
5 Scope of the Assessment

The purpose of an assessment scope is to improve the quality of the ESA by focusing the assessment on the Project and the relevant topics.

The scope of the assessment included in this PIP reflects the matters that are pertinent to the Project as identified by the proponent through analysis and initial public consultation. This proposed scope has been developed to be consistent with published guidance from the Canadian Environmental Assessment Agency and the NEB.

In the case of a joint review panel process, the scope of the assessment will be determined by the federal Minister of the Environment when setting the Terms of Reference for the Joint Review Panel to be established by agreement with the NEB (as described in Section 1.2.3). In setting the scope of the assessment in consultation with the NEB, the Minister will determine the scope of the project, the factors to be considered and the scope of those factors.

5.1 Scope of the Project

The “scope of the project” refers to the physical works and activities that comprise the Project and that are the basis for an environmental assessment. Generally, the scope of the project includes all of the physical works and activities proposed by the proponent and may include other related physical works and activities.

For the purposes of the ESA, the scope of the project will include the construction, operations, decommissioning and abandonment of pipeline and terminals.

5.1.1 Pipeline and Terminals

The Project includes the following pipeline and terminal components:

- an oil pipeline between the terminalling facilities near Edmonton and the Gateway marine terminal and a condensate pipeline between the Gateway marine terminal and Edmonton terminalling facilities. There will be a common 30-m wide RoW for the two pipelines plus extra temporary workspace required for construction.
- six single service (oil), including one oil initiation station, and three dual service (oil and condensate) pump stations, a single pressure letdown station (oil), and a pressure initiation station (condensate)
- all-weather road access and electrical power requirements for the pump stations and all-weather road access to the Gateway marine terminal. There will be temporary access roads, campsites, and other support facilities (e.g., borrow pits, stockpile sites) required for construction
- block valves to be situated at the pump stations, selected watercourse crossings, and other locations along the route, as appropriate

- pigging facilities at either end of the pipeline system and in selected intermediate locations
- cathodic protection system for pipelines and tanks, including anode beds at selected locations along the pipeline route
- terminals and infrastructure for the inland terminalling facilities, constructed as part of the Project
- two marine loading and unloading berths (one each for oil and condensate) that have the following common features:
 - loading and unloading platforms
 - breasting dolphins
 - mooring dolphins
 - gangway tower
 - walkway bridges between platform and breasting dolphins
 - utility boat floating dock
 - oil contingency deployment system with storage platforms
 - fire fighting systems
 - offshore anchorages in Kitimat Arm or elsewhere
 - pipeline interconnects between the berths and the tankage
- tanker(s) (both oil and condensate), only when these are connected to the manifold at the terminal berth

The scope of the project will also include restricted zones around the marine terminal berths and anchorages, which will be established to increase safety and minimize potential conflicts. These zones will be defined as the Project design process and the TERMPOL Review Process (described in Section 1.2.4) continues.

5.2 Factors to be Considered

To the extent possible, the ESA for the Project will consider a range of factors, including factors that are mandatory for all assessments pursuant to the *CEAA* and other factors that are specific to the Project and deemed to be relevant to the assessment.

5.2.1 Mandatory Factors

The ESA for the Project will address the following mandatory factors listed in the *CEAA*:

- the environmental effects⁷ of the Project, including Project-related malfunctions or incidents and any cumulative environmental effects that might result from the Project in combination with other projects or activities that have been or will be carried out

⁷ Subsection 2(1) of the *CEAA* defines environment as the components of the Earth, including:
(a) land, water and air, including all layers of the atmosphere;
(b) all organic and inorganic matter and living organisms; and
(c) the interacting natural systems that include components referred to in paragraphs (a) and (b).

- the significance of the environmental effects
- comments from the public, including ensuring that these comments are received according to the *CEAA* and its regulations
- measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project
- the purpose of the Project
- alternative means of carrying out the Project that are technically and economically feasible, including the environmental effects of those alternative means
- the need for, and the requirements of, any follow-up program for the Project
- the capacity of renewable resources, likely to be significantly affected by the Project, to meet present and future needs

5.2.2 Other Factors

Other factors may be included in the scope of the assessment that are specific to the Project, the potential environmental effects arising from it, and related public concerns, or deemed by the regulators to be relevant.

These other factors may include the need for the Project and alternatives to the Project.

