

Canadian Environmental Assessment Act

**Scoping Document
for the
Petrochemical and
Liquefied Natural Gas Facilities
at
Goldboro, N.S.**

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Fisheries and Oceans Canada**

May 24, 2005

Table of Contents

Page

1.0 Introduction

2.0 Federal Environmental Assessment

2.1 Regulatory Context

2.1.1 Transport Canada

2.1.2 Fisheries and Oceans Canada

2.2 Level of the Environmental Assessment

2.3 Overview of the Environmental Assessment Process

2.4 Provision of Expert Advice from other Departments

3.0 Canada-Nova Scotia Harmonization

4.0 TERMPOL

5.0 Overview of the Development Proposal

5.1 Proposal Location

5.2 Components of the Development Proposal

5.2.1 LNG Importation (includes the LNG Terminal) and Vapourization Facility

5.2.2 Petrochemical Complex (includes the Marginal Wharf)

5.2.3 Electric Co-generation Plant

5.2.4 Highway

5.2.5 Pipeline

6.0 Scope and Level of the Federal Environmental Assessment

6.1 Scope of the Project

6.2 Factors to be Considered in the Environmental Assessment

6.3 Scope of the Factors to be Considered

6.3.1 Environmental Components

6.4 Ability of the Comprehensive Study to Address Issues Relating to the Project

7.0 Public Participation

7.1 Submission of Comments

7.2 Participant Funding

7.3 Canadian Environmental Assessment Registry (CEAR)

List of Figures:

Figure 1 Development Proposal Site

Figure 2 Detailed Development Proposal Site Plan

Appendix 1 Glossary of Terms

Please note that underlined words are defined in Appendix 1, Glossary of Terms.

1.0 Introduction

Keltic Petrochemicals Inc. (Proponent) proposes to construct and operate a Petrochemical Complex and Liquefied Natural Gas (LNG) Importation and Vaporization Facility, in Goldboro, Nova Scotia. The proposal includes petrochemical plants, a marginal wharf, a LNG Terminal, LNG storage and regassification facilities, and an electrical co-generation facility. A pipeline will be constructed from the Vaporization Plant to the property boundary. The proposal also includes construction of a highway between the development site and Antigonish. These facilities, and any associated auxiliary facilities, are referred to collectively in this document as the development proposal. Refer to Figures 1 and 2.

Transport Canada (TC) and Fisheries and Oceans Canada (DFO) are each required to exercise regulatory decision-making authorities in regard to some components of the development proposal in order for it to proceed. For this reason, both departments are required to ensure that a federal environmental assessment is conducted, pursuant to the *Canadian Environmental Assessment Act* (the Act), prior to taking their respective decisions.

The development proposal is subject to a provincial environmental assessment in accordance with the Nova Scotia *Environment Act*. The federal environmental assessment will be coordinated, to the extent possible, with the provincial environmental assessment. However, the federal and provincial governments will each make decisions on matters within their own legislative authorities.

The purpose of this document is to provide information to the public on the federal environmental assessment process, and to seek public comment on the federal assessment to be conducted in relation to the development proposal. Specifically, this document provides an opportunity for the public to comment, in accordance with section 21(1) of the Act, on the following:

- proposed scope of the project for the purposes of a federal environmental assessment;
- the factors proposed to be considered;
- the proposed scope of those factors; and
- the ability of a comprehensive study to address issues relating to the components of the development proposal subject to the Act.

Information on the deadline for comment, and how to submit comments, are found in Section 7.0.

Following the public comment period, in accordance with Section 21(2) of the Act, DFO and TC will provide a report to the federal Minister of the Environment. DFO and TC will also make a recommendation to the Minister on whether to continue with the environmental assessment by means of a comprehensive study or to refer the project to a mediator, for mediation, or a review panel.

