



Imperial Oil

ConocoPhillips



Shell Canada

ExxonMobil

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Application for Approval of the  
Mackenzie Gathering System

# Volume 1: Gathering System Overview

Submitted to:  
National Energy Board

Submitted by:  
Imperial Oil Resources Ventures Limited

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Cover photograph courtesy of the Government of the Northwest Territories

## PREFACE

**APPLICATION TO THE  
NATIONAL ENERGY BOARD FOR APPROVAL  
OF THE MACKENZIE GATHERING SYSTEM  
VOLUME 1: GATHERING SYSTEM OVERVIEW****EXECUTIVE SUMMARY**

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**P.1.1 MACKENZIE GAS PROJECT COMPONENTS****P.1.1.1 Mackenzie Gathering System**

The Mackenzie gathering system is one of the five major components of the Mackenzie Gas Project. The gathering system comprises:

- gathering pipelines to collect sweet natural gas and associated natural gas liquids (NGLs) from three onshore natural gas fields at Niglintgak, Taglu and Parsons Lake (the anchor fields), and transport the gas and NGLs to a facility located near Inuvik
- gas processing and support facilities near Inuvik (the Inuvik area facility) to remove NGLs from the gas stream
- an NGL pipeline to transport NGLs south from the Inuvik area facility to Norman Wells, where it will be tied into the existing Enbridge Pipelines (NW) Inc. pipeline
- associated facilities, including pig launchers and receivers, metering stations, a slug catcher and valve stations

The gathering system will also be designed to accommodate some natural gas and NGLs from other natural gas fields in the Mackenzie Delta and other areas.

Construction of the required facilities is expected to be completed in time to enable gas to be delivered to Alberta in 2009. A preliminary multi-year construction plan has been developed. The construction schedule assumes that timing of approvals and permits is aligned with the Cooperation Plan. Construction planning is contingent on having approvals, permits, and authorizations in time for construction to begin in summer 2006. Summer activities are critical to the schedule, as they allow construction of infrastructure to support winter 2006-2007 activities. Significant expenditures and commitments will be required to maintain this schedule. These decisions will be subject to review as the regulatory process proceeds

The capital cost of designing and constructing the gathering system is about \$1.6 billion (Q1, 2003\$ Cdn).

**P.1.1.2 Anchor Fields and Mackenzie Valley Pipeline**

The other major components of the Mackenzie Gas Project involve:

**P.1.1.2 Anchor Fields and Mackenzie Valley Pipeline (cont'd)**

- developing Niglintgak, Taglu and Parsons Lake, the three largest discovered onshore natural gas fields in the Mackenzie Delta
- designing and constructing the Mackenzie Valley pipeline, which will extend about 1,220 km from Inuvik along the east side of the Mackenzie River valley to Norman Wells, then continue south to connect to an extension of the NOVA Gas Transmission Ltd. (NGTL) system just south of the Northwest Territories–Alberta boundary. The pipeline is designed to deliver about 34 Mm<sup>3</sup>/d (1.2 Bcf/d) of sales gas to Alberta.

**P.1.2 PROPONENTS**

The Mackenzie gathering system is being developed by:

- Imperial Oil Resources Ventures Limited
- Shell Canada Limited (Shell)
- ConocoPhillips Canada (North) Limited (ConocoPhillips)
- ExxonMobil Canada Properties (ExxonMobil)

**P.1.3 ENGINEERING AND CONSTRUCTION**

An important objective in designing the gathering system was to allow for flexibility in the system capability. The gathering system will be designed, constructed and operated according to all applicable federal, territorial, provincial and municipal codes, and industry codes and standards. Construction in an arctic environment and in permafrost areas pose significant challenges and requires considerable attention to engineering and construction details. Choosing a route for the pipeline is an important first step in the process.

