



Application for Approval of the
Mackenzie Valley Pipeline

**Volume 2:
Economics, Tolls and Tariffs**

Submitted to:
National Energy Board

Submitted by:
Imperial Oil Resources Ventures Limited

IPRCC.PR.2004.05

August 2004



PREFACE

**APPLICATION TO THE
NATIONAL ENERGY BOARD FOR APPROVAL
OF THE MACKENZIE VALLEY PIPELINE
VOLUME 2: ECONOMICS, TOLLS AND TARIFFS****EXECUTIVE SUMMARY****P.1.1 PROPONENTS AND FINANCING**

The proposed Mackenzie Valley natural gas pipeline will extend about 1,220 km from Inuvik in the Mackenzie Delta to northwestern Alberta. The pipeline proponents are:

- Imperial Oil Resources Ventures Limited
- ConocoPhillips Canada (North) Limited (ConocoPhillips)
- ExxonMobil Canada Properties (ExxonMobil)
- Shell Canada Limited (Shell)
- Mackenzie Valley Aboriginal Pipeline Limited Partnership (APG)

The proponents have selected a joint venture structure to hold their interest in the pipeline. Imperial Oil Resources Ventures Limited will be the operator of the joint venture. Under this structure, each proponent will pay its share of the capital costs of the pipeline and will individually obtain funds to cover these costs.

All shipper tolls will be paid to Imperial Oil Resources Ventures Limited. Imperial Oil Resources Ventures Limited will distribute the pooled toll revenue, less the pipeline's operating cost, to each owner according to its participating interest.

P.1.2 TRANSPORTATION COMMITMENTS AND AGREEMENTS

In 2002, the proponents held an open season for the expression of shipper interest. Expressions of interest were received from 19 companies, including the four anchor field owners.

In September 2003, a draft Precedent Agreement for firm transportation was provided to shippers. In response to feedback and conditions, the Precedent Agreements were modified in December 2003, March 2004 and July 2004.

Before the proponents decide to construct the pipeline, they will enter into a Firm Service Transportation Agreement (FSTA). The FSTAs provide the contractual commitment to the pipeline and the financial support for its construction. The Firm Service Transportation Agreements will supersede the related Precedent Agreements.

P.1.3 TOLLS AND TARIFFS

The pipeline will be an open access pipeline. The transporter will offer firm transportation service for terms of 15 or 20 years. Authorized overrun service (AOS) and interruptible transportation (IT) service will be available only to shippers that have a Firm Service Transportation Agreement.

The proponents and potential shippers developed toll and tariff principles to apply to the Mackenzie Valley pipeline. The pipeline will have different tolls for different terms of firm transportation service. The pipeline owners will provide access to gas for communities along the pipeline, and will provide a toll rebate for shippers delivering gas to NWT communities along the route.

The tariff principles are set out as a schedule to both the Precedent Agreement and the Firm Service Transportation Agreement. Each shipper that signed a Precedent Agreement contractually agreed that the tariff for the pipeline should reflect these tariff principles.

P.1.4 NORTHERN GAS SUPPLY ANALYSIS

Gilbert Laustsen Jung Associates Ltd. was commissioned to analyze the future gas supply in the regions served by the Mackenzie Valley pipeline, and the pipeline's long-term supply capability.

The gas supply study estimated an onshore contingent and prospective resource of 341 Gm³ (12 Tcf) and concluded that there is potential for the pipeline to remain at capacity for 25 years.

P.1.5 GAS MARKET ANALYSIS

Navigant Consulting, Inc. and Energy and Environmental Analysis, Inc. were commissioned to analyze the long-term demand for natural gas from the Mackenzie Delta region.