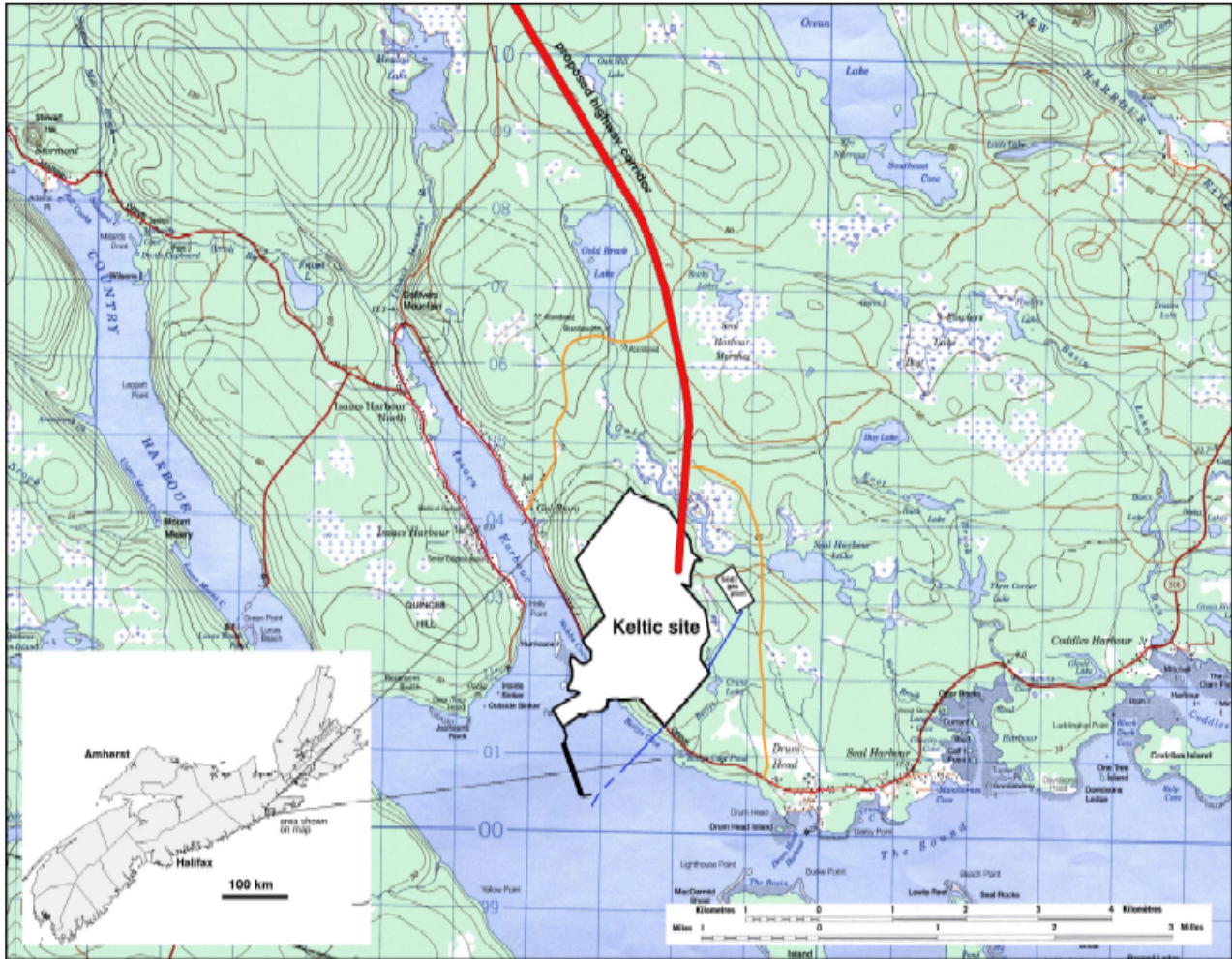


Figure 1 – Development Proposal Site

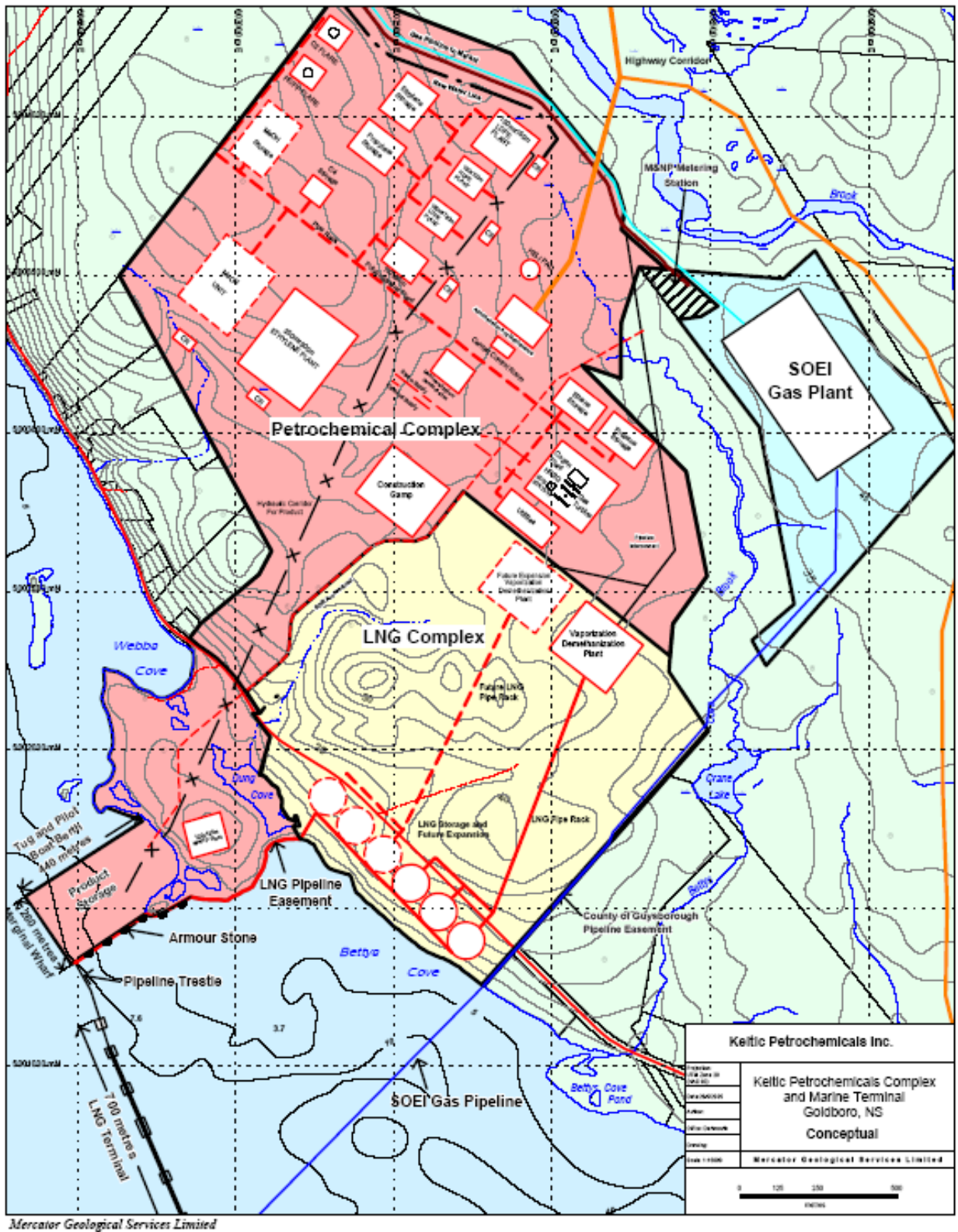


Figure 2 – Detailed Development Proposal Site Plan

2.0 Federal Environmental Assessment

2.1 Regulatory Context

DFO and TC are both required to ensure that a federal environmental assessment is conducted in accordance with the Act. Therefore, both departments are responsible authorities (RAs) under the Act. Each RA's responsibility to ensure an assessment is conducted relates to the issuance of a permit, license or other approval that is included in the *Law List Regulations* of the Act.

2.1.1 Transport Canada

TC's responsibilities under the Act arise from the anticipated requirement for a *Navigable Waters Protection Act* (NWPA), section 5(1)(a), approval to allow for an interference to navigation, associated with the LNG Terminal and marginal wharf (refer to Figure 2).

2.1.2 Fisheries and Oceans Canada

DFO's responsibilities under the Act arise from the anticipated requirement for a *Fisheries Act* section 35(2) authorization, for the harmful alteration, disruption, or destruction of fish habitat associated with the marginal wharf (refer to Figure 2).

2.2 Level of the Environmental Assessment

A comprehensive study is required under the Act, pursuant to paragraph 28(c) of the *Comprehensive Study List Regulations*, because both the LNG Terminal and marginal wharf will be designed to handle vessels larger than 25 000 dead weight tonnes.

