the respective Recipient delivering to the Province a request for payment accompanied by a detailed line item statement (by category) of Project Costs and Project Revenues of such Recipient, together with certification as contemplated by Section 7.7 of such Project Costs and Project Revenues and of the total Other Public Funding that has been paid or has become payable in respect of the Project to such Recipient, all as of the date of such certification;

(d) the obligation of the Province to make payment of any annual Instalment described in Section 4.2(f) shall be conditional on the Recipients delivering to the Province a request for payment accompanied by:

(i) certification by:

   (A) a “third party auditor” within the meaning and for the purposes set out in the Specified Gas Emitters Regulation, A.R. 139/2007, as may be amended or replaced from time to time, or

   (B) another person as may be mutually agreed by the Parties,

as to the mass of carbon dioxide (as measured in tonnes):

(C) that has been captured and delivered from the NWU plant facility (as identified in the Project Plan), or any replacement facility as contemplated by Section 6.6(d) of this Agreement, to Enhance’s pipeline (as identified in the Project Plan) in the immediately preceding year (calculated from the applicable anniversary date of the Enhance Commercial Operation Date),

(D) that has been injected into the target geological formation (as identified in the Project Plan) through the Project in such year, and

(E) that has escaped or is extracted from the subsurface during such year;

as determined in accordance with the measurement, monitoring and verification plan described in Section 3.7;

(ii) a detailed line item statement (by category) of Project Costs and Project Revenues for each Recipient, together with certification as contemplated by Section 7.7 of such Project Costs and Project Revenues and of the total Other Public Funding that has been paid or has become
Following execution of this Agreement, the Parties shall engage in discussions with a view to arranging in advance the selection and retainer of the Independent Engineer and “third party auditor” (collectively referred to in this Section 4.3 as the “Independent Verifiers”). The Parties shall do all things reasonably necessary to facilitate completion of the work of the Independent Verifiers, including without limitation the Recipients providing to the Independent Verifiers all access and information as may be required in order for the Independent Verifiers to carry out their functions as set out in clauses (a)(i), (b)(i) and (d)(i) above, as applicable. The fees of the Independent Verifiers to carry out such functions shall be borne solely by the Province.

4.4 Repayment of Funding

The Recipients shall repay Funding to the Province in the event of the following:

(a) if this Agreement is terminated under and in accordance with Section 6.1, 6.2 or 6.4 prior to Enhance achieving Commercial Operation, the amount of all Instalments previously paid to each of the Recipients (if any) shall be repaid to the Province immediately thereafter by the respective Recipient; and

(b) subject to clause (a) above, if the total of all Instalments paid to a Recipient exceeds the amount of the Funding set out in Section 4.1 payable to such Recipient as of the end of the Term, the excess amount shall be repaid to the Province immediately thereafter.

4.5 Letters of Credit

The obligation of the Province prior to the achievement of Commercial Operation by a Recipient to make payment of any Instalment under Section 4.2 to such Recipient is conditional on such Recipient first providing to the Province the following security for the repayment of such Instalment pursuant to Section 4.4(a):

(a) prior to the payment of each such Instalment, an irrevocable on-sight letter of credit (a “Letter of Credit”) with a value equal to the amount of such Instalment, in a form acceptable to the Province, presentable in Canada at a Canadian chartered bank or another financial institution acceptable to the Province; or
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(b) such other alternative security as the Province agrees to accept in lieu of a Letter of Credit, provided that the Province will not accept any of the following:

(i) any assurance or representation based solely on the creditworthiness or balance sheet of such Recipient;

(ii) a parental guarantee without additional security;

(iii) an assignment of or a right to participate in proceeds from bonding or other construction insurance; or

(iv) any security that in the assessment of the Province would be difficult to enforce or would otherwise be inadequate for the intended purpose of securing full repayment of Instalments in the event that such Recipient fails to achieve Commercial Operation.

In the event a Recipient does not provide a Letter of Credit or such alternative security, such Instalments withheld by the Province in consequence shall become payable as follows:

(c) in the case of Enhance, upon Enhance achieving Commercial Operation; and

(d) in the case of NWU, upon both Enhance and NWU achieving Commercial Operation.

The Province shall surrender the Letters of Credit (or alternative security pursuant to clause (b) above) provided by a Recipient (if any) as follows:

(e) if the Recipient:

(i) is Enhance, upon Enhance achieving Commercial Operation; or

(ii) is NWU, upon both Enhance and NWU achieving Commercial Operation; or

(f) otherwise upon such Recipient repaying Instalments in accordance with Section 4.4(a);

within 30 days after either such event.

4.6 Time of Payment

Where an Instalment becomes payable, the Province shall make payment within 30 days thereafter, subject to the following:
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(a) subject to clause (b) below, the Province may, by notice to the Recipient claiming such payment, extend such 30 day period for up to an additional 90 days in respect of an Instalment that becomes payable to such Recipient at a time materially different from, or in an amount materially greater than, that forecasted to be paid to such Recipient by the then current Projected Payment Schedule, and any updates thereto if provided by the Recipients in accordance with Section 3.4 at least 90 days prior to the date that such Instalment becomes payable, such that the Province is required to make a payment other than in accordance with cash management premised on the Projected Payment Schedule and any such updates thereto; and

(b) in the event that the amount of any Instalment would cause the total amount of Instalments paid in a Fiscal Year to such Recipient to exceed the total amount forecasted to be paid to such Recipient during such Fiscal Year as set out in the then current Projected Payment Schedule, the Province shall be entitled to delay payment of such excess amount until April 30 of the following Fiscal Year.

4.7 Net Revenue Position

In respect of a Recipient, if at any time (i) the aggregate Project Revenues of such Recipient exceed (ii) the aggregate Project Costs of such Recipient plus a return allowance on such Project Costs equal to the “return allowance rate” (as defined in the Oil Sands Allowed Costs (Ministerial) Regulation (excluding any amendments made after the date of this Agreement) made under the Mines and Minerals Act (Alberta)) plus 2% per annum, such Recipient shall be considered to be in a “Net Revenue Position”;

The Province may hold back from any Instalment payable to a Recipient:

(a) any or all of the Instalment if the Recipient is in a Net Revenue Position; or

(b) such portion of the Instalment as would cause the Recipient to be in a Net Revenue Position.

In the event of any such holdback from an Instalment, the amount so held back shall become payable when such Recipient establishes that it is no longer in a Net Revenue Position and the payment would not cause the Recipient to be in a Net Revenue Position.

4.8 Withholding of Funding

The Province will be entitled to withhold payment of any instalment of the Funding to a Recipient at any time for so long as the Recipients are in Default (as defined in Section 6.3) of any obligation under Section 3.3, 3.4, 3.7, 3.8 and 5.1 through 5.7; provided that if the Default is an Incurable Default (as defined in Section 6.3), the Recipients shall be...
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deeded to no longer be in Default when the Recipients have (i) communicated to the Province, (ii) initiated, and (iii) diligently pursued to completion, a commercially reasonable course of action designed to mitigate the consequences of the Incurable Default to the maximum extent practicable.

5.  RECIPIENTS’ OBLIGATIONS

5.1 Knowledge Sharing

The Parties acknowledge that (i) the public dissemination of learning, knowledge and information related to CCS and developed by the Recipients through the Project (in order to advance the state of knowledge of CCS and to advance future CCS projects) is fundamental to the willingness of the Province to enter into this Agreement and to provide the Funding, and (ii) there will be circumstances in which the disclosure of information from the Recipients to the Province will be limited, including, where such information is Excluded Information (defined below) or where the public dissemination of such information by the Province would result in, or effect the disclosure of, or the loss or diminishment of rights in, the confidential information or confidential technology of the Recipients or any third party. The Parties therefore agree as follows:

(a) The Recipients shall disclose to the Province the learnings, knowledge and information related to CCS developed by the Recipients through the Project (“Included Information”). The Included Information shall be provided in the form of the reports as described in subclauses 5.1(a)(i), (ii), (iii) and (iv) below (each a “Report”), as follows:

(i) for each calendar year during the Term (or part thereof in respect of the first and last year of the Term), a Report in respect thereof in the form as described in Schedule “E” (the “Project Results”) shall be delivered annually to the Province on or before April 1 of the following calendar year; subject to subclause 5.1(a)(ii) below;

(ii) for the 2011 calendar year, a Report in respect of Project Results shall be delivered to the Province on or before May 15, 2012.

(iii) in response to a specific request of the Province from time to time in relation to any aspect of the Project Results included in the Reports described in subclauses 5.1(a)(i) and (ii), a Report in respect thereof shall be delivered to the Province within 90 days of such request (this obligation shall survive the termination of this Agreement);

(iv) in response to a reasonable request of the Province, in relation to any aspect of the Project, a Report in respect thereof shall be delivered to
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the Province within such reasonable period of time as the Parties may mutually agree, each acting reasonably and having a regard to the availability of the information sought, the stage of the Project, the cost of obtaining the information, and impact to the operations of the Recipients to provide the same.

Provided however that, notwithstanding the inclusion of any reference to, or description of, any information in Schedule “E”, the Recipients shall only be required to provide Included Information in accordance with this Section 5.1 and any conflict or inconsistency between such Schedule and this Section, shall be resolved in favour of this Section 5.1;

(b) Notwithstanding the requirements in clause 5.1(a) above, the Recipients may, in their discretion, exclude from a Report any or all of the following information (“Excluded Information”):

(i) confidential information that is subject to bona fide obligations of confidentiality owing by the Recipients to a third party;

(ii) any other information the disclosure of which would result in, or effect the disclosure of, or the loss or diminishment of rights in, the confidential information referred to in subclause 5.1(b)(i) above.

(iii) information in respect of any invention, discovery, improvement, enhancement, methodology, tool or other technology arising from the Project that the Recipients, their suppliers, vendors and licensors, acting reasonably, seek to patent, formalize, register or otherwise protect (each an “Invention”);

(iv) any information which, if made publicly available, could reasonably jeopardize the safety or security of the Project (including, any Project facilities or personnel), unless previously or subsequently made publicly available by the Recipients, provided however that where any part of such information is made publicly available but a compilation of information which includes such part is not so available then such compilation shall be treated as Excluded Information hereunder; and

(v) any detailed forecast of Project activities or operations the disclosure of which would reasonably impact upon the Recipients’ negotiation of commercial arrangements for the supply of any goods or services for the Project in a direct and negative manner, except that the Recipients shall report such information after the supply of such goods or services has been arranged, subject to subclauses 5.1(b)(i), (ii), (iii) and (iv) above;
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(c) In respect of subclauses 5.1(b)(i) and (ii) above, to the fullest extent they are able to do so in compliance with bona fide obligations of confidentiality, the Recipients shall report the following with respect to the Excluded Information:

(i) a general description of the Excluded Information, its relevance to the Project, and the grounds relied upon for such exclusion;

(ii) as applicable, the rationale for selecting or using the Excluded Information in the Project;

(iii) as applicable, how the use of the Excluded Information fits into the basic process flow diagrams for the Project; and

(iv) the name of, and contact information for, the person from whom the Excluded Information was obtained, or who otherwise has the right to authorize the Recipient(s) to use such information;

and provided that the Recipients shall, to the fullest extent they are able to do so in compliance with bona fide obligations of confidentiality, include in the Reports any information in the nature of performance data, results or lessons learned, whether technical, economic or otherwise, that arise from the use of the Excluded Information in the conduct of the Project and relating to the Project’s physical facilities, except any such information that relates to modifications to the Base Facility and that is subject to such bona fide obligations of confidentiality;

(d) In respect of subclause 5.1(b)(iii)

(i) in the event the Recipients, their suppliers, vendors and licensors, as applicable, fail to seek to patent, formalize, register or otherwise protect an Invention, within three (3) years of the year in which the information is developed or created in respect of such Invention, or an additional three (3) year period after such initial period if the Province consents to such additional period, such information shall cease to be Excluded Information under subclause 5.1(b)(iii) and shall, subject to subclauses 5.1(b)(i), (ii), (iv) and (v), subsequently be included in a Report; or

(ii) in the event that such information becomes publicly available (such as by an application for a patent, filed in any jurisdiction in the world, upon such being laid open for public inspection), such information shall cease to be Excluded Information under subclause 5.1(b)(iii) and shall, subject to subclauses 5.1(b)(iv) and (v), subsequently be included in a Report;

(e) The Recipients shall not rely upon the foregoing right of exclusion in subclause 5.1(b)(i) or (ii) above to exclude from a Report any information which is not subject to a bona fide obligation of confidentiality or is publicly available
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and the Recipients shall not enter into any agreement for the purpose of avoiding the inclusion of such information in a Report;

(f) In the event that any information is excluded from a Report pursuant to subclause 5.1(b)(iii), (iv) or (v) above, the Recipients shall provide written notice to the Province concurrently with the delivery of the Report and such notice shall generally describe the nature of the Excluded Information and shall set out the grounds relied upon for such exclusion;

(g) Notwithstanding any specific requirement set out in Schedule “E”, reporting of the revenues and other consideration earned or received through the Project from transportation tariffs, pipeline tolls or the sale, transfer or other disposition of:

(i) carbon dioxide; or

(ii) credits, allowances, offsets and other consideration of any kind whatsoever that the Recipients receive or earn based upon the Recipients achieving reductions in the emission of carbon dioxide into the atmosphere due to the sequestration of carbon dioxide captured under the Project;

shall be based upon an appropriate publicly disclosed benchmark price or index (in lieu of the actual revenues and other consideration earned or received by the Recipients), and in the event that such benchmark price or index is not available, upon a mutually agreed benchmark set by the Recipients and the Province, both acting reasonably, based upon reasonable criteria;

(h) With the delivery of each Report in respect of Project Results to the Province:

(i) the Recipients shall and do hereby represent and warrant to the Province that:

(A) the Included Information set out in such Report is accurate and valid to the best of the Recipients’ knowledge;

(B) subject to the rights of the Province in same, the Recipients own, or have valid licenses for, any and all other intellectual property rights in such Report;

(C) subject to the rights of the Province in same, the creation and delivery of such Report, in the form provided to the Province, and the contents contained within the Report, does not infringe
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upon intellectual property rights of any Person, including without limitation the moral rights of any author of the reports; and

(D) subject to the rights of the Province in same, the Recipients have the right and authority to grant the licence set out in clause 5.1(l) below, and such grant does not infringe upon the intellectual property rights of any other Person; and.

