National Energy Board

Reasons for Decision

In the Matter of

TransCanada PipeLines Limited

GH-5-89

November 1990

Volume 1
Tolling and Economic Feasibility

Minister of Supply and Services Canada 1990

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Recital and Appearances
IN THE MATTER OF the *National Energy Board Act* ("the Act") and the regulations made thereunder;

AND IN THE MATTER OF an application by TransCanada PipeLines Limited for a Certificate under Part III of the Act for certain proposed additional facilities for 1991 and 1992;

AND IN THE MATTER OF various associated applications for licences for the export of natural gas pursuant to Part n of the Act;

AND IN THE MATTER OF applications made by various parties for orders pursuant to s. 71 of the Act;

AND IN THE MATTER OF issues relating to toll methodology pursuant to Part IV of the Act and relatin~ to economic feasibility matters;

AND IN THE MATTER OF Hearing Order No. GH-5-89.

HEARD at Ottawa, Ontario on 28, 29, 30, and 31 May and 1, 4, 5, 6, 7, 8,11,12,13,14,15, 25, 26, 27, 28, 29 June and 3, 4, 5, 6, 9,10,11,12, 30 and 31 July and 1, 2, 3, 7, 8, 9,10,13,14, 20, 21, 22, 23. 27. 28, 29, 30, and 31 August and 4, 5, 6,17, 18,19, 20, 21, 24, 25 and 26 September 1990.

BEFORE:

J.-G. Fredette	Presiding Member
A B. Gilmour	Member
M.J. Musgrove	Member
R. Illing	Member
K W. Vollman	Member

APPEARANCES:

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S.H. Lockwood	FSC Resources Limited

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K.F. Miller	Indeck Gas Supply Corporation
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L.E. Smith	Alberta Northeast Gas Export Project
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W.J. Burke-Robertson	Transcontinental Gas Pipe Line Corporation
L.A. Leclerc	Trans Quebec & Maritimes Pipeline Inc.
G.K Cameron	Union Gas Limited
A.M. Bigué S. Struthers	Vermont Gas Systems, Inc.
N.J. Schultz J. Burke-Robertson	Viking Gas Transmission Company

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D. Burnett	Province of New Brunswick
L. Meagher D. Bursey M. Fowke	National Energy Board

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Abbreviations

Act	*National Energy Board Act*
AEC	AEC Oil and Gas Company, a Division of Alberta Energy Company Ltd.
Agreement	Agreement on Natural Gas Markets and Prices
ANE	Alberta Northeast Gas Export Project
APMC	Alberta Petroleum Marketing Commission
Atcor	Atcor Ltd.
Board	National Energy Board
Brymore/Pawtucket	Brymore Energy Ltd., as agent for Pawtucket Power
Canadian Hunter	Canadian Hunter Exploration Ltd.
CanStates	CanStates Gas Marketing
Canterra	Canterra Energy Ltd.
CAP	Cost Allocation Procedure
CCA	Capital Cost Allowance

CCPA	Canadian Chemical Producers' Association, The
Coles Gilbert	Coles Gilbert and Associates Ltd.
Consumers'	Consumers' Gas Company Ltd., The
Contract Year	the 12-month period commencing 1 November
CPA	Canadian Petroleum Association
DOE	U.S. Department of Energy, Office of Fossil Energy
EARP	Environmental Assessment and Review Process
EARP Guidelines Order	*Enuironmental Assessment and Review Process Guidelines Order*
EFA	Economic Feasibility Assessment
Enserch	Enserch Development Corporation
Esso	Esso Resources Canada Limited
FS	firm service
FSC	FSC Resources Limited
FTA	Free Trade Agreement between the Government of Canada and the Government of the United States of America
Fulton	Fulton Cogeneration Associates
GH-2-87	Hearing Order GH-2-87 in respect of TransCanada's application for 1988 and 1989 facilities
GH-4-88	Hearing Order GH-4-88 in respect of TransCanada's application for 1989/90 facilities
GH-1-89	Hearing Order GH-1-89 in respect of TransCanada's application for 1990 facilities
GH-5-89	Hearing Order GH-5-89 in respect of TransCanada's application for 199V1992 facilities
GHW-3-89	Hearing Order GHW-3-89 in respect of information on gas

	supply to be provided by TransCanada in support of its 1991 and 1992 facilities.
GHW-4-89	Hearing Order GHW-4-89 in respect of Certain Aspects of the Market-Based Procedure
General Chemical	General Chemical Canada Inc.
GJ	gigajoules
GMi	Gaz Metropolitain, inc.
ICG (Manitoba)	ICG Utilities (Manitoba) Ltd.
ICG (Ontario)	ICG Utilities (Ontario) Ltd.
ICI	ICI Canada Inc.
IGUA	Industrial Gas Users Association
Indeck	Indeck Gas Supply Corporation
IPAC	Independent Petroleum Association of Canada
km	kilometres
kPa	kilopascals
LDC	local distribution company
m	metres
m3	cubic metres
m3/d	cubic metres per day
MASSPOWER	MASSPOWER Joint Venture
MBP	Market-Based Procedure
MBEE	Market-Based Economic Evaluation
Mcf	thousand cubic feet
mm	millimetres

MMcf	million cubic feet
MMcfd	million cubic feet per day
MW	megawatts
NEB, Board	National Energy Board
NEPC	New England Power Company
Natural	Natural Gas Pipeline Company of America
NOVA	NOVA Corporation of Alberta
NYSPSC	New York State Public Service Commission
Ontario	Minister of Energy for Ontario
Pan-Alberta	Pan-Alberta Gas Ltd.
PanCanadian	PanCanadian Petroleum Limited
Part VI Regulations	*National Energy Board Part Vl Regulations*
Power City	Power City Partners, L.P.
ProGas	ProGas Limited
RG&E	Rochester Gas and Electric Corporation
RH-1-88	Hearing Order RH-1-88 in respect of TransCanada's 1988/89 toll application
RH-3-86	Hearing Order RH-3-86 in respect of TransCanada's 1986/87 toll application
Selkirk	JMC Selkirk, Inc.
Shell	Shell Canada Limited
St. Clair	St. Clair Pipelines Limited
TransCanada	TransCanada PipeLines Limited
TQM	Trans Quebec & Maritimes Pipeline Inc.

Umbrella-T Service	A long-term firm transportation service whereby an LDC, as the shipper on the transmission system, has aggregated several short-term buy/sell arrangements at the Alberta border with direct purchasers of gas.
Union	Union Gas Limited
U.S.	United States of America
WGML	Western Gas Marketing Limited

Overview

(NOTE: This overview is provided solely for the convenience of the reader and does not constitute part of this Decision or the Reasons, to which readers are referred for the detailed text and tables.)

The Facilities Application
In the GH-5-89 proceedings the National Energy Board ("the Board") is considering an application dated 29 June 1989, as amended 15 December 1989, in which TransCanada PipeLines Limited ("TransCanada") sought a certificate under Part III of the *National Energy Board Act* ("the Act") in respect of new facilities to increase deliveries to its domestic markets in eastern Canada and to export markets in the United States.

The proposed expansion would enable TransCanada to:

meet its projected sales and transportation requirements for the 1991/92 and 1992/93 contract years (see Table 1-1), including new firm service contracts and changes in load factor for some existing customers; restore capability that would be lost due to the retirement of compressor units; and provide a minimum delivery pressure of 9 830 kPa at Iroquois, Ontario.

The proposed facilities consist of 1592 kilometres of pipeline, the installation of 21 new compressor units and two new compressor stations. The total cost of the proposed facilities is estimated to be $2 573 million. TransCanada's 1990 approved rate base is $3.0 billion on a gross plant of $4.3 billion. TransCanada estimated that the proposed facilities would result in an increase in the Eastern Zone toll of approximately $0.10/gigajoule, assuming the continuation of the rolled-in tolling methodology, relative to tolls without the expansion.

Details of the proposed facilities and their estimated cost are provided in Table 2-1. A map indicating the location of these facilities appears as Figure 1-1.

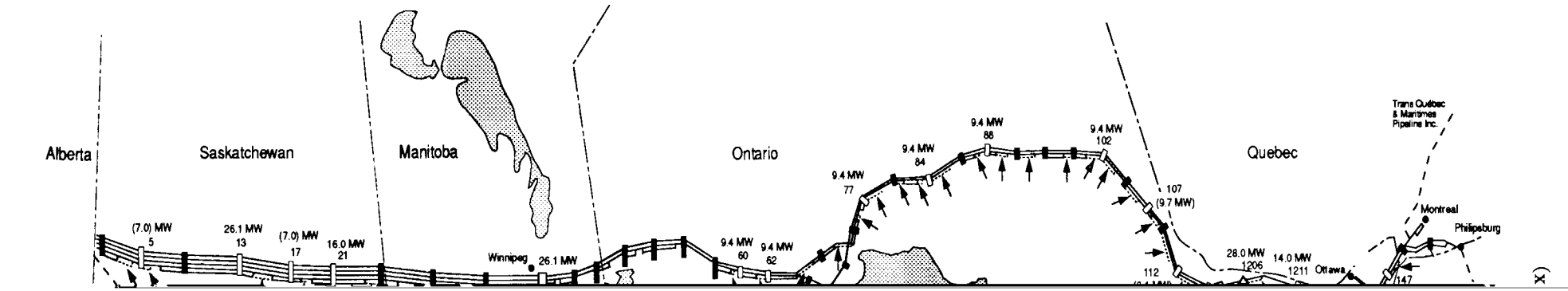
Partial Facilities Certifisate Application

On 31 August 1990, TransCanada requested that the Board consider issuing a partial facilities certificate decision to allow for winter construction to ensure November 1991 service for TransCanada's most assured requirements. On 3 October 1990, TransCanada submitted its Partial

Figure 1

TransCanada PipeLines Limited

Location of Applied-for Facilities



Facilities Certificate Evidence in support of its request to construct 396 km of system-wide pipeline looping and relocate two portable compressor units at a cost of $546 million. The facilities would provide 103 MMcfd of firm service transportation required by specific domestic shippers and 52 MMcfd of advance capacity for 1 November 1991. The Partial Facilities Certificate Application was heard by the Board on 15 and 18 October.

Export Applications

In support of the proposed facilities, the Board has under consideration at the hearing fifteen applications made pursuant to Part VI of the Act for gas exports at existing delivery points at Emerson and Niagara Falls as well as at two proposed delivery points at Chippawa and Iroquois, Ontario. The export applicant and delivery volumes associated with each export point are shown in Table 1-2.

Section 71 Applications

In addition to the transportation requirements noted above, applications were filed by FSC Resources Limited ("FSC"), Indeck Gas Supply Corporation ("Indeck") and Rochester Gas & Electric Corporation ("RG&E"), pursuant to s. 71 of the Act, for orders requiring TransCanada to receive, transport and deliver natural gas offered by the applicants and to provide adequate and suitable facilities to do so. These applications are also being considered as part of the hearing.

The HearingZ

A public hearing on the applications began in Ottawa on 26 March 1990. The portion of the hearing relating to economic feasibility and Part IV matters was conducted in Ottawa over fifty-nine days from 28 May 1990 to 26 September 1990. The main issues considered in this phase of the hearing were the appropriate toll treatment of the capital and operating costs of the proposed facilities, the appropriate toll treatment of fixed costs associated with the proposed facilities should they be underutilized in the future, the continued appropriateness of the renewal rights policy and the means by which the economic feasibility of the proposed facilities could be determined (see List of Issues attached as an Appendix).

The decisions included in this report on these issues determine the methodologies to be used but do not indicate the precise result that will be obtained when the methodologies are applied in conjunction with facilities that might be approved.

Decisions on the facilities application, the partial facilities application, the export applications, and the section 71 applications, all considered in the GH-5-89 proceedings and described above, will be issued at a later date.

Highlights of the Board’s Decision

Tolling Methodology

The Board has decided that all facilities in the GH-5-89 proceedings, whether approved under

section 52 or exempted under section 58 of the Act, will be rolled into TransCanada's rate base for toll purposes.

With respect to future expansions, the Board did not make its finding respecting rolled-in methodology to be generic, but it expects that there would have to be a clear demonstration of radically changed circumstances before the issue of tolling methodology would warrant reexamination.

Economic Feasibility

The Board will make a determination of the economic feasibility of the pipeline facilities proposed in the GH-5-89 proceedings by having regard to evidence on all relevant factors which impact on the likelihood of the facilities being used at a reasonable level over their economic life and of the likelihood of the demand charges being paid.

The Board has decided that it will not implement any of the quantitative tests proposed in the proceedings either for information purposes or for determining the amount of new capacity to certificate. Further, the Board will not adopt a form of incremental tolls as a test of economic feasibility.

Tariff, Risk and Other Part IV Matters

The Board has determined that the existing renewal rights policy for short-term shippers using short-term contracts to serve long-term markets continues to be appropriate under the present circumstances. Similarly, the Board has decided to maintain the existing point-to-point methodology for export volumes. The Board is of the view that the issue of TransCanada assuming more of the risk of under-utilization of its system warrants more in-depth review in a future proceeding. Consequently, the Board is not prepared to adopt any of the risk-sharing schemes put forward in evidence in these proceedings nor to eliminate the revenue deferral account at this time.

TransCanada's proposal to defer capital cost allowances for the purposes of toll levelling has been denied by the Board.

Chapter 1

Introduction

Following the issuance of Hearing Order GH-5-89, in which the National Energy Board ("the Board") indicated it would hear the TransCanada PipeLines Limited ("TransCanada") facilities application, and associated gas export licence applications and applications made pursuant to section 71 of the *National Energy Board Act* ("the Act"), a pre-hearing conference was held on 21 November 1989 to hear parties' views on whether the preliminary List of Issues contained in GH-5-89 was complete. At these preliminary proceedings, the Industrial Gas Users Association ("IGUA") and others argued that the Board should consider the issue of alternative toll methodologies.

On 1 December 1989, the Board issued its decisions regarding matters raised at the prehearing conference. One of its decisions was to reject the suggestion that toll methodology should be examined in the GH-5-89 hearing. IGUA thereupon applied to the Federal Court for an order directing the Board to consider the issue of tolling methodology in the GH-5-89 proceedings. The Court granted IGUA's motion in a decision dated 12 February 1990. Consequently, the Board amended the GH-5-89 List of Issues to include a consideration of the appropriate toll treatment of the costs of the proposed facilities.

The GH-5-89 hearing began in Ottawa on 26 March 1990. After sitting for two weeks the hearing moved to Calgary on 23 April for an additional two weeks of hearings. Soon after reconvening in Ottawa on 15 May, the Board heard motions by various parties to restructure the hearing. On 17 May the Board decided to suspend the hearing until 23 May (subsequently changed to 28 May) at which time it would sit to hear all parties' evidence and arguments on economic feasibility and Part IV matters. The Board indicated that it would render a decision on these matters before proceeding to hear the remaining Part III and Part VI matters before it. The issue of the appropriate toll treatment of variances between forecast and actual construction costs of the proposed facilities was to have been examined in this phase of the proceedings, however, this matter was deferred to a later date due to the unavailability of certain witnesses.

In issuing its decision on 17 May, the Board reaffirmed its position that the tolling methodology for previously certificated facilities was not an issue in the GH-5-89 proceedings but that IGUA would be allowed to present evidence relating to the tolling of previously certificated facilities for comparative purposes.

IGUA again applied to the Federal Court arguing that the Board had interpreted the 12 February 1990 decision too narrowly and requested a direction that the issue of toll methodology be considered not only with respect to traffic on the proposed facilities but with respect to traffic on previously certificated facilities as well.

The Court denied IGUA's request in a decision delivered on 17 August 1990. The hearing continued and final argument on the Part IV and economic feasibility phase of the hearing was heard from 17 to 28 September 1990.

The question of the appropriate toll treatment of the applied-for facilities might normally be regarded as purely a matter for consideration under Part IV of the Act. However, some parties to the hearing argued that an incremental toll methodology could also serve as a test of the economic feasibility of the applied-for facilities which is considered under Part III of the Act.

Although recognizing the possible relationship between tolls and economic feasibility, the Board is of the view that the evidence addressed at the hearing and the views and decisions of the Board are most clearly presented as distinct Part III and Part IV matters. Accordingly, the organization of these Reasons reflects this view.