2.3 Overview of the Environmental Assessment Process

Following this initial public consultation, pursuant to subsection 21(2) of the Act, the RAs must report to the Minister of the Environment on the following:

- the scope of the project, the factors to be considered in the environmental assessment and the scope of those factors;
- public concerns in relation to the project;
- the project's potential to cause adverse environmental effects; and
- the ability of the comprehensive study to address issues relating to the project.

The RA's must also recommend to the Minister of the Environment whether the environmental assessment should be continued by means of a comprehensive study, or whether the project should be referred to a mediator or review panel.

After considering the subsection 21(2) report and recommendation, the Minister of the Environment must decide whether to refer the project back to the RAs to continue with the comprehensive study process, or refer the project to a mediator or review panel. If the Minister of the Environment decides that the project should continue as a comprehensive study, the project cannot be referred to a mediator or review panel at a later date.

If the Minister of the Environment determines that the environmental assessment will continue as a comprehensive study, an environmental assessment will be undertaken. The RAs will delegate the preparation of the comprehensive study report (CSR) to the Proponent. The CSR will be prepared, and then submitted to the Minister of the Environment and to the Canadian Environmental Assessment Agency (Agency). During the comprehensive study process, public participation is required.

Following submission of the CSR, the Agency will invite the public to comment on the report prior to the Minister of the Environment making his determination. The Minister of the Environment also has the power to request additional information or require that public concerns be addressed before issuing the environmental assessment decision statement. Once the environmental assessment decision statement is issued, the Minister of the Environment will refer the project back to the RAs for action.

If after considering the subsection 21(2) report and recommendation, the Minister of the Environment refers the project to a mediator or review panel, the project will no longer be subject to a comprehensive study under the Act. The Minister of the Environment, after consulting the RAs and other appropriate parties, will set the terms of reference for the review, and appoint the mediator or review panel members.

Whether the environmental assessment proceeds by means of a comprehensive study or is referred to a review panel, participant funding will be made available by the Agency to facilitate public participation.

2.4 Provision of Expert Advice from other Departments

Environment Canada (EC), Natural Resources Canada (NRCan), and Health Canada (HC) will provide specialist or expert information and knowledge in support of the environmental assessment process.

3.0 Canada-Nova Scotia Harmonization

The development proposal is subject to a provincial environmental assessment in accordance with the Nova Scotia *Environment Act*. The federal environmental assessment will be coordinated, to the extent possible, with the provincial environmental assessment. However, the federal and provincial governments will each make decisions on matters within their own legislative authorities.

A document outlining the information that the Proponent must provide, as part of the provincial environmental assessment, was finalized on April 8, 2005. It is entitled "Terms of Reference, As Required by the *Environment Act* for Preparation of an Environmental Assessment Report, Proponent: Keltic Petrochemical Inc., Project: Petrochemical Plant and LNG Facilities, Goldboro, NS". The document can be viewed at <http://www.gov.ns.ca/enla/ess/ea/kelticpetro.asp>. Information provided by the Proponent will be used as part of both the provincial environmental assessment process, and the federal environmental assessment process.

4.0 TERMPOL

TERMPOL Review Process refers to the Technical Review Process of Marine Terminal Systems and Transshipment sites. The purpose of the TERMPOL review is to objectively appraise operational ship safety, route safety, management and environmental concerns associated with the location, construction and operation of a Marine Terminal.

It is the policy of Transport Canada to initiate TERMPOL upon the request of the Proponent and upon the initiation of the federal environmental assessment process for the project. If the Proponent does not elect to follow the TERMPOL process, the Navigable Waters Protection Division of Transport Canada may require that the Proponent carry out the relevant studies identified in TERMPOL as part of the navigational review process for the NWPA permit. The TERMPOL review is not limited to the scope of the environmental assessment review, nor is the NWPA review process exclusive of the components of the TERMPOL review process. In addition, the LNG tankers will be required to meet all national and international standards for the operation of such tankers.

5.0 Overview of the Development Proposal

5.1 Proposal Location

The Petrochemical Complex, supported by a LNG Importation and Vapourization Facility and an Electric Co-generation Plant, would be located in Goldboro, Guysborough County, Nova Scotia. A portion of the proposal (landbased facilities) would be located within the Goldboro Industrial Park. The associated marine facilities would be located on the northeast side of Isaacs Harbour. The highway would connect the Goldboro site and Antigonish. Refer to Figure 1.