(ii) the representations and warranties in this clause 5.1(h) shall survive the termination of this Agreement.

(i) The Province acknowledges and agrees that the Recipients shall provide the Reports in respect of Project Results to the Province for the purpose of enabling the Province to fulfill its objectives as set out in the first paragraph of this Section 5.1, and that in respect of any Report and the Included Information therein:

(i) the representations and warranties set out in subclause 5.1(h)(i) above are made solely in favour of the Province and no other representation or warranty is made in favour of the Province or any third party to whom such Report is provided or licensed by or through the Province, either directly or indirectly;

(ii) the Recipients hereby disclaim all implied representations, warranties, conditions and other terms, whether statutory, arising from a course of dealing or otherwise; and

(iii) except for any liability to the Province arising from a breach of the representations and warranties set out in subclause 5.1(h)(i) above, the Recipients shall not have any liability whatsoever to the Province, or any third party to whom such Report is provided or licensed by or through the Province, for any damages which may be sustained by the Province, or such third party, in connection with a Report or the Included Information therein (or the use of, or reliance upon, same), including but not limited to loss of revenue, profit, reputation or opportunity, or any direct, indirect, special, punitive, exemplary incidental, multiple or consequential damages, whether such liability arises out of contract, tort (including negligence), strict liability, warranty or other legal theory whether at law, in equity or otherwise;

(j) The Parties intend that, subject always to the rights of the Recipients, their suppliers, vendors and licensors, in and to the Excluded Information, the Report in respect of the Project Results will present a comprehensive report on the state of the Included Information developed by the Recipients through the Project;
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(k) In the event that the Project Plan is amended in accordance with Section 3.2, and such amendment expands the scope of the Project, the Province shall be entitled to require the Recipients to provide Included Information in respect of such expanded scope in consultation with the Recipients, with the Parties acting reasonably;

(l) The Recipients acknowledge that the Province, upon payment of the first Installment to either of the Recipients, shall have, and is hereby granted, the perpetual, worldwide, transferable and royalty free right to produce, reproduce and publish (and authorize others to produce, reproduce and publish) all or any portion of the Project Results (including by disseminating same to the public) at the discretion of the Province, at such times and in such manner as the Province sees fit, subject always to the following:

(i) the Recipients shall make reasonable efforts to ensure that any Report provided to the Province is accompanied by the following:

(A) a disclaimer of the Recipients’ liability in respect of the use by and/or reliance upon the information contained in the Report by any Person;

(B) indicia of source or authorship;

(C) other notes that the Recipients may reasonably require;

(collectively referred to as “Disclaimers”)

(ii) the Province shall make reasonable efforts to ensure that any public dissemination of a Report by the Province (or by any sub-licencee of the rights granted to the Province pursuant to this clause 5.1(l)) is accompanied by the Disclaimers included on said Report provided by the Recipients. The Parties agree that such reasonable efforts shall be met where the Province provides access to the Reports through a website where the user of such website must first agree, prior to being permitted to access the Reports, to:

(A) terms of use and disclaimers that are consistent with the Disclaimers and that provide that the Recipients are and shall be third party beneficiaries of such terms and disclaimers, with the right to rely upon and enforce same; and

(B) include disclaimers with any subsequent use or publication of all or any part of the Reports;
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(iii) The Province shall make best efforts to inform users of any database in which Reports from the Project or any other CCS projects are accessible by the public that any Disclaimers are to be retained in any reproduction of a Report or any part thereof;

(iv) the obligations set forth in subclauses 5.1(l)(i) to (iii) above shall not apply to any of the following:

   (A) any Report, or part thereof, which is provided by the Recipients in satisfaction of the requirements of Division A of Schedule “E”, regardless of whether such information is also contained within any other Report;

   (B) information contained in any other Report when such information is provided by the Recipients in response to a specific request of the Province to satisfy or respond to any of the requirements of Division A of Schedule “E”;

   (C) the dissemination of any information contained within a Report where such information cannot reasonably be used by or relied upon by any person in a manner that would create a reasonable risk of a claim or demand being made against the Recipient as a result of such use or reliance by any person absent any Disclaimers provided by the Recipients.

(v) Such right to produce, reproduce and publish the Reports shall survive the termination of this Agreement.

(m) The Recipients further agree to generally promote public education and public confidence in regard to CCS in Alberta, through such initiatives, actions and activities as the Recipients consider suitable.

(n) The Parties hereby acknowledge and agree that the performance of this Section 5.1, and the exercise of any rights hereunder, is subject to and shall at all times comply with applicable laws, including laws related to the protection of personal information.

5.2 Reporting

In addition to the Project Results, the Recipients shall provide the following reporting during the Term:

(a) within 90 days after the end of each calendar year, an annual report and presentation providing an overview of the state and progress of the Project; and
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(b) on a timely basis having regard to the nature of the circumstances of a particular request, but in any event within 90 days, a response to any specific inquiry reasonably made by the Province regarding any aspect of the Project in relation to any provision of this Agreement.

5.3 Records, Inspection and Audit

The Recipients shall, during the Term and for a period of five years thereafter, maintain in an appropriate form full accounting and other records of any nature or kind whatsoever (collectively, in this Section 5.3, the “Records”) relating to the Project, including but not limited to: (i) Project Costs, Project Revenues and amounts of carbon dioxide injected and sequestered pursuant to the Project, and (ii) such agreements and other documents outside of the Project which may be required to verify the calculation of Project Revenues as set out in Section 3.6. The Recipients shall make the Records available for inspection and audit at all reasonable times upon reasonable notice by the Province or any representative appointed by the Province (which may include the Auditor General of Alberta), subject to such arrangements for ensuring confidentiality as may reasonably be required in order to allow the Recipients to comply with commercially suitable undertakings of confidentiality reasonably granted by the Recipients to third parties in furtherance of the Project. The Recipients shall take reasonable steps to facilitate such inspection and audit, and the Province shall ensure that such inspection and audit is carried out in a manner that does not excessively or unnecessarily interfere with the Recipients’ business operations. Such right of inspection and audit may be exercised by the Province solely for the purpose of assuring itself of compliance by the Recipients with the provisions of this Agreement, and apart from such right of inspection and audit, the Records shall be in the exclusive custody and control of the Recipients, and the Province shall have no general right to the Records.

5.4 Observer Status

During the construction phase of the Project, the Recipients shall give the Province timely notification of all senior level technical and management meetings related to construction of the Project, and the Province will be entitled to designate from among its officials a representative to attend such meetings as an observer.

5.5 Evaluation

The Recipients shall provide all reasonable cooperation in conjunction with any evaluation or assessment of the Project or the Province’s Carbon Capture and Storage Program being carried out by or on behalf of the Province.

5.6 Indemnification

The Recipients shall indemnify the Province against third party claims (including legal costs, on a solicitor and client basis, incurred in defending such claims) arising from any
negligence or other tortious action or inaction during the Term by the Recipients or either of them (including any person for whom they are legally responsible) in respect of the Project or arising from any breach of this Agreement by the Recipients or either of them; provided that such indemnity shall not extend to any liabilities or obligations that are expressly assigned to or assumed by the Province by applicable law enacted specifically in relation to CCS. The foregoing indemnity shall be the joint and several obligation of the Recipients, except to the extent that a third party claim relates solely to the negligence or other tortious actions or inactions of one of the Recipients or to a breach of this Agreement solely by such Recipient, in which case such indemnity shall be the several obligation of such Recipient.

The Province shall be entitled to set off any amount for which it is entitled to be indemnified under this Section 5.6 against any payment of the Funding that otherwise would be due and payable under this Agreement (and for the purposes of the other provisions of this Agreement it shall be deemed that the amount of any such setoff has been paid to the applicable Recipient).

5.7 **Compliance with Laws**

At all times the Recipients shall perform their obligations under this Agreement in accordance with all laws, regulations, rules, codes, bylaws, orders, directives and other requirements of any competent authority which are applicable and material to the conduct of the Project.

6. **TERMINATION**

6.1 **Project Discontinuance**

Subject to Section 6.6, in the event that the Recipients, or either of them, at any time decide not to commence or continue the Project, as the case may be, the Recipients shall immediately communicate such decision to the Province, upon which this Agreement shall immediately terminate.

6.2 **Rejection of Knowledge Sharing Terms and Conditions**

In the event that the Recipients fail to duly execute and deliver to the Province the amendment agreement as required pursuant to Section 5.1, within the period of time set out therein, this Agreement shall immediately terminate.

6.3 **Termination Event Defined Terms**

In this Section 6 and for the purposes of Section 4.8:
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“Default” means any non-trivial breach of this Agreement by either or both of the Recipients, but does not include any breach caused by a Force Majeure Event, provided the Recipients have notified the Province of the circumstances constituting the Force Majeure Event and thereafter take all commercially reasonable measures to rectify or mitigate the circumstances giving rise to or following from the Force Majeure Event;

“Force Majeure Event” means any war, insurrection, armed conflict, act of foreign enemy, revolution, terrorist act, interference by military authorities, explosion, epidemic, fire, flood, weather event or breakdown or failure of machinery or equipment, that prevents, delays or interrupts the performance of any obligation of either of the Recipients under this Agreement, provided such event does not occur by reason of the negligence or wilful act of such Recipient or any person for whom such Recipient is legally responsible;

“Incurable Default” means a Default that is by its nature or by reason of prevailing circumstances incapable of being cured in all material respects, but does not include any Default that is a failure to carry out a particular obligation by a particular date or within a particular time where it is possible to subsequently perform that obligation, albeit not by or within the relevant date or period;

“Notice of Default” means a notice by the Province to the Recipients specifying a Default;

“Termination Event” means any of the following:

(i) if the Recipients, or either of them, are adjudged a bankrupt or makes a general assignment for the benefit of creditors, or takes the benefit of any legislation for protection against creditors, orderly payment of debts, or winding up or liquidation;

(ii) if a receiver or receiver-manager is appointed for the business of either or both of the Recipients, unless the appointment is cancelled within 10 Business Days;

(iii) if either or both of the Recipients cease active business operations;

(iv) if either or both of the Recipients abandon or announce a present intention to abandon the Project;

(v) if either or both of the Recipients fail to achieve Commercial Operation by December 31, 2019;
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(vi) if either or both of the Recipients purport to assign their obligations contrary to Section 2.3 or a change in control of a Recipient or the Project occurs contrary to Section 2.4;

(vii) if either or both of the Recipients, as applicable, upon receiving a Notice of Default from the Province, fail to:

(A) within 30 days cure each Default specified in the Notice of Default; or

(B) where the Default is an Incurable Default, within 10 days communicate to the Province and initiate a commercially reasonable course of action designed to mitigate the consequences of the Incurable Default to the maximum extent practicable, and thereafter diligently pursue that course of action until the consequences of the Incurable Default have been so mitigated;

(viii) a course of repeated and serious Defaults that in aggregate demonstrate a marked or persistent inability or unwillingness on the part of either or both of the Recipients to perform their obligations under this Agreement.

6.4 Termination by Province

Subject to Section 6.6, the Province may terminate this Agreement by notice to the Recipients only upon or within 120 days after the Province becomes aware of a Termination Event. If not terminated earlier by virtue of a Termination Event, this Agreement shall expire at the end of the Term.

6.5 Effect of Termination or Expiry

Upon the termination or expiry of this Agreement, the following shall apply:

(a) the Province shall have no obligation to pay any further Instalment or any amount withheld from any Instalment or otherwise make any further payment to the Recipients on account of the Funding;

(b) the Recipients shall remain obligated to make repayment in accordance with Section 4.4, if applicable;

(c) if termination or expiry takes place prior to Enhance achieving Commercial Operation, the Province may present and claim under any of the Letters of Credit provided by the Recipients (if any) or any alternate security pursuant to Section 4.5(b) in the event that the Recipients fail to repay the amounts set forth in Section 4.4 in accordance with the provisions therein;
(d) the Recipients shall remain obligated to deliver Project Results pursuant to Section 5.1 in respect of the period of time up to and including the date of termination or expiry and shall remain bound by their representations and warranties in respect thereof;

(e) the Recipients’ obligations under Section 5.3 shall continue in effect for five years following the date of termination or expiry;

(f) the Recipients’ obligation to indemnify the Province under Section 5.6 shall continue to apply in respect of events occurring up to and including the date of termination or expiry; and

(g) the obligations of confidentiality as set forth in Sections 7.1 and 7.4 shall continue.

