ATTACHMENT:

Federal Authority Advice Record
Response due by February 16, 2021
ATCO Salt Cavern Storage Expansion Project – ATCO Energy Solutions Ltd.
Agency File: 005789
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Department/Agency	Environment and Climate Change Canada
Lead IA Contact	Gillian Brown
Full Address	9250 49 St.NW, Edmonton, AB, T6B 1K5
Email	gillian.brown@canada.ca
Telephone	780-951-8950
Alternate Departmental Contact	Jody Small ec.rpn-see-eapnr-s.ec@canada.ca

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1. Is it probable that your department or agency may be required to exercise a power or perform a duty or function related to the Project to enable it to proceed?

   If yes, specify the Act of Parliament and that power, duty or function.

Based on the Initial Project Description (IPD), ECCC does not expect that we will be required to exercise a power or perform a duty or function related to the Project to enable it to proceed. Once the scope of the Project and the assessment are established by the Agency, this conclusion may change as additional activities or Project components could come into scope. ECCC notes that the Project is not located on federal land.

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2. Is your department or agency in possession of specialist or expert information or knowledge that may be relevant to the conduct of an impact assessment of the Project?

ECCC has specialist or expert information that may be relevant to the impact assessment in the areas listed below; in each of these subject areas we have expertise related to establishing an adequate baseline, assessing potential effects to biophysical valued components, effectiveness of mitigation measures, methods for monitoring and follow-up, as well as information regarding federal policies, standards, and regulations that may be relevant to the assessment. Once the scope of the Project and of the assessment are established by the Agency, this list may change if additional project activities or components should come into scope.

Air Quality: ambient air quality; sources of emissions; emissions estimation and measurement; dispersion modelling; and follow-up monitoring.

Greenhouse Gas (GHG) Emissions and Climate Change: estimations of GHG emissions (net and upstream); GHG mitigation measures and determination of Best Available Technologies/Best

Environmental practices (BAT/BEP); credible plans to achieve net-zero GHG emissions by 2050; climate change science to inform evaluation of potential changes to the environment and project resilience to effects of climate change; climate change policies; and national GHG projections.

Water Quality and Quantity: surface water quality; contamination sources for surface water; wastewater, seepage and runoff effects; management of contaminated soils or sediments; follow-up and monitoring.

Wildlife, Species at Risk, and Habitat: migratory birds, their nests, eggs, and habitat; species at risk, their residences, habitat and critical habitat including recovery strategies and management plans; ecological function of wetlands; ecotoxicology. Note: “terrestrial” species as referred to later in this document includes all species under ECCC’s mandate including amphibians, a semi-aquatic species.

Environmental Emergencies: emergency management planning and guidance; atmospheric transport and dispersion modelling of contaminants in air; fate and behaviour, hydrologic trajectory modelling of contaminants in water.

Climate and Meteorology: long-term climate patterns and norms;

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3. Has your department or agency considered the Project; exercised a power or performed a duty or function under any Act of Parliament in relation to the Project; or taken any course of action that would allow the Project to proceed in whole or in part?

   Specify as appropriate.

No.

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4. Has your department or agency had previous contact or involvement with the proponent or other party in relation to the Project? (for example, enquiry about methodology, guidance, or data; introduction to the project).

   Provide an overview of the information or advice exchanged.

Based on information readily available, ECCC has not had any involvement with the Proponent or other parties that would be relevant to the assessment of this Project.

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5. Does your department or agency have additional information or knowledge not specified, above?

   Specify as appropriate.

Not at this time.

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6. From the perspective of the mandate and area(s) of expertise of your department or agency, what are the issues that should be addressed in the impact assessment of the Project, should the Agency determine that an impact assessment is required?

   For each issue discussed, provide a concise, plain-language summary that is appropriate for inclusion in the Summary of Issues.