5.2 Components of the Development Proposal

5.2.1 LNG Importation (includes the LNG Terminal) and Vapourization Facility

The LNG Facility will offload, store and revapourize LNG for the supply of feed stock and energy requirements for the Petrochemical Complex and the Electric Co-generation Plant. The capacity will be 1 billion cubic feet (BCF) per day of LNG, expandable to 2 BCF per day. Sufficient natural gas pipeline take-away capacity exists in close proximity to the LNG facility, if there is residual gas for market.

The LNG will be offloaded at the LNG Terminal located in Isaacs Harbour. The LNG Terminal will accommodate special ships designed for the transportation of LNG in the range of 70 000 dead weight tonne (DWT), with a draft up to fourteen meters and capable of holding up to 250,000 m³ of LNG. The LNG Terminal will be constructed of pipe pile mooring piers and berthing dolphins. The piers will be capped and connected with a concrete bridge and deck. The LNG transfer line will be routed to the LNG storage tanks via a pipeline and maintenance trestle.

LNG vessels will arrive approximately every eight days at the facility's initial capacity. Hotelling and unloading of LNG ships will typically require 24 hours. This will include activities such as customs and immigration, servicing, provisioning and unloading. LNG vessels will be brought in fully loaded and reballasted offshore.

Onboard ship pumps will deliver LNG to low pressure onshore LNG storage tanks via stainless steel loading arms and cryogenic piping. A total of four marine unloading arms will be installed, three for liquid delivery and one for vapour return to the ship.

There will be three full containment, top entry storage tanks. Three additional tanks are planned, for future expansion. The LNG will be contained in an inner tank. An outer tank will surround the inner tank. The bottom of the tank will be insulated with foamglass. The LNG tank foundation will be elevated several feet above the ground to prevent frost heave. All connections to the LNG tanks will be from the top.

5.2.2 Petrochemical Complex (includes the Marginal Wharf)

The Petrochemical Complex will consist of process units for ethylene, propylene, polypropylene, high density polyethylene, low density polyethylene, and linear low density polyethylene. The plants will obtain their feedstock (ethane, propane and butane) and process gas from both the LNG system and SOEI. Gas obtained from SOEI will be returned to the SOEI plant after extraction of the feedstock liquids described above. Power will be supplied by the Electric Co-generation Facility. The Petrochemical Complex will require an industrial water supply. A marginal wharf will be constructed in Issacs Harbour.

Other feedstocks (eg. refinery propylene, methanol) will be imported to the Goldboro site by ship and offloaded at the marginal wharf. The products and byproducts of the Petrochemical Complex will be transported to the marginal wharf for storage in silos (as required), and will be shipped out from there. One side of the marginal wharf will be used for berthing tugs and pilot boats.

The marginal wharf will be approximately 670 m in average length and 330 m in width. Construction will be done using pre-cast concrete caissons. The caissons will be floated into position, and placed on a granular mattress on the seabed. This will eliminate the need to dredge and dispose of seabed materials. Fill will be placed in the area behind the caissons.

5.2.3 Electric Co-generation Plant

The Electric Co-generation Plant will have a gas turbine and heat recovery steam generator with a capacity of 200 megawatts, to meet the development requirements. The electricity will be generated at 35 kilowatts per annum, three phase and 60 Hertz. This will enable connection to the Nova Scotia Power Inc. grid for purchase of incremental power required by the site, and to provide some backup.

5.2.4 Highway

The existing highways, although not at capacity, are not well suited for industrial traffic. The proposed 100 series highway would begin at the Goldboro site, and run north-northeast through Guysborough County to the Trans Canada Highway 104/Beech Hill Road intersection at Antigonish, a distance of approximately 60 kilometers.

5.2.5 Pipeline

A pipeline will be constructed from the LNG Vaporization Plant to the property boundary, to allow for future connection, by other parties, with the existing Maritimes and Northeast Pipeline system.

6.0 Scope and Level of the Federal Environmental Assessment

6.1 Scope of the Project

DFO and TC, each have a responsibility to ensure that an environmental assessment is conducted in accordance with the Act. As outlined in the Act, section 15(1), the scope of the project to be assessed is determined by the RA.