Chapter 2 contains the views of submittors and the views of the Board on the appropriate toll treatment of the costs of the applied-for pipeline facilities. It contains all of the arguments put forth both for and against each of the proposed toll methodology treatments, except the arguments regarding the use of toll methodology as a test of economic feasibility. Chapter 3 contains the views of submittors and the views of the Board on the appropriate means by which the Board should arrive at a determination of the economic feasibility of the applied-for facilities. It includes a summary of the arguments for and against the idea that a form of incremental tolling could serve as an appropriate test of economic feasibility.

Chapter 4 contains the views of submittors and the views of the Board on the other Part IV matters heard in this phase of the GH-5-89 proceeding. These matters consisted of:

(i) the question of whether shippers holding short-term firm transportation contracts on TransCanada should continue to be permitted to automatically renew their contracts, upon six months notice; and whether bumping of short-term service should be permitted;

(ii) the question of whether tolls charged to export markets should be designed on a point-to-point or zonal basis;

(iii) the toll treatment of fixed costs associated with under-utilized facilities;

(iv) the question of whether TransCanada should be permitted to defer a capital cost allowance from the l990/9l contract year to the 1991/92 contract year; and

(v) the appropriateness of the Board issuing a generic toll order which would apply to future expansions of the TransCanada system.

Chapter 2

Toll Treatment of Capital and Operating Costs of Proposed Facilities

2.1 Toll Treatments Proposed

The Board had before it the issue of the toll treatment of the capital and operating costs of the proposed facilities including an examination of rolled-in and incremental methods.

Under the rolled-in method, the capital and operating costs of new facilities are added to those of the existing facilities and the total costs are then allocated on a volume-distance basis. To the extent that the costs of the new facilities are greater or lower than the corresponding costs of the existing facilities, on a per unit of capacity basis, the rolled-in toll for all shippers will be higher or lower. TransCanada calculated that the addition of the proposed facilities would result in an increase in the Eastern Zone firm service toll of approximately $0.10/GJ.

The Canadian Petroleum Association ("CPA") proposed a method whereby new shippers would pay a rolled-in toll and would also be required to make capital contributions as a direct payment to offset 50 percent of the additional capital burden attributable to the expansion. The additional capital burden was defined as the difference between the present value of constructing and operating the expanded pipeline, and the present value of the maximum capital expenditure which would not cause an increase in the base case rolled-in tolls. The new rolled-in tolls would then be calculated by adding one-half of the additional capital burden to TransCanada's existing rate base. The other half of the additional capital burden would be recovered from the new shippers as a capital contribution. On a per unit basis the capital contribution was calculated to be $0.26/GJ.

IGUA expressed the view that the proposed facilities as well as facilities approved in GH-2-87, GH-4-88 and GH-1-89, would amount to a new pipeline system from Empress, Alberta to Iroquois, Ontario designed to serve a new, regionally distinct United States of America ("U.S.") northeast market. Consequently, it proposed that the cost of all new facilities required to serve the northeast market be included in a separate rate base, distinct from the "traditional rate base". Recognizing that certain parties had already made contractual commitments assuming rolled-in tolls, IGUA proposed that contracts for the transportation of volumes to the U.S. northeast market signed before 12 February 1990, the date of the Federal Court's decision requiring that toll methodology be added to the GH-5-89 List of Issues, would be "ring-fenced". That is, the facilities related to the ring-fenced contracts would be included in the traditional rate base for the duration of the contracts. When the contracts expired the assets related to the ring-fenced contracts would be transferred to the northeast rate base at their original cost net of depreciation to the date of transfer. The ring-fence feature of IGUA's proposal was designed to temporarily insulate certain parties, who had relied on the continuation of the rolled-in methodology, from the impact of toll changes on volumes destined for the U.S. northeast. Ring-fencing would not protect parties who had signed contracts after 12 February 1990 because from that date on all parties should have been aware of the possibility that the rolled-in method might be changed. The assignment of costs to each rate base would be based on a ratio of the shipper volume/distance units for each market. While rate base items would be divided between two cost pools, the actual

operations would be integrated with all system operating and maintenance costs shared on a volume-distance basis.

In response to the Board's position that the toll treatment for previously certificated facilities was not an issue in the GH-5-89 proceedings, IGUA applied to the Federal Court for an order clarifying the Court's earlier decision requiring the Board to consider the issue of toll methodology as part of the GH-5-89 proceedings. In a decision delivered on 17 August 1990, the Federal Court confirmed that the Board need consider toll methodology only in respect of the applied-for facilities in the GH-5-89 proceedings. In response to this decision, IGUA revised its toll methodology proposal to include only the applied-for GH-5-89 facilities. However IGUA took the position that the issue of whether traffic to the U.S. northeast through facilities certificated prior to GH-5-89should be subject to the toll methodology proposed by IGUA, is a matter which needs to be considered by the Board but not necessarily decided when considering the IGUA proposal.

The Consumers' Gas Company Limited ("Consumers'") proposed a method by which all shippers would pay a rolled-in toll and new shippers would also pay a demand surcharge. This method recognized that benefits would accrue to the existing shippers as a result of the addition of the proposed facilities. The benefits would be reflected in the calculation of the demand surcharge by means of a benefit factor referred to as a "b-factor". The determination of the b-factor would require the exercise of judgment by the Board. The b-factor would work to reduce the level of the surcharge from what it would be in the absence of benefits accruing to existing shippers. Under Consumers' proposal, the rolled-in tolls for a given test year would be calculated on the revenue requirement for the test year less the total surcharge revenue for the test year. Demand and commodity tolls would be calculated using the cost allocation and toll design methods currently used on TransCanada's system.

Union Gas Limited ("Union") supported a continuation of the current rolled-in toll design methodology with a modification to reduce the risk of under-utilization of the new facilities proposed to serve the export markets. It suggested that tolls could be set based on a forecast of export volumes to the U.S. northeast market with no revenue deferral account to cover any variances between the forecasted and actual volumes. To the extent that contracted volumes to that market vary, TransCanada would bear the resulting loss or retain the additional profit. Union proposed that TransCanada should have the right to flex its rates downward if necessary to retain volumes and to flex rates upward in limited circumstances where permitted by contract.

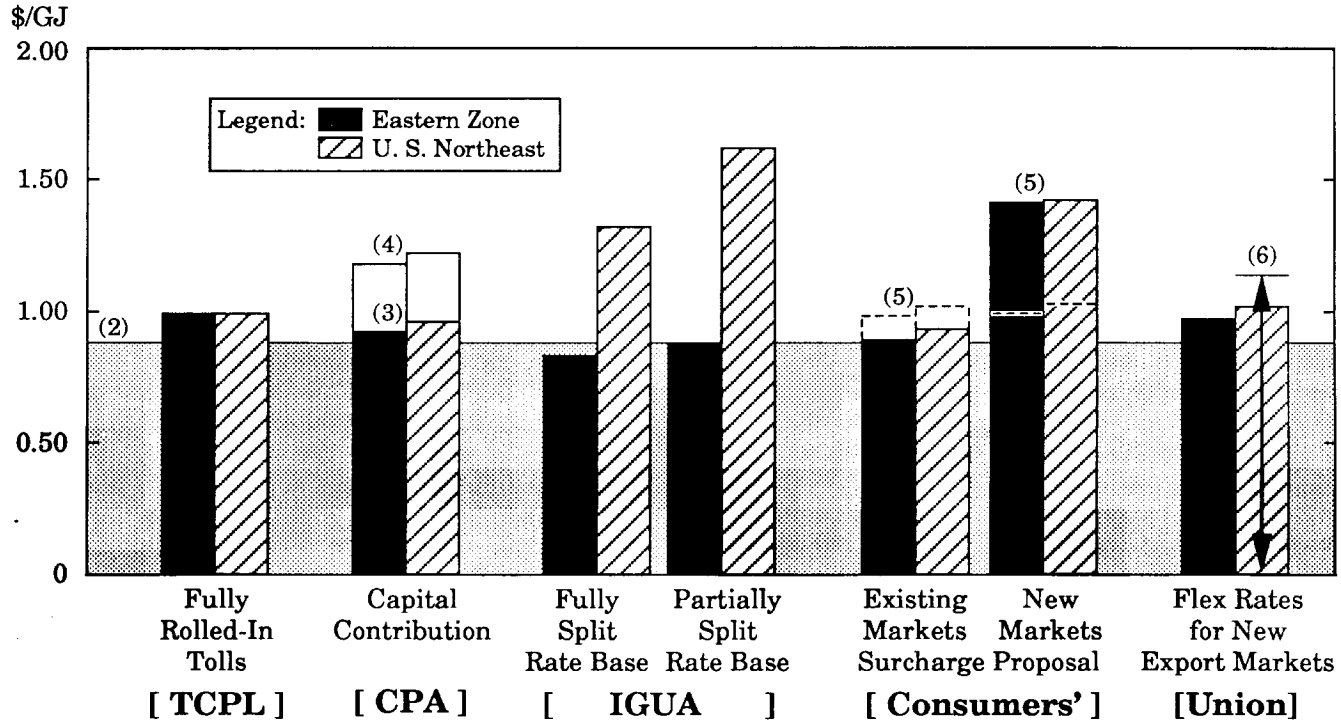
Figure 2-1, shown on page 5, provides a comparison of the estimated impact on tolls of the proposed methodologies. The cost in 1993 of moving gas from Empress to the Eastern Zone, versus to the northeast United States, has been selected as a basis for comparison although the proposals do have significant consequences for other deliveries.

2.2 Views of Interested Parties

2.2.1 Magnitude of the Proposed Expansion

A common concern of those proposing or supporting alternative toll methodologies was the

Figure 2-1: TransCanada's 1993Tolls[1] Under Alternative Methodologies



Notes:
(1) Tolls at 100% load factor, excluding fuel.
(2) Eastern Zone toll without GH-5-89 expansion.
(3) Adjusted rolled-in toll paid by all system users.

magnitude of the proposed expansion and its impact on tolls. They submitted that these costs amount to an exceptional circumstance justifying a change in the Board's current tolling methodology. It was also argued that the costs of the expansion are a relevant matter to be considered by the Board in determining whether traffic is being carried under substantially similar circumstances and conditions because if the traffic and circumstances are different, so should be the toll treatment.

IGUA noted that the $2.6 billion cost of the expansion would double TransCanada's rate base and that by 1993 the rate base, when combined with the costs of facilities previously approved but not yet completed, would swell to approximately $6.3 billion. This expansion would double the annual cost of service to approximately $1.8 billion by 1993. The Minister of Energy for Ontario ("Ontario") argued that the magnitude of the expansion was unprecedented. Natural Gas Pipeline Company of America ("Natural") further argued that, on a per unit of throughput basis, this would be the most expensive expansion to date aside from the 1981/82 North Bay shortcut expansion. However, Natural submitted that this was not a typical expansion because the cost considerations in that expansion were secondary to the overriding government policy that gas markets in eastern Canada must be served.

TransCanada argued that the costs of the expansion are not exceptional. The expansion, as applied for, would result in an increase of 77 percent in net plant value and a resulting increase of 19 percent in throughput which, it argued, compares favourably with the 1981/82 expansion of 93 percent increase in net plant and a resulting 16 percent increase in annual deliveries. Furthermore, TransCanada submitted that to put the applied-for expansion in perspective it was necessary to recognize the impact of inflation. TransCanada calculated that if the existing system were rebuilt today (using improved technology) it would cost approximately $10.3 billion. In that context the applied-for expansion of $2.6 billion represents an increase of approximately 25 percent in net plant cost to give the 19 percent increase in throughput capacity.

TransCanada estimated that this expansion would result in an increase in the 1992/93 Eastern Zone toll of approximately $0.10/GJ using the rolled-in tolling methodology. This would represent a 1.5 percent increase in the residential retail price of gas in the Eastern Zone, and a 2.9 percent increase in the industrial price. AEC Oil and Gas Company, a Division of Alberta Energy Company Ltd. ("AEC") stated that a $0.10/GJ toll increase is the equivalent of about a $0.60 increase in the price of a barrel of oil which, in its view, is hardly significant in today's circumstances.

2.2.2 Riskiness of U.S. Northeast Market

The proponents of incremental tolling held the view that the assignment of risk to those parties who benefit from an expansion is a desirable objective of a toll methodology.

Consumers' argued that the rolled-in methodology would assign too much of the risk associated with the expansion to the existing shippers and not enough to the new shippers. IGUA maintained that its proposal to treat the facilities serving the U.S. northeast as a separate pipeline, with a separate rate base, would address this issue by assigning the risk of the U.S. northeast market to the shippers on that separate notional pipeline. Union's proposal for flexible rates, combined with

the elimination of revenue deferral accounts, was aimed primarily at assigning risk to volumes destined to the U.S. northeast.

Consumers' submitted a study of the U.S. northeast demand for Canadian gas prepared for it by Jensen Associates Inc. ("Jensen"). The study identified competition from other pipelines, the use of the new gas supplies for electric power generation and additional regulatory risk as the three principal reasons for viewing this market to be riskier than TransCanada's traditional market. Union, while acknowledging that the U.S. northeast is a good market, pointed to the extent of competition and TransCanada's lack of presence in the market as reasons why it views that market as being riskier.

Enserch Development Corporation ("Enserch") argued that none of the risks of the U.S. northeast market alleged in the Jensen Report were substantiated or quantified and that no extraordinary risk was established for this market. Alberta Northeast Gas Export Project ("ANE") noted that there was no evidence presented on the riskiness of existing markets for the purpose of comparison. Enserch also pointed out that it was freely acknowledged that the demand projections for the U.S. northeast market set forth in the Jensen report would likely be exceeded. JMC Selkirk, Inc. ("Selkirk") and MASSPOWER Joint Venture ("MASSPOWER") argued that the willingness of the new projects to sign long-term contracts is evidence that the new market is good. It argued that if a project is risky, the Board should deny authorization for facilities and that it is not appropriate to attempt to deal with market risk by means of toll methodology.

2.2.3 Cost Causation

A number of parties argued that the shippers who are responsible for causing a facilities expansion should also be responsible for paying the costs of the expansion. However, there was disagreement between parties supporting rolled-in tolls and parties supporting some form of an incremental toll as to which parties are responsible for the expansion.

Parties supporting the rolled-in toll methodology argued that TransCanada is an integrated system operated for the benefit of all system users. The need for expansion of the system arises when the total demand for firm transportation service exceeds the existing capacity. Responsibility for causing an expansion should not be assigned to those shippers requesting new firm service ("FS"). It was argued that existing users of the system can be considered equally responsible for causing an expansion since, if they were to reduce their levels of use, capacity would be freed up and less expansion would be necessary.

PanCanadian Petroleum Limited ("PanCanadian"), which advocated rolled-in tolls, cited a regulatory decision of the New York State Public Service Commission ("NYSPSC") which stated that the marginal cost of use imposed on a system is the same for all users (per unit of capacity for equivalent service) and, hence, the responsibility for a pipeline system expansion should be borne equally by existing and new users of the system. This view of cost causation was supported by TransCanada, the Alberta Petroleum Marketing Commission ("APMC"), the Independent Petroleum Association of Canada ("IPAC"), Selkirk-MASSPOWER, ProGas Limited ("ProGas"), Esso Resources Canada Limited ("Esso") and Western Gas Marketing Limited ("WGML").

Conversely, those parties who supported some form of incremental toll methodology argued that the shippers requesting new long-term FS cause the need for expansion on TransCanada. The CPA recognized that all users are responsible for the expansion in the sense that if existing users were to reduce their demands, capacity would be freed up for new users. It also stated that it did not believe that a firm transportation contract in any way conferred a right of ownership of capacity on the system to existing shippers. However, it noted that many existing users are currently committed to long-term sales contracts and longterm transportation contracts on TransCanada and, because of these commitments, they are not free to leave the system. The CPA argued that it is only new shippers who are faced with a decision to use or not to use the system. Hence, it argued that a common sense interpretation of cost causation is that the new users are responsible.