Except as set out above, upon the termination or expiry of this Agreement the Parties shall have no further obligations under this Agreement.

6.6 Several Termination of a Recipient

In the event that a Recipient (in this Section 6.6, the “Defaulting Recipient”):

(a) decides not to commence or continue the Project; or

(b) solely causes the occurrence of a Termination Event;

the Province may terminate the Defaulting Recipient as a party to, and its rights and obligations (subject to Section 6.5) under, this Agreement by notice to the Recipients, but the Province shall not terminate this Agreement with respect to the other Recipient (in this Section 6.6, the “Non-Defaulting Recipient”) if, within 60 days after the occurrence of such event, the Non-Defaulting Recipient establishes to the satisfaction of the Province, acting reasonably:

(c) that the Non-Defaulting Recipient will continue with the parts of the Project which are the responsibility of the Non-Defaulting Recipient; and

(d) if the Non-Defaulting Recipient:

(i) is Enhance, that it has a reasonable plan to acquire from another source the mass of carbon dioxide that was or remains to be provided by NWU for geological sequestration (as set out in the Project Plan) for the period after the Enhance Commercial Operation Date until the earlier of 10 years after the Enhance Commercial Operation Date and December 31, 2025; or
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(ii) is NWU, that it has a reasonable plan to arrange for the transport and geological sequestration (which may be to a geological formation that is different than as set out under the then current Project Plan) of the mass of carbon dioxide that remains to be produced by NWU and that was or remains to be transported and sequestered by Enhance for the period after the Enhance Commercial Operation Date until the earlier of 10 years after the Enhance Commercial Operation Date and December 31, 2025, and NWU shall be obligated to transport and sequester such mass of carbon dioxide in accordance with this Agreement notwithstanding that such obligation may have been the sole or primary obligation of Enhance as set forth in the Project Plan (and for greater certainty, in order for NWU to achieve Commercial Operation in such event, NWU shall also be obligated to establish, without limitation, CCS operations with respect to such transport and sequestration of carbon dioxide on a continuous basis for at least 30 days with respect to the mass of carbon dioxide produced by NWU as described and set forth in Schedule “D”);

and in the event that the Province is so satisfied:

(e) the Defaulting Recipient and the Province shall continue to be bound by the provisions of Section 6.5 with respect to their post-termination rights and obligations under this Agreement (and the provisions of Section 6.5 shall be construed with such revisions as may be required to give effect to this clause (e));

(f) if the Non-Defaulting Recipient is NWU:

(i) any Instalment;

(A) payable to NWU as set out in Section 4.2; or

(B) withheld but subsequently payable to NWU as set out in Section 4.5;

based upon the achievement of Commercial Operation by both Enhance and NWU, or by Enhance alone, shall instead become payable upon NWU (only) achieving Commercial Operation (with the extended meaning as set out in clause (d)(ii) above);

(ii) if Enhance has not achieved Commercial Operation:

(A) the meaning of “Enhance Commercial Operation Date” shall be amended to refer to the date that NWU has achieved Commercial Operation (with the extended meaning as set out in
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clause (d)(ii) above) as certified by the Independent Engineer in accordance with Section 4.3(b)(i); and

(B) the meaning of “Term” shall be amended to the period from and including the date of execution of this Agreement to and including the date that is the earlier of (i) ten years after the date that NWU has achieved Commercial Operation (with the extended meaning as set out in clause (d)(ii) above), or (ii) the date of termination of this Agreement;

(iii) notwithstanding any provision of Section 4.4(a) to the contrary, the obligation of NWU to repay Funding pursuant to Section 4.4(a) shall arise in the event that this Agreement is terminated under and in accordance with Section 6.1, 6.2 or 6.4 prior to NWU achieving Commercial Operation (with the extended meaning as set out in clause (d)(ii) above);

(iv) notwithstanding any provision of Section 4.5 to the contrary, any Letters of Credit or alternative security provided by NWU shall be surrendered by the Province upon NWU achieving Commercial Operation (with the extended meaning as set out in clause (d)(ii) above) or otherwise upon NWU repaying Instalments in accordance with Section 4.4(a) (as amended pursuant to subclause (iii) above); and

(v) if this Agreement is subsequently terminated prior to NWU achieving Commercial Operation (with the extended meaning as set out in clause (d)(ii) above), the Province may present and claim under the Letters of Credit or alternate security (if any) provided by NWU pursuant to Section 4.5 in the event that NWU fails to repay the amounts set forth in Section 4.4(a) in accordance with the provisions therein (as amended pursuant to subclause (iii) above);

(g) except for the removal of the Defaulting Recipient as a party to this Agreement and the termination of its rights and obligations, subject to clause (e) above, the provisions of this Agreement (as amended in accordance with this Section 6.6) shall continue to be in force and effect and be binding upon the Non-Defaulting Recipient and the Province;

(h) for greater certainty, and subject to any variance as may be agreed to in writing by the Province, the Non-Defaulting Recipient shall not be entitled to any amount of the Funding allocated to the Defaulting Recipient pursuant to Section 4.1, the meaning of “Remaining Collective Funding” in Section 4.2(f) shall be construed accordingly, and the joint direction contemplated by Section 4.2(f) shall not be required; and
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(i) the Non-Defaulting Recipient shall submit any consequential amendments to the Project Plan, Project Timelines, Project Milestones and Projected Payment Schedule in accordance with Sections 3.2, 3.3 and 3.4, as applicable.

7. COMMUNICATIONS

7.1 Public Disclosure of Agreement

The Recipients agree that the Province shall be at liberty to make public disclosure of this Agreement, excepting only any portion of Schedules “A”, “B”, “C”, and “D” that the Recipients have, prior to the signing of this Agreement, established to the satisfaction of the Province, acting reasonably, would be exempted from disclosure under Part 1 of the FOIP Act by the provisions thereof governing third party confidential information. The Province acknowledges that the financial, commercial and technical information contained in the Recipients’ proposal submitted in response to the FPP was provided to the Province in confidence, subject to the FOIP Act.

Until such time as the Province has made public disclosure of this Agreement in accordance with the foregoing, the Recipients shall maintain in confidence and not disclose: (i) this Agreement (or the contents thereof, including without limitation all schedules to this Agreement), and (ii) the letter of intent between the Parties dated October 23, 2009 (and the contents thereof), unless such documents or any part thereof:

(a) are compelled by law to be disclosed;

(b) have been or are subsequently received from another person absent an obligation of confidentiality; or

(c) are or become part of the public domain other than in breach of the foregoing obligations;

provided, however, that the Recipients shall be entitled to disclose such documents to its legal, accounting and financial advisors, and to its lenders, investors and consultants, on a need-to-know basis subject to such persons being bound by written confidentiality obligations which are consistent with the foregoing, or in the alternative, professional duties that impose a duty of confidentiality upon such persons with respect to such documents (and the Recipients shall not waive any such duties), and further provided that any disclosure by such persons in breach of their confidentiality obligations owing to the Recipients shall be deemed to be a breach by the Recipients of their foregoing confidentiality obligations owing to the Province.
7.2 Public Announcements

Except as otherwise required by applicable laws or by any regulatory authorities, including without limitation any securities commission or other securities regulatory authority or any stock exchange, a Party shall not issue any news releases or other formal public announcements regarding this Agreement (including but not limited to upon execution of this Agreement) without first consulting with the other Parties regarding the timing and content of the news release or announcement.

7.3 Publications

Subject to Section 7.2, in the event that a Recipient publishes or submits for publication any articles, papers or other publications relating to the Project, or otherwise becomes aware of any such publications by another person involved in the Project, the Recipient shall:

(a) if authored by the Recipient (including any of its employees), provide the Province at least 30 days’ notice of such publication prior to its dissemination to the public together with a copy of such publication; and

(b) if authored by another person, promptly provide the Province with notice of the details of such publication within the Recipient’s knowledge, subject to any obligation of confidentiality owed by the Recipient in relation thereto.

7.4 Confidentiality

Except for Project Results, and subject to Section 7.1, the Province will maintain confidentiality in respect of information communicated to it in connection with this Agreement by the Recipients expressly in confidence, unless such information:

(a) is compelled by law to be disclosed (including without limitation in accordance with the provisions of the FOIP Act);

(b) has been or is subsequently received from another person absent an obligation of confidentiality;

(c) is subject to an obligation of confidentiality in accordance with this Agreement for a period of time that has since expired; or

(d) is or becomes part of the public domain other than in breach of the foregoing obligations.

Notwithstanding the foregoing, the Province shall be entitled to disclose such information to:
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(e) the Government of Canada for the purposes of:

   (i) coordinating the Recipients’ obligations under this Agreement and under any agreement between the Recipients (or either of them) and the Government of Canada relating to the Project; and

   (ii) jointly reviewing the status and progress of the Project; and

(f) any consultant or professional advisor retained by the Province in relation to the administration, monitoring or enforcement of this Agreement;

provided that any such disclosure to the Government of Canada or any consultant or professional advisor shall be made in confidence subject only to exclusions substantially similar to those set out in clauses (a), (b) and (d) above.

7.5 Notices

Any notice, consent, request, approval or other communication under any provision of this Agreement must be in writing to be effective, and is effective when delivered by any means, including fax transmission or e-mail, to the following respective addresses:

(a) if to the Province:

   Alberta Department of Energy
   CCS Projects & Policy
   Floor 10, Petroleum Plaza, North Tower
   9945 – 108 Street
   Edmonton, Alberta, T5K 2G6

   Attention: Kate Hovland, Director

   fax: 780-422-0382
   e-mail: kate.hovland@gov.ab.ca

(b) if to the Recipients:

   (i) Enhance Energy Inc.
   900, 333 5th Avenue SW
   Calgary, Alberta, T2P 3B6

   Attention: Alyssa Haunholter, Vice President Government Relations

   fax: 403-984-0226
   e-mail: ahaunholter@enhanceenergy.com
(ii) North West Redwater Partnership  
Sun Life Plaza  
2800, 140-4th Ave SW  
Calgary, AB T2P 3N3  

Attention: Steve Bolger, Manager - Marketing and Business Development  

Telephone: 403-451-4185  
e-mail: sbolger@nwrpartnership.com  

Any Party may change its address information by giving notice to the other in the above manner.

The onus shall be on a Party asserting delivery of a notice, consent, approval or other communication to establish that it was delivered in accordance with the foregoing, provided that in the case of e-mail such onus shall be discharged by proof that an e-mail sent to the designated e-mail address was received and opened at that e-mail address.

7.6 Authority to Give Notices

The Parties respectively designate for the time being the following individuals as having authority to communicate to the other any notice, approval, consent, waiver or other communication under this Agreement:

(a) in the case of the Province:

Kate Hovland, Director, CCS Projects and Policy

(b) in the case of the Recipients:

(i) Enhance Energy Inc. - Alyssa Haunholter, Vice President Government Relations

(ii) North West Redwater Partnership – Steve Bolger, Manager – Marketing and Business Development

In the absence of any further designation or limitation communicated with reference to this Section 7.6, each Party may assume that any notice, approval, consent, waiver or other communication under this Agreement given by the above individual has been duly authorized and is binding upon the Party providing the communication.
7.7 Certification on Behalf of Recipients

All Project Results to be delivered by the Recipients under Section 5.1, and all statements of Project Costs, Project Revenues and Other Public Funding, shall be certified on behalf of each of the Recipients by their respective chief financial officers, or such other officer of the respective Recipients as are acceptable to the Province, acting reasonably, in the following form:

CERTIFIED on behalf of the Recipient [insert Enhance or NWU, as the case may be] named in the “CCS Funding Agreement – The Alberta Carbon Trunk Pipeline Project” to be true, accurate and complete, to the best of my knowledge, based on reasonable inquiry and due diligence, as of the date of this certification.

Such certification shall not establish a duty of care owed to the Province personally by the individual providing the certification or otherwise establish a foundation for personal liability on the part of such individual, but shall constitute a representation on behalf of the respective Recipients.

8. GENERAL

8.1 Dispute Resolution

Immediately following execution of this Agreement, the Parties shall establish a protocol and procedure governing contract administration. In the event that disputes arise out of or in connection with this Agreement that are not resolved through such protocol and procedure, all such disputes shall be finally resolved by arbitration pursuant to the then current National Arbitration Rules of the ADR Institute of Canada Inc. or, if the Parties so agree with respect to a particular dispute, the then current Simplified Rules of the ADR Institute of Canada Inc. The place of the arbitration hearing shall be Edmonton, Alberta.

8.2 Applicable Law and Jurisdiction

This Agreement shall be governed by the laws in force in Alberta, including the federal laws of Canada applicable therein. Subject to Section 8.1, Alberta Courts shall have exclusive jurisdiction over all matters arising in relation to this Agreement.

8.3 Amendment and Waiver

Subject to Section 3.3 in regard to updating of the Project Timeline and to Section 3.4 in regard to amendments to the Projected Payment Schedule, no amendment of this Agreement is effective unless made in writing and signed by a duly authorized representative of each of the Parties. No waiver of any provision of this Agreement is effective unless made in writing, and any such waiver has effect only in respect of the
particular provision or circumstance stated in the waiver. No representation by any Party with respect to the performance of any obligation under this Agreement is capable of giving rise to an estoppel unless the representation is made in writing.

