EXECUTIVE SUMMARY

Overview

Keltic Petrochemicals Inc. (Keltic) proposes to construct and operate a Petrochemical and Liquefied Natural Gas (LNG) Facility in Goldboro, Nova Scotia (the Keltic Development Project). The Keltic Development Project components include a LNG regasification facility, a petrochemical complex, a marginal wharf, a marine LNG Terminal, LNG storage and an electric co-generation facility. The Keltic Development Project will be located adjacent to the existing Sable Island natural gas plant and the Maritimes and Northeast Pipeline (M&NP) in the Goldboro Industrial Park. The processing facilities in Goldboro will require approximately 300 hectares (ha) of land zoned for industrial use.

The marine terminal will allow the delivery of LNG and export of product. The co-generation plant will be fuelled by spent LNG with any remaining spent LNG injected into the existing M&NP pipeline in Goldboro. The Keltic Development Project will also require a wastewater collection and treatment system as well as other site infrastructure and maintenance facilities. The dam and impoundment of Meadow Lake required for water supply likely require approvals from Transport Canada (TC) and Fisheries and Oceans Canada (DFO); however, necessary detail for a screening level environmental assessment (EA) and authorizations will be provided in forthcoming applications.

The petrochemical complex will convert liquids extracted from the Sable Offshore Energy Project (SOEP) at Goldboro combined with the liquids extracted from imported LNG to produce ethylene and propylene in order to manufacture polyethylene and polypropylene pellets. These pellets will be used to manufacture plastic products elsewhere in Canada and the United States of America (USA).

The purpose of the Keltic Development Project is to increase petrochemical production in North America. This will help to meet rising demand for polyethylene and polypropylene pellets and provide additional sources of natural gas to the Canadian and Northeastern USA markets in an effort to meet the growing demands for natural gas. The Keltic Development Project will require an investment of approximately $5 billion which will be raised through private-sector investors.

The Proponent, Keltic is a Canadian registered corporation, committed to establishing a petrochemical complex, LNG importing facilities, and a co-generation plant at Goldboro, Guysborough County, Nova Scotia. The head office of Keltic is located in Halifax, Nova Scotia. By assignment and absolute conveyance made as at August 30, 2006, MapleLNG Limited (“MapleLNG”) acquired from Keltic the entire LNG portion of the Project including any rights with respect to thereto subsequently acquired by Keltic. Keltic has also entered into an agreement with Shaw Stone & Webster for them to act as the Integrating Contractor from the pre- front end engineering design (FEED) through to the operation phase of the Keltic Development Project.

It is Keltic’s corporate commitment to provide an economical and sustainable complex in accordance to the highest level of environmental goals and principles. As the agreements between Keltic and the financial, licensors and petroleum firms are finalized a detailed environmental management system (EMS) will be developed for each component of the Keltic Development Project.

This Keltic Development Project is expected to create several thousand direct jobs at the peak of the Project construction and several hundred direct jobs at the various facilities during operation. Keltic expects that many other economic spin-off opportunities will be created in the area as a result of a world-scale LNG and petrochemical facility being built in Goldboro, Guysborough County. These direct jobs and economic spin-off opportunities will be created in a region of Nova Scotia that has an unemployment rate well above the provincial and national average. Furthermore, the population of Guysborough County has been in steady decline as a result of the employment situation; this trend is expected to be reversed with the establishment of this industry. This Keltic Development Project will improve the overall employment rate from both a local and provincial perspective.

Both TC and DFO declared themselves as responsible authorities (RAs) for this Keltic Development Project. A draft scoping document was prepared by the RAs on May 24, 2005, (Appendix 1) to allow the public to comment upon the proposed scope and factors to be considered in the federal EA. Comments were also invited from the public on the ability of a comprehensive study to address the issues related to the Keltic Development Project as opposed to referral to a mediator or a review panel.

Pursuant to Subsection 21(1) of the *Canadian Environmental Assessment Act* (CEAA), TC and DFO invited the public to comment on this draft scoping document on June 1, 2005 and June 3, 2005. Comments were requested to be provided to the RAs by July 3, 2005.

An EA Track Report was prepared by TC and DFO on October 14, 2005. This report, along with the recommendation to the Minister of the Environment, is intended to assist the Minister of the Environment in making a determination under subsection 21.1(1). On January 5, 2006, the Federal Minister of Environment determined that a comprehensive study is the required level of EA for the proposed Keltic Development Project.

On March 14, 2007, the Provincial Minister of Environment and Labour approved Keltic Petrochemicals' Liquefied Natural Gas and Petrochemicals Facility Project at Goldboro subject to certain terms and conditions (Appendix 2). Since receiving the Environmental Approval Conditions from the Nova Scotia Minster of the Environment, Keltic has been working with the provincial regulators on a practical approach to satisfying the Ministerial Conditions.