Consumers' argued that existing shippers who do not reduce their levels of demand should not be considered as causing the need for expansion. The reason for this is that pipeline facilities were originally installed to satisfy the long-term

market demands served by existing shippers and, when these facilities were installed, there was an expectation that this market demand would continue for the economic life of the facilities.

IGUA argued that the purpose of the construction of the majority of the applied-for facilities is to satisfy requests for long-term FS to serve a regionally distinct new market, i.e., the U.S. northeast. Given the size of this market, and given that it is not a market that has been traditionally served by TransCanada, IGUA contended that the facilities required to serve this market would essentially comprise a new pipeline system.

IGUA recognized that the new facilities would be physically integrated with the existing facilities but argued that most of the new facilities were being constructed to serve a new export market and, hence, should be considered to be separate from the existing system. Given this characterization of the new facilities, IGUA argued that the shippers requesting long-term FS to the U.S. northeast are responsible for causing most of the applied-for expansion and therefore should be responsible for bearing the associated costs. IGUA argued that a separate cost pool should be established for all traffic to the U.S. northeast and tolls for transportation service to this market should be calculated based on the costs allocated to this separate pool.

2.2.4 Distributional Impacts

The cost of the proposed facilities additions and the impact on rolled-in tolls, estimated to be $0.10/GJ, were referred to by IGUA, the CPA and Consumers' as their major concerns prompting them to propose alternative toll methodologies. They argued that the rolled-in toll would not reflect the real cost of providing service to the new shippers and that the toll increase would in fact be a subsidy by the existing shippers to the new shippers. IGUA estimated the amount of the potential subsidy as approximately $100 million per year and expressed concerns about the probable impact this increase could have on the continued use of gas by industrial markets in the Eastern Zone. ICI Canada Inc. ("ICI") testified that, under rolled-in tolls, its annual costs would increase by an additional $1.3 to $1.4 million per year. Similarly, General Chemical Canada Inc. ("General Chemical") calculated that its costs would increase by about $600,000 per year under

rolled-in tolls. IGUA submitted that this burden is unjust and unfair and could result in lower energy costs for U.S. northeast industries which compete with IGUA members. The CPA and Consumers' also argued that existing shippers would be subsidizing new shippers.

Consumers' retained Econanalysis & Associates to assess the distributive effects of the proposed expansion under rolled-in tolls. Their study concluded that the net present value of the burden to existing shippers of the entire expansion under rolled-in tolls would be $877 million, with domestic customers bearing $524 million and export customers bearing $353 million. At Consumers' request, the study was done working from the basic assumption that none of the toll increase would be absorbed by the producers. Consumers' submitted that gas-on-gas competition at the Alberta border will be the primary driver of gas prices for the majority of the eastern Canadian market throughout the forecast period.

Union submitted that the distributive effects of the toll increase should not affect decisions on toll methodology. Union and TransCanada argued that, pursuant to Part III of the Act, the Board will examine, as important and legitimate public interest considerations, the distributional impacts of increased tolls on the utilization of the system.

The proponents of rolled-in tolls took the view that the new shippers are not being subsidized by the existing shippers. They argued that, to the extent that the rolled-in toll is lower than the marginal cost of service, all shippers are benefitting from a form of subsidy which results from a sharing of the benefit of depreciation and the lower historical cost rate base. PanCanadian, WGML and others argued that the recognition of a subsidy by one group of tollpayers to another would be tantamount to recognition of acquired rights.

2.2.5 Discrimination

Many advocates of rolled-in tolls argued that the incremental toll proposals advanced would produce discriminatory tolls which would not be in compliance with the requirements of the NEB Act. IPAC, PanCanadian, Gaz Metropolitain, inc. ("GMi") and the APMC in particular submitted extensive legal arguments which were used as the basis for asserting that different circumstances with respect to timing, price elasticity, costs and end-use are not sufficient reasons to justify discriminatory tolls. It was argued that the CPA and Consumers' proposals create two classes of shippers and that the IGUA proposal discriminates on the basis of market.

The CPA submitted that unjust discrimination is a matter of judgment. In its view, its proposal to allocate the added costs equally to the existing shippers and the new shippers would result in just and reasonable tolls which do not discriminate unjustly against any party. Consumers' argued that a different toll treatment is justified and would not be discriminatory, let alone unduly so, because the new shippers, who caused the need for expansion, are different from the existing shippers. IGUA maintained that its proposal was not discriminatory because it viewed gas moving to different markets to be different traffic. Consumers' and IGUA added that it would be discriminatory to treat two unlike parties the same.

General Chemical and ICI argued that in making a finding on discrimination, the Board is not restricted to its previously stated view that the terms of access for new shippers should be

consistent over time. Rather they argued that new shippers are non-shippers until they commence shipping and that "to extend the concept of undue discrimination from the NEB Act to persons who are not shipping gas on a regulated pipeline is not justified."

2.2.6 Acquired Rights

Proponents of rolled-in tolls were of the view that the incremental methodologies proposed imply the existence of prior rights for existing shippers or some claim by them to the lower embedded costs associated with existing facilities relative to the higher costs of new facilities. The proponents of the incremental methodologies denied that their proposals were based on the notion of prior rights. The CPA submitted that once the additional capital payment was made everybody would be treated equally. Consumers' acknowledged that existing shippers have no particular rights to existing capacity and agreed that under its surcharge proposal there would be a differentiation between the customers who, in its view, caused the need for the expansion and those who did not. However, Consumers' did not see this distinction as a recognition of any special rights for existing shippers. It merely reflects the fact that there is no room on the existing pipeline and it must be expanded to accommodate the new customer.

IGUA testified that there was nothing in its proposal that would suggest that a shipper serving the traditional market, either an existing shipper or a new shipper, would have any prior rights beyond what is in the tariff or in the contract. IGUA argued that the distinction upon which one must focus is between an existing shipper that already has an operative contract for service and a prospective shipper that does not yet have an operative contract for such service because capacity must be added to serve that prospective shipper.

2.2.7 Operational Integration

The Board heard the argument by those who supported rolled-in tolls that, on an integrated system such as TransCanada's, it is not possible to say that any particular facilities are used to provide service to a particular customer and therefore the only tolls compatible with such a system are rolled-in tolls. IGUA, however, argued that the existence of operational integration cannot, in and of itself, preclude the adoption of a tolling methodology other than the fully rolled-in method.

TransCanada argued that the new facilities would provide increased system efficiency, operational flexibility and reliability for the integrated system and thus benefit all system users. This point was advanced by all parties arguing in favour of rolled-in tolls and there was general agreement from IGUA, the CPA, and Consumers' that the new facilities would provide some benefits to the integrated system. However, they argued that the additional benefits are either not required or not worth the additional cost.

TransCanada acknowledged that the prospective benefits to existing shippers would not equal the costs.

2.2.8 Consistency with Deregulation and Free Trade

Many parties supporting rolled-in tolls argued that the process of deregulation, as embodied in the 31 October 1985 Agreement on Natural Gas Markets and Prices ("the Agreement"), envisaged greater access to markets as a trade-off for deregulated gas prices. PanCanadian pointed to the wording of the second paragraph of the Agreement as Support for this position:

"Access will be immediately enhanced for Canadian buyers to natural gas supplies and for Canadian producers to natural gas markets ...."

A view commonly held by proponents of rolled-in tolls is that incremental tolls are a barrier to trade. Trans Quebec & Maritimes Pipeline Inc. ("TQM") argued that the imposition of higher tolls on new shippers wishing access to an existing shipper's market, as contemplated under the CPA or Consumers' proposals, would constitute an artificial regulatory barrier for new shippers while at the same time conferring a competitive advantage upon the existing shipper.

In contrast, the CPA argued that, as the utilization of the pipeline changes, so should the terms of access. According to the CPA, an incremental toll would more closely reflect the price of transportation which would emerge in a competitive market and, hence, would be more compatible with a deregulated market for gas than the rolled-in toll methodology.

IGUA argued that producers seeking access to a new market area have no right to obtain access at the expense of other tollpayers. In its view, incremental tolls would require participants in the market to pay the full cost of transporting gas to the market.

Many parties, GMi in particular, argued that the Agreement did not contemplate the deregulation of transportation, nor should the Board adopt a proposal such as the CPA's which would require that the Board withdraw from regulating transportation.

Consumers' held that the scope and impact of the changes resulting from deregulation were not known at the time of the 31 October 1985 Agreement.

The proponents of incremental methodologies maintained that their proposals were congruent with the Free Trade Agreement ("FTA"). Their views were consistent with the view expressed by General Chemical that it failed to see how the FTA could be construed to require existing shippers to subsidize gas consumers in export markets. IGUA argued that its methodology would not contravene the FTA because its reasons for proposing different treatments were founded on a principled basis, not nationality. It also advanced the idea that with the advent of the FTA, the doctrine of reciprocity should be given more importance. In this regard it maintained that in the U.S., different traffic, such as that to the U.S. northeast, would attract incremental tolls. Union argued that its proposal would not contravene the FTA because it proposed no differentiation in treatment based on nationality, it promoted the movement toward a new market and could not result in the imposition, but rather the negotiation of a higher price. On the other hand, proponents of rolled-in tolls took the view that rolled-in tolls are congruent with the FTA, but that the incremental proposals are not because they are directed primarily at the export market. PanCanadian argued that incremental tolls would contravene article 902, paragraph 4, of the FTA to avoid "... undue interference with or distortion of pricing, marketing and distribution arrangements in the other Party".

2.2.9 Price Signals and Economic Effiecincy

Several parties argued that the economic efficiency implications of alternative toll methodologies should be a relevant criterion in choosing the appropriate toll methodology.

The discussion on economic efficiency considerations was largely expressed in terms of choosing a toll methodology which would send the correct price signals to shippers on the system.

Most parties who commented on the issue agreed that economic efficiency would be attained if shippers were charged a toll which reflected the real marginal cost of providing incremental service on TransCanada; i.e., a toll which reflected marginal cost would send the correct price signal to shippers. Parties agreed, however, that it would not be possible to charge a marginal cost toll to all shippers because marginal cost exceeds the rolled-in toll and, consequently, TransCanada would over-recover its cost of service. Therefore, a choice must be made between various "second best" options. In general, the choice would be between rolled-in tolls and some form of incremental tolls.

Many parties agreed that, if the rolled-in toll understated the marginal cost of expansion, it would send an incorrect price signal to shippers and, hence, it would not lead to the economically efficient result. It was argued that shippers would respond to this toll by selling more gas into markets served by TransCanada than if they had to pay a toll which reflected the real incremental cost of service. The concern expressed by some parties was that this could result in uneconomic expansions of the TransCanada system.

The CPA and Consumers' argued that an incremental toll methodology would be more efficient than the rolled-in toll methodology because it is more important that shippers who are contemplating new sales see the correct price signal than for existing shippers to be charged the correct price signal. Their reasoning was that shippers who are already committed to long-term gas transportation and sales contracts cannot change past decisions in response to changes in tolls. Shippers will only be responsive to the level of tolls at the time they are making a decision on whether or not to enter into new sales agreements. Therefore, the CPA and Consumers' maintained that considerable efficiency gains could be obtained by charging some form of incremental toll for all incremental shipments because the shippers would be very sensitive to the toll charged. At the same time, the fact that the toll charged for existing sales would be further from marginal cost than the rolled-in toll would not result in any significant efficiency losses on these sales because existing sales would be insensitive to changes in the tolls.

IGUA argued that an incremental toll should be charged for sales to the U.S. northeast market in order that shippers better see the real costs of accessing this market.

Most parties who supported the continuation of the rolled-in toll methodology disagreed with the CPA's and Consumers' claim that an incremental toll would lead to more economically efficient results than would occur under rolled-in tolls, but only PanCanadian and TransCanada submitted extensive evidence on this issue.

PanCanadian and TransCanada agreed that, if there were significant differences between the price sensitivity of demand in different markets, economic efficiency could, in theory, be enhanced by charging a toll closer to marginal cost in the more price-sensitive markets. TransCanada also stated that, in cases where an expansion included a larger proportion of proposed sales to an export market than the existing volumes being sold in that market, as is the case for this application, efficiency gains could theoretically be obtained by charging an incremental toll for all incremental sales. However, for a number of reasons, both PanCanadian and TransCanada argued that, in practice, rolled-in tolls would be more efficient.

First, they noted that to enhance economic efficiency by charging different tolls to different market segments, one must estimate the relative price sensitivity of demand in the various markets and then match the tolling scheme to these differing elasticities. Given that demand elasticities are difficult to measure and that they change over time, PanCanadian and TransCanada both suggested that it would be most unlikely that a correct matching could be obtained. They also noted that demand is likely more price-sensitive in industrial markets than in residential and commercial markets, but there is no reason to believe that demand is, on average, more pricesensitive in the export market than in the domestic market. Thus, any scheme which proposed charging an incremental toll for all new sales, regardless of the market to be served, would not likely result in enhanced efficiency.

Secondly, TransCanada and PanCanadian both argued that incremental tolls could distort endusers' decisions to use natural gas or alternate fuels. Further, existing shippers who had access to transportation capacity at the lower rate could profit by selling this space through unapproved brokering on a "black market". In addition, charging more than one price for the same service would not be compatible with the principles of a competitive market.

Finally, PanCanadian argued that, if one believes that the applied-for facilities will be fully utilized for their useful economic life, the rolled-in toll is a good approximation of the levelized incremental toll. Therefore, PanCanadian was of the view that, for this application, the rolled-in toll will send the appropriate price signal to all shippers on the TransCanada system.

2.2.10 Practicality, Stability and Administrative Simplicity

In terms of practicality and administrative simplicity, TransCanada argued that alternative toll methodologies would be significantly more complex. It noted that a proper incremental toll is not calculated on the basis of only an incremental rate base, but rather on the basis of an incremental analysis of each distinct component of the cost of service. It believed that the administrative complexity of incremental tolling methodologies would increase over time. GMi argued that the difficulty of calculating the "b-factor" would make the Consumers' proposal unworkable. ProGas argued that the IGUA separate rate base proposal would lead to difficulties in determining which rate base applied to which volumes. There were also general concerns about the need for longer, more complex hearings and the difficulties posed for prospective shippers in forecasting their probable costs. Proponents of incremental methodologies argued that, in fact, none of the alternative methodologies presented to the Board involved the level of complexity envisaged by TransCanada.

From an historical perspective, TransCanada and Canadian Hunter Exploration Ltd. ("Canadian Hunter") pointed out that tolls have been set on a rolled-in basis for 32 years and that the Board has upheld this methodology in several prior decisions including rate cases in 1973, 1974, its 1981 decision to roll in TQM costs, and most recently in GH-2-87. Others, including Natural, argued that most of this history is not particularly relevant since the Board has actively regulated tolls only since 1973 and that prior to 1985, prices were administered. It was argued that the question of toll methodology has had significance only in the past five years.

GMi suggested that stability is an important objective of toll design because historical precedent is an important factor in guiding parties' investment decisions. It argued that, if the Board adopts a new tolling methodology, it should have some prospect of meeting the same the Board adopts a new tolling methodology, it should have some prospect of meeting the same test of time. It was argued that consistency in regulatory decision-making can add value to Canadian gas exports and New England Power Company ("NEPC") stated that the history of regulatory stability was one of its reasons for seeking a Canadian gas supply.

2.3 Views of the Board

The Board does not agree with those submittors who argue that the size of this particular proposed expansion is a circumstance justifying a change in toll methodology. With regard to cost, the Board notes TransCanada's submission that to rebuild the existing pipeline system at today's costs using current technology would cost approximately $10.3 billion. In this context, the Board does not consider the proposed 25 percent increase at a cost of $2.6 billion for a 19 percent increase in capacity to be exceptional. The pipeline system has experienced relatively constant growth since its inception over thirty years ago and this increase is seen as a normal result of the continuing growth of the natural gas industry in Canada.