8.4 Further Assurances

The Parties each agree to from time to time do all such acts and provide such further assurances and instruments as may reasonably be required in order to carry out the provisions of this Agreement according to their spirit and intent; but this Section 8.4 shall not in any event be construed as obligating the Province to amend or enact any statute or regulation.

8.5 Counterpart Execution

This Agreement may be executed in counterparts, in which case (i) the counterparts together shall constitute one agreement, and (ii) communication of execution by fax transmission or electronically in portable document format (PDF) shall constitute good delivery.

[Signature Page Follows]
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The Parties have therefore signed this Agreement, each by their respective duly authorized officers, on the respective dates shown below.

HER MAJESTY THE QUEEN IN RIGHT OF ALBERTA, as represented by the Minister of Energy

Date:  September 30, 2010  Per:________________________

Tim Grant, Acting Deputy Minister of Energy

ENHANCE ENERGY INC.

Date:  September 30, 2010  Per:________________________

Susan Cole, President and CEO

NORTH WEST REDWATER PARTNERSHIP

Date:  September 30, 2010  Per:________________________

Doug Quinn, President and CEO
SCHEDULE “E”

To the Agreement dated September 30, 2010 between HER MAJESTY THE QUEEN IN RIGHT OF ALBERTA and ENHANCE ENERGY INC. ("Enhance") and NORTH WEST REDWATER PARTNERSHIP (“NWR”):

FORM OF PROJECT RESULTS

Preamble

1. This Schedule "E" is comprised of three parts: (i) this preamble, (ii) Division A: Summary Report, and (iii) Division B: Detailed Report.

2. In this Schedule "E", defined terms have the meanings set out in Section 1.1 of the main body of this Agreement. In addition, the following expressions have the following meanings (and where applicable, the plural or singular thereof have corresponding meanings):

   (a) "Base Facility" means the equipment, facilities and processes used in the production of end products generated, all as referenced in the Project Plan, but excludes the CCS Facilities;

   (b) "Capture System" means the equipment, facilities and processes used in the capture, separation, dehydration and compression of carbon dioxide, as described in the Project Plan;

   (c) "Detailed Report Reference Chart" means the chart set out below in Division B of this Schedule "E";

   (d) "CCS Facilities" means the equipment, facilities and processes used in the capture, separation, dehydration, compression, transportation, sequestration and monitoring of carbon dioxide as described in the Project Plan, including the Capture System; and

   (e) "Summary Report Reference Chart" means the chart set out below in Division A of this Schedule "E".

3. Subject to and in accordance with Section 5.1 of the main body of this Agreement, the Recipients shall deliver to the Province the Reports with respect to the Project by providing the information requested in the Summary Report Reference Chart and the Detailed Report Reference Chart, together with all relevant documents. The Recipients' Reports shall be organized using the topical headings and section numbers set out in the charts.

4. Each individual response in the Reports shall identify, where applicable, any changes or updates from the preceding Report of such information. Where there are no changes or
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updates from the preceding Report of such information, state as such and do not repeat information previously provided.

5. All data and calculations derived therefrom which constitute measurements shall be presented:

(i) in appropriate units of measurement having regard to the type of data, purpose of measurement and applicable industry standard, and

(ii) on an average daily basis over the course of each calendar month, based upon actual measurements or extrapolations from measurements conducted during sampling periods in each calendar month, or, if such information is not available:

(A) on a frequency specified in the Summary Report Reference Chart or the Detailed Report Reference Chart (with the basis of each measurement being stated in the response); or

(B) on a frequency specified by the Recipients, 30 days prior to the due date for such Project Results, that is appropriate to the type of measuring device, the function of the device and the location of the device, and applicable industry standards.

6. The Recipients' reporting of any calculation in respect of the cost per tonne to sequester carbon dioxide shall incorporate a cost of capital variable that is based upon a standardized methodology developed by the Province and communicated to the Recipients (in lieu of the Recipients' actual cost of capital in relation to the Project).

7. In the event that the Recipients incur any Project Costs in a foreign currency, the Recipients' reporting of such Project Costs shall be in equivalent Canadian dollars converted based upon the actual currency exchange rate applied or, alternatively, upon the then applicable currency exchange rate published by the Bank of Canada. The Recipients shall disclose in any reporting of such Project Costs the currency exchange rate applied supported by the appropriate reference documents or citations.

8. If the Province is not satisfied with the content and level of detail in any Report, the Recipients may be required to provide further details, explanations or clarifications to the data or qualitative information provided.

CCS Funding Agreement
Alberta Carbon Trunk Line Project
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**Division A: Summary Report**

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| **Formation Selection** | the geological formations for storage of carbon dioxide to date. Include a discussion on: (i) the key reasons for selection, (ii) the key characteristics of the geological formations, and (iii) the risks of storage into the geological formations and the measures implemented to manage and reduce such risks. Specific information:  
  - Location of injection reservoir  
  - Depth of reservoir  
  - Thickness of reservoir  
  - Injectivity of reservoir  
  - Porosity of reservoir  
  - Permeability of reservoir  
  - Initial pressure and temperature  
  - Estimate of storage potential |
|--------------------------|-------------------------------------------------------------------------------------------------|
| **4 Facility Operations – Capture** | Provide a commentary on the operation of the Capture System during the reporting period. Include a discussion on: (i) the efficiency of each step – capture, separation, dehydration and compression, (ii) the impacts upon the operating efficiency of the Base Facility, and (iii) the purity of the carbon dioxide stream and how any impurities are being addressed. Specific information (if available):  
  - Energy demand  
  - Heat or energy recovered  
  - CO₂ capture ratio  
  - Total CO₂ captured  
  - CO₂ emissions to atmosphere  
  - Other emission to air, soil or water |
| **5 Facility Operations – Transportation** | Provide a commentary on the transportation of carbon dioxide during the reporting period. Include a discussion on the characteristics of the carbon dioxide within the pipeline. Specific information (design):  
  - Flow capacity  
  - Pipeline diameter  
  - Design pressure and temperature  
  - Wall thickness  
  - Length  
  - Material  
  - Expected lifetime |
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### Facility Operations – Storage and Monitoring

Provide a commentary on:

(i) the injection and storage of carbon dioxide during the reporting period, including a discussion on: (A) the total mass of carbon dioxide injected, (B) the operating parameters of injection (e.g., injection rate and pressure), and (C) the characteristics of the carbon dioxide injected; and

(ii) the monitoring of stored carbon dioxide for leakage and seepage during the reporting period, including a discussion on: (A) the monitoring activities and results, and (B) any remedial actions required to address carbon dioxide leakage and seepage.

Specific information:

- Injection rates (total and per well)
- Injection stream composition
- Pressure and temperature of injection stream
- Monitoring techniques employed
- CO₂ emissions to atmosphere
- CO₂ recycle rates

### Facility Operations – Maintenance and Repairs

Provide a commentary on the maintenance and repair activities conducted during the reporting period.

### Regulatory Approvals

Provide a commentary on any particular challenges encountered during the reporting period in obtaining the required regulatory approvals to pursue the Project.

Specific information:

- Status of regulatory approvals submitted/approved.

### Public Engagement

Provide a commentary on public consultation and outcomes.

Specific information:

- Summary of public concerns raised and how they were resolved.
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<td></td>
<td>Summary of open houses and any public meetings held; include a record of specific comments or issues raised.</td>
</tr>
<tr>
<td>10</td>
<td>Costs and Revenues</td>
<td>Provide a commentary on the costs and revenues of the Project. Specific information: Aggregate OPEX and CAPEX costs on each component for capture, transportation, storage and CCS value chain; OPEX and CAPEX spent to date; Revenues generated and received; Forecast of costs; Cost per tonne of CO₂ (benchmark)</td>
</tr>
<tr>
<td>11</td>
<td>Project Timeline</td>
<td>Identify any significant deviations that have occurred during the reporting period from the schedule set out in the Project Timeline and explain the reasons for the deviations.</td>
</tr>
<tr>
<td>12</td>
<td>General Project Assessment</td>
<td>Provide a commentary on the general successes and failures of the Project, and the learnings arising from the Project, to date. Include a discussion about the indirect economic benefits of the Project for Alberta and Canada.</td>
</tr>
<tr>
<td>13</td>
<td>Next Steps</td>
<td>Discuss any changes in the Project Plan or Project Timeline expected or being considered in light of the results of the Project to date.</td>
</tr>
</tbody>
</table>
**Division B: Detailed Report**

**SECTION 1  CAPTURE**

**Section 1.1 Pre-capture composition and conditioning**

**Description:** Boundary conditions for the capture facility must be clearly defined. Depending on the capture technology, different pre-treatment stages prior to the CO₂ capture process are often required to adjust the temperature and/or pressure to the design conditions of the capture process and/or removing compounds that affect the performance of the capture technology.

**Purpose:** To share the input design parameters.

**Reporting Requirements:**

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
<th>Quantitative Data/Information</th>
<th>Qualitative Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>During Concept and Design phase</strong></td>
<td>Mass flow rate of source CO₂ streams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expected chemical composition of source CO₂ streams, including but not limited to:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- CO₂</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- water</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- ammonia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- hydrogen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- any other trace elements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expected source CO₂ stream pressure and temperature.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Although pre-conditioning is not initially envisioned in the Project, if conditioning is found to be necessary information related to the process shall include:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- raw and treated gas mass flow rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- basic block flow diagram of process</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- gas conditioning stages and technology description</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- equipment dimensions and capacity</td>
<td></td>
</tr>
<tr>
<td><strong>During Construction phase</strong></td>
<td>Updates to composition and design as applicable.</td>
<td></td>
</tr>
<tr>
<td><strong>During Operations</strong></td>
<td>Table or graph of daily pressure and temperature of source CO₂ stream</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Although pre-conditioning is not initially envisioned in the Project, if conditioning is found to be necessary information related to the process shall include:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- compositional and physical changes through the conditioning equipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- an energy balance of conditioning equipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- operation report of conditioning equipment</td>
<td></td>
</tr>
<tr>
<td><strong>Data capture frequency</strong></td>
<td>Daily where available, otherwise monthly.</td>
<td></td>
</tr>
</tbody>
</table>
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### SECTION 1 CAPTURE

#### Section 1.2 Specifications and formulation of chemicals - design

**Description:** The energy requirement of the capture process is strongly related to the performance of the solvent. Moreover, Health, Safety and Environmental (HSE) properties of solvents, and degradation products formed within the process itself, or if released to the atmosphere, is another important performance parameter for solvents. A lot of R&D work has been put into solvent development. Capture of CO$_2$ is mainly achieved by either using a chemical or physical solvent. Some solvents need different types of additives in order to enhance their performance, e.g., related to reaction rate (activators) or corrosivity (inhibitors). All chemicals used in the process should be described.

**Purpose:** The value of getting detailed information on this would benefit the advancement of CCS technology. Today, the major capture vendors have licensed their solvents. Knowledge of solvent compositions would also be valuable to assess lifecycle performance in terms of energy and environmental impacts of the CCS value chain. Also, HSE issues related to the release of substances originating from the solvents would educate the public, and potentially increase the trust in CCS.

**Reporting Requirements:**

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
<th>Quantitative</th>
<th>Qualitative</th>
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</thead>
<tbody>
<tr>
<td><strong>Data/Information</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>During Concept and Design phase</td>
<td>Proposed composition of solvent.</td>
<td>Design rationale</td>
</tr>
<tr>
<td></td>
<td>Expected CO$_2$ removal efficiency.</td>
<td>Design details</td>
</tr>
<tr>
<td></td>
<td>Expected solvent performance.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description of any additives to be used.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rationale for technology selection.</td>
<td></td>
</tr>
<tr>
<td>During Construction phase</td>
<td>Describe any changes to composition or type of solvent and rationale for the change.</td>
<td></td>
</tr>
<tr>
<td>Data capture frequency</td>
<td>Annually</td>
<td></td>
</tr>
<tr>
<td>During Operations</td>
<td>Composition of solvent.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solvent regeneration:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- energy used</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- performance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- cycles and impact on solvent capacity to extract CO$_2$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Detailed description of solvent including type and concentration of:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- inhibitors (foaming or corrosion inhibitions)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- activators</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- other additives</td>
<td></td>
</tr>
<tr>
<td>Data capture frequency</td>
<td>Annually</td>
<td></td>
</tr>
</tbody>
</table>
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**SECTION 1 CAPTURE**

**Section 1.3  Process heat integration and configuration - design**

Description: The energy requirements of the capture process can be reduced by optimizing heat integration of unit processes and streams within the capture facility.

Purpose: Sharing this information could trigger increased awareness, and new ideas, of potential energy saving process integration concepts.