Air Quality

Storage of Natural Gas Liquids (NGL)

The construction, operation, and decommissioning of natural gas liquid (NGL) facilities can result in adverse effects on air quality. Activities such as the construction and operation of facilities, and activities associated with combustion (e.g. transportation) can result in the emission of air contaminants such as sulfur oxides (SO_x), nitrogen oxides (NO_x), volatile organic compounds (VOCs), and particulate matter ($PM_{2.5}$, PM_{10} and PM). The bulk of emissions typically occurs during operations from sources such as stationary combustion, intentional and non-intentional releases from equipment, electricity generation, flaring and venting, fugitive

sources and for some operations such as refineries, industrial process emissions. In addition to these emissions during normal operations, non-routine situations can result in additional emissions, such as emergency venting from pressurized lines and vessels, or emissions from leaks or spills. Activities which cause a physical disturbance to land and ore, such as earth moving, land clearing, drilling, and transportation, can introduce particulate matter (e.g. dust and soot) to the surrounding region. Air contaminants could include particulate matter (PM, PM_{10} and $PM_{2.5}$), sulfur oxides (SO_x), nitrogen oxides (NO_x), volatile organic compounds (VOCs), hydrogen sulphide (H_2S), polycyclic aromatic hydrocarbons (PAHs), carbon monoxide (CO), and other air contaminants. These emissions can result in local or regional degradation of ambient air quality, with potential impacts on human health as well as sensitive ecosystem receptors. Furthermore, emissions of air contaminants as a result of this project may add cumulatively to the emissions from other activities, contributing to degradation of air quality in the region.

When contaminants settle out of the air in the surrounding environment, deposition may result in adverse impacts to terrestrial and aquatic ecosystems. For example, polycyclic aromatic hydrocarbons (PAHs) emissions from combustion activities may result in elevated concentrations of these contaminants in water, soil, flora, and fauna. Emissions of NO_x and SO_2 may also lead to acidification and potential exceedance of ecosystems' critical loads. Air contaminant emissions can result in contamination of nearby land and waterbodies, and may affect plants, wildlife, and fish and fish habitat.

Road Transportation emissions

Projects which involve on-road vehicles and mobile off-road machines for construction, operation and decommissioning, or that lead to an increase in road traffic (e.g. hauling of material by truck from mine to shipping terminal), have the potential to adversely affect air quality. More specifically, the combustion of fossil fuels can result in the emission of air contaminants such as sulfur oxides (SO_x), nitrogen oxides (NO_x), volatile organic compounds (VOCs), and fine particulate matter ($PM_{2.5}$). When some contaminants settle out of the air in the surrounding environment, their deposition may result in acidification and potential exceedance of ecosystems' critical loads. The emission of these air pollutants can result in local or regional degradation of ambient air quality, with potential impacts on human health as well as sensitive ecosystem receptors.

Greenhouse Gas Emissions and Climate Change

The construction, operation, and decommissioning of the proposed Project may result in greenhouse gas (GHG) emissions, and may hinder or contribute to the Government of Canada's ability to meet its commitments in respect of climate change. Furthermore, the project has the potential to be affected by future climate change, possibly resulting in impacts to the environment. Climate change may alter the likelihood or magnitude of sudden weather events such as extreme precipitation that can contribute to flooding, as well as contribute to longer-term changes such as sea level rise, permafrost thaw and changes to migration patterns. Changes related to warming are already evident in many parts of Canada, and are projected to continue in the future with further warming. If not properly considered, such changes may cause issues such as equipment failures that can threaten the environment, human health and safety, interrupt essential services, disrupt economic activity, and incur high costs for recovery and replacement.

The Strategic Assessment of Climate Change (SACC) (revised October 2020)[1] describes the climate change-related information requirements throughout the federal impact assessment process including the circumstances in which an upstream GHG assessment would be required, requires proponents of projects with a lifetime beyond 2050 to provide a credible plan to achieve net-zero emissions by 2050, and explains how the Impact Assessment Agency of Canada or lifecycle regulators will review, comment on, and complement the Proponent's information. Further information on the SACC is below.