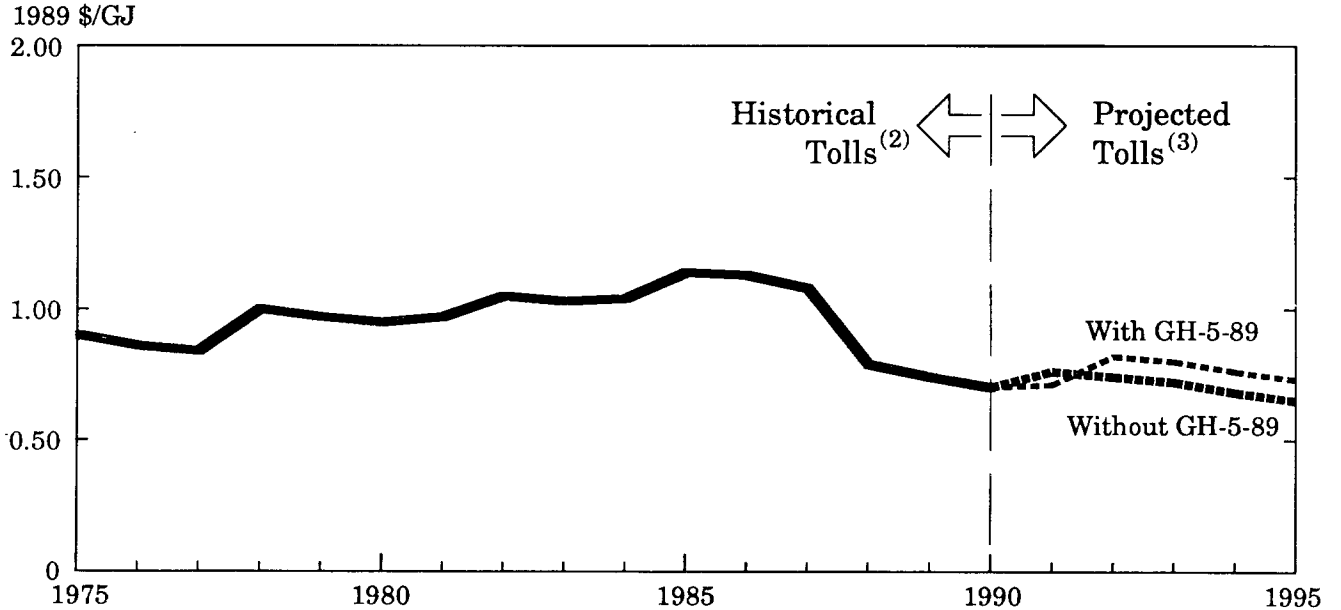
With respect to the cost to shippers, the Board notes that the forecast 1993 Eastern Zone toll will increase by $0.10/GJ over the toll without the expansion and that in comparison to the current 1990 toll of $0.73 the increase will be $0.24 or 33 percent. However, when compared to the historical toll for the Eastern Zone of $0.989/GJ set in July 1987, the forecast 1992/93 toll of $0.97/GJ is actually somewhat lower even without adjusting for the effects of inflation.

In this regard, the Board believes it is more appropriate to compare historical tolls in constant dollars. Figure 2-2 (next page) shows the level of the Eastern Zone toll at 100 percent load factor since 1975 in constant 1989 dollars. It can be noted that even with the toll impact of the proposed GH-5-89 facilities included, the toll in 1995 would be lower in real terms than it was two decades ago.

The Board considers that the effect of alternatives to the current toll design methodology which were presented by intervenors is to shield existing shippers from some or all of the additional costs associated with the new facilities.

In this regard, the Board agrees with those who submitted that the payment of tolls confers no future benefit on tollpayers beyond the provision of service. In other words, previous tollpayers have no acquired rights. Therefore, they cannot expect to be exempted from a toll increase simply

Figure 2-2: Historical and Projected TransCanada Tolls[1] to the Eastern Zone



Notes:

(1) Tolls at 100% load factor, excluding fuel, expressed in constant 1989 dollars.

(2) Consumer Price Index from Statistics Canada.

(3) Inflation between 1990 and 1995 assumed to be 5% p.a.

because they have paid tolls in the past. In this proceeding parties have not laid claim to any acquired rights, *per se.* Rather, the proponents of alternative toll methodologies have asserted that the sheer size and cost of the proposed facilities together with the impact on tolls and the nature of the market to be served, are unique circumstances which justify some level of toll protection for the existing shippers. While factors such as the size, cost or impact on tolls of the proposed facilities may be relevant to the Board's decision on whether to authorize the construction of facilities, they do not in this case justify discriminating among shippers on the basis of when they commenced, or will commence, paying tolls and receiving service.

Both the CPA proposal for a capital contribution and the Consumers' proposal for a demand surcharge make a distinction based on vintages of shippers. This implies the existence of certain rights for existing shippers which, in the Board's view, they do not have. In addition, the requirement of a capital contribution or a demand surcharge would serve as a barrier to entry for new participants in the marketplace, would limit competition and would give existing shippers an undue competitive advantage.

Similarly, though the Board will examine market characteristics when considering the economic feasibility of the proposed facilities, it does not consider that shippers to the U.S. northeast market should pay a different toll merely because they are shipping to that market.

The IGUA proposal to treat the portion of the new facilities required to serve exports to the U.S. northeast as a separate rate base depends partly
upon the notion of the U.S. northeast as a new, regionally distinct market relative to TransCanada's current domestic and export market. The Board does not view the U.S. northeast market to be new since Canadian gas has been flowing to that market since 1984, nor to be a distinct market relative to Ontario, Quebec, or U.S. midwest markets. All markets have their own individual characteristics but the Board fails to see any features in the U.S. northeast market which would require a distinct toll treatment on the TransCanada system. To consider the new facilities to the U.S. northeast as the equivalent of a separate pipeline would be a denial of the realities of the integrated system. The facilities cannot be physically separated.

In the Board's opinion, when the new facilities are completed they will become an integral part of TransCanada's pipeline system and will not be associated with or dedicated to any individual shipper's gas. While it is possible to notionally associate the cost of certain facilities with certain gas volumes, it would not be a true reflection of how the Board views the way the system operates.

Given the Board's views on the characteristics of the U.S. northeast market as they are relevant to toll methodology and on the integrated nature of the system, it would not be appropriate to authorize the use of flexible tolls only for certain volumes.

With regard to the debate as to who caused the need for the new facilities, the Board is persuaded by the argument that it is the aggregate demand of all shippers that gives rise to the need for additional pipeline capacity.

Since the deregulation process began in 1985, the Board has brought about many changes to

TransCanada's tariff to implement open access to the pipeline. Tolls that are just and reasonable and non-discriminatory will, undoubtedly, have contributed to this process. However, the Board does not believe that facilitating the deregulation process, *per se*, is a legitimate consideration for toll methodology.

Given the information and data-processing technology available today, simplicity in toll design is not as important a factor in the administration of tolls as it once was. Nevertheless, the ease with which a toll methodology can be understood and the practical problems of administration are factors which the Board considers.However, theBoard did not reject any of the proposals before it on the basis of impracticality or lack of simplicity.

With respect to arguments about the economic efficiency aspects of alternative toll methodologies, the Board agrees with the CPA and Consumers' that there is some theoretical support for the idea that charging an incremental toll to the most price-sensitive customers served by TransCanada would achieve economic efficiency results superior to those that would be obtained under rolled-in tolls. The Board also agrees with the CPA and Consumers' that it is likely that the price sensitivity of demand for transportation service on TransCanada of shippers who are currently committed to longterm transportation and sales contracts is less than the price sensitivity of demand of shippers who are contemplating new sales.

However, the Board also agrees with PanCanadian and TransCanada that, in practice, it would be very difficult to assign incremental tolls only to the most price-sensitive markets. The Board notes that there are no data available on the relative price sensitivities of demand in the markets served by TransCanada. Further, the Board is of the view that shippers who are renewing their contracts and industrial gas users in the domestic market may be equally sensitive to the toll charged on TransCanada as are new shippers. None of the proposals for incremental tolls suggested that an incremental toll be charged to industrial users on short-term contracts nor that an incremental toll be charged to renewals. Finally, the Board notes that there was no empirical evidence submitted which demonstrated that an incremental toll methodology would yield economic efficiency improvements over the rolled-in toll methodology.

In summary, the Board is not persuaded that the implementation of any of the proposed incremental toll methodologies would yield significant economic efficiency improvements over the rolled-in tolling methodology.

Decision

All facilities, either approved under section 52 or exempted under section 58 of the Act in this proceeding, will be rolled in to TransCanada's rate base for toll purposes.

Chapter 3

Economic Feasibility

3.1 Views of Interested Parties

Section 52 of the Act lists economic feasibility as one of the factors the Board may consider relevant in determining whether proposed pipelines are required by the public convenience and necessity. In previous hearings the Board has taken a number of factors into account in assessing whether applied-for pipeline facilities were likely to be economically feasible, including evidence on supply, markets, contracts underpinning the application, and the projected impact on tolls. The views of parties to the GH-5-89 proceeding as to what constitutes the appropriate components of an assessment of economic feasibility fall into three groups.

One group suggested that the Board assess the economic feasibility of proposed facilities by having regard to a broad range of factors which would have an impact on the likelihood of the facilities being used at a reasonable level over their economic life and the consequent likelihood of the demand charges being paid.

Other parties to the proceedings agreed that it would be necessary for the Board to have regard to these factors, but argued that a determination that the facilities would likely be used at a reasonably high load factor and that the demand charges would be paid was insufficient to establish economic feasibility. They argued that, under the rolled-in toll methodology, shippers may pay a toll which fails to reflect the real incremental cost of service and, consequently, there is a need for an additional test of economic feasibility. In essence, these parties were arguing that a pipeline expansion that would appear to be feasible under the rolled-in toll methodology might not be feasible if the shippers had to pay a toll which reflected the real incremental cost of firm transportation service on TransCanada.

These parties were split into two groups on the proposed solution to this perceived problem. Some argued that the solution would be to retain rolled-in tolls but to apply a quantitative test of economic feasibility to proposed pipeline expansions. Others argued that it would be preferable to implement an incremental toll which would more closely reflect the real incremental cost of providing service as a test of economic feasibility.

The views of parties on these three approaches to economic feasibility are summarized below, followed by the views of the Board.

3.1.1 Factors Relevant to an Assessment of Economic Feasibility

Many of the intervenors, including parties who were in favour of, and others who were opposed to adoption of a quantitative test, argued that economic feasibility should be assessed from a number of perspectives, and listed the factors that should normally be considered.

TransCanada recommended that in making a determination of economic feasibility the Board take into account the following elements:

(i) whether there is a long-term market to be served by the pipeline;

(ii) whether there is sufficient long-term gas supply to serve the market;

(iii) the status of the underlying contracts and financial assurances;

(iv) the possibility of competition from other pipelines and other energy sources;

(v) a comparison of the expansion costs to the real cost of the existing system adjusted for inflation, depreciation, and advancements;

(vi) the existence of industry support;

(vii) the existence of a divergence between the rolled-in toll and long-run marginal cost; and

(viii) in cases where there is a divergence, whether the incremental revenues from the delivery of gas to the expansion market recover the costs of the expansion and provide the sellers of gas with a market-based return.

Enserch supported TransCanada's submission on economic feasibility.

ProGas argued that, in addition to a test of economic feasibility, the Board should also have regard to gas supply, sales contracts, the market, regulatory approvals in other jurisdictions, upstream and downstream transportation arrangements, and any other matters the Board may determine to be relevant. IPAC agreed that the Board should have regard to supply, reliability of markets, the contracts underpinning an expansion, and environmental considerations. The APMC viewed its test as coming under an "umbrella" of factors including gas supply, markets, financial assurances and contractual commitments.

WGML stated that the appropriate approach the Board should take to evaluate the economic feasibility of pipeline expansions is to determine whether the entire system would, over a relatively long term, be used and useful and contracted for at a reasonable level, given the rolled-in toll that would result from the proposed expansion. To do this the Board should have regard to the adequacy of long-run gas supply, the strength of the markets to be served, and the possible alternatives to gas delivered through the TransCanada system, such as alternative energy sources and alternative gas supplies. WGML indicated that the Board should also have regard to any other factors that might have an impact on the likelihood that the system would remain used and useful over time.

In addition to its proposed economic feasibility test, AEC recommended that the Board assess both the contractual commitments of the shippers and the risk that the facilities would be used and useful. For the risk assessment, AEC recommended that the Board review projects to ensure that the supply and market for the gas are reasonably secure and that satisfactory financial assurances are in place. Based on this information, and a consideration of market and supply fundamentals, the Board would make a judgement as to the likelihood that the facilities would be used over their useful life.

GMi recommended a two-prong procedure be adopted by the Board to determine economic feasibility. The two questions to be asked would be:

a) will the facilities be used? and

b) will the demand charges be paid? In answering the first question, GMi recommended that the Board have regard, *inter alia,* to:

(i) the term of the proposed transportation contracts;

(ii) the nature of the market;

(iii) the likelihood that the market will take the forecast volumes;

(iv) the ability of the Canadian market to absorb unutilized capacity;

(v) competition from other pipelines;

(vi) previous experience with the markets; and (vii) evidence on gas supplies.

To answer the second question, the factors the Board should consider include, *inter alia:*

(i) the firmness of the transportation contracts;

(ii) regulatory risk;

(iii) the ability of sponsors to pay demand charges;

(iv) the ability of TCPL to absorb non-payment of demand charges; and

(v) distributional effects.

Finally, GMi stated that the Board should also assure itself that facilities will be in the public interest.

PanCanadian advocated the adoption of an economic feasibility test and also recommended that, to assist the Board in establishing whether the applied-for facilities remain used and useful, the Board should consider, *inter alia:*

(i) the financial assurances provided by each shipper;

(ii) the adequacy of gas supplies;

(iii) the length of the sales and transportation agreements;

(iv) the strength and durability of the market being served; and

(v) the ease of access to alternative fuels or gas supplies through other transportation systems and the economics of accessing these alternatives.

IGUA noted that many intervenors suggested that the Board consider industry and contractual support for the purposes of determining economic feasibility. However, in its view, industry and contractual support that is conditional on the maintenance of the rolled in toll methodology ought to be regarded as conclusive evidence that projects lack economic feasibility.

Some intervenors argued that the impact of a proposed facilities expansion on TransCanada's tolls should be a relevant factor in assessing the economic feasibility of an expansion. IGUA, the Canadian Chemical Producers' Association ("CCPA") and ICI stated that contracts to serve domestic markets are typically add-on pricing contracts whereas most export sales contracts involve netback pricing. Hence, although producers may bear the brunt of the impact of toll increases with respect to export sales, in the domestic market it is domestic gas consumers who will bear the brunt of any toll increases. Consumers' expressed the view that both existing export customers and existing domestic customers will normally be most adversely affected by a facilities expansion that results in an increase in tolls and that these distributional impacts should be considered by the Board in determining whether or not proposed facilities are economically feasible. IGUA stated that regardless of the type of economic feasibility test adopted, the transmission of costs to third parties not directly associated with an expansion ought to be minimized.

These parties argued that if the toll impact associated with a facilities application is found to be too great, the application could be found not to be economically feasible. However, as discussed in Chapter 2, in their view it would be preferable to implement a toll methodology which would limit or minimize the impact of toll increases on existing shippers.

TransCanada and IPAC agreed that distributional effects should be considered in assessing the public interest of an expansion but they argued that this criterion should not be confused with the issue of economic feasibility. They argued that, while the two issues are related, they should be dealt with separately. TransCanada maintained that in assessing the distributional impacts of a facilities application, the Board should also consider positive distributional impacts, such as the displacement of alternative fuels as a result of increased gas sales and the multiplier effects of pipeline expansion and upstream investments on regional employment, income and government revenues.

AEC and PanCanadian agreed that the toll impact on existing shippers is a legitimate concern; however, they argued that it is not the Board's role to redress distributional impacts and if there were some concern about existing shippers not being able to pay higher tolls, then the federal government should directly subsidize these affected shippers. WGML rejected the notion that cross-subsidization and distributive effects exist because this argument depends fundamentally on the idea that existing shippers have acquired rights to existing capacity. WGML argued that the impact of a facilities expansion on the level of tolls would only be relevant to a determination of economic feasibility to the extent that increased tolls might cause existing users to leave the

system. In other words, in making an assessment of whether applied-for facilities would be economically feasible, the Board would have to consider the effect of increased tolls on the demand for transportation service.