<table>
<thead>
<tr>
<th>Reporting Requirements:</th>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data/Information</strong></td>
<td></td>
<td>Knowledge</td>
</tr>
<tr>
<td>During Concept and Design phase</td>
<td>Identify all heat recovery streams (either into or out of the capture process) that are used for process heat integration.</td>
<td>Design rationale</td>
</tr>
<tr>
<td></td>
<td>Provide a basic design flow diagram and describe the heating and cooling processes in the capture and separation processes.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stream properties (temperature, pressure, enthalpy) of these streams.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Heat recovery efficiency (heat transfer or electricity generation).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solvent regeneration method (pressure swing/temperature swing configuration).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Process flow diagrams.</td>
<td></td>
</tr>
<tr>
<td>During Construction phase</td>
<td>Any changes to design that occurs during construction.</td>
<td></td>
</tr>
<tr>
<td>Data capture frequency</td>
<td>Annually</td>
<td></td>
</tr>
</tbody>
</table>

| During Operations | Actual installed process heat integration configuration. |
| Data capture frequency | Annually |
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## SECTION 1 CAPTURE

### Section 1.4 Process design

**Description:** Detailed process design description of the capture, compression and dehydration facilities.

**Purpose:** This process design information enables an increased understanding of state-of-the-art process design.

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
<th>Quantitative</th>
<th>Qualitative</th>
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</thead>
<tbody>
<tr>
<td><strong>Data/Information</strong></td>
<td></td>
<td>Knowledge</td>
</tr>
<tr>
<td><strong>During Concept and Design phase</strong></td>
<td>Process Block Flow Diagram for capture, compression and dehydration facilities as applicable.</td>
<td>Design rationale</td>
</tr>
<tr>
<td></td>
<td>General description of major pieces of equipment.</td>
<td>Updated rationale for design</td>
</tr>
<tr>
<td></td>
<td>Material balance showing process unit design capacities.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Show reference points for data collection, analysis and interpretation purposes.</td>
<td></td>
</tr>
<tr>
<td><strong>During Construction phase</strong></td>
<td>Any changes to design that occurs during construction – as built Process Flow Diagram (PFD) and measurement schematic.</td>
<td></td>
</tr>
<tr>
<td><strong>During Operations</strong></td>
<td>As built PFD and measurement schematic.</td>
<td></td>
</tr>
<tr>
<td><strong>Data capture frequency</strong></td>
<td>Annually and updated as necessary.</td>
<td></td>
</tr>
</tbody>
</table>
SECTION 1  CAPTURE

Section 1.5  Energy consumption - performance

**Description:** The boundaries for the energy balance will be submitted based on the Project Plan and an overall figure for the energy of capture should be reported as MJ/kg of CO₂ captured.

**Purpose:** There is a lack of real data for energy consumption, and information would be valuable for benchmarking performance and as a driver for developing more energy efficient processes. The energy balance is a useful comparison to other process approaches for CO₂ capture.

**Reporting Requirements:**

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
<th>Quantitative Data/Information</th>
<th>Qualitative Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before Operation</strong></td>
<td>Estimates of energy of capture expressed as MJ/kg of CO₂ captured.</td>
<td>Benchmarking estimate</td>
</tr>
<tr>
<td></td>
<td>Mass and energy balance as provided in PFD.</td>
<td></td>
</tr>
<tr>
<td><strong>During Operation</strong></td>
<td>Actual energy consumption of capture expressed as MJ/kg CO₂ captured, split into (as applicable):</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- heat rejected to cooling water</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- electricity usage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- compression requirements (excluding compression for pipeline transportation)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- steam consumption</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- summary table</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Although not currently envisioned for the Project, the following details should be provided in case they become relevant to the Project:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- water consumption</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- electrical recovery</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- air separation energy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- any other relevant indicators</td>
<td></td>
</tr>
</tbody>
</table>

Data capture frequency  Monthly average
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### SECTION 1 CAPTURE

#### Section 1.6 CO₂ capture ratio - performance

**Description:** The performance of the process in terms of amount of CO₂ captured should be reported by reference to the CO₂ capture ratio, which is defined as the fraction of the formed CO₂ which is captured, on an annual basis, taking the availability of the plant into account.

**Purpose:** This is valuable for the purpose of benchmarking technologies.

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data/Information</td>
<td></td>
<td>Knowledge</td>
</tr>
</tbody>
</table>

**Before Operation**
- Estimates on the fraction of the formed CO₂ which is captured, on an annual basis.
- Provide an overview of the design basis and mass and energy balance.

**During Operation**
- Actual fraction of the formed CO₂ which is captured, on an annual basis.
- Data capture frequency: Daily average, if available. Otherwise monthly estimates.

---

**CCS Funding Agreement**

Alberta Carbon Trunk Line Project
SECTION 1 CAPTURE

Section 1.7 Reliability - performance

Description: The reliability of the capture process and operational interference with the base facility is important information. Downtime information should be given for all relevant components affecting the overall reliability of the capture facility.

Purpose: Reliability data should be provided to inform relevant stakeholders of the operational risks caused by CO₂ capture. The information provided will be completed at a detailed level, in order to provide failure rate data on a process unit level. This will enable new projects to optimize their selection of facilities, systems, and equipment. It will also help with risk analyses or maintenance and spare-parts planning.

<table>
<thead>
<tr>
<th>Reporting Requirements:</th>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Data/Information</td>
<td>Knowledge</td>
</tr>
<tr>
<td>Before Operation</td>
<td>Estimated annual availability for process units. Availability should be based on planned operational downtime.</td>
<td>Rationale for estimated availability Summary of lessons learned from operational experience</td>
</tr>
<tr>
<td>During Operation</td>
<td>Actual failure rate of process units (the frequency should be expressed as failure per year with a description of the cause of the failure). Actual annual availability measured in percentage of time when system is operational (this should include recognition of planned and unplanned down-time).</td>
<td></td>
</tr>
</tbody>
</table>

Data capture frequency Annually
SECTION 1  CAPTURE

Section 1.8  Emissions to air, soil or water - performance

| Description: | All regulated emissions (non-CO₂) to air, soil and water caused by the introduction of the CO₂ capture process should be identified and reported, with identification of the ultimate waste products. Any substances that might have harmful environmental or HSE effects if released to atmosphere should be identified. |
| Purpose: | Providing this information may allow technology developers to know the emissions from a process, in order to focus on developing improved new processes, from both a HSE and cost perspective, and to provide valuable information to other project developers that are considering different methods for waste handling. |

<table>
<thead>
<tr>
<th>Reporting Requirements:</th>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data/Information</td>
<td>Knowledge</td>
<td></td>
</tr>
<tr>
<td>Before Operation</td>
<td>Expected emissions to be included in mass and energy balances</td>
<td>Identify substances that may have environmental or HSE effects</td>
</tr>
<tr>
<td></td>
<td>Estimated quantities of non-CO₂ emissions to air, soil and water (ppm) including, but not limited to:</td>
<td>Report properties and potential consequences of emissions from the capture facility</td>
</tr>
<tr>
<td></td>
<td>- emissions off the dehydration processes</td>
<td>Report summarizing emissions and potential negative consequences for the environment</td>
</tr>
<tr>
<td></td>
<td>- water disposal extracted from dehydration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- any emissions that were unexpected will be reported</td>
<td></td>
</tr>
<tr>
<td>During Operation</td>
<td>Actual or calculated non-CO₂ emissions to air, soil and water (ppm) including, but not limited to:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- combustion emissions as calculated from fuel consumption</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- daily volumes of extracted disposal water</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- any emissions that were unexpected will be reported</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Data capture frequency</td>
<td>Monthly and Annually</td>
</tr>
</tbody>
</table>

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Alberta Carbon Trunk Line Project
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**SECTION 1 CAPTURE**

**Section 1.9 Land Use – Plot Plan**

**Description:** The footprint of the capture facility will determine the feasibility of the capture concepts for “brown field” projects, where there is limited available space. Information on typical layout and land use, taking the utility requirements into account.

**Purpose:** This will provide valuable information for other CCS project developers. The plot plan will provide valuable information with respect to the total footprint of the capture process.

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
<th>Quantitative</th>
<th>Qualitative</th>
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</thead>
<tbody>
<tr>
<td>Data/Information</td>
<td>Knowledge</td>
<td></td>
</tr>
</tbody>
</table>

**During Concept and Design phase**

- A plot plan should include:
  - identification of all process units
  - identification of all access roads
  - general piping layout
  - placement of CO₂ export system (compressors, etc.)
  - site dimensions

**During Construction phase**

- Any variations from original design and rationale for the change.

- Data capture frequency: Annually and updated as necessary.

**During Operations**

- Any changes (including modifications, upgrades, expansions).

- Data capture frequency: Annually and updated as necessary.
SECTION 1 CAPTURE
Section 1.10 CO₂ Dehydration technology - approach

Description: Keeping the level of water at a minimum level prior to entering the pipeline is essential for corrosion control. Documentation of the process steps to achieve specification CO₂ would be valuable.

Purpose: Sharing of best available technologies and knowledge on this issue is valuable for future CCS projects, in order to choose cost efficient and dependable solutions.

<table>
<thead>
<tr>
<th>Reporting Requirements:</th>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data/Information</td>
<td></td>
<td>Knowledge</td>
</tr>
<tr>
<td><strong>Before Operation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Describe the drying technology.</td>
<td></td>
<td>Rationale for chosen dehydration technology and level of drying required</td>
</tr>
<tr>
<td>Total level of drying required (ppm water).</td>
<td></td>
<td>Evaluation of selected technology</td>
</tr>
<tr>
<td>Level of drying expected for each stage (ppm water).</td>
<td></td>
<td>Lessons learned</td>
</tr>
<tr>
<td>Data capture frequency</td>
<td>Annually</td>
<td></td>
</tr>
<tr>
<td><strong>During Operation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual total level of drying achieved (ppm water), measured at plant outlet.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If available, the realized level of drying achieved by each stage shall be provided.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data capture frequency</td>
<td>Annually</td>
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</tbody>
</table>
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<table>
<thead>
<tr>
<th>SECTION 1  CAPTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 1.11 Scale-up experience and methodology - approach</td>
</tr>
<tr>
<td><strong>Description:</strong> One of the largest technological risks of building a commercial scale CO₂ capture system relates to the lack of experience with design and operation of CCS-scale plants. These risks are normally handled by a combination of pilot-scale testing and modelling. It would be valuable to share the scale-up philosophy applied and the experience gained during process development, such as modelling tools used for verification of piloting, reference plants, lab-tests, mock-up studies, use of scale-up correlations, use of rules of thumb for scale-up, dimension analysis, and principles of similarities.</td>
</tr>
<tr>
<td><strong>Purpose:</strong> Sharing information regarding scale-up experience could help reduce project lead time for other CCS projects.</td>
</tr>
<tr>
<td><strong>Reporting Requirements:</strong></td>
</tr>
<tr>
<td>Data/Information</td>
</tr>
<tr>
<td><strong>Before start-up</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Data capture frequency</td>
</tr>
<tr>
<td><strong>After start-up</strong></td>
</tr>
</tbody>
</table>
SECTION 2 TRANSPORTATION

Section 2.1 General description of CO₂ pipeline system phases

**Description:** Describe the pipeline system; including the ERCB baseline map (or equivalent) and description of the leak detection system. Identify who the owner of the pipeline system is and who is liable for operation and maintenance of the pipeline system.

**Purpose:** This information is relevant for industry and R&D to build competence in pipeline transportation of CO₂. Some of this information is also relevant for building public awareness on pipeline transport of CO₂.

**Reporting Requirements:**

<table>
<thead>
<tr>
<th>Data/Information</th>
<th>Quantitative</th>
<th>Qualitative</th>
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</thead>
<tbody>
<tr>
<td><strong>During Concept and Design phase</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide a description of the pipeline design, including but not limited to the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- the phase in which CO₂ is transported</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- line pipe specification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- pipeline valve seals (type, e.g., elastomers)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- block valves (number and location/spacing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- other types of valves (number and location/spacing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- vent stations (number and location/spacing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- pigging stations (number and location/spacing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- external coating (and internal coating if any) of the pipeline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- cathodic protection system (impressed current cathodic protection, sacrificial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>anode or others)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- pipeline routing, shown with the ERCB baseline map (or equivalent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- pipeline burial and depth of cover</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- schematic of battery limits (capture and storage)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- description of leak detection system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- risk analysis, as per ERCB application</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- maximum operating pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- any special considerations for crossings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- pipeline integrity management system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measurement schematic, showing reference points for data collection analysis and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>interpretation purposes.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Although not currently envisioned for the Project, the following details should be provided in the case that become relevant to the Project:

- fracture arrestors (number and location/spacing)
- compressor/pump stations (type, general specifications, number and location)
- check valves (number and location/spacing)
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| During Construction and Pre – Commissioning phases | Material deviations and changes from detailed design.  
Description of commissioning plan.  
Hydrotest reports. |
|-----------------------------------------------|--------------------------------------------------|
| During Operation phase                       | Results from commissioning including:  
- material deviations and changes from detailed design  
- accidental events and damages to the pipeline system during operation shall be reported, including any leaks/spills  
- significant results and issues arising from maintenance shall be reported  
- results from inspection and non-routine repair shall be reported  
Description of fluid pressure management during commissioning and post-commissioning.  
As a part of the commissioning (filling of CO\textsubscript{2}) the documentation made available shall include, but not be limited to:  
- commissioning volume, pressure and temperature data  
Pipeline Integrity Plan  
Provide the monthly operations report of the transport system which shall as a minimum contain documentation regarding:  
- results and conclusions from the in-service inspections  
- accidental events and damages to the pipeline system  
- intervention, repair, and modifications  
- operational data (fluid composition, monthly flow rate, pressure, temperature) |
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**SECTION 2 TRANSPORTATION**

**Section 2.2 Capacity**

**Description:** Describe the capacity requirements for steady state and/or cyclic (known as transient operation for pipelines) depending on the operation of the plant and the chosen transport solution, and describe the design capacity, actual capacity and ultimate expansion capacity.
- Start up procedures
- Design capacity vs. realized capacity

**Purpose:** This information is relevant for building competence in industry on pipeline transport of CO$_2$.

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
<th>Quantitative Data/Information</th>
<th>Qualitative Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>During Concept and Design</strong></td>
<td>Reports from FEED and detailed design of the CO$_2$ pipeline should include, but not limited, to the following:</td>
<td>Design details</td>
</tr>
<tr>
<td></td>
<td>- full capacity of the pipeline</td>
<td>Deviations from concept phase to basic design</td>
</tr>
<tr>
<td></td>
<td>- volumetric and mass flow rates expected</td>
<td>Changes in capacity during operation and/or after commissioning</td>
</tr>
<tr>
<td></td>
<td>- operating pressures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- operating temperatures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- fluid composition (% by volume)</td>
<td></td>
</tr>
<tr>
<td><strong>During Operation</strong></td>
<td>Reports on the deviations and changes from the detailed design (pipeline capacity) should include, but not be limited to, the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- actual installed capacity of the pipeline</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- volumetric and mass flow rates realized</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- commissioning (filling of CO$_2$)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- regular maintenance plans</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- inspection and repair</td>
<td></td>
</tr>
<tr>
<td>Data capture frequency</td>
<td>Daily/Monthly as appropriate</td>
<td></td>
</tr>
</tbody>
</table>
SECTION 2 TRANSPORTATION

Section 2.3 Characteristics of transported CO₂

Description: Characteristics of the transported CO₂ should be stated, since the characteristics may change because of integrated networks. In operational phase these characteristics should be monitored since this may change over time.