<u>Net GHG Emissions, emissions intensity and upstream GHGs</u>

Proponents are required in the Initial Project Description to estimate the net GHG emissions associated with a proposed project, following the equation in section 3.1.1 of the SACC. ECCC recommends the Proponent include the acquired electricity as part of the total net GHG estimate. Any updates to the initial estimate provided in the Initial Project Description should be included in the Detailed Project Description, including:

- Any updates to an estimate of the maximum annual net GHG emissions for each phase of the project, including a breakdown of each term of the equation; and

[1] The SACC is available at https://www.canada.ca/en/services/environment/conservation/assessments/strategic-assessments/climate-change.html.

- Any updates to the methodology, data, emission factors and assumptions used.

In the upcoming Tailored Impact Statement Guidelines (TISG) (or equivalent document), proponents will be required to calculate the estimated emission intensity for each year of the operation phase of a project, enabling the comparison of the project with similar projects in Canada and internationally. The Proponent may be required to do an upstream GHG emissions assessment, (i.e. an assessment of domestic and non-domestic emissions from all stages of production, from the point of resource extraction or utilization to the project under review).

Carbon sinks

Regarding carbon sinks (i.e., forests, oceans or other natural environments that absorb carbon dioxide from the atmosphere), per the SACC, proponents are required to provide in their Detailed Project Description:

- a description of the activities that would result in an impact on carbon sinks; and
- land areas expected to be impacted by the project, by ecosystem type (forests, cropland, grassland, wetlands, and built-up land) over the course of the project lifetime, including any areas of restored or reclaimed ecosystems.

Alternative means of carrying out the project, mitigation measures, and net-zero emissions by 2050

In the Detailed project Description, the Proponent

- should discuss the potential impacts of the alternative means of carrying out the project on GHG emissions and how GHG emissions were considered as a criterion in the alternatives selection; and
- are encouraged to provide information on the mitigation measures being considered to reduce the project's GHG emissions on an ongoing basis, including technologies and practices measures (including best available technologies and best environmental practices)..

In the upcoming Tailored Impact Statement Guidelines (TISG) (or equivalent document), proponents will be required to provide details regarding alternative assessments and mitigation measures including their BAT/BEP determination. The Proponent may be required to provide a credible plan that describes how the project will achieve net-zero emissions by 2050 if decommissioning is expected to continue into 2050.

Climate Change Resilience

Since climate over the lifetime of a project is projected to be different from past and current climate in the area, and the lifetime of the proposed project is 25 years, climate change considerations are relevant to the project review. There is potential for climate change to affect the project which, in turn, may have impacts on the surrounding environment (e.g. through accidents or malfunctions). Climate changes in the project area such as possible changes in mean and extreme precipitation and temperature and related environmental conditions may alter baseline conditions, with implications for climate sensitive aspects of project design and associated effects on the environment.

For example, project components and activities for which climate change resilience could be important for this project include those related to water management. The Proponent will be required, via the Tailored Impact Statement Guidelines, to provide information in the Impact Statement on how the project is resilient to and at risk from both the current and future impacts of a changing climate.

Water Quality and Quantity

Natural Gas Liquids Storage Facility

The proposed NGL Expansion Project includes development of four salt caverns, a brine disposal injection well, a brine pond, storm-water management ponds, two pipelines and additional infrastructure and storage in the Project Area. Construction and operation of this Project will require appropriate management of brine via brine ponds and deep well injection to ensure no impacts to surface water quality. Appropriate storm water runoff management will be required to ensure that all potentially impacted water is captured within the project site and not released into the aquatic environment.

The proposed Project also requires the construction and operation of two additional pipelines, which are proposed to be constructed using horizontal directional drilling below some wetlands and watercourses, construction of pipelines, including use of machinery near watercourses, disturbance of streambanks and

wetlands, and potential for frac-out during construction. All of these have the potential to introduce contaminants and cause impacts to water quality.

