

ATTACHMENT: May 22, 2020
Federal Authority Advice Record
Response due by May 22, 2020

Please submit the form to: JAAC.TilburyLNG-GNLTilbury.AEIC@canada.ca

Tilbury Phase 2 LNG Expansion Project – FortisBC Holdings Inc
Agency File: 80496

Department/Agency	Environment and Climate Change Canada (ECCC)
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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, ECCC does not expect that it 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 of the assessment are established by the Agency, this may change as additional activities or project components could come into scope.

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, notably with regard 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 as additional project activities or components could come into scope.

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

Greenhouse gas emissions and climate change: estimations of greenhouse gas (GHG) emissions (net and upstream); GHG mitigation measures and determination of Best Available Technologies/Best Environmental practices (BAT/BEP); 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, including effluent; management of contaminated soils or sediments; marine and freshwater dredging; hydrology; follow-up and monitoring.

Wildlife, species at risk, and habitat: migratory birds, their nests, eggs, and habitat; species at risk, their habitat and critical habitat including recovery strategies and management plans; ecological function of wetlands; ecotoxicology.

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; marine winds, waves, and weather; and sea ice and icebergs

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?

Not at this time.

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)

Not at this time.

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

Not at this time.

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.

Water Quality and Quantity

Activities linked to the construction, closure and decommissioning of a liquefied natural gas (LNG) project could have adverse effects on surface water quality as a result of in-stream and onsite activities. Potential impacts on water quality could result from in-stream activities during construction (for example, disturbances associated with upgrades to marine jetties, including dredging, installation of piles, placement of fill and riprap, and vegetation removal, and increased marine shipping traffic for material delivery). Additionally, upland activities having the potential for in-stream water quality impacts include discharge of water from hydrostatic tests and discharge of construction water. Long-term potential impacts on water quality associated with project operation could result from deposition of airborne particulate matter generated by the plant operation, from discharges related to effluent (e.g., cooling process), and storm water management. In addition, there is a potential for impacts from accidents or malfunction, especially those associated with major storm events and flooding.

Wildlife, species at risk, and habitat

The activities linked to the construction, operation, and decommissioning of a LNG facility project could have negative effects on terrestrial wildlife resources (wildlife), which include migratory birds protected under the authority of the *Migratory Birds Convention Act* (MBCA) and non-aquatic species at risk (amphibians, arthropods, birds, lichens, terrestrial mammals, mosses, reptiles, and vascular plants) protected under the authority of the *Species at Risk Act* (SARA). Effects vary: they may be associated with a certain phase or all phases; may be confined to specific phases or expressed over the entire project life cycle; and may occur across more than one phase yet be most pronounced

during one specific phase. 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, dredging, flaring/venting, collision with vehicles and infrastructure, marine shipping; hydro-testing discharge); 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 behavioural adaptability, presence and interaction with the species limiting factor (e.g., habitat supporting breeding, overwintering, or migration/movement) and population resilience.

Underwater noise, wake, and artificial lighting caused by shipping activity during construction, and noise, vibration, and artificial lighting caused by operation activities may result in injury or mortality, sensory disturbance, and change in habitat.

The impact assessment should demonstrate that measures are taken to avoid, reduce, or compensate for potential adverse effects to federally listed species.

Air Quality

Liquefaction, storage or regasification of liquefied natural gas

The construction, operation, and decommissioning of LNG facilities can result in adverse effects on air quality. Activities such as the construction and operation of facilities, and activities associated with combustion (including transportation and compression stations) can result in the emission of air contaminants. The bulk of emissions typically occurs during operations, for example, from stationary combustion, intentional and non-intentional releases from equipment, electricity generation, flaring and venting, and fugitive sources. 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. Emissions often include particulate matter (PM, PM10 and PM2.5), sulfur oxides (SOx), nitrogen oxides (NOx), and other potentially dangerous emissions such as volatile organic compounds (VOCs), hydrogen sulphide (H₂S), polycyclic aromatic hydrocarbons (PAHs), carbon monoxide (CO) and other pollutants of potential concern relevant for a given, specific project. 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 on sensitive ecosystem receptors.

Activities which cause a physical disturbance to land, such as earth moving (e.g., land clearing, blasting, crushing, and transportation), can introduce dust (particulate matter) to the surrounding area. Particulate matter (PM_{2.5}, PM₁₀ & total PM), can result in local or regional degradation of ambient air quality, with potential impacts on human health, as well as on sensitive ecosystem receptors.