5.2.3 Socio-Economic Factors

- mandatory factors listed (see Section 5.2.1) include direct environmental effects of the Project on the natural or biophysical environment and indirect environmental effects (i.e., those that may arise from the direct environmental effects) on
 - health
 - socio-economic conditions
 - physical and cultural heritage
 - traditional land and resource use
 - historical, archaeological, paleontological and architecturally significant resources

Further, subsection 2(1) of the *CEAA* defines environmental effect, in respect of a project, as:

(a) any change that the project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the *Species at Risk Act*;

(b) any effect of any change referred to in paragraph (a) on:

(i) health and socio-economic conditions;

(ii) physical and cultural heritage;

(iii) the current use of lands and resources for traditional purposes by Aboriginal persons; or

(iv) any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance; or

(c) any change to the project that may be caused by the environment, whether any such change or effect occurs within or outside Canada.

This list reflects *CEAA* 's focus on the natural and biophysical environment.

The National Energy Board, however, has a broad mandate to determine the public convenience and necessity of the Project, and therefore must also consider socio-economic matters that it deems to be relevant to the Project subject to assessment. Therefore, it is anticipated that socio-economic environmental effects of the Project will be a factor to be considered in the assessment.

5.2.4 Shipping

The Project will include marine infrastructure and Gateway will implement a vetting process governing ships calling on the terminal (as described in Section 3). The Project does not include shipping. However, it is recognized that there will be public (and regulatory) interest related to shipping and navigation. Therefore, it is considered appropriate to include some of the potential environmental effects of shipping and navigation as additional factors to be considered in the assessment.

5.2.5 Matters Not Considered

The assessment will not include a consideration of the environmental effects of physical works or activities that are not included in the scope of the Project, unless such environmental effects directly overlap in space and time with environmental effects related to the Project or if they are specified by the Minister as an additional factor to be considered.

5.3 Scope of the Factors to be Considered

Once it's determined what the factors to be considered in the assessment are, additional specification is usually required regarding the scope of certain factors. Specifying the scope further clarifies what's to be included and, in some cases, excluded from the assessment.

Determining the scope of the factors is most often focused on specifying which elements of the biophysical and human environments are to be considered when assessing environmental effects and temporal and spatial boundaries. (This is the scope of the first mandatory factor [see Section 5.2.1]). Section 5.3.1 discusses the environmental (including both biophysical and socio-economic) elements likely to be considered in the assessment. For other necessary scoping clarifications, see Section 5.3.2 to Section 5.3.7.

5.3.1 Environmental Elements

The Canadian Environmental Assessment Agency does not provide a specific list of environmental elements to be considered in an assessment. The information requirements of the NEB with respect to the ESA of applied-for facilities are documented in Guide A.2 of the NEB's Filing Manual. This guide lists biophysical and socio-economic elements to be included in the assessment.

Likely relevant environmental elements can be identified from past projects and assessments, through stakeholder consultation, and by professional judgement, based on the likely interactions between the Project and the environment.

Based on the elements specified by the NEB, the findings of stakeholder consultations to date, and the professional judgement of the proponent's assessment practitioners, the following preliminary list of biophysical and human environmental elements likely to be included in the scope of the assessment was identified:

- air quality and acoustic environment
- surface water quantity and quality and groundwater
- terrain and soils and vegetation diversity
- wildlife abundance and diversity, freshwater fish and fish habitat, and marine environment
- demographics
- education, health and social conditions
- protection services (e.g., fire, police and other emergency services), infrastructure
- labour, income, local and regional economy and provincial and national economy
- land and resource use, traditional land and resource use, traditional culture and historical and archaeological resources

Selection and refinement of valued components, on which the assessment will be focused, will be based on:

- ongoing consultation and issues scoping with regulators and other stakeholders
- the findings of ongoing baseline and assessment studies
- relevant scientific matters, such as special conservation status and vulnerability of Valued Components to Project environmental effects

In addition to specifying the elements to be included in the assessment, determining the scope of the factors might also specify other pertinent matters (e.g., issues related to each element that should be addressed in the assessment).

It's expected that, for all environmental elements, the positive environmental effects arising from the Project will be included within the scope of the assessment.

A summary of the likely scope of the factors to be considered in the assessment has been prepared for the preliminary elements listed previously (Appendix B). This summary highlights aspects during construction and operations that may result in a potential environmental effect on the above-listed elements. It is important to note that the appendix presents a preliminary list of potential assessment issues and that some issues may be subsequently dropped while others may be added, following further advances in project design and further public and regulatory consultation. It should also be recognized that many of the potential assessment issues can and will be addressed through best construction and operational practices and site-specific mitigation measures designed to avoid, eliminate or reduce the effects being hypothesized for the purpose of analysis.

The ESA will address the information requirements listed in the NEB's Filing Manual. Given the NEB's typical focus on pipelines, the information requirements

listed in the Filing Manual are largely focused on the terrestrial environment. In consultation with the Canadian Environmental Assessment Agency and the NEB staff in relation to the Project, Gateway has offered to include an equivalent list of information requirements pertinent to the marine environment within a Confined Channel Assessment Area (see Section 5.3.6.2 and Appendix C). This should prevent any requirement for the development of Project-specific ESA guidelines by the joint review panel.

