

PROJECT NO. NSD17393

REPORT TO

ACCESS NORTHEAST ENERGY INC.

ON

**ENVIRONMENTAL ASSESSMENT FOR THE
PROPOSED BEAR HEAD LNG TERMINAL
BEAR HEAD, NOVA SCOTIA**

**Jacques Whitford Environment Limited
3 Spectacle Lake Drive
Dartmouth, NS B3B 1W8
Tel: 902-468-7777
Fax: 902-468-9009**

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EXECUTIVE SUMMARY

Access Northeast Energy Inc. (ANEI) proposes to construct and operate a Liquefied Natural Gas (LNG) Terminal (the Project; Terminal) in the Point Tupper/Bear Head Industrial Park in Richmond County, Nova Scotia. The Project requires federal and provincial environmental approvals including a federal/provincial environmental assessment (EA). This report provides the basis for an Environmental Screening under the *Canadian Environmental Assessment Act (CEAA)* and satisfies the requirements for a Class I Registration under the Nova Scotia *Environment Act*. Specific requirements for a harmonized federal/provincial review process has been provided to ANEI in a Federal-Provincial Environmental Assessment Agreement (March 8, 2004).

The Project is designed to meet the significant and growing demand for natural gas and other forms of energy in markets in Canada and the United States. It is anticipated that LNG will be key in providing solutions to this demand and increasing the mix of energy sources to North Americans, thereby also increasing the stability and reliability of the overall energy supply. The proximity of the Terminal to existing natural gas transmission infrastructure serving these growing energy markets is one of the advantages of this Project. The Project will provide further opportunity for Nova Scotians, and other Canadians, to participate in, and benefit from, the oil and gas industry, contributing to the economies of Nova Scotia and Canada. Another key advantage of LNG is to increase the supply and long term viability of the natural gas industry in Nova Scotia, thus making industrial investment in this cleaner burning fuel more viable.

Project activities include the construction and operation of an LNG terminal and associated facilities, which will be built in two phases. Phase I of the Project involves the construction and operation of an approximately 7.5 million-ton-per-annum (mtpa) capacity LNG terminal with a natural gas sendout capacity of 1,000 million standard cubic feet per day (MMscfd). Phase II provides for the future expansion of the sendout capacity to 1,500 MMscfd (approximately 11.3 mtpa). This report evaluates both phases of the Project.

The LNG Terminal consists of three major components: ship unloading facilities; the LNG storage tank area; and regasification areas (vaporization area). The LNG ship berthing facility and jetty will be designed to berth an LNG ship having a capacity of up to 250,000 cubic metres (m³). The storage tanks have an individual capacity of 180,000 m³. Phase I includes two such tanks for the initial development with a third tank planned for Phase II when market conditions are appropriate. The Project site is on lands designated for heavy industrial development.

This document has been developed with a focus on environmental and socio-economic issues of greatest concern, known as Valued Environmental Components (VECs) and Valued Socio-economic Components (VSCs). A scoping process was undertaken to identify VECs and VSCs most appropriate for this assessment. This scoping included: regulator and stakeholder consultation; a public open house;

regulatory issues and guidelines; research; and professional judgement. Specific guidance on the scope of the environmental assessment was provided to ANEI by responsible federal and provincial departments in a scoping document. The following VECs and VSCs were selected for the assessment:

- Groundwater;
- Air Quality;
- Acoustic Environment;
- Marine Benthic Habitat and Communities;
- Marine Fish and Fish Habitat;
- Marine Mammals;
- Freshwater Habitat;
- Wetlands;
- Rare Mammals;
- Rare Herpetiles;
- Birds;
- Rare Vegetation;
- Archaeological and Heritage Resources;
- Marine Transportation;
- Fisheries and Aquaculture;
- Land Use;
- First Nations Land and Resource Use;
- Community Services and Infrastructure; and
- Economic Development.

Each of the VECs and VSCs selected for the assessment was evaluated for potential interactions between the VEC/VSC and Project activities during all project phases (*i.e.*, construction, operation and decommissioning) and including malfunctions or accidents that may occur. These interactions were evaluated for potential significance after application of technically and economically feasible mitigative measures, where appropriate, to reduce or eliminate potential adverse Project related environmental effects. The potential for cumulative effects between the Bear Head LNG Project and other likely or reasonably foreseeable projects and activities was also evaluated. Environmental monitoring and follow-up measures will be undertaken, where necessary, to ensure compliance with applicable regulations, standards, and guidelines, as well as to verify impact predictions and refine mitigative measures where required.