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), have the potential to adversely affect air quality. More specifically, the combustion of fossil fuels can result in the emission of "criteria air contaminants" such as sulfur oxides (SOx), nitrogen oxides (NOx), 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. 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 on sensitive ecosystem receptors.

Greenhouse Gas Emissions and Climate Change

As the Project may have an impact on greenhouse gas (GHG) emissions and climate change, the draft Strategic Assessment of Climate Change (SACC) is interim guidance on information requirements related to climate change throughout the impact assessment process. The draft SACC outlines information that should be provided by a proponent during the impact assessment process on GHG emissions, GHG mitigations measures and climate change resilience; the circumstances in which an upstream GHG assessment will be required; and when additional information such as determination of the best available technology/best environmental practice (BAT/BEP) will be required.

Net GHG Emissions

In section 6 of the Initial Project Description, the Proponent provides annual estimates of GHG emissions for the construction, operation, one-time venting and decommissioning stages of the Project. The Proponent also provides a net GHG emissions estimate of 9 million tonnes CO₂e, and states that this estimate includes direct, acquired, transferred surplus energy and avoided domestic GHG emissions, and also includes CO₂ captured, stored and offset credits. For these estimates, ECCC recommends including clarification on the scope of activities included in the estimates, and descriptions of the methodologies and assumptions used for the quantification of GHG emissions from each activity in the Detailed Project Description or Impact Statement.

To align with the draft SACC, ECCC recommends:

- that the net GHG emissions be quantified on an annual basis;
- that offset credits not be included in the quantification of net GHG emissions. Offset credits can be discussed as a mitigation measure.

In section 2.3, the Proponent states the Project will begin operating between 2024-2028 and will be decommissioned after 40+ years. Therefore, the Project's expected GHG emissions are not aligned with the long-term goal of the Government of Canada to achieve net-zero emissions by 2050.

GHG Mitigation Measures

The Proponent states in section 6.1 that "equipment selection will consider efficiency and emissions including GHG contribution". ECCC acknowledges that the Proponent states, in section 6.1.2, that the Project will utilize electric drive compression and air cooling for liquefaction in order to reduce emissions. ECCC recommends that the Proponent consider using best available technologies, best environmental practices, and emerging technologies for all aspects of the Project and project phases, particularly around liquefaction, flaring, stationary combustion, venting and other operational activities. This would maximize GHG reductions and energy efficiency.

Alternatives To / Alternative Means

ECCC understands that the Project is closely tied to the existing Phase 1A and approved Phase 1B operations, and will utilize existing infrastructure for part of the operations. ECCC recommends that the Proponent provide a robust discussion for the alternatives to the Project listed in the Initial Project Description, and the rationale of why the current approach was selected. ECCC also recommends that the Proponent provide a discussion and assessment of alternative means to develop the Project, including technologies and processes considered and justification for the ones chosen.

Climate Change Resilience

The Project has the potential to be affected by future climate change, possibly resulting in impacts to the environment; the Project's resilience to such potential changes will be part of the impact assessment. Canada's climate has warmed and further warming is projected for the future. Given that the lifetime of the proposed Project is 40+ years (including post-closure), climate change considerations are relevant to the Project review as climate over the lifetime of a project is projected to be different from past and current climate in the area. 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 region, 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 vulnerable to changes in flood risk.

Further information can be found in the draft Strategic Assessment of Climate Change (SACC):

<https://www.canada.ca/en/services/environment/conservation/assessments/environmental-reviews/get-involved/draft-strategic-assessment-climate-change.html#toc32>.

Environmental Emergencies

LNG terminals

The proposed LNG Project includes the presence of LNG storage tanks, liquefaction trains, natural gas pipelines, the use of hazardous materials near water, and the potential for release of explosive gases to the atmosphere of LNG. As such, there is potential for adverse environmental and human-health effects from accidents and malfunctions. Optimized prevention, preparedness and response measures and systems will be important given the risk of spills of hazardous substances to water and uncontrolled releases of explosive gases. In the Impact Assessment report, ECCC will review the risk assessments of accidents and malfunctions to understand the potential geographical extent and consequences. ECCC will look for reliable modelling for contaminants released to air or spilled to water that informs the Proponent's emergency management plans and associated response measures and capacities for each major type of foreseeable incident.

<Original signed by> Saul Schneider

Name of Departmental / Agency Responder

Regional Director,
Environmental Protection Operations
Directorate – Pacific and Yukon Region

Title of Responder

May 22, 2020

Date