5.3.2 Effects of the Environment on the Project

The definition of environmental effect included in subsection 2(1) of the *CEAA* includes “any change to the Project that may be caused by the environment.” The assessment must, therefore, consider these potential effects. At this time, it is expected that such effects could include effects on the physical integrity of Project facilities arising from geotechnical considerations, groundwater discharge, seismic activity, tide, current, wind, waves and climate change (including sea level change). Potential effects of the environment on the Project will be confirmed and considered in the assessment.

5.3.3 Malfunctions and Accidents

The assessment must consider the environmental effects of malfunctions or accidents that could occur in connection with the project (see Section 5.2.1). The assessment will describe reasonable potential malfunctions and accidents. Currently, it is expected that these might include:

- small-scale releases from equipment and vehicles
- release of oil or condensate from pipelines or tankage
- release of oil or condensate during cargo loading and unloading operations between the marine terminal and tankers
- human-caused fire

The assessment will generally describe and take into account proposed measures to prevent these malfunctions and accidents and to minimize consequences should they occur. The effectiveness of such prevention and response measures will be considered. The assessment will consider the risk of these malfunctions and accidents, including the likelihood of occurrence and predicted magnitude.

Recognizing that there will be public (and regulatory) interest in release prevention and response related to shipping and navigation to and from the project, the environmental effects from several oil release scenarios from the tankers will also be assessed within the CCAA (see Section 5.3.6). In addition, the probability of an event involving the release of oil or condensate will be evaluated for Hecate Strait.

5.3.4 Significance Criteria

As noted in Section 5.2.1, the assessment must consider the significance of the environmental effects of the Project. The Canadian Environmental Assessment Agency and the NEB provide guidance with respect to the criteria to consider when evaluating the significance of potential residual environmental effects.

It is also standard practice to define, for each Valued Component, the threshold of significance, which is the level beyond which a Project-specific or cumulative residual environmental effect would be considered significant.

The criteria and threshold definitions will likely differ among and between biophysical and human environmental components, to reflect characteristics specific to these components.

5.3.5 Alternative Means

The assessment will consider alternative means for carrying out the Project (see Section 5.2.1) that are technically and economically feasible and the environmental effects of these alternative means. At this time, it is expected that the scope of this factor will include:

- a description of the pipeline route alternatives and terminal site alternatives that were considered during Project planning and design
- for those alternatives that are technically and economically feasible:
 - a general description of (biophysical and human) environmental and land-use constraints
 - an identification of the evaluation criteria used in the route- and site-selection process
 - a ranking of the alternatives
 - identification of the preferred alternative

5.3.6 Boundaries

The assessment will consider factors (see Section 5.2) within temporal and spatial boundaries that encompass the periods and areas during and within which the Project is expected to interact with the biophysical and human environment. The temporal and spatial boundaries specific to the Project are addressed in the following sections. These boundaries will vary with the factors considered.

5.3.6.1 Temporal Boundaries

As discussed under the Scope of Project topic, the ESA will address all major phases of the Project, including construction, operations, decommissioning and abandonment. Typically, peak activity levels associated with these phases will be selected for the assessment to ensure that Project-related effects are conservatively evaluated.

5.3.6.2 Spatial Boundaries

The spatial boundaries of the assessment will encompass the area(s) potentially affected by the Project and the area(s) within which a population or environmental component functions, and within which a Project environmental effect may be felt (e.g., an airshed). Three study areas will be used for the baseline studies and the ESA:

- the Potential Development Area (PDA)
- Project Effects Assessment Area (PEAA)
- Confined Channel Assessment Area (CCAA)

The PDA includes the:

- any inland terminalling facilities constructed as part of the Gateway Project
- pipeline and associated ancillary facilities
- Gateway marine terminal and marine infrastructure
- temporary workspace and support facilities used during construction
- restricted zones around the marine terminal infrastructure

The PEAA is the area over which the Project effects of the terminals and pipeline could be measurable. For several of the biophysical disciplines (e.g., soils and terrain and vegetation), the PEAA includes the PDA plus a 500-m buffer. However, in most cases, the boundaries selected for the PEAA will be discipline-specific, based largely on the extent of the direct environmental effects of the Project for the discipline in question, and the degree to which these environmental effects contribute measurably to cumulative pressures over a broader regional area. The PEAA will be sufficiently large to address the more far-reaching effects of this Project.