The Project Plan anticipates an integrated network (e.g., use as trunk line). The CO₂ composition from the different sources will be measured as part of the contracted inlet requirements. The specifications to enter the pipeline will be set by the trunk pipeline operator.

Purpose: This information is relevant for building competence in industry on pipeline transport of CO₂. This information is also relevant for other CCS or EOR projects in Alberta, mainly for planning purposes.

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
<th>Quantitative Data/Information</th>
<th>Qualitative Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>During Concept and Design</strong></td>
<td>Reports from basic and detailed design should include, but not limited, to the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- the required CO₂ specification for the pipeline</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- expected composition (% by volume or molar %) of the CO₂ stream (e.g., impurities) of different sources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- expected impurity types and impurity limits allowed in the trunk line (identifying maximum acceptable levels of various impurities)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- mass flow rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- temperature</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- pressure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- water content (specified in terms of parts per million on mass bases)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Although not currently envisioned for the Project, the following details should be provided in case they become relevant to the Project:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- fluctuations of composition over time due to new sources or change in operational process due to several sources (cross effects, of impurities, etc.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- changes through pump stations (changes in characteristics of the stream as they pass through these systems)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- additives or additional chemicals used (e.g. inhibitors, tracers, other chemicals for internal corrosion control, etc.)</td>
<td></td>
</tr>
</tbody>
</table>

**During Operation**

Deviations and changes from detailed design and changes in specifications or characteristics during operation and/or after commissioning.

Annual reports on the following:
- commissioning (filling of CO₂)
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<table>
<thead>
<tr>
<th>Data capture frequency</th>
<th>Daily (pressure, temperature and flow only)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Annually (composition and operations report)</td>
</tr>
</tbody>
</table>

- operational plan
- maintenance plans
- inspections and repairs
- If found to be applicable, impact of external conditions on CO₂ characteristics and impact to handling requirements throughout the year.
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<table>
<thead>
<tr>
<th>SECTION 2 TRANSPORTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Section 2.4 Emissions from transportation</strong></td>
</tr>
<tr>
<td><strong>Description:</strong> Describe fugitives and fuel emissions during transportation. This is required to determine the total system emissions reduction.</td>
</tr>
<tr>
<td><strong>Purpose:</strong> This allows sharing of data with industry for benchmarking purposes.</td>
</tr>
<tr>
<td><strong>Reporting Requirements:</strong></td>
</tr>
<tr>
<td><strong>Data/Information</strong></td>
</tr>
<tr>
<td><strong>Before Operation</strong></td>
</tr>
<tr>
<td><strong>During Operation</strong></td>
</tr>
<tr>
<td><strong>Data capture frequency</strong></td>
</tr>
</tbody>
</table>
SECTION 2 TRANSPORTATION

Section 2.5 Energy consumption

**Description:** Describe the energy used during transportation. This data is used to align with the requirements of the capture portion.

**Purpose:** This allows for the sharing of data within industry for benchmarking purposes.

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Data/Information</td>
<td>Knowledge</td>
</tr>
</tbody>
</table>

**Before Operation**

Based on basic/detailed design the energy used during transportation should be described. This data is used to align with the requirements of the capture portion.

In the case that pump stations are necessary, the energy for these stations should be included.

Report total estimated energy consumption.

**During Operation**

Based on operation the energy used during transportation should be described. This data is used to align with the requirements of the capture portion.

In the case that pump stations are necessary, the energy for these stations should be included.

Report actual or calculated energy consumption.

**Data capture frequency**

Monthly average

CCS Funding Agreement
Alberta Carbon Trunk Line Project
SECTION 2 TRANSPORTATION
Section 2.6 Integrity management plan

**Description:** In order to competently manage integrity and safety aspects of the pipeline system, the pipeline will be regularly monitored and inspected. Describe the integrity management plan of the pipeline prior to start-up and during operation.

**Purpose:** This information is relevant for building competence in industry on pipeline transport of CO$_2$.

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data/Information</td>
<td></td>
<td>Knowledge</td>
</tr>
</tbody>
</table>

**Before Operation**

Describe the following programs:
- integrity management process (risk assessment, inspection, maintenance programs, monitoring, testing, mitigations, interventions, repairs, contingency plans, etc.)
- results from in-line inspection of the CO$_2$ pipeline
- emergency preparedness plans
- company policy on pipeline safety and maintenance
- operational controls and procedures
- safety reporting and communication processes
- information management process
- corporate and site emergency response plan

| Data capture frequency | Annually and updated as necessary |

**During Operation**

Describe any material updates to the programs above and any issues/incidents that occur during the commissioning and operation.

Results from the integrity management process.
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### SECTION 3 STORAGE

**Section 3.1 Screening criteria**

**Description:** List the specific criteria used for evaluating potential storage sites.

**Purpose:** This knowledge allows for industry and R&D capacity-building within methodologies for screening of storage sites. This is important information in developing methodologies for screening potential storage sites.

<table>
<thead>
<tr>
<th>Reporting Requirements:</th>
<th>Quantitative</th>
<th>Qualitative</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Data/Information</td>
<td>Knowledge</td>
</tr>
<tr>
<td><strong>Before Operation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of geological formation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacity (see Section 3.2).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injectivity.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure and temperature.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Containment, including possibility of multiple barriers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conflict with other subsurface users.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact of population density to site selection as determined by company.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of well locations including old, abandoned wells.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to be monitored.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data access (well log information, geological description, subsurface structure, geological and flow models, 2D and/or 3D seismic).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Data capture frequency | Annually and updated as necessary |

CCS Funding Agreement
Alberta Carbon Trunk Line Project
SECTION 3 STORAGE

Section 3.2 Methodology for calculating capacity

Description: Describe the methodology for estimating storage capacity.

Purpose: This knowledge allows for industry and R&D capacity-building within methodology for screening of storage sites. This is important information in developing methodologies for screening potential storage sites.

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacity calculated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output from reservoir simulation software and discussion of assumptions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitivity to different injectivities, injection strategies, well type (vertical/horizontal) in a multi-well system.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure management strategy.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data capture frequency</td>
<td>Annually and updated as necessary</td>
<td></td>
</tr>
<tr>
<td>During Operation</td>
<td>Estimated remaining capacity.</td>
<td></td>
</tr>
<tr>
<td>Explanation/rationale for any changes to the method used to estimate capacity.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simulation validation and discussion of simulation conformance.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION 3 STORAGE

Section 3.3 Storage sites selection

Description: Comparison of the selected storage site to the selection criteria described in Section 3.1. A justification for the candidate selection should be given.

Purpose: This information allows for industry and R&D capacity-building within methodology for screening of storage sites.

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
<th>Quantitative</th>
<th>Qualitative</th>
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</thead>
<tbody>
<tr>
<td>Data/Information</td>
<td></td>
<td>Knowledge</td>
</tr>
</tbody>
</table>

Before Operation

- Comparison of selected storage site to the selection criteria.
- Summary of reasons for selecting the final site to be further explored:
  - geographical and practical suitability for implementing the whole CCS chain
  - potential EOR benefits, if considered
  - governmental regulations/requirements
- Justification for the selection
- Lessons learned during the operation stage

Data capture frequency
- Annually and updated as necessary
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<table>
<thead>
<tr>
<th>SECTION 3 STORAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 3.4 Screening and characterization results</td>
</tr>
</tbody>
</table>

**Description:** Site specific data collected to finalize selection of storage sites.

If applicable, describe the exploration activities performed at the selected storage sites along with a discussion as to their purpose, and provide the results of these activities. These activities include data acquisition and interpretation as well as modelling.

**Purpose:** This information provides for industry and R&D capacity-building within methodologies for screening of storage sites. Access to data from storage projects is useful for R&D purposes and other analysis. This information is also relevant to stakeholders (local communities, NGOs). In describing the geological storage site, this data is of general interest.

**Reporting Requirements**

<table>
<thead>
<tr>
<th>Data/Information</th>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>During Concept phase/storage site screening</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maps, data and discussion of the selected sites including:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- well locations and strategy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- reservoir location (top depth) and thickness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- pressure and temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- porosity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- permeability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- injectivity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- estimate of the storage potential</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General geological description of target formation and cap rock.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locations of planned wells/facilities as well as design plan, including injection and monitoring wells and other facilities.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **During Design and construction phase/storage site characterization** | | |
| Characterization report including: | | |
| - cap rocks and existence of secondary barriers | | |
| - reservoir and caprock mineralogy | | |
| Storage site data: | | |
| - depths | | |
| - thicknesses | | |
| - lithologies | | |
| - porosities | | |
| - permeabilities | | |
| - calculated storage capacity | | |
| - salinity | | |
| - water chemistry | | |

Summary of rationale for site selection
If applicable, report describing the exploration activities performed at the selected storage sites and characterization results
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<table>
<thead>
<tr>
<th>Data capture frequency</th>
<th>Annually and updated as necessary</th>
</tr>
</thead>
</table>

- presence of \( \text{H}_2\text{S} \) and other dissolved gases
- presence of free gas or oil

Field development design.

Monitoring results.
SECTION 3 STORAGE

Section 3.5 Baseline monitoring results for shallow groundwater aquifers, soil and air

Description: These measurements provide a reference that future measurements can be compared against. Description of the monitoring method.

The monitoring techniques potentially include:
- surface gas fluxes and chemical/isotopic composition
- soil gas flux and chemical/isotopic composition
- ecosystem surveys
- groundwater quality (chemical and isotopic composition)
- atmospheric quality and composition

There are a number of “shallow” geophysical and other techniques that may be appropriate. Depending on the location or season, not all monitoring methodologies may be possible. The selection of measurement techniques are made as part of the MMV process described in 3.11. They may be made in conjunction with the deep baseline measurements. These measurements are made prior to and independently of the monitoring activities described in 3.12.

Purpose: This is an essential baseline for measuring any changes in the local environment from CO₂ storage and is important in building confidence in CO₂ storage as safe and without (major) negative effects locally.

<table>
<thead>
<tr>
<th>Reporting Requirements:</th>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Data/Information</td>
<td>Knowledge</td>
</tr>
</tbody>
</table>

Early in characterization of the storage site
Results from baseline monitoring.
Report describing the monitoring techniques
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**SECTION 3 STORAGE**

**Section 3.6 Baseline monitoring results for the injection horizon**

**Description:** These measurements provide a reference that future measurements can be compared against. There are four primary suites of measurements: (1) pressure (and temperature); (2) fluid (water and gas/oil if present) composition; (3) surface imaging (different geophysical methods); and (4) well based imaging (RST, bond logs, etc.). Depending on the monitoring method, a full suite of chemical (mass and/or fraction) and isotopic measurements may be required. Depending on the specific geological structures, aquifers below the injection horizon may have to be sampled/imaged. Under certain circumstances, lateral variation of the data may have to be established.

CCS activities include data acquisition and interpretation as well as modelling. Examples of results are:
- geology/geophysics/geomechanics/petrophysics/geochemistry/microbiology
- simulation of pressure front migration
- use of analogue data
- interpretation of monitoring data

Depending on the location or season, not all monitoring methods may be possible or cost effective. The selection of measurement techniques are made as part of the MMV process described in 3.11.

**Purpose:** This is another essential baseline for measuring injected volume/mass/location of CO$_2$ in the injection formation. It is important for verification to establish carbon credits or something similar. It is also an essential baseline for measuring any changes in the surrounding environment from CO$_2$ storage. This is important in building confidence in CO$_2$ storage as safe and without (major) negative effects locally.

<table>
<thead>
<tr>
<th>Reporting Requirements:</th>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
</table>
| Early in characterization of the storage site | Results from baseline monitoring.  
Seismic characterization.  
Initial structural model. | Report describing the monitoring techniques | Knowledge |
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### SECTION 3 STORAGE

#### Section 3.7 Injectivity and draw down tests

**Description:** Provide well test description and interpretation.

**Purpose:** Industry and R&D competence-building within methodologies for characterizing storage sites is aided by this information. Access to data from storage projects is useful for R&D purposes.