Disturbing soils, rock, and streambanks during construction activities may cause erosion and result in deposition of soils and sediments to waterbodies. Soils and sediments can also enter waterbodies through streambed disturbance. These suspended solids can have adverse effects on water quality.

There is also the potential for effects to water quality due to upset/emergency conditions as described below in Environmental Emergencies.

Wildlife, species at risk, and habitat

The activities linked to the construction, operation, and decommissioning of the Project and associated infrastructure could have negative effects on terrestrial wildlife, including migratory birds and terrestrial species at risk (amphibians, arthropods, birds, lichens, terrestrial mammals, mosses, reptiles, and vascular plants) listed in the *Species at Risk Act* (SARA), and their habitat and wetlands.

The nature of effects to wildlife and habitat (including residences and critical habitat defined under the *Species at Risk Act*) can vary based on a number of factors, including: project location, duration, scale, and configuration; ancillary project activities (land clearing, flaring, pipeline installations); existing cumulative effects; the type of habitat that may be disturbed; and sensitivity of species found in the project area. The pathway through which potential effects are conveyed will depend on the land, air, and water constituents associated with the site along with the behavioral adaptability, presence and interaction with the species limiting factor (e.g., habitat supporting staging, nesting, roosting or foraging) and population resilience.

Migratory birds and species at risk and their habitat

Individual mortality and the destruction of nests and eggs or any other structure necessary for the reproduction and survival of species at risk could occur during all Project phases, particularly during site preparation and construction, operational maintenance of brine and surface water management ponds, and Project dismantling. Mortality in migratory birds and species at risk could also occur because of collisions with vehicles or infrastructure (e.g. buildings, flare stacks, power lines), related to the Project. Brine water produced by the Project and held in surface ponds may contribute to mortality of migratory birds or species at risk through contact effects to feathers (limiting insulation or flight) or through ingestion and resulting toxicity. Accidental oil or chemical spills could also have adverse effects if these substances make their way into the habitats frequented by migratory birds and species at risk. There is a higher risk that these effects would be more severe for migratory birds that are also species at risk and species where habitat is sensitive to disturbance (e.g. wetlands) or where there is already a high degree of cumulative effects to habitat or individuals.

Migratory birds and terrestrial species at risk could be affected by sensory disturbances during the construction, operation, and decommissioning of the Project. Some examples of potential sources of sensory disturbance include noise from various Project activities, lights, vibrations from excavation and the operation of machinery, as well as the presence of workers. The amount, duration, frequency, and timing of noise are important to understand potential effects. Sensory disturbance may make adjacent habitats unsuitable for use by wildlife and cause avoidance effects in many species.

Wetlands

Wetlands present in the Project area may be altered through site preparation, grading, and construction. Project pipelines extending 4 km to/from the Project area are proposed to cross Astotin Creek and a number of wetlands, including ephemeral waterbodies, marshes, shallow open water, and swamp wetlands. The activities linked to the construction, operation, and decommissioning of these Project pipelines could have negative effects on wetlands and their ecological functions.

Environmental Emergencies

Natural gas liquids storage

The proposed NGL expansion project includes salt cavern wells, a brine pond, pipelines and storage containers near wetland W3. As such, there is potential for adverse environmental and human-health effects from accidents and malfunctions. Adverse effects to air quality, water quality, wildlife and wildlife habitat could result from spills from the brine pond, pipelines ruptures and/or accidental release of other contaminants to the surrounding environment. Optimized spill prevention, preparedness and response measures and systems will be important given the risk of spills or release of hazardous substances to the environment, especially to nearby waterways and environmentally sensitive areas.

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Margaret Fairbairn,
Name of Departmental / Agency Responder

A/Regional Director,
Prairie & Northern Region
Title of Responder

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Date