**P.1.4 ENVIRONMENTAL IMPACTS**

The proponents are committed to protecting the biophysical environment as well as mitigating adverse socio-economic effects. A comprehensive environmental impact assessment (EIA) was conducted for the Mackenzie Gas Project. The findings are that the Mackenzie gathering system will have no long-term significant adverse effects. In conducting the EIA, public participation was, and will continue to be, actively encouraged. One of the proponents' main objectives is to develop the gathering system in a way that provides benefits for Aboriginal and other northern residents and other Canadians. The proponents have addressed the issues raised by the affected communities in the EIA, and identified suitable management and mitigation measures for gathering system specific effects and residual issues.

**P.1.5 PUBLIC CONSULTATION**

Effective public consultation is a continuous process. The proponents have tried to consult in a meaningful and effective way. Consultation activities are planned in a manner that allows for well-documented, inclusive, dynamic and transparent engagement with the communities and the people affected by the project.

## PREFACE

**APPLICATION TO THE  
NATIONAL ENERGY BOARD FOR APPROVAL  
OF THE MACKENZIE GATHERING SYSTEM  
VOLUME 1: GATHERING SYSTEM OVERVIEW****GUIDE TO THE APPLICATION**

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**P.2.1 SCOPE OF APPLICATION**

This application for the Mackenzie gathering system is presented in four volumes:

- Volume 1: Gathering System Overview, which:
  - presents the application to the National Energy Board
  - describes the key elements of the Mackenzie gathering system
  - discusses the purpose, need and justification for the gathering system, the proposed timing for implementation and the gathering system's regulatory context
  - identifies the route selection process and the land requirements for the gathering pipelines, the NGL pipeline and related facilities
  - summarizes the project's biophysical and socio-economic impacts
  - outlines the approach to public consultation
- Volume 2: Engineering Design, which:
  - describes the special geotechnical, hydraulic and other considerations given to pipeline design and construction in an arctic environment
  - provides the design basis and alternatives considered for the gathering system
  - outlines the design methods, codes and standards used in the design
  - describes the routes of the gathering pipelines and the NGL pipeline, the alternatives considered and the requirements for land access
- Volume 3: Construction and Operations, which:
  - describes the logistical, transportation and construction infrastructure required
  - provides the plan for procuring the required materials from the suppliers and transporting the materials to the required work sites

**P.2.1 SCOPE OF APPLICATION (cont'd)**

- outlines the construction plan, including the construction activities and requirements
- outlines the operations and maintenance plan
- Volume 4: Gathering Pipelines and NGL Pipeline Route Maps, which illustrates the proposed route of the gathering pipelines and the NGL pipelines

**P.2.2 SUPPORTING DOCUMENTS**

The following documents are being filed in support of this application for the Mackenzie gathering system:

- Public Consultation, which includes:
  - Volume 1: Consultation Program
  - Volume 2: Appendices
- an eight-volume Environmental Impact Statement (EIS):
  - Volume 1: Overview and Impact Summary
  - Volume 2: Project Description
  - Volume 3: Biophysical Baseline:
    - Part A – Environmental Setting, Air Quality and Noise
    - Part B – Aquatic Resources: Groundwater, Hydrology and Water Quality
    - Part C – Aquatic Resources: Fish and Fish Habitat
    - Part D – Terrestrial Resources: Soils, Landforms, Permafrost and Vegetation
    - Part E – Terrestrial Resources: Wildlife
  - Volume 4: Socio-Economic Baseline
  - Volume 5: Biophysical Impact Assessment:
    - Part A – Introduction, Air Quality and Noise
    - Part B – Aquatic Resources: Groundwater, Hydrology and Water Quality
    - Part C – Aquatic Resources: Fish and Fish Habitat

- Part D – Terrestrial Resources: Soils, Landforms, Permafrost and Vegetation
- Part E – Terrestrial Resources: Wildlife
- Part F – Climate Change, Cumulative Effects, Biodiversity and Environmental Effects on the Project
- Volume 6: Socio-Economic Impact Assessment:
  - Part A – Expenditures, Employment, Economy, Infrastructure and Community Services
  - Part B – Wellness, Traditional Culture, Land and Resource Use and Heritage Resources
- Volume 7: Environmental Management
- Volume 8: Environmental Alignment Sheets



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