<table>
<thead>
<tr>
<th>Reporting Requirements:</th>
<th>Quantitative Data/Information</th>
<th>Qualitative Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>During characterization of storage site</strong></td>
<td>Well test data and information:</td>
<td>Summary report of well tests</td>
</tr>
<tr>
<td></td>
<td>- injected fluid/water/tracer volume, rate and duration for test if necessary</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- initial pressure build up curve</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- pressure drop off curve</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- connected pore volume estimate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- rock permeability estimate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- other, such as temperature if measured</td>
<td></td>
</tr>
</tbody>
</table>

Although not currently envisioned to be needed for the Project, the following well test data and information should be provided in the case that they become relevant to the Project:
- compartmentalization evaluation
- initial water test
- injectivity of the water
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### SECTION 3 STORAGE

#### Section 3.8 Planned injection stream composition

**Description:** Identify the planned and observed stream composition of the injection stream of CO₂. Assess the risks associated with the impurities identified and the methods to avoid adverse effects of the impurities.

- Record the evolution of the identified significant risks along with corresponding safeguards as the monitoring activities progresses. Also record the impact of identified risks on the MMV plan in 3.11.

**Purpose:** The composition is relevant to the public in order to know what is being stored in the reservoir and for R&D and industry to understand reservoir behaviour and selection of materials in wells.

<table>
<thead>
<tr>
<th>Reporting Requirements:</th>
<th>Quantitative Data/Information</th>
<th>Qualitative Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before Operation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estimated injection stream:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- expected composition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- expected mass flow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- expected variation of above factors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- reactivity of impurities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- impact on phase behaviour of impurities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- risk and uncertainty assessments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- identify safeguards for the significant risks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- down-hole water chemistry and composition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- required pressure and temperature for injection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summary report with assessments and lessons learned</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summary of risk assessment including ranking of risks and associated uncertainties</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **During Operation**   |                               |                       |
| Actual injection stream content: |                           |                       |
| - calculated composition |                               |                       |
| - measured mass flow     |                               |                       |
| Identify and describe any deviations from the initial assessments from the screening and characterization phase. | |                       |

| Data capture frequency | Monthly                       |                       |
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## SECTION 3 STORAGE

### Section 3.9 Risk Assessment and Safeguard Plans

**Description:** Provide a report covering the conclusions of the risk assessment and describe the action plans for dealing with undesirable events (based on the risk assessment).

**Purpose:** By sharing experiences regarding risks and uncertainties of a geological storage site, industry and R&D competency in characterizing storage sites is increased. The conclusions from risk assessments are important in building public awareness and confidence in geological storage of CO₂.

Sharing these experiences developing safeguard plans with other project developers, R&D and other stakeholders is beneficial to current and future CCS projects. This information also helps build confidence among stakeholders, but these plans have to be communicated carefully to the public to avoid misinterpretation.

<table>
<thead>
<tr>
<th>Reporting Requirements:</th>
<th>Quantitative Data/Information</th>
<th>Qualitative Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before Operation</strong></td>
<td>MMV Report, which includes a Risk Assessment.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Risks addressed based on results of assessment.</td>
<td></td>
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<tr>
<td></td>
<td>Describe the corrective and/or preventive measures (mitigation and remediation).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Basic cost-benefit analysis.</td>
<td></td>
</tr>
<tr>
<td>Data capture frequency</td>
<td>Annually and updated as necessary</td>
<td></td>
</tr>
<tr>
<td><strong>During Operation</strong></td>
<td>Updates to MMV Risk Assessment.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Describe actual corrective and/or preventive measures employed (mitigation and remediation), if applicable.</td>
<td></td>
</tr>
</tbody>
</table>
**SECTION 3 STORAGE**

**Section 3.10 Storage site operation and CO\textsubscript{2} injection**

<table>
<thead>
<tr>
<th>Reporting Requirements:</th>
<th>Quantitative Data/Information</th>
<th>Qualitative Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before Operation</strong></td>
<td>Planned injection in total and per well:</td>
<td>Report describing operating strategy, HSE, pressure management</td>
</tr>
<tr>
<td></td>
<td>- total rates</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- total volumes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- rates and volumes per injection well</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- reservoir pressure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- pressure at the well head</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- well-specific injection activity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- expected composition</td>
<td></td>
</tr>
<tr>
<td>Measurement schematic.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage performance forecast.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>During Operation</strong></td>
<td>Actual injection in total and per well:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- total rates</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- total volumes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- rates and volumes per injection well</td>
<td></td>
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<tr>
<td></td>
<td>- reservoir pressure</td>
<td></td>
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<tr>
<td></td>
<td>- pressure at the well head</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- well-specific injection activity</td>
<td></td>
</tr>
</tbody>
</table>

| Data capture frequency | Monthly |
## SECTION 3 STORAGE

### Section 3.11 Monitoring, measurement and verification (MMV) plan and revisions

**Description:** Provide a list of relevant data and information from the MMV plan. The MMV plan should address monitoring during the pre-injection and injection phases, as well as the post injection stages. An overview of revised MMV plan if required by the regulatory agency or by changes in project circumstances.

**Purpose:** Information on planned monitoring is relevant to stakeholders (NGOs, local communities) in building awareness of CO₂ storage and for R&D and industry to gain knowledge of planning monitoring programs.

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
<th>Quantitative Data/Information</th>
<th>Qualitative Knowledge</th>
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</thead>
<tbody>
<tr>
<td><strong>Before Operation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relevant information from the MMV plan:</td>
<td></td>
<td>MMV plan and revisions of plan</td>
</tr>
<tr>
<td>- screening of monitoring techniques and technologies for suitability to the selected site</td>
<td></td>
<td>Describe the assessment of monitoring techniques</td>
</tr>
<tr>
<td>- cost-benefit analysis of technically feasible techniques</td>
<td></td>
<td>Lessons learned</td>
</tr>
<tr>
<td>- verification plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- reporting plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locations of particular importance from a risk viewpoint:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- description of the site-specific monitoring targets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- groundwater quality monitoring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- leakage surveillance of wells</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information mainly relevant for R&amp;D and industry:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- statement of relevant regulations and precedents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>List of monitoring techniques considered.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>During Operation</strong></td>
<td>Description of data collection mechanisms to verify that storage is contained.</td>
<td></td>
</tr>
<tr>
<td>Identification and discussion of any changes to MMV plan.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Data capture frequency** Annually and updated as necessary
### SECTION 3 STORAGE

**Section 3.12 Monitoring results**

**Description:** Specific data to be acquired will be described in MMV plan (see Section 3.11). This plan will be updated regularly throughout the operation phase, particularly during storage permit renewals.

**Purpose:** Information and data from monitoring is relevant to stakeholders (NGOs, local communities) in building awareness of CO₂ storage. This information also allows for industry and R&D competence-building within monitoring a geological storage site and increased access to data from monitoring.

**Reporting Requirements:**

<table>
<thead>
<tr>
<th>Data/Information</th>
<th>Quantitative</th>
<th>Qualitative Knowledge</th>
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</thead>
<tbody>
<tr>
<td><strong>Before Operation</strong></td>
<td>Actual data from monitoring (techniques described in the MMV plan), may include the following:</td>
<td>Report with assessment of monitoring results</td>
</tr>
<tr>
<td></td>
<td>- seismic imaging (<em>e.g.</em>, cross-hole tomography, 3D and 4D seismic surveys, VSPs)</td>
<td>Lessons learned from monitoring</td>
</tr>
<tr>
<td></td>
<td>- chemical tracers</td>
<td></td>
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<tr>
<td></td>
<td>- well logs</td>
<td></td>
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<tr>
<td></td>
<td>- down hole fluid chemistry</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- surface gas fluxes (<em>compare to baseline monitoring Section 3.6</em>)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- soil gas flux (<em>compare to Section 3.6</em>)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- ecosystem surveys (<em>compare to Section 3.6</em>)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- tilt meters or equivalent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- groundwater (<em>compare to Section 3.6</em>)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- atmospheric monitoring (<em>compare to Section 3.6</em>)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- static geologic model as a starting model as well as its’ input data</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- from below (case-by-case) the injection unit to the surface</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- pressure, temperature, fluid saturations</td>
<td></td>
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<tr>
<td></td>
<td>- aeromagnetics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- passive seismic monitoring for induced seismicity</td>
<td></td>
</tr>
<tr>
<td><strong>During Operation</strong></td>
<td>Actual data from monitoring (techniques described in the MMV plan), may include the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- seismic imaging (<em>e.g.</em>, cross-hole tomography, 3D and 4D seismic surveys, VSPs)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- chemical tracers</td>
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<td></td>
<td>- well logs</td>
<td></td>
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<tr>
<td></td>
<td>- down hole fluid chemistry</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- surface gas fluxes (<em>compare to baseline monitoring Section 3.6</em>)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- soil gas flux (<em>compare to Section 3.6</em>)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- ecosystem surveys (<em>compare to Section 3.6</em>)</td>
<td></td>
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<tr>
<td></td>
<td>- tilt meters or equivalent</td>
<td></td>
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<tr>
<td></td>
<td>- groundwater (<em>compare to Section 3.6</em>)</td>
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</tbody>
</table>
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<table>
<thead>
<tr>
<th>Data capture frequency</th>
<th>Daily/monthly average, yearly (differ between monitoring techniques, as identified in the MMV plan).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- atmospheric monitoring (compare to Section 3.6)</td>
</tr>
<tr>
<td></td>
<td>- static geologic model as a starting model as well as its’ input data</td>
</tr>
<tr>
<td></td>
<td>- from below (case-by-case) the injection unit to the surface</td>
</tr>
<tr>
<td></td>
<td>- pressure, temperature, fluid saturations</td>
</tr>
<tr>
<td></td>
<td>- aeromagnetics</td>
</tr>
<tr>
<td></td>
<td>- passive seismic monitoring for induced seismicity</td>
</tr>
</tbody>
</table>

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Alberta Carbon Trunk Line Project
SECTION 3 STORAGE

Section 3.13 Well design

**Description:** The provided data should identify potential risks as well as analysis for potential design improvement. This data should describe the existing and planned wells at the storage sites.

**Purpose:** Information shared allows for industry and R&D competence-building, as well as increased access to data from CO₂ wells.

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
<th>Quantitative Data/Information</th>
<th>Qualitative Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before Operation</strong></td>
<td>Type/purpose of well (exploration, monitoring, injection, producer). Trajectory and position. Completion intervals. Casing and cement type and dimensions. Corrosion issues. Other technical specs.</td>
<td>Design rationale Report summarizing operational experience Lessons learned</td>
</tr>
<tr>
<td><strong>During Operation</strong></td>
<td>Operational experience</td>
<td></td>
</tr>
<tr>
<td>Data capture frequency</td>
<td>Annually and updated as necessary</td>
<td></td>
</tr>
</tbody>
</table>
SECTION 3 STORAGE

Section 3.14 CO₂ injection for EOR only

**Description:** Additional information to that in 3.10, the following data/information is EOR specific.

**Purpose:** This information builds competence in industry and R&D on EOR with CO₂ injection and provides insights into a potential commercial driver for CCS projects.

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
<th>Quantitative</th>
<th>Qualitative</th>
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<tbody>
<tr>
<td></td>
<td>Data/Information</td>
<td>Knowledge</td>
</tr>
<tr>
<td><strong>Before Operation</strong></td>
<td>Estimates of:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- planned CO₂ injection rates and recycle rates</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- expected produced gas rates</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- planned water injection, if applicable</td>
<td></td>
</tr>
<tr>
<td><strong>During Operation</strong></td>
<td>Actual data:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- actual CO₂ injection rates and recycle rates</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- actual produced gas rates</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- actual water injection, if applicable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- CO₂ injected per barrel of oil produced</td>
<td></td>
</tr>
</tbody>
</table>

Data capture frequency Monthly
### SECTION 3  STORAGE

**Section 3.15 Injection Well Drilling and Completion**

**Description:** Describe the general methodology of injection well construction work:
- drilling of wells
- drilling work completion
- discussion of pre-existing and new well needs (CO₂)
- well workovers if existing wells are converted to either injection or monitoring wells

**Purpose:** This description will allow industry and R&D competence-building when developing and operating a geological storage site.

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
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<th>Qualitative</th>
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<tbody>
<tr>
<td>Data/Information</td>
<td>Knowledge</td>
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</tbody>
</table>

**Before Operation**
- Drilling locations and status of injection.
- Description of well conversion work.
- Map of injection scheme.
- Data capture frequency: Annually and updated as necessary

**During Operation**
- Updates as necessary

---

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Alberta Carbon Trunk Line Project
SECTION 3 STORAGE

Section 3.16 Illustration summarizing site geology and modelling work

Description: Illustration of site geology and modelling work to highlight key parameters.

Purpose: Industry and R&D competence-building within modeling and monitoring a geological storage site. Access to data/maps.

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
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<tr>
<td>Data/Information</td>
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<td>Knowledge</td>
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</tbody>
</table>

**Before Operation**

- Illustration/map including:
  - 2D cross sections through structure
  - stratigraphic columns
  - well trajectories of injectors (if deviated)

  Data capture frequency: Annually and updated as necessary

**During Operation**

Updates to illustrations/maps as necessary
SECTION 4  CCS VALUE CHAIN

Section 4.1  Project schedule

**Description:** The project schedule gives information on the status of the project and on each building block (capture, transport and storage) and changes in the plan. The project’s critical path and the related tasks need to be identified.