TC has determined, based on the anticipated NWSA section 5(1)(a) trigger under the Law List Regulations of the Act, that the scope of the project for the purposes of TC's environmental assessment will be the construction, operation, maintenance, modification and decommissioning of the following components: LNG Terminal, marine transfer pipelines, the LNG storage tanks, the marginal wharf, any temporary marine

facilities and structures and equipment that are connected with the movement of goods between ships and shore, the regassification plant.

DFO has determined, based on the anticipated *Fisheries Act*, section 35(2) trigger under the Law List Regulations of the Act, that the scope of the project for the purposes of DFO's environmental assessment will be the construction and operation of the marginal wharf. Operation of the marginal wharf does not include shipping, but does include docking and deberting of vessels.

DFO and TC will work together to conduct a single federal assessment process that will allow both RAs to fulfill their respective responsibilities under the Act, in a unified non-duplicative manner.

6.2 Factors to be Considered in the Environmental Assessment

The comprehensive study will consider those factors required pursuant to section 16 of the Act:

- the environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;
- the significance of the environmental effects referred to above;
- comments from the public that are received in accordance with the Act and the 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 and the environmental effects of any such alternative means;
- the need for, and the requirements of, any follow-up program in respect of the project;
- the capacity of renewable resources that are likely to be significantly affected by the project to meet the needs of the present and those of the future.

In accordance with subsection 16(1)(e) of the Act, the comprehensive study will also include a consideration of the "need for" the project and "alternatives to" the project.

As stated in the Act, "environmental effect" means, in respect of a project:

- 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*

In relation to c) above, environmental effects, specifically effects of the environment on the project, could occur as a result of such things as:

- geological events (e.g., seismic activity);
- icing and winter conditions;
- erosion, fire, flooding; and
- climate change.

The cumulative effects assessment will take into consideration, effects related to components of the development proposal that are not included in the scope of project (e.g., electrical co-generation plant, petrochemical plants).

It is important to note that the following effects can only be considered when they relate to a change in the environment: health and socio-economic conditions; physical and cultural heritage; the current use of lands and resources for traditional purposes by aboriginal persons; and any structure, site or thing that is of historical, archaeological, paleontological or architectural significance. For example, a decision to place a toll on a highway would not be considered under the Act because the toll is not related to a change in the environment.

6.3 Scope of the Factors to be Considered

6.3.1 Environmental Components

In order to obtain a good prediction of the effects of a project on the environment, it is important to focus the assessment. “Environmental components” is a term used to describe various aspects of the biological, physical and social environment. Environmental components can be something physical such as vegetation, a process such as biodegradation, or a condition such as biodiversity.

One of the purposes of this public comment period is to identify “environmental components of concern” (ECC). These are the environmental components that exist in the area, and therefore could possibly be impacted by the project. As the assessment proceeds, a determination will be made on which of these environmental components of

concern would be impacted by the project, and are of legal, scientific, ecological, cultural, economic, etc. value. These will be referred to as the “valued environmental components” and will be the focus of the environmental assessment.

Please note that the scope of project, as described in Section 5.1 above, does not mean that the area to be studied will be confined to the project site. Rather, the study area, for the purposes of the environmental assessment, must include the area within which the environmental components that could potentially be affected by the scoped project (i.e., undertakings associated with the LNG Terminal and marginal wharf) are located.

The environmental assessment methodology to be used by the Proponent will include the following:

- an overview or study, as appropriate, for each of the ECC, in order to describe the actual conditions in the study area (i.e., baseline conditions);
- prediction of environmental effects,
- identification of mitigation that can be used to avoid or minimize adverse effects on the environment;
- identification and assessment of residual (i.e., still remaining) effects;
- prediction of cumulative environmental effects
- discussion of significance; and
- preparation and implementation of a follow-up program.

The following provides a preliminary list of ECC that will be considered in the environmental assessment. This list is not intended to be exhaustive.

- freshwater quality/quantity;
- marine water quality/quantity;
- groundwater quality/quantity;
- soil/sediment quality;
- hydrology;
- air quality;
- climatic conditions;
- vegetation;
- species at risk;
- fish and fish habitat;
- wildlife and wildlife habitat;
- migratory birds and their habitat;
- physical and cultural heritage;
- current use of lands and resources for traditional purposes by Aboriginal persons;
- navigation;
- marine safety and security;
- wetlands;
- fisheries;
- human health and safety;
- structures/sites of archaeological, paleontological or architectural significance;
- marine mammals;
- lighting conditions;

- acoustic environment.