The market analysis concluded that:

- the growth in gas demand in North America is expected to exceed conventional production
- gas supplies from conventional sources in North America are expected to stay flat or increase marginally
- gas volumes from the Mackenzie Valley pipeline can easily be absorbed in the North American market
- market conditions justify the need for 34 Mm³/d of gas to be transported by the Mackenzie Valley pipeline

CONTENTS

APPLICATION TO THE NATIONAL ENERGY BOARD FOR APPROVAL OF THE MACKENZIE VALLEY PIPELINE VOLUME 2: ECONOMICS, TOLLS AND TARIFFS

TABLE OF CONTENTS

Preface	
Executive Summary	P-i
Contents	
Table of Contents	iii
List of Illustrations	vii
1. Pipeline Proponents and Financing	
1. Proponents.....	1-1
1.1.1 Pipeline Proponents.....	1-1
1.1.2 Imperial Oil Resources Ventures Limited.....	1-1
1.1.3 Mackenzie Valley Aboriginal Pipeline Limited Partnership.....	1-2
1.1.4 ConocoPhillips Canada (North) Limited.....	1-2
1.1.5 Shell Canada Limited.....	1-2
1.1.6 ExxonMobil Canada Properties.....	1-2
2. Pipeline Proponent Arrangements.....	1-3
1.2.1 Joint Venture Structure.....	1-3
1.2.2 TransCanada Pipelines Limited.....	1-4
3. Pipeline Financing.....	1-5
1.3.1 Proponent Financing.....	1-5
1.3.2 Anchor Field Owner Financing.....	1-5
1.3.3 APG Financing.....	1-5
2. Transportation Commitments	
1. Commercial Consultations.....	2-1
2.1.1 Notification to Potential Shippers	2-1
2.1.2 Expressions of Interest	2-1
2.1.3 Monthly Shippers' Forum	2-2
2.1.4 Precedent Agreements.....	2-2
2. Precedent Agreements.....	2-9
2.2.1 Purpose.....	2-9
2.2.2 Mackenzie Valley Pipeline Shippers.....	2-9
2.2.3 Key Elements of Precedent Agreements.....	2-9
2.2.3.1 Transporter's Obligations	2-10
2.2.3.2 Shipper's Obligations.....	2-10
2.2.3.3 Term.....	2-10
2.2.3.4 Credit Requirements	2-10
2.2.3.5 Permitted Adjustments to Contract Demand Quantity.....	2-11
2.2.3.6 Termination Rights	2-11
2.2.3.7 Procedures for Executing a Firm Service Transportation Agreement.....	2-12
2.2.3.8 Associated Toll and Tariff Principles	2-13

3.	Firm Service Transportation Agreement.....	2-15
2.3.1	Purpose.....	2-15
2.3.2	Timing of Execution.....	2-15
2.3.3	Termination Rights.....	2-15
2.3.4	Key Elements of Firm Service Transportation Agreement.....	2-16
3.	Tolls and Tariffs	
1.	Types of Service.....	3-1
3.1.1	Firm Transportation Service.....	3-1
3.1.2	Authorized Overrun Service.....	3-1
3.1.3	Interruptible Transportation Service.....	3-1
3.1.4	Term Toll Differentiation.....	3-1
3.1.5	Short Haul Toll.....	3-2
3.1.6	NWT Community Transportation Rebate.....	3-2
2.	Toll Principles.....	3-3
3.2.1	Tolling Considerations.....	3-3
3.2.2	Key Toll Principles.....	3-3
3.2.2.1	Capital Structure.....	3-5
3.2.2.2	Cost of Debt.....	3-5
3.2.2.3	Return on Equity.....	3-5
3.2.2.4	Depreciation.....	3-5
3.	Tariff Principles.....	3-7
3.3.1	Purpose.....	3-7
3.3.2	Key Tariff Principles.....	3-7
3.3.2.1	Quality Specifications.....	3-7
3.3.2.2	Demand Charge Credits.....	3-7
3.3.2.3	Force Majeure.....	3-8
3.3.2.4	Capacity Release.....	3-8
3.3.2.5	System Use Gas.....	3-8
3.3.2.6	Expansion Policy.....	3-8
4.	Sample Toll Calculations.....	3-9
3.4.1	Assumptions.....	3-9
3.4.2	Projected Tolls.....	3-10
5.	Pro Forma Financial Statements.....	3-15
3.5.1	Purpose.....	3-15
3.5.2	Assumptions.....	3-15
4.	Northern Gas Supply	
1.	Gas Supply Study.....	4-1
4.1.1	Purpose of Study.....	4-1
4.1.2	Scope of Study.....	4-1
4.1.3	Study Area.....	4-1
4.1.4	Study Basis.....	4-2
4.1.5	Results of Study.....	4-2
2.	Resource Analysis and Deliverability.....	4-5
4.2.1	Discovered Onshore Gas.....	4-5
4.2.2	Undiscovered Onshore Gas (Prospective Resource).....	4-5
4.2.3	Offshore Gas.....	4-6