3.1.2 A Quantitative Test of Economic Feasibility

(i) Quantitative Tests Proposed

The parties who supported the adoption of a quantitative test of economic feasibility included AEC, ANE, the APMC, Canadian Hunter, IPAC, PanCanadian and ProGas. A number of parties, primarily members of IPAC, submitted letters of comment in support of IPAC's position, which included the adoption of a quantitative test. Only AEC, the APMC, IPAC and ProGas proposed specific analytical economic feasibility tests, the intent of which would be to evaluate the economics of proposed expansions from the overall viewpoint of the gas producing sector.

In addition, Union proposed a three-part test which would evaluate the economics of a proposed expansion from the viewpoints of both TransCanada and the general public.

The arguments put forth by the proponents of the suggested tests are summarized below, followed by the comments of other intervenors.

AEC

AEC recommended that the Board adopt a Market-Based Procedure ("MBP") to facilitate the balancing of transportation supply and demand while ensuring that the risk of pipeline overexpansion is minimized and that TransCanada's tolls remain just and reasonable. AEC's MBP is composed of various tariff recommendations and an analytical economic feasibility test. With regard to the tariff provisions, AEC advised that only contracts with a minimum ten-year term should be used to justify an expansion because those contracts provide the "essential underpinning for the financing of pipeline expansions." Further, there should be no automatic renewal rights for existing shippers and short-term contracts should be limited to a maximum twoyear term so that they would expire within the approval and construction cycle for new facilities. AEC also argued that, to further reduce the risk of over-expansion, TransCanada should be required, at the time of a facilities application, to release existing shippers from their firm service contracts if they no longer desire to maintain their capacity.

As a test of economic feasibility, AEC proposed that a notional netback be calculated, based on a three-year average of the contract gas prices less a normalized toll based on TransCanada's full-cycle expansion costs and the NOVA Corporation of Alberta ("NOVA") delivery demand charge, and that this netback be compared to the three-year average intra-Alberta spot price of gas in order to determine whether a particular gas sales contract was economically viable. The three-year average contract price would be based on what the gas price would have been if the gas sales contract had been in force in the year prior to the application, what the price would likely be during the application year and an estimate of what the price would be in the next year. Similarly, the estimate of the three-year average of intra-Alberta spot prices would be based on

the average of the most recent year's spot price plus the projected spot prices for the application year and the following year.

AEC argued that the Board should adopt an economic feasibility test based on current prices and costs to avoid the difficulties associated with forecasting and selecting discount rates for

present value calculations. AEC stated that its test is intended to help the Board determine whether general market conditions support the construction of new facilities at the time of the expansion.

AEC also argued that, because of transportation constraints, the spot market is currently the only alternative market available for producers who are looking to make incremental sales. Furthermore, if expansions do not occur, the spot price will remain the best indicator of the opportunity value of uncontracted gas reserves for a long time. Therefore, it is AEC's view that the intra-Alberta spot price is the most appropriate measure of the opportunity cost of gas to producers.

AEC acknowledged that the use of its test might not be appropriate in cases where the terms of a gas sales contract could not be expected to track average gas market prices over the life of the contract. This might be the case, for example, for contracts which involved lump sum up-front cash payments to the seller or for contracts where the gas price was tied to fixed escalators. AEC recommended that in these cases an "equivalent present value market price" be used for estimating the average contract price over the first three years of the contract. The equivalent present value market price calculation would adjust the Board's forecast of gas prices by the ratio of the net present value of the applicant's forecast contract revenues to the net present value of the project's revenue calculated as if it had received the Board's gas price projections for that market. AEC suggested using TransCanada's before tax return on rate base as a discount rate for net present value calculations.

AEC stated that its proposed test is not intended to be adopted as a pass/fail test and is only intended to be one of the factors the Board should take into account in its facilities approval process. It is AEC's view that an economic feasibility test should only be used as a temporary or transitional measure to impose economic discipline on TransCanada so long as TransCanada remains a monopoly provider of transportation. As the level of competition increases between pipelines, the need for applying an economic feasibility test will diminish.

AEC stated that it would not be possible for the
Board to use the proposed MBP in its entirety at this time. Specifically, it would be difficult to require contracts which had recently been or were about to be renewed to be renegotiated to a minimum 10-year term within the time-frame of the GH-5-89 proceeding. However, AEC noted that the Board should apply the economic feasibility test per se, and should conduct a risk analysis. AEC also stated that, although it preferred its own test, it was of the view that the APMC's proposed test of economic feasibility was the next best alternative.

APMC

The recommended tests of economic feasibility submitted by the APMC, IPAC and ProGas were similar in structure and focus in that they all proposed discounted cash flow analysis techniques be used to estimate whether new gas sales would be economically viable from the overall viewpoint of the gas producing sector. The APMC's proposal was the most developed and it included sample calculations for each of the projects underpinning the proposed GH-5-89 expansion. The APMC agreed with several other intervenors that, with rolled-in transportation tolls, uneconomic expansions of TransCanada's system could occur. The APMC therefore suggested that the Board adopt its Market-Based Economic Evaluation ("MBEE") as an economic feasibility test to be used to help ensure that the TransCanada system continues to be a viable transportation option and that proposed new facilities will be used and useful.

The MBEE would consist of a discounted cashflow analysis which would compare the present value of the incremental gas sales revenue at the city gate for domestic sales and at the export point for export sales, against the present value of the increased pipeline cost of service and the present value of all additional production-related costs, such as lifting and processing costs and royalties. The APMC also suggested that the asset value of gas in the ground be included as one of the production-related costs. According to the APMC, the value of gas in the ground measures the cost of either replacing gas that is produced or the opportunity value of the gas if it were sold in some other market.

The APMC suggested that the value of gas in the ground be determined on the basis of market observations, such as the value at which reserves are sold or the value of reported mergers and acquisitions. The APMC commissioned Coles Gilbert and Associates Ltd. ("Coles Gilbert") to prepare a study estimating gas reserve values.

The study by Coles Gilbert analysed transactions valued at $1.8 billion during 1989. The average price at which gas reserves were sold was estimated to be $0.52 per Mcf, ranging from a low of $0.29/Mcf to a high of $0.91/Mcf. Coles Gilbert indicated that this range reflects the different circumstances surrounding reserves sales. It was of the view that factors such as the gas composition, the proportions of proved or probable reserves and the quality of the reserves as affected by lifting costs, royalties, or the extent to which the reserves have been developed, can generally be easily determined. Other factors, such as the impact of the buyer's or seller's tax position on the transaction price are difficult to evaluate, and Coles Gilbert suggested that transactions thought to be driven by tax considerations be excluded when estimating average reserve prices. The CPA suggested, and Coles Gilbert agreed, that reserve values also depend on factors that cannot always be readily determined. Such factors include the price projections made by the transacting parties and the contractual provisions under which gas reserves are sold. However, Coles Gilbert stated that an average reserve value would reflect the industry's overall assessment of the factors which influence the value of gas in the ground. The APMC suggested that, if necessary, the Board could convene a technical conference to determine the industry average value for gas reserves.

Coles Gilbert also testified that average reserves values should be close to industry finding costs. If companies could consistently find gas for less than the price at which gas reserves were sold, companies would wish to sell gas reserves. Conversely, if gas reserves were consistently sold below finding cost, companies would wish to buy reserves rather than explore for new reserves.

To be consistent, the APMC recommended that industry average estimates for lifting and processing costs and royalties also be used in the MBEE.

The APMC suggested that the prices specified in the gas sales contracts, and thus also the revenues from gas projections, be estimated by adopting a consistent set of energy price projections. As an example, the APMC mentioned that the energy price projections from the high and low oil price scenarios in the Board's 1988 Supply/Demand report could be used for this purpose. The APMC recognized that the energy prices used to estimate the prices specified by the gas sales contracts, and the price expectations underlying the average in-situ value of gas in the ground would generally not be consistent. However, the APMC testified that the two sets of price projections can be made consistent for purposes of the analysis if a discount rate is determined at which the present value per unit of gas in the ground as determined by the energy price projections, equals the average value of gas in the ground as observed in market transactions. The APMC suggested that this discount rate be used as a reference or hurdle rate in the MBEE.

To apply the MBEE, the internal rate of return from the project would be estimated, treating city gate or export revenues as cash inflows and the increase in the pipeline's cost of service, royalties, production costs, and the value of gas in the ground as cash outflows. A project would pass the test if the internal rate of return were not significantly less than the previously determined reference or hurdle rate.

The APMC suggested that the MBEE be applied on a contract-by-contract basis for all long-term transportation contracts. It was of the view that it would not be appropriate to apply the test to renewals in the current proceeding but that, in principle, the test should be applied to renewals. It suggested that this issue could be examined in future facilities hearings. The APMC also indicated that the test assumes that the new facilities will be used and useful beyond the end of the transportation contracts. It suggested that the Board would have to examine whether the facilities would in fact be viable after the initial transportation contracts expire. Finally, the APMC recommended that the MBEE be considered as an important indicator of the economic feasibility of requested new transportation facilities but that it not be adopted as a pass/fail test.

In summary, the APMC argued that the MBEE is the most appropriate means for ensuring that the required capital investment for the new facilities is justified in light of prevailing and expected natural gas market conditions because the MBEE framework is anchored to the market and embodies the perspective of the gas producing sector.

IPAC

IPAC stated that an economic feasibility test is required because rolled-in tolls do not send the appropriate price signals to shippers on the TransCanada system. IPAC proposed that the Board adopt a discounted cash flow analysis which would evaluate the incremental revenues and incremental costs associated with the proposed natural gas sales which are associated with a facilities application.

The incremental revenues would be the total additional natural gas sales revenues which support

the required increased capacity measured at the city or plant gate for domestic sales or at the export point for export sales. The incremental costs would include the change in the transportation cost of service of all upstream pipelines as well as any additional costs associated with increased processing requirements. Unlike the APMC's proposal, IPAC's test would not include an allowance for the replacement cost or reserve value of the gas. It was IPAC's position that, when evaluating the economics of a sales project, reserves will already have been acquired and, therefore, these costs are sunk costs. IPAC concluded that it would be inappropriate to include a gas reserve value in the analysis.

It was IPAC's view that the discount rate used in the analysis should reflect the private opportunity cost of capital. As a proxy for this, IPAC recommended using TransCanada's overall rate of return on rate base.

IPAC acknowledged that the effect of its test would be to set a minimum price which individual gas sales contracts must meet or exceed in order to pass the test. However, IPAC noted that all of the proposed economic feasibility tests ultimately determine a hurdle rate or a minimum price which a project should pass in order to be deemed acceptable for inclusion in an application for

expansion. IPAC recommended that its proposed testnot be adopted as a pass/failtest but asonly one of the components that the Board would use in its assessment of a facilities application.

ProGas

ProGas proposed an Economic Feasibility Assessment ("EFA") which would adjust the private revenue and cost streams of each sales contract to include the full incremental transportation costs. ProGas explained that the EFA is intended to evaluate the costs of transportation from a social perspective, rather than a private perspective, in order to compensate for the market failure associated with rolled-in tolls.

The revenues incorporated in the EFA would include a forecast of gas sales revenues measured at the international border for export service or at the city or plant gate for domestic service, plus a forecast of the revenues earned from the sale of by-products at gas processing plants. Incremental transportation costs, incremental field production costs and provincial resource payments would be subtracted from the estimated revenues to derive the before-tax return on each project. ProGas recommended that the incremental capital and non-fuel pipeline operating costs incurred over the term of the sales contract should be shared on a *pro rata* basis by all new and renewing shippers. A credit would then be applied to the incremental transportation costs to recognize that future expansion costs would have been avoided.

The EFA would not explicitly include a measure of the opportunity value of gas. ProGas noted that there was considerable uncertainty as to the calculation of this value. By not including a reserve or opportunity value in the analysis, ProGas argued that the EFA avoids the difficulties, as noted by the Board in its GHW-489 Decision, associated with estimating gas reserve values. ProGas stated that the test would allow interested parties to the hearing to assess the relative economic feasibility of alternative gas sales contracts. It suggested that the Board hear evidence on the determination of the appropriate value for the opportunity cost of gas. Then the before-tax

return on the gas sale, as described above, could be compared to the opportunity value in order to determine whether or not a project were economically feasible.

ProGas stated that the EFA should not be adopted as a pass/fail test but should only be regarded as another tool the Board would use in fulfilling its obligations under section 52 of the Act. ProGas stated that supply and markets, as well as the phase of pipeline expansion, and the distributional impacts of a pipeline expansion are among the factors that the Board should take into account in assessing the economic feasibility of a proposed expansion.

Union

Union proposed a "Three-Stage" approach to assess the economic feasibility of the proposed system expansion. The first stage of the analysis would be a discounted cash flow analysis conducted from TransCanada's perspective. If the present value of the cash inflows exceeded the present value of the cash outflows, the project would be considered to be economic from a private perspective and no further economic test would be required. If the net present value were negative, the second stage of the analysis would quantify other benefits and costs accruing to the public as a result of the project. A judgement would then be made as to whether the net benefits identified in the second stage were sufficient to cover any negative results realized in the first stage. Finally, the third stage would identify any other significant non-quantifiable benefits or costs such as security of supply or environmental impacts. Union suggested that its test is both flexible and comprehensive and provides a logical framework within which to consider the range of factors which, in its view, could prove awkward and unwieldy in other tests.

ICG Utilities (Ontario) Ltd. ("ICG (Ontario)") agreed that Union's proposed three-part analysis would be a reasonable tool to assist the Board in assessing the economic feasibility of proposed expansions of the TransCanada system under section 52 of the Act.

(ii) Views of Other Parties on a Quantitative Test

Although many other parties commented on the merits of adopting a quantitative test of economic feasibility, PanCanadian, TransCanada and the CPA made the most extensive remarks. Their views are summarized below, followed by the comments of other parties to the hearing.

PanCanadian argued that a test of economic feasibility could be required if administered tolls differed significantly from the true marginal cost of providing incremental transmission capacity. If this were the case, PanCanadian agreed with the parties who proposed economic feasibility tests that private decisions based on these tolls would not produce the optimal resource allocation associated with competitive markets. However, PanCanadian noted that with respect to the present application, the initial year's rolled-in toll would be approximately equal to the marginal cost of expansion. Accordingly, in PanCanadian's, view there is no need for an economic feasibility test to be applied to the facilities proposed in GH-5-89.

PanCanadian nonetheless urged the Board to adopt a test and apply it to the current expansion so as to acquire a track record for future applications where a significant divergence might exist between the rolled-in toll and the real marginal cost of expansion. It suggested that the Board

adopt a private cost-benefit analysis as a test of the economic feasibility of the proposed facilities. This test would be a discounted cashflow analysis which incorporated an estimate of the incremental gas and by-product revenues, an estimate of the direct incremental capital and operating costs, a measure of the replacement or "user" cost of gas, and the incremental transportation costs associated with the proposed gas sales and renewals underpinning the expansion. Although PanCanadian did not recommend a specific test, it did comment on the general principles and guidelines that should be followed when choosing an appropriate test of economic feasibility. It argued that the test should be logically consistent, have solid theoretical foundations and possess sufficient generality to be capable of being applied to facility expansions under a wide variety of conditions. Furthermore, the test should be capable of incorporating relevant market information, be easily understood, and rely on testable data. PanCanadian stated that, of the tests proposed in the GH-5-89 hearing, the APMC's proposal falls most closely within these parameters and is generally satisfactory to PanCanadian. It also stated that AEC's proposal was satisfactory, providing that emphasis is placed on the contracting provisions and risk assessment components of the proposal.

PanCanadian recommended that the adopted economic feasibility test be applied to those volumes of gas supporting a new facilities application as well as to all renewal volumes where contracts expire prior to the in-service date of the new facilities. It also stated that the economic feasibility test should only be considered as one component of the Board's overall assessment of economic feasibility.

TransCanada stated that a quantitative test of economic feasibility would only be required if the Board were convinced that, because of the maintenance of the rolled-in toll methodology, markets were not working efficiently in the area of transportation costs. TransCanada therefore suggested that the Board consider the need for a test of economic feasibility on a case-by-case basis.