Temporal and spatial boundaries will be determined for each ECC, early in the assessment. Temporal bounding refers to the determination of the time period during which an ECC could be impacted by the project (e.g., during the construction phase). Spatial bounding refers to the determination of the geographical area within which an ECC could be impacted by the project (e.g. footprint of a building). The study area for the environmental assessment should encompass the area within which all of the ECC could be impacted.

6.4 Ability of the Comprehensive Study to Address Issues Relating to the Project

Comments are also being solicited on the ability of the comprehensive study to address issues relating to the project. The public is encouraged to identify any reasons why issues, associated with the project that are considered within a federal environmental assessment, can or cannot be properly addressed within the comprehensive study process.

7.0 Public Participation

7.1 Submission of Comments

In consideration of information contained in this document, the public is invited to provide their views and opinions in the following areas:

- the proposed scope of the project;
- the factors proposed to be considered in the assessment
- the proposed scope of those factors; and
- the ability of the comprehensive study to address issues relating to the project.

Persons wishing to submit comments may do so in writing to the Agency. Comments must be received no later than July 4, 2005. Comments may be sent to:

Transport Canada
Environmental Affairs, MKE
P.O. Box 42
Moncton, NB E1C 8K6
Fax: (506) 851-7542 or E-mail : atlwebcomments@tc.gc.ca

Clearly reference the Keltic LNG Facility and Marginal Wharf on your submission.

The Agency will receive all public comments on the scoping document and distribute them to TC, DFO, EC, HC, and NRCan.

7.2 Participant Funding

The Agency will provide participant funding to assist groups and individuals to take part in the environmental assessment, whether it proceeds by means of a comprehensive study or is referred to a mediator or review panel. Information on the program, including the Participant Funding Program Guide, the application form and the contribution agreement, are available on the Agency's Web site at www.ceaa-acee.gc.ca.

7.3 Canadian Environmental Assessment Registry (CEAR)

Pursuant to the Act, section 55, a CEAR has been established to provide notice of the environmental assessment, and facilitate public access to records related to the environmental assessment. The CEAR consists of a project file and an internet site. The internet component of the CEAR can be accessed at http://www.ceaa.gc.ca/050/index_e.cfm. Anyone wishing to obtain copies, or view records, from the CEAR project file should contact TC at 506-851-6962.

If you have general questions in relation to the Act, you can access the Agency website at www.ceaa-acee.gc.ca or contact the Atlantic Region office at 902-426-0564.

Appendix 1

Glossary of Terms

Alternative Means of Carrying Out the Project – the various ways, that are technically and economically feasible, that the project can be carried out. This could include, for example, alternative locations, routes and methods of development, implementation and mitigation.

Alternatives to the Project – functionally different ways to meet the project need and achieve the project purpose. Analysis of “alternatives to” should serve to validate that the preferred alternative is a reasonable approach to meeting need and purpose of the project.

Comprehensive Study – federal environmental assessment that is conducted in accordance with the Act, sections 21 and 21.1, and that requires a consideration of the factors required to be considered pursuant to subsections 16(1) and (2).

Cumulative Environmental Effects – changes to the environment that are caused by an action in combination with other past, present and future actions. The Act, section 16(1)(a) specifies that cumulative effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out must be considered in a federal environmental assessment.

Environment – This is defined within the Act as the components of the earth and includes:

- 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).

Follow-up Program – as defined within the Act, a program for

- (a) verifying the accuracy of the environmental assessment of a project, and
- (b) determining the effectiveness of any measures taken to mitigate the adverse environmental effects of the project

Malfunctions or Accidents – the probability of malfunctions or accidents associated with the project, and the potential adverse environmental effects associated with these events must be identified and described. The description would include such things as accidental spills, contingency measures for responding to emergencies, and risks of facility malfunctions.

Mediation – An environmental assessment that is conducted with the assistance of a mediator, appointed pursuant to section 30 of the Act, and that includes a consideration of the factors required to be considered under subsections 16(1) and (2).

Mitigate\Mitigation - For the purposes of the Act, mitigation means, in respect of a project, the elimination, reduction or control of the adverse environmental effects of the project, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means.

Review Panel – An environmental assessment that is conducted by a review panel established pursuant to section 33 of the Act and that includes a consideration of the factors required to be considered under subsections 16(1) and (2) of the Act.