For the marine infrastructure, the PEAA will encompass the PDA plus the area potentially affected by an accidental release from an oil or condensate tanker when it is moored at the marine terminal; this area will be defined by trajectory modelling for oil and condensate release.

In addition to the environmental effects from the Project, the ESA will include an assessment of the environmental effects of shipping and navigation within the CCAA, which is the marine area where measurable environmental effects of shipping are most likely to occur. Gateway considers it reasonable for the assessment area to include the portion of the shipping route that brings oil and condensate carriers near land and other resource uses, and where navigation to and from the Project will be escorted. Therefore, the CCAA includes the marine and shoreline area of Kitimat Arm, Douglas Channel to Caamano Sound, and Principe Channel to Browning Entrance.

5.3.7 Cumulative Environmental Effects Considerations

As described in Section 5.3.1, potential environmental effects of the Project will be assessed on selected Valued Components. In some cases, where there are residual environmental effects, Valued Components affected by the Project may also be affected by other projects and human activities, referred to as actions.

These cumulative environmental effects will be seamlessly assessed along with Project-specific environmental effects through the use of three assessment cases that each examines cumulative environmental effects at different points in time.

The assessment cases are:

- **Base Case:** an assessment of the cumulative environmental effects of all past, existing and approved actions on the Valued Component in question.
- **Project Case:** an assessment of the cumulative environmental effects of all past, existing and approved actions, plus the environmental effects of the Project on the Valued Component in question.
- **Future Case:** an assessment of the cumulative environmental effects of all past, existing and approved actions, plus the environmental effects of the Project and future actions on the Valued Component in question. Such future actions, also referred to as reasonably foreseeable actions, include projects that are publicly disclosed and are in regulatory review.

The Project extends over a considerable geographical distance and includes components that interact with the biophysical and human environment differently. To assess such a large Project, each component will be examined separately to address their unique aspects. The Project components considered in the cumulative environmental effects assessment are:

- inland terminalling facilities constructed as part of the Project
- pipeline corridor, which includes:
 - the RoW
 - associated infrastructure (e.g., pump stations, roads and power transmission lines)
- Gateway marine terminal and associated marine infrastructure

The environmental effects of marine shipping in the CCAA near the terminal and in Kitimat Arm, Douglas Channel, and Principe Channel will be considered as an additional factor.

A description of the cumulative environmental effects assessment approach for each component follows.

5.3.7.1 Inland Terminal

Any new terminalling facilities constructed as a part of the Project would be situated in an urban industrial landscape. As a result, many of the biophysical issues that would be pursued for other Project components (e.g., habitat fragmentation) might not be relevant for the terminal. Project contributions to air emissions and to local socio-economic pressures (e.g., traffic) will be primary cumulative environmental effects consideration for this Project component.

5.3.7.2 Pipeline Corridor

Long pipelines often encounter highly variable ecological and land use settings and, as a result, these pipelines interact with the environment very differently from area to area. The requirements to assess a pipeline's contribution to cumulative environmental effects will likewise vary. In addition, pipelines and their infrastructure have a localized footprint of disturbance in any given area, limiting their potential to contribute to cumulative environmental effects.

Regional Cumulative Effects Study Areas (CESAs) will be centred around certain points or lengths of pipeline where Project contributions to cumulative environmental effects are probable. Examples of such potential locations that may “trigger” cumulative environmental effects include sources of noise and emissions, stream crossings and remote parts of the RoW that may contribute to new access potential. Each CESA will be sized for the particular resource of concern to adequately quantify Project contributions to regional cumulative environmental effects.

To assist in the identification of other land uses contributing to regional cumulative environmental effects, a database of existing and future planned land disturbances and resource activities will be developed within a 30-km wide corridor centred along the preferred pipeline alignment. For each discipline-related cumulative environmental effects assessment that is required for the Project, a project-inclusion list will be developed that identifies other land uses that have overlapping effects with the Project.

5.3.7.3 Gateway Marine Terminal and Marine Infrastructure

The Gateway marine terminal and marine infrastructure will interact with existing activities in Kitimat Arm. It is anticipated that Project contributions to air emissions and to local socio-economic pressures (e.g., increased pressures on local services) will be primary cumulative environmental effects consideration for this component of the Project. In addition, Project-related effects on the marine ecosystem in Kitimat Arm (e.g., effects of noise on marine birds) will be evaluated within the context of overlapping existing and future effects from other operations in the area.

5.3.7.4 Shipping and Navigation in Confined Channel Assessment Area

Shipping and navigation in Kitimat Arm, Douglas Channel and Principe Channel associated with the Project will be included as a factor to be assessed in the ESA. Contributions to shipping-related effects on the biophysical and human environment will be evaluated within the context of existing and future effects from other unrelated shipping in the defined CCAA.