If the Board were to adopt a quantitative analysis, TransCanada recommended that the analysis compare incremental revenues against incremental costs in order to estimate the resulting returns to the sellers of gas. This information would then be assessed in conjunction with a consideration of long-term gas supply, markets and contracts to assess the economic feasibility of the expansion. TransCanada also recommended that the benchmark rate of return should be market based, that the test be easily understood, that the test apply to both domestic and export expansions, and that it should only be one factor in the Board's assessment.

TransCanada argued that the test should be done on an aggregate basis rather than a contractspecific basis. In this regard, TransCanada noted that section 52(c) of the Act states that the Board may have regard to the economic feasibility of proposed pipeline facilities, not to the economic feasibility of the sales contracts of individual shippers. TransCanada noted that capacity can be assigned by shippers and, for this reason, an economic evaluation of individual gas sales may well not reflect the longer-term economic feasibility of applied-for new pipeline facilities.

TransCanada indicated that the tests proposed by the APMC and AEC could be useful for the purposes of analyzing the economics of a pipeline expansion, although it considered the fact that these tests analyse the economics of specific proposals to be an undesirable feature of the tests.

Finally, TransCanada noted that in its application it provided an estimate of the aggregate increase in producer revenue at the Alberta border net of incremental transportation costs. TransCanada stated that this information, combined with the incremental deliveries underpinning the expansion, would allow for a simple computation of the average netback at the Alberta border net of incremental transportation costs. TransCanada stated that, although this information in and of itself would not be useful in making a determination of economic feasibility, it could be compared to alternative measures of the opportunity value of gas. TransCanada stated that such a comparison would be similar to AEC's suggested test, except that the comparison would be done on an aggregate basis, rather than on a contract-by-contract basis.

The CPA criticized the economic feasibility test proposals on the following grounds. First, it is extremely difficult to take into account all relevant factors in such tests. Second, these tests would be applied only to incremental sales and not to existing sales. The CPA recognized that this is a common fault shared by its cost allocation procedure ("CAP') proposal but argued that, as such, both proposals implicitly recognize the "commonsense" notion that it is requests for additional transportation service, rather than existing sales, that are principally responsible for causing expansions of the transportation system.

The most serious technical problem with the proposals for an economic feasibility test, in the CPA's view, is the need to project a host of uncertain variables, and the inherent uncertainty of the future values of these variables. For example, the CPA argued that the results of the MBEE are uncertain and subjective, since the analysis relies on price projections, and since many of the factors that influence the value of gas in the ground are subject to debate. Some of the contractual provisions influencing reserve values may also be confidential. The CPA noted that the value of gas in the ground observed in market transactions reflects the future investment expenditures required before the reserves can be produced, and pointed out that such future investment expenditures are not included in the MBEE. Consequently, average reserve values observed in market transactions may not be compatible with average production costs; the CPA observed that the APMC did not check average reserves values and average production costs for consistency.

Given the uncertainty surrounding these values, it would be an extremely difficult task for the Board to arrive at definite conclusions about the economics of proposed sales "as if' an incremental toll were to be paid. More fundamentally, an economic feasibility test would put the responsibility on the Board for making final judgments about the values of these variables and for making judgements about the economics of individual gas sales. In the CPA's view, this would be inappropriate in a market-oriented framework because it would remove responsibility from the parties who will bear the consequences of these decisions. The CPA contended that it is more appropriate to send the correct price signals to shippers through an appropriate toll methodology and allow these parties to make the decisions which they believe are in their best interests.

Consumers' argued that, if the Board were to adopt a toll methodology that recovers the incremental costs from the new shippers or a surcharge proposal, there would be no need for a test of economic feasibility. However, if a test were required, Consumers' recommended that it include the full incremental cost of transportation. It argued that an economic feasibility test

should include estimates of the long-term opportunity cost of gas and that the use of market values as a measure of the asset value of gas in the MBEE is inappropriate if market values for reserves transactions reflect short-term industry expectations. In Consumers' view, none of the proposed tests properly address supply costs. Consumers' recommended that if the Board were to adopt a test, the Board should define the methodology to be used in determining the cost of long-term gas supply, having regard to the full costs of finding, developing, and producing longterm supplies.

IGUA testified that if its split rate base proposal were adopted, an economic feasibility test would not be required for the current expansion. However, IGUA noted that shippers would henceforth be paying a rolled-in toll in the traditional market and the U.S. northeast market.

If the rolled-in toll did not accurately reflect the marginal cost of expansion, an appropriate test of the economic feasibility of proposed expansions to serve both traditional and new markets would be required in the future to prevent uneconomic pipeline expansions.

Esso argued that a test such as social benefit-cost analysis is inappropriate, but recommended that the Board use the MBEE as a means of comparing the relative merits and risks of requests for firm service that require capital expansions.

ANE and Selkirk suggested that the tests proposed in this proceeding can be of assistance to the Board in the exercise of its judgement but they did not support any particular test proposed in the hearing. They argued that the tests should be non-determinative. Selkirk also noted that, to the extent that an economic feasibility test is but one consideration, it should reduce any concern that such tests could be viewed as minimum price tests.

GMi was opposed to the adoption of an economic feasibility test, and argued that any test which requires the adoption of a pricing scenario would not be accurate because alternative price projections are possible. GMi also agreed with the CPA that market values of gas in the ground cannot be estimated precisely and, in any case, the value of gas in the ground could be influenced by confidential pricing provisions. Finally, GMi argued that any of the tests proposed which required a price projection under specific contract terms would not be practical to implement because GMi does not have access to pricing information in buy/sell arrangements in its jurisdiction, because pricing information in longterm supply contracts is confidential, and because some contracts may not be finalized until the relevant facilities hearing is completed.

Among aggregators and exporters/importers, NEPC suggested that the Board use either the MBEE or the test proposed by the AEC. ANE argued in favour of a test for economic feasibility, but noted that contract arbitration and renegotiation could have an impact on the results of any test for economic feasibility. WGML was opposed to the use of economic feasibility tests, arguing that the only criterion the Board should use is whether the new facilities can be expected to be fully utilized.

3.1.3 Incremental Tolls as a Test of Economic Feasibility

Some parties to the hearing, including the CPA, Consumers' and IGUA, argued that a form of

incremental tolling could provide an appropriate test of the economic feasibility of proposed pipeline expansions.

The CPA argued that under the existing rolled-in toll methodology on TransCanada, shippers making incremental sales do not pay a toll which reflects the full cost of transporting incremental volumes on the system. Consequently, shippers may enter into sales and transportation agreements which would not be economic if they had to pay the full incremental costs of transporting their gas. Expansions which result in toll increases are detrimental to the producing sector as a whole because increased transportation costs result in reduced netbacks for all shippers. Therefore, there is a need for a test of economic feasibility to help ensure that uneconomic expansions do not proceed.

According to the CPA, the goal of a test of economic feasibility should be to promote economic efficiency, i.e., the test should be designed to ensure that economic sales proceed but that uneconomic expansions do not proceed. In the CPA's view, most parties agreed that this should be the goal of a test of economic feasibility but parties disagreed over the appropriate method by which the goals of the test should be accomplished. The CPA characterized the proposals put forth by the APMC, AEC, IPAC and ProGas for an analytical economic feasibility test to constitute an "administrative alternative", whereas the CPA's Cost Allocation Proposal constituted a "price alternative." The CPA noted that the alternatives put forward by Consumers' and by IGUA could also be considered as price alternatives.

Under the CPA's CAP proposal, shippers who make incremental firm sales on TransCanada's system would be required to make a capital contribution to help pay for the construction of the new facilities required to accommodate the incremental sales (see Section 2.1 for a detailed description of how the proposal would work). The capital contribution would have to be paid by all shippers requesting additional firm transportation service on the TransCanada system, regardless of the market to be served, but would not be required of shippers who were renewing existing firm service contracts.

It was the CPA's view that a requirement for a capital contribution would cause shippers to pay a price for transportation that more closely reflected the real cost of providing incremental transportation service. The effect would be to cause shippers to take these costs into account when contemplating new sales, and would thus force economic discipline on shippers. To the extent that shippers decided not to proceed with sales that they would have undertaken under a rolled-in toll methodology, the requirement for a capital contribution would be successful in weeding out uneconomic pipeline expansions.

The primary advantage of the price alternative, in the CPA's view, is that the final decision to proceed with a gas sale/purchase rests with the private parties who are involved in the transaction. This is superior to the administrative alternative, under which the final decision rests with the Board, because the private parties to a sale are in the best position to fully assess the costs and benefits of the sale. Further, in the CPA's view, leaving the decision-making in the hands of the private sector is more consistent with the principles of deregulation of the natural gas industry espoused in the 1985 Agreement on Natural Gas Markets and Prices.

As summarized in Section 2.1, Consumers' proposed that a surcharge be charged to shippers who are making incremental shipments. Consumers' was of the view that, when faced with an appropriate surcharge, shippers would correctly incorporate these costs into their private profitability analyses, and there would no longer be a need for an administrative test of economic feasibility.

IGUA argued that its proposal to create a separate rate base for sales to the U.S. northeast would eliminate the need for an analytical economic feasibility test of the proposed facilities to serve this market area. In IGUA's view, its proposal would properly allocate the costs to the parties who would benefit from construction of the new facilities. This would cause these parties to take these costs into account when making their private decisions, as is proper in the context of a competitive market. Because the proponents of the expansion would take the expansion's costs into account, there would be no need for the Board to second guess the economic viability of the facilities proposed in GH-5-89. IGUA agreed, however, that a test of economic feasibility should be applied to future expansions to serve the U.S. northeast market and, more generally, to all proposed expansions to serve existing markets.

As summarized in Chapter 2 of these Reasons, many parties argued that incremental tolls would not be equitable and that they would not send the correct price signals to shippers. However, a number of these parties, including PanCanadian and TransCanada, agreed that if an incremental toll were implemented, there would no longer be a need for an analytical test of economic feasibility. Nonetheless, both PanCanadian and TransCanada, as well as most parties who spoke against incremental tolls, argued that the other problems associated with incremental tolls militated against adopting an incremental toll as a test of economic feasibility.

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of contracting parties to pay the necessary demand charges to TransCanada. The Board also notes that almost all parties to this hearing agreed that it is proper that the Board continue to have regard to these factors in making a determination of economic feasibility. Many of these parties made submissions as to what additional factors were, in their view, relevant to such a determination.

Some parties argued that the Board should also adopt a quantitative test to help it determine whether the construction of new facilities would yield overall net economic benefits. Other parties suggested that an incremental toll be implemented to screen out uneconomic applications.

The Board's views on the factors relevant to a finding that applied-for facilities are likely to be used and useful over their economic life are expressed below, followed by its views on the merits of a quantitative test of net economic benefits and on the merits of an incremental toll as a test of economic feasibility.

3.2.1 Factors Relevant to The Board's Assessment of Economic Feasibility

The Board believes that a determination of the economic feasibility of the applied-for pipeline facilities is most appropriately made through a determination of the likelihood of the facilities being used at a reasonable level over their economic life and a determination of the likelihood of the demand charges being paid. An evaluation of the following factors should provide a good indication of whether this is likely to occur:

(1) evidence that there is likely to be a sufficient long-term supply of gas to keep the pipeline fully utilized over its economic life:

(2) evidence on the long-term outlook for gas demand in the market region to be served;

(3) evidence on the potential competition to gas supplies delivered via TransCanada's system from:

(i) competing supplies of natural gas; (ii) competing energy sources; and
(iii) competing gas transportation systems;

(4) evidence on the individual gas contracts underpinning the expansion, including:

(i) evidence that the demand charges will be paid;

(ii) evidence as to the adequacy of project-specific supply for the proposed expansion;

(iii) evidence that adequate gas transportation arrangements exist or will exist both upstream and downstream from the TransCanada system;

(iv) evidence that all appropriate regulatory approvals in both Canada and the United States will be in place prior to construction of the new facilities; and

(v) evidence on the financial integrity of the parties to the individual gas sales contracts underpinning the facilities expansion;

(5) the risks associated with the new gas sales, including regulatory risks in all other jurisdictions, allowing for the nature of the market and any previous experience with the market; and

(6) the likelihood of a toll increase caused by the expansion resulting in reduced demand for firm service on the system.

In the Board's view, the onus is on TransCanada to demonstrate that the facilities will be sufficiently well-utilized, and to submit evidence on all factors relevant to this determination.

The Board is of the view that, by considering evidence on all of the above factors, it can make a well-informed judgement as to the probability that the applied-for facilities will be reasonably well-utilized over their economic life and as to the probability that the demand charges will be paid. The Board notes that the above list reflects suggestions by intervenors which received support from a broad spectrum of the industry.

The Board also notes that, in having regard to evidence that applied-for facilities will be sufficiently well-utilized, the Board will, in a large part, fulfill its responsibility under section 52 of the Act to satisfy itself that proposed facilities will be "required by the present and future public convenience and necessity".

With regard to the incidence of distributional impacts, the Board is of the view that existing shippers have no vested rights in the TransCanada system and, hence, they have no vested right to be protected from toll increases which come about from economically feasible expansions of the system. As stated by WGML, and reflected in factor (6) above, the Board believes that the impact of the expansion on tolls is only relevant to a determination of economic feasibility to the extent that it may cause a reduction in demand for firm transportation service on the system.

The Board notes that there are often other impacts associated with a pipeline expansion that are relevant to the public interest, such as safety considerations, environmental impacts and socioeconomic considerations. The Board believes that these considerations are more appropriately considered under section 52(e) of the Act.

3.2.2 Quantitative Tests

In its GHW4-89 Decision on the use of benefitcost analysis in the Market-Based Procedure, the Board said:

"The Board concludes that, particularly in view of the uncertainty regarding the existence and size of any difference between public and private valuations of gas production costs and the wide fluctuation of the results depending on the assumptions

used, it is not appropriate to use benefit-cost analysis as a determinative factor in gas export licensing. The Board does, however, recognize that there may be real differences between

pipeline tolls and the social costs of transportation, especially in cases where the principle of rolled-in tolling is applied. If this were to become an issue in the context of Part III or Part IV proceedings it could be addressed by an economic evaluation of pipeline facilities applied for pursuant to Part III of the Act or by consideration of toll methodology in Part IV." (p. 12,Reasons for Decision, Review of Certain Aspects of the MarketBased Procedure, GHW-4-89, March l990)

Shortly thereafter the Board announced that, since benefit-cost analyses submitted in these proceedings used estimates of the social cost of gas production, it would be inappropriate to use them to determine the economic feasibility of the proposed expansion. At the same time, the Board invited interested parties to submit proposals as to how economic feasibility might be determined, including specific means of addressing the difference between private and social costs of pipeline transportation. In response, a number of parties submitted proposals for a quantitative test in which the value of the gas would be assessed using measures of private gas value.

However, the Board has a number of general concerns with the tests proposed . These concerns are five-fold:

(i) the lack of consensus about fundamental variables entering into the analyses;

(ii) the plausible range of values entering the tests may yield a range of results which is large relative to the difference between the rolled-in toll and the incremental toll;

(iii) the usefulness of tests which are nondeterminative;

(iv) the fact that there is no direct relationship between certificated pipeline capacity and

those volumes which have access to the pipeline; and

(v) the the

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sufficiently robust and reliable tool for regulatory purposes. The Board believes this is likely in this case.

Perhaps these factors have caused intervenors to recommend that the tests be non-determinative. However, adoption of a non-determinative test may cause more uncertainty than is warranted concerning the requirements and criteria of the regulatory process.

Unless the tests were used not only for determining the amount of pipeline capacity to be certificated, but also as a pipeline access criterion for the related volumes, nothing would prevent volumes deemed uneconomic from obtaining pipeline capacity which was not provided for them. However, if the Board were to regulate access to the pipeline in such a manner, it would be tantamount to the denial of specific gas sales contracts. The Board is not persuaded by the evidence on the likely efficiency losses of rolled-in tolls in these proceedings that it should intervene in the functioning of the market to this extent.

The Board has decided that, in the case of this expansion, it would be inappropriate to charge a higher toll to new contracted volumes coming on the system at this time than to contracted volumes that have come on to the system at various times in the past. Having made this decision, the Board does not believe it would be appropriate to apply a test of net economic benefits only to proposed new gas sales contracts.