**Purpose:** Sharing schedules are relevant for other CCS projects for benchmarking purposes.

### Reporting Requirements:

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<td>Data/Information</td>
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<td>Knowledge</td>
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</table>

**Before Operation**

Project schedule overview that identifies milestones for capture, transport, storage, MMV, regulatory components (Gantt Chart or similar).

**During Operation**

- Updates to the project schedule with explanations for each change in timing.
- Data capture frequency: Annually and updated as necessary.
**SECTION 4 CCS VALUE CHAIN**

**Section 4.2 Stakeholder dialogue and public awareness**

**Description:** Document the stakeholder dialogue and consultation process for CCS related activities.

**Purpose:** Sharing these experiences is highly relevant to other CCS projects and may help these projects develop a successful stakeholder engagement strategy and stakeholder engagement.

**Reporting Requirements:**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Data/Information</strong></td>
<td></td>
<td>Knowledge</td>
</tr>
<tr>
<td><strong>Before Operation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summary report outlining the stakeholder consultation process and outcomes, including:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- non-confidential list of stakeholders</td>
<td></td>
<td></td>
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<tr>
<td>- ongoing stakeholder communications</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>During Operation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Updates to the stakeholder consultation and ongoing discussions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data capture frequency</td>
<td>Annually and updated as necessary</td>
<td></td>
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**SECTION 4 CCS VALUE CHAIN**

**Section 4.3 Cost per tonnes of CO\(_2\) emissions captured, transported and stored**

**Description:** Calculate the cost per tonne of CO\(_2\) emissions captured, transported, and stored implementing CCS:
- include full CCS value chain costs and CO\(_2\) emissions captured, transported, and stored
- exclude incremental oil produced by EOR with CO\(_2\) injection

Methodologies for calculating cost per tonne of CO\(_2\) emissions have to be harmonized across the CCS projects being funded by the Province for comparison purposes. A capital cost allocation methodology per tonne of CO\(_2\) will be provided by the Province.

**Purpose:** This allows for benchmarking costs of the CCS project with the price of carbon and other measures reducing CO\(_2\) emissions.

**Reporting Requirements:**

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<tbody>
<tr>
<td><strong>Data/Information</strong></td>
<td></td>
<td>Knowledge</td>
</tr>
<tr>
<td><strong>Before Operation</strong></td>
<td>Estimated full CCS value chain cost per tonne of CO(_2) emissions captured, transported, and stored by implementing CCS based upon the methodology directed by the Province.</td>
<td></td>
</tr>
<tr>
<td><strong>During Operation</strong></td>
<td>Actual cost per tonne of CO(_2) emissions captured, transported, and stored by implementing CCS.</td>
<td></td>
</tr>
</tbody>
</table>

**Data capture frequency** Annually

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### SECTION 4 CCS VALUE CHAIN

#### Section 4.4 Governmental funding

**Description:** Yearly governmental funding provided to the project—this is public information.

**Purpose:** This information is relevant for industry players for benchmarking purposes.

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
<th>Quantitative Data/Information</th>
<th>Qualitative Knowledge</th>
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</thead>
<tbody>
<tr>
<td><strong>Before Operation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Governmental funding granted:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- planned annual and total governmental funding provided to the CCS project</td>
<td></td>
<td></td>
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<tr>
<td>- governmental funding relative to the costs incurred to date (per cent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Governmental funding profile and forecast (federal and provincial).</td>
<td></td>
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<tr>
<td><strong>During Operation</strong></td>
<td></td>
<td></td>
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<tr>
<td>Actual governmental funding:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- actual annual and total governmental funding provided to the CCS project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- governmental funding relative to the costs incurred to date (per cent)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Governmental funding profile and forecast (federal and provincial).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculation of a government funding efficiency metric based upon the methodology directed by the Province. (e.g., government funding per tonne of CO$_2$ stored)</td>
<td></td>
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</tbody>
</table>

**Data capture frequency:** Annually

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## SECTION 4 CCS VALUE CHAIN
### Section 4.5 CO₂ emissions per year

**Description:** Provide information on the CO₂ emitted from the capture facility, pipelines and storage. Include an overview of sources of fugitive emissions throughout the value chain. Downstream emissions associated with the produced oil in EOR projects are to be excluded, but additional actual onsite CO₂ emissions created to produce incremental oil should be included. Only the emissions associated with the Project are to be included.

**Purpose:** This documents the climate benefit of the CCS project.

<table>
<thead>
<tr>
<th>Reporting Requirements</th>
<th>Quantitative</th>
<th>Qualitative</th>
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</thead>
<tbody>
<tr>
<td><strong>Before Operation</strong></td>
<td>Estimated yearly CO₂ emissions from the full CCS value chain (aggregated from CO₂ source, capture, transport and storage). Downstream emissions associated with the produced oil in EOR projects to be excluded, but additional actual onsite CO₂ emissions created to produce incremental oil should be included.</td>
<td></td>
</tr>
<tr>
<td><strong>During Operation</strong></td>
<td>Actual yearly CO₂ emissions from the full value chain (aggregated from CO₂ source, capture, transport and storage). Downstream emissions associated with the produced oil in EOR projects to be excluded, but additional actual onsite CO₂ emissions created to produce incremental oil should be included.</td>
<td></td>
</tr>
<tr>
<td>Data capture frequency</td>
<td>Annually</td>
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</tbody>
</table>
**SECTION 4 CCS VALUE CHAIN**

**Section 4.6 CO₂ emissions avoided**

**Description:** Provide information on the CO₂ that would have been emitted if CCS had not been implemented vs. CO₂ emitted after CCS implementation. Include capture facility, pipelines and storage. Downstream emissions associated with the produced oil in EOR projects are to be excluded, but additional actual onsite CO₂ emissions created to produce incremental oil should be included.

**Purpose:** This documents the climate benefit of the CCS project.

**Reporting Requirements:**

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<tr>
<td>Data/Information</td>
<td></td>
<td>Knowledge</td>
</tr>
<tr>
<td>Before Operation</td>
<td>Estimated CO₂ emitted from source if CCS had not been implemented vs. estimated CO₂ emitted with CCS implemented. Downstream emissions associated with the produced oil in EOR projects to be excluded, but additional actual onsite CO₂ emissions created to produce incremental oil should be included.</td>
<td>Rationale for estimates</td>
</tr>
<tr>
<td>During Operation</td>
<td>Updated estimates of emissions avoided based on project experience and actual data. Downstream emissions associated with the produced oil in EOR projects to be excluded, but additional actual onsite CO₂ emissions created to produce incremental oil should be included.</td>
<td></td>
</tr>
</tbody>
</table>

**Data capture frequency**

Annually
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<table>
<thead>
<tr>
<th>SECTION 5 REGULATORY APPROVALS - CAPTURE, TRANSPORTATION, STORAGE &amp; CCS VALUE CHAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 5.1  List of standards and rules relevant for the construction of the project</td>
</tr>
<tr>
<td><strong>Description:</strong> List and describe relevant requirements and standards required in the construction of the project and identify any gaps.</td>
</tr>
<tr>
<td><strong>Purpose:</strong> An overview of laws and regulations, standards and rules will be valuable for other CCS projects in Alberta and reduce project lead times. It will also help other stakeholders (NGOs, local communities); transparency is important for public engagement.</td>
</tr>
<tr>
<td><strong>Reporting Requirements:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Before Operation</strong></td>
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<td></td>
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<td></td>
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<tr>
<td><strong>Data capture frequency</strong></td>
</tr>
<tr>
<td><strong>During Operation</strong></td>
</tr>
</tbody>
</table>
SECTION 5 REGULATORY APPROVALS - CAPTURE, TRANSPORTATION, STORAGE & CCS VALUE CHAIN

Section 5.2  List of consents/permits relevant for the construction and operation of the project

**Description:** List regulatory requirements that have been granted or are needed to be obtained for the construction and operation of the project.

**Purpose:** An overview of consents/permits and approvals will be valuable for other CCS projects in Alberta and reduce project lead times. It will also help other stakeholders (NGOs, local communities); transparency is important for public engagement.

**Reporting Requirements:**

<table>
<thead>
<tr>
<th>Data/Information</th>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before Operation</strong></td>
<td>List and description of all consents/permits and approvals submitted and received during the year including:</td>
<td></td>
</tr>
<tr>
<td>- identification of regulatory body for each identified above</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- general timelines of receiving approval of these items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- identification of additional hurdles encountered while applying</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Data capture frequency</strong></td>
<td>Annually and updated as necessary</td>
<td></td>
</tr>
<tr>
<td><strong>During Operation</strong></td>
<td>Updates as required</td>
<td></td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>SECTION 6 ECONOMICS - CAPTURE, TRANSPORTATION, STORAGE &amp; CCS VALUE CHAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 6.1 CAPEX and OPEX</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
</tr>
</tbody>
</table>

   - Capital and operational cost estimates on CO$_2$ capture, with consistent methodology for all projects, should be provided. Break down of cost structure: capture technology and utility systems (technology building blocks).
   - Estimates on the total capital cost and total yearly operational cost of the pipeline are required. The interfaces between capture and pipeline, and between pipeline and storage, have to be clearly defined.
   - Estimates on the total capital cost and total yearly operational costs of storage sites including surface facilities and injection wells are required.

| Purpose: | It is important to get real cost data available in the public domain. This is relevant for benchmarking different technologies in other CCS projects and for informing the public of the cost of capturing CO$_2$. It is also relevant for benchmarking different technologies and project costs. This information will also inform stakeholders, industry and R&D of the total cost of a full CCS project. |

<table>
<thead>
<tr>
<th>Reporting Requirements:</th>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Before Operation</strong></td>
<td>Capex estimates for the capture facility, pipeline, and storage site including facilities and injection wells and full CCS value chain can be broken down into:</td>
<td></td>
</tr>
</tbody>
</table>

   - capture technology
   - compression facilities for each source
   - transportation system
   - storage surface facilities, injection wells and monitoring program

   Report on the estimated Canada industry content relative to foreign content (in per cent of total Capex).

   Opex estimates for capture facility (expressed as $/tonne CO$_2$ captured), pipeline and storage operation can be broken down into:

   - cost of steam and cost of electricity (per MWh)
   - total cost of all chemicals used (including solvent replacement cost) and waste disposal
   - labour and administration
   - maintenance costs
   - turnarounds
   - direct vs. indirect costs
   - total operating spending profile for capture facility, pipeline and storage |

   Rationales for the financial estimates of the capture facility, and the full value chain
   Explain impacts upon base facility
   Report lessons learned
   Impact of foreign exchange on hedging activities |
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<table>
<thead>
<tr>
<th><strong>CCS Funding Agreement</strong></th>
<th>Alberta Carbon Trunk Line Project</th>
</tr>
</thead>
</table>

| **(separately)** |  |
| **During Operation** | Actual Capex and Opex (same breakdown as for before operation reporting).  
Actual Capex and Opex spending profile and Canadian content of investment (in per cent of total Capex and Opex).  
Estimated Opex for next operational year.  
Actual cost of full capture facility, pipeline, and storage {e.g., [(Total Annual Capital Cost + Total Annual Operating Cost) / Total mass of CO2 (tonnes) used for CCS operation]}. |
| Data capture frequency | Annually |

Data capture frequency Annually
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### SECTION 6 ECONOMICS - CAPTURE, TRANSPORATION, STORAGE & CCS VALUE CHAIN

#### Section 6.2 Revenues for Capture, Transportation and Storage

**Description:** Provide revenues generated from capture operations, pipeline transport, and storing CO\(_2\). The information should include the CCS revenue that each tonne of captured, transported, and injected/stored CO\(_2\) would generate. Revenue will be presented in terms of industry benchmarks so that confidential commercial information is not divulged.

Revenues from base plant operations are not required (e.g., power plant, upgrader or industry process is not included).

**Purpose:** This information is relevant for understanding the financial drivers in CCS projects. It also informs stakeholders, industry and R&D of the potential incomes of a full CCS project.

<table>
<thead>
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</tr>
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<tbody>
<tr>
<td></td>
<td>Data/Information</td>
<td>Knowledge</td>
</tr>
<tr>
<td><strong>Before Operation</strong></td>
<td>Full CCS value chain revenues estimates - based on data from capture, transport and storage. The revenues presented should include, but are not limited to:</td>
<td>Rationales for the financial estimates of the capture facility</td>
</tr>
<tr>
<td></td>
<td>- revenues from CO(_2) sold (EOR projects or other purposes)</td>
<td>Lessons learned</td>
</tr>
<tr>
<td></td>
<td>- pipeline tariffs or tolls</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- any credits, allowances, offsets or other consideration made based upon the achievement of reductions in greenhouse gas emissions to the atmosphere.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- any other revenue generated through the activities of the Project.</td>
<td></td>
</tr>
<tr>
<td>Data capture frequency</td>
<td>Annually and updated as necessary</td>
<td></td>
</tr>
<tr>
<td><strong>During Operation</strong></td>
<td>Full CCS project revenues (same breakdown as before operation reporting). Revenue profile.</td>
<td></td>
</tr>
<tr>
<td>Data capture frequency</td>
<td>Annually and updated as necessary</td>
<td></td>
</tr>
</tbody>
</table>