5. Gas Market Analysis	
1. Introduction.....	5-1
5.1.1 Purpose.....	5-1
5.1.2 Scope of Study.....	5-1
5.1.3 Study Method.....	5-2
5.1.4 Results of Market Study.....	5-2
2. Regional Market Analysis.....	5-3
5.2.1 North American Gas Demand Forecast.....	5-3
5.2.2 US Gas Demand Forecast.....	5-3
5.2.3 Canadian Gas Demand Forecast.....	5-3
5.2.4 North American Gas Supply and Deliverability.....	5-4
5.2.5 Market Sensitivity Cases.....	5-5
5.2.5.1 Mackenzie Expansion Case – Sensitivity Case 1.....	5-5
5.2.5.2 North American Economic Slowdown Case – Sensitivity Case 2.....	5-5
5.2.5.3 Alaskan Pipeline Development Case – Sensitivity Case 3.....	5-5
3. Alberta Transmission Infrastructure.....	5-7
5.3.1 Intra-Alberta and Export Pipeline Systems.....	5-7

Appendices

A. Sample Precedent Agreement.....	A-1
------------------------------------	-----

Glossary

CONTENTS

APPLICATION TO THE NATIONAL ENERGY BOARD FOR APPROVAL OF THE MACKENZIE VALLEY PIPELINE VOLUME 2: ECONOMICS, TOLLS AND TARIFFS

LIST OF ILLUSTRATIONS

LIST OF FIGURES

Figure 2-1	Notice of Open Season Process for Shippers	2-4
Figure 2-2	Expression of Interest Procedure Letter	2-5
Figure 2-3	Expression of Interest Form	2-7
Figure 2-4	Calgary Herald and Nickle's Daily Oil Bulletin Advertisement	2-8
Figure 4-1	Contingent Onshore Resources	4-6
Figure 4-2	Contingent and Prospective Onshore Resources	4-7
Figure 4-3	Contingent and Prospective Onshore and Offshore Resources	4-7

LIST OF TABLES

Table 1-1	Gas Pipeline Pre-Development Participating Interest	1-3
Table 2-1	Mackenzie Valley Pipeline Shippers Contract Demand Quantity	2-9
Table 3-1	Summary of Key Toll Principles	3-4
Table 3-2	Development and Construction Costs (\$Millions As-Spent, Except as Noted)	3-11
Table 3-3	Sample Toll Calculation	3-12
Table 3-4	Sample Revenue Requirement (\$Millions As-Spent)	3-12
Table 3-5	Sample Rate Base and Return on Rate Base (\$Millions As-Spent)	3-13
Table 3-6	Sample Capital Structure and Cost of Capital (\$Millions As-Spent)	3-13
Table 3-7	Sample Depreciation (\$Millions As-Spent)	3-14
Table 3-8	Sample Income Taxes (\$Millions As-Spent)	3-14
Table 3-9	Sample Pro Forma Income Statement (\$Millions As-Spent)	3-16
Table 3-10	Sample Pro Forma Balance Sheet (\$Millions As-Spent)	3-16
Table 3-11	Sample Pro Forma Statement of Changes in Financial Position (\$Millions)	3-17
Table 4-1	Marketable Gas Resources Supply Forecasts	4-3