The testing procedure could possibly avoid the issue of dealing with individual contracts by conducting an aggregate test of all volumes. This approach would not, however, address the other difficulties posed by these tests and would not serve to determine the appropriate size of the expansion. In the event that a negative test result caused an entire application to be turned down, TransCanada would have to submit another application to the Board because the test could not be used to determine the appropriate size of expansion.

3.2.3 Incremental Tolls as a Test of Economic Feasibility

The Board is of the view that the concept of using an incremental toll as a test of economic feasibility has some merit in principle.

The Board recognizes that, if the rolled-in toll understated the real marginal cost of expansion on TransCanada, shippers would tend to request more firm service than would be economically optimal and, consequently, economically inefficient expansions of the system could occur. If an incremental toll were charged to new shippers which better reflected the real marginal cost of expansion, then this group of shippers would incorporate the real costs of accessing new markets in their decisions to enter into new longterm gas sales contracts. If a shipper could afford to pay an incremental toll which closely reflected marginal cost, it would be a demonstration that the shipper’s gas sale was more economically efficient insofar as it could recover the real incremental cost of transportation.

The Board also agrees with the CPA that, as a test of economic feasibility, an incremental toll has certain advantages over a quantitative test. The quantitative tests of economic feasibility proposed in this hearing would require the Board to make judgements about the economics of

individual gas sales contracts which, in the Board's view, are more appropriately made by the contracting parties. The adoption of an incremental toll as a test of economic feasibility would leave parties free to enter into the types of contracts which best satisfied their individual needs, and would avoid direct Board review of privately negotiated gas sales contracts.

However, the Board notes that there are several objectives for toll-making methodology, only one of which is to send the correct market signals to all shippers. Although an incremental toll might reasonably fulfill the objective of sending appropriate price signals to new or renewing shippers, for the reasons discussed in Chapter 2, an incremental toll has several serious shortcomings which preclude its adoption and use as a test of economic feasibility.

Decision

The Board will make a determination of the economic feasibility of the proposed pipeline facilities by having regard to evidence on all relevant factors which impact on the likelihood of the facilities being used at a reasonable level over their economic life and of the likelihood of the demand charges being paid. These factors include those listed in Section 3.2.1.

In this proceeding the Board will not implement any of the proposed quantitative tests either for information purposes or for determining the amount of new capacity to certificate. Further, the Board will not adopt a form of incremental tolls as a test of economic feasibility.

Chapter 4

Other Part IV Matters

4.1 Renewal Rights for Short-term Contracts

At the time of the RH-3-86 hearing, TransCanada's short-term transportation and short-term sales service toll schedules stated that a shipper could, upon six months' notice from TransCanada, be required to elect to either extend its service to a term of 15 years or terminate its service, if TransCanada required capacity for new long-term firm service. In its RH-3-86 Decision, the Board decided that TransCanada had to obtain the Board's approval before any such "bumping" of service occurred. Subsequently, as stipulated in the GH-2-87 Decision, bumping was removed and TransCanada's FS Toll Schedule was amended to permit a firm shipper to renew its firm service contract for a period of no less than one year and to revise its Contract Demand or Operating Demand to a level no greater than the Contract Demand set out in the original contract or the original Operating Demand established by the Board for that contract, upon the shipper providing written notice no less than six months prior to the termination of the FS transportation contract.

TransCanada, AEC, PanCanadian, WGML, GMi, Selkirk, MASSPOWER and ANE opposed the continuation of the renewal rights for short-term contracts in their present form. These companies generally held the view that long-term shippers face the risk of having to pick up the cost of the unused capacity if short-term shippers decide not to renew.

TransCanada and AEC believed that during a period of major facilities expansion, renewals of existing contracts should be for a term of 10 years or more. However, when the pipeline is not in an expansion mode, TransCanada believed that yearto-year renewals should be permitted while AEC took the view that, during a period not exceeding the next two years, contract renewals should be permitted for a short-term period.

TransCanada, AEC, PanCanadian, WGML and GMi took the position that the requirement for renewal of contracts for a period of 10 years or more would not deny short-term shippers access to direct purchase gas because such shippers could still obtain short-term transportation/sales service from LDC's, who would in turn obtain long-term firm service from TransCanada under Aggregate Contracts or Umbrella-T service contracts. TransCanada indicated that it had Umbrella-T service contracts with most of the eastern Canadian local distribution companies ("LDC's") for three-quarters of the domestic direct purchases and that it had commenced negotiations with Union, which currently offers a form of Umbrella-T service to its customers, for similar types of transportation contracts in its franchise area. However, TransCanada admitted that there might be a few direct purchase shippers who would prefer to continue with shortterm FS contracts and who consequently would be required to contract for long-term service or be bumped at the time of renewal.

TransCanada and AEC believe the risk of shortterm users going off the pipeline system is greater than with long-term users because short-term shippers could possibly obtain gas supplies through alternative transportation systems such as St. Clair Pipelines Limited ("St. Clair") and the

Northern Border pipeline expansion proposal or go to alternative fuels. TransCanada, AEC, ProGas and PanCanadian and WGML took the position that existing as well as new shippers were the cause of the requirements for new facilities because, in the absence of existing shippers renewing their contracts, capacity would become available which could be allocated to new shippers and hence reduce the expansion requirements and the risk of overbuilding facilities. AEC suggested that an existing shipper should also be allowed to reduce its level of service if it no longer required all of it and if there were another party prepared to take the service.

TransCanada, AEC, PanCanadian, WGML and ProGas also expressed the view that long-term contracts reflect a stronger commitment to the pipeline system and hence reduce the risk of capacity under-utilization. AEC argued that if potential new shippers were willing to pay tolls and enter into long-term transportation contracts, then the cost of the short-term contracts to the short-term shippers was below "market value". Consequently AEC believed longer term contracts are a reflection of "market value" for pipeline capacity.

IGUA, Union, Consumers', CCPA, ICI, General Chemical, ICG Utilities (Manitoba) Ltd. ("ICG (Manitoba)") and the APMC took the position that the renewal rights provision should continue without any bumping. It was generally their view that short-term contracts and renewal rights are necessary to provide shippers with flexibility. It was argued that industrial users have limited ability to pass on the risks and costs of long-term contracts. Consequently, in the absence of shortterm contracts and renewal rights, industrial users would be squeezed out of the transportation service market. IGUA further stated that this would be contrary to the intent of the Agreement on Natural Gas Markets and Prices which envisioned a multiplicity of buyers and sellers to ensure a responsive, market-oriented environment.

As to the question of whether short-term contracts pose an added risk to the pipeline system, IGUA, Union and Consumers' indicated that there is no evidence of unrecovered demand charges from short-term contracts and related renewals and that, for the most part, the related markets are long-term, enduring markets. Further, the level of risk is also reduced by the ability to assign contracts, divert gas or reallocate capacity to the queue for service. IGUA also held the view that long-term contracts do not provide sufficient evidence of a shipper's commitment to TransCanada's system but that the high utilization of either long-term or short-term contracts does. It was IGUA's evidence that most short-term shippers operated at 100 percent load factor, while some long-term shippers, particularly to the export market, operated at substantially below that level.

In relation to short-term shippers going off the system because of the economics of gas prices versus those of alternate fuels, IGUA indicated that industrial customers do not switch back and forth in a significant way and are, by and large, users of natural gas on an ongoing basis. Although Union and Consumers' agreed that short-term shippers could potentially leave the TransCanada system and access gas by using the St. Clair and Windsor import points, these parties did not believe that this was likely to occur. Union stated that making long-term arrangements for facilities in the U.S. to bring gas into Canada was currently not competitive and that there was no uncontracted transportation available in the U.S. to get gas into Union's franchise area. Consumers' believed that the risk of under-utilization caused by users going off the TransCanada system in favour of importing gas was relatively small. Consumers' also stated

that U.S. gas through these import points would more likely be competing for growth in the eastern Canadian markets rather than displacing gas already transported on the TransCanada system.

Union, Consumers' and GMi all indicated that Umbrella-T service is available, in one form or another, as an option for short-term shippers to fall back on if a minimum 10-year contract term were established. IGUA indicated that although some of its members were under Umbrella-T service arrangements, others preferred to control their transportation directly. Consumers' believes that some end users want to continue to be shippers for administrative reasons. For example, a short-term shipper may have more than one plant in a franchise area or plants in more than one LDC franchise area. Thus, the end user, by controlling transportation, could shift its gas from one plant to another.

IPAC and Canadian Hunter held the view that if a rolled-in toll methodology is retained there should be no change to the renewal rights policy. However, these companies took the position that, if the Board were to adopt an incremental toll methodology, the renewal rights provision should be reviewed. IPAC further stated that under incremental tolling, existing shippers should be treated on the same basis as new shippers and, upon renewal, existing shippers should have to match the term of the longest competing request for service on the system, namely 10 to 15 years.

ProGas, PanCanadian and the APMC argued that, during times of pipeline expansion, shortterm contract renewals should be looked at more closely.

Views of the Board

The evidence on the continued appropriateness of the renewal rights of shippers using short-term contracts to serve long-term markets focussed on the risk that such shippers might cease to use TransCanada's pipeline system. This event could result in pipeline under-utilization, particularly if it occurred after a major facility expansion. Although the risk of pipeline under-utilization is inherent in short-term contracts, the number of short-term transportation transactions, the demonstration that such transactions are serving long-term gas markets and the current demand for pipeline access combine to ensure that the risk is minimal at the present time and into the foreseeable future.

The potential risk of short-term shippers, primarily industrial customers, switching to alternative fuels is minimal. Such end users have made long-term commitments in plant and equipment to use natural gas either as fuel or as feedstock. Thus an industrial user's decision to switch to an alternative fuel would not be based solely on the price of gas, but on other factors as well. In regard to alternative supplies of U.S. gas, the necessary pipeline capacity is not available now and is not certain to be available in the foreseeable future. The evidence also indicates that the volumes shipped on a short-term basis are relatively small and, therefore, the risk of major capacity under-utilization would be correspondingly low.

The Board also notes that the risk of capacity under-utilization would tend to be reduced by the use of alternatives such as Umbrella-T service, assignments, and diversions by short-term

shippers.

The Board authorized the current short-term contract and renewal rights provisions in TransCanada's tariff to provide producers, marketers and end users with transportation options to access gas markets and gas supplies. The existing tariff provisions have given shippers flexibility in choosing the term and form of transportation services to meet the particular circumstances of their long-term market requirements. The evidence also suggests that these tariff provisions, together with the removal of the bumping provision from TransCanada's tariff, have enhanced the development of a more market-oriented and competitive gas environment. Therefore, the Board is not persuaded that any changes to the existing shortterm contract and renewal rights provisions in TransCanada's tariff are warranted.

Decision

The Board has decided that the existing renewal rights policy for shippers using short-term contracts continues to be appropriate.

4.2 Zonal vs. Point-to-Point Tolls for Export Volumes

In the RH-1-88 Phase II proceeding, the Board examined the issue of the appropriateness of designing tolls for volumes delivered to the export market on a point-to-point basis when tolls for domestic volumes are calculated on a zonal basis. In the RH-1-88 Phase II Decision, the Board found that the distinction of traffic as being either export traffic or domestic traffic should continue to be taken into account in determining whether such traffic is carried under substantially similar circumstances and conditions. Accordingly, the Board decided that the then existing point-topoint methodology for export traffic remained appropriate.

At the request of certain parties, the Board decided to re-examine the issue of point-to-point versus zonal tolls for export volumes.

IPAC submitted that it is inconsistent and unjustly discriminatory to have customers on TransCanada pay different tolls for service which is essentially the same. IPAC was of the view that there is no difference between a customer or market in the United States and one in Canada in respect of service on the TransCanada system. Given that it would be extremely cumbersome for TransCanada and its shippers to establish pointto-point tolls for domestic service, IPAC stated that it would be more appropriate to have export customers pay tolls calculated on the same zonal basis as domestic deliveries.

The arguments of many parties centred on the interpretation of the word "traffic" in section 62 of the Act and the appropriateness of the Board's decision in RH-1-88 to expand the previous definition, found in GH-2-87, to distinguish between domestic and export traffic.

IPAC, PanCanadian, APMC and Natural presented legal arguments in support of their disagreement with the broad definition of traffic contained in the RH-1-88 Decision. Based on a narrower interpretation of traffic which is limited to the commodity and the function of transporting it, they argued that the Board is prevented from setting point-to-point export tolls

that differ from the tolls for domestic volumes calculated on a zonal basis. ANE, Selkirk, MASSPOWER and WGML also supported the narrower definition of traffic and the abandonment of point-to-point tolls for exports.

TransCanada was of the view that tolls for export deliveries calculated on a zonal basis would be consistent with the requirements of sections 62, 63 and 67 of the Act and would be more consistent with the spirit and intent of the FTA than tolls calculated on a point-to-point basis.

ICG (Ontario), GMi, Union and CCPA were in favour of maintaining the existing point-to-point methodology for gas exports. ICG (Ontario) reiterated its view, as expressed in Phase II of the RH-1-88 proceeding, that Part IV of the Act is wide enough to justify and accommodate the existing distinction between domestic and export tolls. ICG (Ontario) argued that the additional $0.02 /GJ increase in domestic tolls that would result if export tolls were calculated on a zonal basis would be neither fair nor equitable given the lack of cogent evidence in support of that position. Further, ICG (Ontario) argued that the current distinction between the calculation of domestic and export tolls is not inconsistent with any provisions of the FTA. GMi and Union adopted the submissions of ICG (Ontario). Union also stated that it was relying on the arguments made by it and others, in the RH-1-88 proceeding, in favour of the present distinction between export and domestic traffic and the Board's reasons for accepting those arguments. CCPA submitted that this issue was recently examined by the Board in RH-1-88 Phase II and that there was no reason why the Board's Decision should be revisited.

Esso took no position, but submitted that the adoption of the rolled-in toll methodology and the maintenance of point-to-point tolls for exports would be completely consistent with the Board's Decision in RH-1-88.

Views of the Board

As in the RH-1-88 Phase II proceeding, the examination of this issue focussed on the requirements contained in the Act which outline the Board's mandate with respect to traffic, tolls and tariffs. The specific portions of the Act referred to were sections 62, 63 and 67. Section 62 requires that all tolls be just and reasonable, and under substantially similar circumstances and conditions with respect to all traffic of the same description carried over the same route, be charged equally to all persons at the same rate. Section 67 requires that all tolls, services or facilities not be unjustly discriminatory against any party.

Further, section 63 provides that the Board may determine, as questions of fact, whether the requirements of section 62 have been complied with and whether there has, in any case, been unjust discrimination within the meaning of section 67.

The facts are that TransCanada's cost of service is allocated on a volume/distance basis to all services on its system, whether domestic or export. The difference between the tolls for these services results from the fact that, for domestic service, the allocated costs are aggregated and averaged within a specified zone boundary whereas the allocated costs for export service are not included in the aggregating and averaging process.

Therefore, the tolls for domestic and export services can be said to be determined on the same point-to-point basis. Export tolls reflect the distance from the receipt point to the ultimate delivery point off the TransCanada system. Domestic tolls reflect the distance from the receipt point to the particular zone load centre.

The practice of aggregating and averaging all allocated costs for domestic service within each zone, to determine a zone cost, was established to address special considerations and circumstances that had application in the domestic market. These included practicality and ease of administration since TransCanada initially sold gas to a limited number of distributors at multiple delivery points. The Board considers that these same factors do not apply to export volumes.

Export customers pay the appropriate share of transportation costs to have their volumes delivered to the export points along the international border. Therefore, it cannot be said that they are paying tolls that include any

additional charges that are not included in domestic tolls.

The Board finds that, for the TransCanada system, the circumstances surrounding the zoning of domestic volumes do not apply to volumes destined for export. Furthermore, the Board finds that the application of the existing point-to-point methodology for export volumes does not result in tolls that are unjust or unduly discriminatory.

Decision

The Board has decided to maintain the existing point-to-point toll methodology for export volumes.

4.3 Toll Treatment of Variances in Construction Costs

The Board had originally expected that the issue of the appropriate toll treatment of variances between forecasted and actual costs of the proposed facilities would be examined in this phase of the hearing. However the Board deferred consideration of this matter to the next phase of the proceedings due to the unavailability of certain witnesses on the issue.