Potential Project interactions, assessment boundaries, evaluation criteria, impact analysis, mitigative measures and proposed monitoring are presented for each VEC and VSC in Sections 8.1 and 8.2. In general, any potential adverse environmental effects from routine Project activities will be short term, localized, and/or of low magnitude; these effects can be effectively mitigated to acceptable levels through the application of technically and economically feasible measures, standard LNG industry

procedures, and adherence to applicable standards and regulatory guidelines. The effects from routine Project construction, operation and decommissioning activities are therefore predicted to be non-significant for all VECs and VSCs, with the exception of land use and economic development for which positive effects are predicted. Positive effects are predicted on economic development in the region during the construction and operation phases. In addition, a positive effect on land use is predicted based on compliance with zoning stipulations for the development of the land for its intended use.

Various potential malfunctions and accidental events that may occur during the Project including failure of sedimentation/erosion control structures; fires and explosions; vessel accidents and related cargo spills other than LNG; LNG release; and hazardous materials spills have been reviewed. Design features and procedures will be incorporated to minimize the probable occurrence of malfunctions and accidental events. Proven engineering techniques are available to prevent these accidents and will be employed for the Project. Safety, spill response and contingency plans will be developed and implemented to reduce adverse environmental effects of such unlikely event incidents. All safety procedures will be documented and in place prior to the commencement of routine operations.

In the highly unlikely event of a Project related ship collision with an oil tanker (which carries considerably more oil than LNG ships), resulting in a large oil spill, significant adverse effects are predicted for seabirds and fisheries and aquaculture resources; however, this significant effect is extremely unlikely to occur. An accidental event at the terminal resulting in a fire spreading to surrounding vegetation could result in a significant adverse effect on rare vegetation (southern twayblade) and air quality; however, these significant effects are also highly unlikely. An Emergency Response and Contingency Plan is expected to reduce the magnitude of effects resulting from fire and other serious accidental events. In addition, design features and safety precautions at the facility will minimize the likelihood of significant effects due to fires and other accidents and malfunctions.

Cumulative effects have also been evaluated as part of this assessment. Past projects or activities potentially affecting VECs/VSCs have been considered in the description of existing conditions as applicable for each VEC/VSC. Likely future projects and activities identified include the proposed Point Tupper NSP Coal Terminal and the Maritimes and Northeast Pipeline (future tie-in). Temporal overlap with the coal terminal project is not likely, and the substantial spatial separation (8 km) will minimize the potential for cumulative effects with the LNG project. While the pipeline construction schedule is unknown and may overlap with the LNG project, the spatial overlap (in terms of potential effects on VECs and VSCs) is likely to be limited to the area in the vicinity of the tie-in. Both the coal terminal and pipeline projects will be subject to regulatory requirements for environmental management as will the LNG project. Significant adverse cumulative effects are predicted to be unlikely. As a result of these projects, a positive cumulative effect on economic development in the region is predicted. A positive impact on land use is also predicted. Implementation of the mitigative measures contained in this report and adherence to applicable legislation and guidelines will ensure that significant cumulative environmental effects will be unlikely.

Effects of the environment on the Project were evaluated as part of the assessment. Conditions evaluated include: extreme weather; sea ice; climate change and sea level rise; and seismic activity. Project facilities will be designed and installed based on the appropriate environmental design criteria to ensure the safety and integrity of these facilities during severe environmental conditions. All Project facilities will be designed and constructed with the appropriate meteorological, climatological, oceanographic and geotechnical data. The design will incorporate an adequate factor of safety to deal with anticipated changes in weather severity during the lifetime of the Project, including storms and sea level rise associated with climate change. Monitoring and/or contingency planning will also serve to minimize any adverse effects. Effects of the environment on the Project are therefore predicted to be not significant.

In conclusion, the Bear Head LNG Project is not likely to have significant adverse effects on the environment. The Project will contribute to the development of the oil and gas industry in Atlantic Canada by establishing a viable facility and operation that will result in economic benefits for the region. Positive effects on land use are also predicted. Adverse environmental effects will be reduced to acceptable levels through the use of technically and economically feasible design and mitigation measures.

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- Appendix B Marine Jetty Layout and Typical LNG Site and Ship Photos
- Appendix C Bear Head LNG Terminal Risk Assessment Component Study
- Appendix D Project Bulletins and Select Pages From the ANEI Internet Site
- Appendix E Climatological, Oceanographic and Noise Data
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