A finalized scope for the comprehensive study report (CSR) was provided to Keltic on January 6, 2006. Each of the RAs has scoped different elements of the overall Keltic Development Project; however, both elements as scoped are subject to a comprehensive study EA process. Since the Project, as scoped by DFO, falls within the Project as scoped by TC and both projects require a comprehensive study level EA, it was determined that one CSR would be prepared to meet the requirements under CEAA.

Pursuant to Section 17 of CEAA, the RAs have delegated the conduct of the comprehensive study and preparation of the CSR to the Proponent, Keltic. The departments providing specialist advice have worked together with the Agency and the RAs to provide direction on the federal CSR.

Guidance on the content of the CSR has been provided to Keltic, including provision of a table of contents and comments on draft documents. In addition, TC and DFO have reviewed the

provincial EA provided by the Proponent which allowed both RAs to provide additional input regarding their respective content expectations. It was understood that the contents of the provincial EA document were to be used by the Proponent in the preparation of the CSR and subsequent environmental screenings.

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

The specific scope of each RA is defined below.

Transport Canada's (TC) Scope of Project

The Project has been scoped by TC to include the construction, operation, maintenance, modification and decommissioning of the following components:

- LNG Terminal;
- marine transfer pipelines;
- LNG storage tanks;
- marginal wharf;
- any temporary marine facilities and structures and equipment that are connected with the movement of goods between ship and shore;
- regasification plant; and
- shipping within 25 kilometres (km) of Country Island.

As outlined in the Scoping Document (May 24, 2005), TC scoped the Project based on the anticipated *Navigable Waters Protection Act* (NWPA) section 5(1)(a) trigger under the Law List Regulations pursuant to CEAA. This initial scope included all of the above components but shipping within 25 km of Country Island. Based on subsequent consultation with the public in accordance with section 21(1) of CEAA and consultation with expert federal authorities, TC amended its original scope to include shipping within 25 km of Country Island.

Fisheries and Ocean Canada's (DFO) Scope of Project

DFO scoped the Project to include:

- Construction and operation of the marginal wharf.

The scope of the marginal wharf operation does not include shipping, but does include docking and deberthing of vessels. This scoping is based on the anticipated *Fisheries Act*, section 35(2) trigger under the Law List Regulations pursuant to CEAA.

Based on consultation with the public in accordance with section 21(1) of CEAA and consultation with expert federal authorities, DFO decided that their scope of Project will remain the same.

Public Consultation by the Proponent

To date, several consultations have occurred. These consultations were designed to provide information about the proposed Keltic Development Project, respond to questions and concerns the public might have, and gather technical information and input into impacts, mitigation, and monitoring that could be incorporated into the EA.

As part of the public consultation process, Keltic Petrochemicals established a Community Liaison Committee (CLC) in August of 2004. The committee was set up voluntarily by Keltic to involve and inform local communities in the Keltic Development Project Area and will be the primary vehicle used for future consultations. The CLC has a two-fold mandate:

- to provide a forum for the representatives of the residents of Guysborough and surrounding communities to offer their input on the Keltic Development Project; and
- to provide a forum for representatives from Keltic to update the community, through the committee, on the various aspects of the Keltic Development Project.

Keltic will liaise with the Guysborough County Regional Development Authority (GCRDA) and the Guysborough Journal as a means of communicating any information. Keltic will also liaise actively with local emergency service providers, such as the Royal Canadian Mounted Police (RCMP), fire, and emergency health response.

In addition, as part of the Provincial EA process, public and regulatory consultation was conducted as part of the review of the Environmental Impact Assessment. Input was gathered through written submission as well as 6 days of public hearings held in Goldboro, St. Mary's, and Antigonish from November 20 – 25, 2006. This input was included in the preparation of the CSR.

CSR Methodology

The CSR is written to reflect a Project description that describes the components described in the federal Scoping Report as well as all associated infrastructure requirements. Consideration has been given to all phases of the Project, including activities associated with construction, operation, maintenance, decommissioning/reclamation, and unplanned events.

The methodology for the preparation of the CSR was focused to provide:

- identification of the environmental and socio-economic components of greatest concern;
- consideration of the issues raised by stakeholders;
- incorporation of environmental management planning into the engineering design process;
- inclusion of cumulative effects in the overall EA process; and
- consideration of all regulatory requirements.

In order to attain the above the assessment approach entailed:

- identification of temporal and spatial boundaries;
- selection and organization of Valued Environmental Component (VECs);
- evaluation of VEC interactions with the Project;
- the methods for prediction and evaluation of environmental effects; and
- the rationale for development of mitigation measures.