4.4 Toll Treatment of Fixed Costs Associated with Under-Utilized Facilities

TransCanada submitted that the appropriate toll treatment of fixed costs associated with any under-utilization of the proposed facilities is a matter which traditionally and most appropriately has been dealt with in tolls proceedings on a case-specific basis. TransCanada stated that the main determining factor has been and should continue to be the prudence of the construction costs for the pipeline, which can only be determined after the event based on consideration of the case-specific facts.

TransCanada pointed out that, at the present time, it has the protection of revenue deferral accounts which are available to insulate it from lost demand revenues resulting from lost firm loads. Although such deferral accounts do not guarantee recovery by TransCanada of lost demand revenues, they should provide that protection if TransCanada can demonstrate that its conduct has been prudent.

TransCanada stated that there are three aspects of this current approach that require consideration. The first is that where TransCanada has generally been insulated from the risk of under-utilized facilities, its return on equity and the size of the equity component required in the capital structure are lower than they would otherwise be if TransCanada were at risk for under-utilized facilities. The second aspect is related to why the Board has not, in the past, required TransCanada to absorb such risk. On this aspect, TransCanada reviewed the changes that have occurred in the industry over the years, resulting in the risks and any rewards being left with the producers and the governments. TransCanada submitted that the third aspect is the question of who is in the best position to take market risk. In TransCanada's submission, it is not in the best position to manage risk since it has no practical way of influencing the market.

TransCanada went on to question the need for a risk-sharing scheme by addressing the riskiness of the U. S. northeast market relative to its existing markets, the existence of financial assurances supporting payment of demand charges, the administrative aspects of such a scheme, and the impact on TransCanada's overall cost of capital.

TransCanada submitted that a risk-sharing scheme is not required because in its view the U.S. northeast market does not pose any greater risk than its existing domestic and export markets. Further, TransCanada stated that implementation of such a scheme would be administratively difficult and costly.

Notwithstanding these submissions in argument, TransCanada outlined a risk-sharing

methodology for consideration by the Board. Under the proposal, TransCanada's allowed rate of return on common equity would vary within a prescribed range, depending on the level of system utilization. Utilization was defined in terms of the percentage of contractible firm capacity that is actually contracted for through long-term firm contracts. It was not related in any way to the level of commodity throughput on the TransCanada system.

Under the proposal, the maximum rate of return on common equity would be 14.5 percent (at a 100 percent utilization rate), while the minimum rate of return would be 10 percent (at a 75 percent or lower utilization rate). The centre point, at which the rate of return is equal to 13.5 percent (ie. TransCanada's currently allowed rate of return of 13.25 percent plus 0.25 percent compensation for the greater risk inherent in the scheme), was placed at a capacity utilization rate of 94 percent. This relationship is explicitly illustrated as follows:

% **Capacity Contracted**	**Return on Equity**
100.0	14.5
97.5	14.125
95.0	13.625
94.0	13.5
92.5	13.25
90.0	12.75
87.5	12.25
85.0	11.875
80.0	11.0
75.0 & lower	10.0

TransCanada stated that the linking of the 94 percent utilization rate with the existing rate of return is not the result of a quantitative analysis of historical data but rather reflects the overall judgment of TransCanada's management. When asked to provide historical data on the percentage utilization of TransCanada's system, TransCanada stated that it was not able to generate historical utilization rates that are compatible with those that would be determined under the risk-sharing proposal. TransCanada explained that historical utilization rates would need to be generated based on the difference between a reference case and the actual operations and not all of this information is available. Another reason cited by TransCanada was that utilization rates have typically been determined by section because critical design differs for each section.

TransCanada stated that, during the first year that this mechanism is in place, it would assume

that the pipeline would be fully utilized, resulting in the generation of return on common equity and attendant income taxes at the top of the range for inclusion in TransCanada's revenue requirement and tolls. At the end of the first year, the demand revenue deferral account would operate to refund monies if the pipeline utilization level were lower than forecasted.

TransCanada proposed that the return on common equity level would be set in subsequent tolls hearings at the firm long-term contract demand level then in place. The demand revenue deferral account would function either to refund return on common equity and income tax dollars by TransCanada if contracts were lost during the year, or to provide more return on common equity and income tax dollars to TransCanada if contracts were added during the year.

Union had two primary concerns with TransCanada's proposal. The first was that the proposal is over-generous to TransCanada in that TransCanada will earn a higher rate of return on common equity merely if what it predicts will happen actually happens, while exposing itself to very little downside risk. The second concern was that TransCanada's proposal does not address the concerns about the riskiness of this particular expansion because it affects the rate of return on equity on the entire rate base. Union argued that, because of this feature, TransCanada will actually feel little effect, even if its forecasts are 20 or 30 percent off.

Therefore, Union recommended its own tolling proposal (described in Section 2.1) as a method of addressing the risk of under-utilization of this particular expansion because it would allocate more of the risk to TransCanada and also provide TransCanada with increased flexibility to meet the competitive needs of the U. S. northeast market through the use of flex tolls.

With respect to TransCanada's existing domestic and U.S. midwest markets, Union stated that TransCanada should continue to have deferral account treatment for any unrecovered fixed costs. The disposition of the deferral account balances would follow a case-specific examination of the relevant facts at each tolls proceeding.

Union did take issue, however, with TransCanada's position that it has obtained tariffspecific financial assurances to an extent that it should never be exposed to the risk associated with under-utilized facilities. Union argued that it is TransCanada which decides for whom it will build facilities and, if additional financial assurances are required for a particular project, the tariff should not prevent TransCanada from seeking those assurances. If TransCanada acts otherwise, it does so at its own risk.

Consumers' submitted that if TransCanada is not able to recover fixed costs from any of the new shippers, it should not be able to automatically recover such fixed costs from the remaining shippers on its system. Consumers' contended that the Board should require TransCanada to show that it acted prudently in relying on the financial assurances given by or on behalf of each new shipper, or in assessing the creditworthiness of each new shipper, in order for TransCanada to recover such fixed costs from the remaining shippers. This position was adopted by ICG (Ontario), which also recommended that the risksharing proposals of both TransCanada and Union be rejected.

IPAC, IGUA, Natural, PanCanadian and CCPA also recommended that TransCanada's risksharing

proposal be rejected. PanCanadian saw no reason why TransCanada's shareholders should be at risk when it merely acts as the transporter. Opposition of the other parties was generally based on the view that the returns to TransCanada were too generous given the low probability of under-utilization under the proposal. GMi supported Union's proposal because, in its view, it would be appropriate for TransCanada's shareholders to bear some of the risk of the expansion. ICI requested that the Board ensure that parties which neither benefit from the proposed expansion nor control its outcome be insulated from the risk of underutilized facilities.

APMC stated that it continues to support the philosophy that TransCanada should accept some of the risks associated with the building of new facilities. It did not feel, however, that the record was complete with respect to the TCPL proposal and recommended that it be examined in more detail at TransCanada's next toll hearing.

Views of the Board

The Board is sympathetic to the views expressed by parties that TransCanada should bear some risk of under-utilization of its facilities. As the project proponent, TransCanada is not only one of the beneficiaries of pipeline expansion but is also in a position to determine and influence the risk of under-utilization of pipeline space available for contracts. In this context, TransCanada is able to minimize this risk through cost control, financial assurances, evaluation of requests for service, system design and the determination of the size of the expansion applied for. Some parties submitted that TransCanada was bearing virtually no risk because of the existence of a deferral account in which unrecovered demand charges are accrued. The Board wishes to emphasize that the existence of that deferral account does not mean that unrecovered fixed costs will automatically be allowed to be passed on to the shippers by the Board. If the risk of underutilization should materialize and result in unrecovered demand charges, these will accumulate in the deferral account and be brought forward for disposition in a toll proceeding. The Board will then examine closely the circumstances which led to the under-recovery and determine what portion, if any, should be recovered from shippers. On the other hand, as has often occurred in the recent past, if an over-recovery of demand charges result from unanticipated shippers coming on the system, the Board will consider those circumstances as well to determine what portion, if any, of the excess revenue should be passed on to shippers. Therefore, TransCanada can be said to be exposed to some risk.

In the light of the Board's decision with respect to toll methodology and its views on the integrated nature of the TransCanada system, it would not be appropriate to implement a risk-sharing scheme that would apply only to certain markets or facilities and not to others. Any scheme adopted by the Board should have system-wide application and should weigh the risks assumed by TransCanada and all users of the system. For this reason, the Board does not consider the proposal by Union as meeting this requirement. While the scheme proposed by TransCanada did encompass the total integrated system, the Board is of the view that this proceeding was not the appropriate forum for examining such a proposal. Parties to this hearing did not expect such a broad proposal since the Board, in its hearing order, indicated that it would examine the appropriate toll treatment of fixed costs associated with the proposed facilities should they turn out to be under-utilized in the future. The Board is therefore concerned that the implications of TransCanada's proposed risk-sharing scheme were not fully examined in this

hearing.

The Board is prepared to examine, in a future toll hearing, any proposals to share prospectively the risk of under or over-utilization of facilities between TransCanada and users of the pipeline in place of the current practice of disposing of deferral account balances on a case-by-case basis. An examination of a system-wide risk-sharing mechanism might include alternative schemes for risk-sharing between the project proponent and system toll payers, the costs, if any, associated with such schemes, and the appropriate allocation of any resulting costs.

Decision

At this time, the Board is not prepared to eliminate the revenue deferral account or adopt any of the risk-sharing schemes put forward in evidence in this proceeding.

4.5 Deferral of Capital Cost Allowance

In its application, TransCanada projected tolls both with and without the proposed facilities. The projected tolls without the expansion (i.e., base case) in the Eastern Zone for FS at 100 percent load factor were $0.84 /GJ for the 1990/91 contract year and $0.86 /GJ for the 1991/92 contract year. The projected tolls with the expansion (i.e., application case) for the same service were $0.78 /GJ for 1990/91 and $0.95 /GJ for 1991/92.

TransCanada explained that the change from the base case toll of $0.84 /GJ in 1990/91 to the application case toll of $0.78 /GJ is due primarily to a reduction in the income tax requirement resulting from having claimed the maximum Capital Cost Allowance ("CCA") in the year that the projected facilities are to be constructed.

TransCanada proposed to levelize the application case tolls over the first two years by deferring an amount of CCA in 1990/91 which would result in the toll being maintained at $0.84 /GJ in 1990/91. The deferred CCA plus carrying charges would then be applied in the following contract year. The deferral would result in an application case toll of $0.88 /GJ in 1991/92 rather than the projected toll of $0.95 /GJ. TransCanada stated that, to the extent that the proposed facilities were delayed a year, the proposed deferral would also be delayed a year.

TransCanada stated that this toll levelling proposal was devised to respond to the special circumstances of the GH-5-89 facilities application, including the size of the capital program, the effect of the CCA claim on the overall revenue requirement, and the anomaly of the subsequent drop in the toll level.

IPAC, ICG (Ontario) and GMi supported TransCanada’s proposal while CPA opposed it. Consumers’ stated that it was opposed to the proposal if rolled-in tolling were retained but it would support the proposal if an incremental toll methodology were adopted. IGUA was of the view that, if toll levelling is to be applied, it should be applied following the next tolls proceeding.

Views of the Board

A basic feature of the rolled-in toll methodology on the TransCanada system is that all shippers share in the costs and the benefits of the integrated system regardless of which party or group of parties caused the costs or generated the benefits. The proposal to defer CCA from one period to another in order to target certain costs and benefits towards specific shippers would be contrary to this basic feature.

The proposal would also result in inter-temporal inequities as existing shippers would not receive the benefit of the immediate drop in tolls that will result if maximum CCA were claimed for tax and regulatory purposes in the first year.

Moreover, the proposal represents a departure from the flowthrough method of calculating income taxes that has been consistently applied in the computation of tolls for TransCanada. The Board does not consider it appropriate to manipulate costs in order to reduce the level of tolls in the initial year of service.

Decision

The Board denies TransCanada's proposal to defer CCA for the purposes of toll levelling.

4.6 Generic Toll Order

Most parties who addressed Issue IV-4, "the appropriateness of issuing a generic toll Order, pursuant to sections 18 and 59 of the Act, setting out the toll methodology to be applied to future expansions of the TransCanada system", argued in favour of the issuance of a generic Order. It was their view that such an Order would lend much-desired certainty and stability to the regulation of TransCanada's pipeline system. They argued that the existence of a generic toll Order would prevent future unnecessary or untimely reviews of broad tolling methodology issues. They also acknowledged that such an Order could not operate to fetter the Board's discretion and consequently the Board would have to maintain the flexibility to re-examine the issue, should substantially changed circumstances be shown. In such circumstances, IPAC further argued, the burden of proof would rest with the proponents of change.

IGUA, on the other hand, argued that it would be both premature and difficult to issue a generic toll order at this time. Premature, because toll methodology should be determined after the certification process, taking into account the costs of the entire system; difficult because it would be impossible to predict and incorporate all possible facilities configurations at this time in developing an overall methodology. IGUA pointed out that even if the decision in this case were that the rolled-in methodology should apply, there could in the future be capacity increments that should be tolled incrementally; that is, there may be exceptions to the rule. IGUA also cautioned that Madame Justice Reed's decision of August 1990 indicated that a methodology to apply now and for the future, insofar as it relates to the recovery of costs for the entire system, was not something that could be settled in the GH-5-89 proceeding. Consequently, IGUA's position is that, if a generic Order should issue at all, it should be following the next TransCanada toll hearing.

Views of the Board

The Board notes the serious concern of parties regarding the continuing climate of uncertainty created by re-examining the toll methodology issue in a number of facilities applications. The issue has now been reviewed thoroughly in two facilities applications (GH-2-87, GH-5-89); consequently, the Board expects there would have to be a clear demonstration of a radical change in circumstances before the issue would warrant reexamination.

However, the Board does not consider that it should attempt to draft a decision that would anticipate and suit future and unknown situations. Consequently, the Board has decided not to issue a generic toll Order concerning the toll methodology to be applied in calculating the tolls to be charged for service over future additions to the TransCanada system.

Decision

The Board has decided not to issue a generic toll Order.

Chapter 5

Disposition

The foregoing chapters constitute our Decisions and Reasons for Decision in respect of the tolling and economic feasibility matters addressed in the first phase of the GH-5-89 proceedings.

G. Fredette
Presiding Member

A.B. Gilmour
Member

M.J. Musgrove
Member

R. Illing
Member

K.W. Vollman
Member

Ottawa, Canada
November 1990

Appendix

List of Part IV and Economic Feasibility Issues Considered in Phase 1 of the GH-5-89 Proceedings (Excerpts from Exhibit A-108)

III-13 The economic feasibility of the proposed expansion, having regard to, *inter alia:*

the impact of building the applied-for facilities on tolls over the forecast period and the effects higher tolls could have on the demand for natural gas;

the long-term costs of TransCanada's expansion program;

the extent to which the additional transportation revenues to be received from the proposed new services would recover the costs of providing such services;

the existence and adequacy of longterm supplies of gas to support the existing and applied-for facilities; and

other means or methods of determining the economic feasibility of the proposed expansion.

IV-2 The appropriate toll treatment of fixed costs associated with the proposed facilities if these turn out to be underutilized in the future.

IV-3 The toll treatment of the capital and operating costs of the proposed facilities, including an examination of:

(i) rolled-in and incremental methods; and

(ii) the appropriateness of designing tolls for volumes delivered to the export market on a point-to-point basis when tolls for domestic volumes are calculated on a zonal basis.

IV-4 In respect of Issue IV-3 above, the question of whether tolls to be charged for the use of the applied-for facilities, calculated on a:

(i) rolled-in or incremental basis; and

(ii) zonal or point-to-point basis;

would be just and reasonable having regard to sections 62 and 63 of the *National Energy Board Act* ("the Act"), and not unjustly discriminatory having regard to section 67 of the Act.

IV-5 The appropriateness of issuing a generic toll order, pursuant to sections 18 and 59 of the Act, setting out the toll methodology to be applied to future expansions of the TransCanada system.

IV-6 The continued appropriateness of the renewal rights policy for shippers using short-term contracts to serve long-term markets; and the related question of whether "bumping" of short-term service should be permitted and if so under what terms and conditions.