VECs "are interpreted as environmental; socio-economic; human health; reasonable enjoyment of life and property; and cultural, historical, archaeological, paleontological, and architectural features that may be impacted, whether positive or negative, by the proposed Project."

For the Project, the VEC selection process involved the following steps and considerations:

- review of requirements of the Terms of Reference and scoping document;
- review of the baseline studies;
- review of Project works and activities;
- consideration of potential Project-environment interactions; and
- identification of public, stakeholder, and government concerns.

The following is a summary of the VECs selected for the Project:

- Hydrology;
- Freshwater Quality/Quantity;
- Groundwater Quality/Quantity;
- Marine Water Quality;
- Soil/sediment Quality (terrestrial and marine);
- Air Quality;
- Climate Conditions;
- Vegetation (terrestrial and marine);
- Species at Risk;
- Fish and Fish Habitat (marine and freshwater);
- Marine Mammals;
- Wildlife and Wildlife Habitat;
- Migratory Birds and Migratory Bird Habitat;
- Wetlands;
- Lighting Conditions;

- Atmospheric and Underwater Acoustic Environment;
- Physical and Cultural Heritage;
- Current Use of Lands and Resources for Traditional Purposes by Aboriginal Persons;
- Structures/Sites of Archaeological, Paleontological or Architectural Significance;
- Navigation;
- Marine Safety and Security;
- Human Health and Safety;
- Fisheries;
- Aquaculture; and
- Tourism.

Potential effects were identified when a pathway or interaction between the Project and a VEC was established. Individual studies were then undertaken to focus on these potential effects. Based on collective knowledge and experience of the EA team and the individual studies and consultations, the following were determined for each predicted effect on a VEC:

- Nature (positive or negative);
- Magnitude;
- geographic extent;
- timing, duration and frequency;
- reversibility;
- ecological and socio/cultural context; and
- probability of occurrence (likelihood).

Positive environmental effects are also identified and explained.

Where an adverse environmental effect has been identified, mitigation has been proposed. Many adverse effects can be avoided through sound engineering design, and timing of Project activities and implementation to the proposed environmental management plans. The general approach taken is to reduce or eliminate the potential negative Project-VEC interactions, if feasible. Where not possible, mitigation measures were incorporated into the design and planned implementation of the Project activities in order to eliminate or reduce potential adverse effects. In some instances, remediation and/or compensation may be required where an adverse effect would jeopardize the implementation of the Project.

Furthermore, the terms and conditions to the Provincial Environmental Assessment Approval that relate to the CSR scoped VECs are identified and will be implemented by the Proponent.

The above approach results in the identification of Residual Effects – those environmental effects predicted to remain after the application of mitigation outlined in this CSR. The CSR considers the predicted residual effects for each Project phase (construction, operation, and decommissioning). In addition, residual environmental effects are also described for potential accidental events.

For adverse residual effects, the evaluation for the individual criteria was combined into an overall rating of significance:

- major;
- medium;
- minor; and
- minimal.

An adverse impact was considered "significant" where its residual effects were classified as major; while they were considered "not significant" where residual effects were classified as medium, minor, or minimal.

Conclusion

In accordance with the requirements of Section 16 (1) and (2) of CEAA and the Terms of Reference, this environmental impact assessment includes:

- A discussion of the alternatives to the Project and the alternative means of carrying out the Project that are technically and economically feasible and the environmental effects of any such alternative means.
- A description of the proposed Project including the purpose, and need, the proposed facilities and activities, and the potential malfunctions or accidental events that may occur in connection with the Project.
- A summary of consultation mechanisms and issues raised during consultation (i.e., issues scoping) as well as a description of the methodological approach to the environmental impact assessment.
- An assessment of the environmental effects of the proposed Project for each of the VECs, including cumulative environmental effects and the significance of the effects.
- An assessment of the effects of the environment on the Project.
- Identification of measures to mitigate adverse environmental effects.
- Recommendations for monitoring and follow-up.

The results of the assessment have been developed and summarized in Section 6.0 of the CSR. This section describes the predicted effect and the identified mitigation or avoidance measures which could reduce or eliminate the predicted effects.

Environmental management practice involving prevention and preparedness training is proposed to reduce the likelihood of unplanned (accidental) events. As well, effective emergency response programs will be developed should an event occur. The Emergency Preparedness planning will include the purchase of required equipment, the careful maintenance of equipment and infrastructure, and the frequent scheduling of training exercises and emergency response simulations. Emergency Preparedness Planning will be integrated into all phases of the Project design, planning, and execution. The objective is to achieve a safety and emergency preparedness level higher than the industry average, and continuously to improve upon this standard.

Through careful design and planning, combined with prudent application of proven mitigation measures, Keltic has identified and addressed all potential adverse environmental effects, and reduced the predicted impacts to their lowest level of significance.