



National Energy Board

Reasons for Decision

**Interprovincial Pipe Line
Company, a division of
Interhome Energy Inc.**

RHW-1-89

November 1989

Tolls

National Energy Board

Reasons for Decision

In the Matter of

**Interprovincial Pipe Line Company, a
division of Interhome Energy Inc.**

A Toll Design Study and Recommendations in
Response to NEB Reasons for Decision RH-4-
86

RHW-1-89

November 1989

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Abbreviations

| | |
|----------------|--|
| APMC | Alberta Petroleum Marketing Commission |
| Board | National Energy Board |
| CPA | Canadian Petroleum Association |
| Gulf | Gulf Canada Resources Limited |
| IPAC | Independent Petroleum Association of Canada |
| IPL | Interprovincial Pipe Line Company, a division of Interhome Energy Inc. |
| IPL's Study | IPL's study entitled "A Toll Design Study and Recommendations in Response to NEB Reasons for Decision RH-4-86" |
| m ³ | Cubic Metre |
| NGL | Natural Gas Liquids |
| Quebec | le Procureur général du Québec |
| The Airlines | Air Canada and Canadian Airlines International |
| TMPL | Trans Mountain Pipe Line Company Ltd. |

Recital and Submitters

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

IN THE MATTER of a study entitled "A Toll Design Study and Recommendations in Response to NEB Reasons for Decision RH-4-86" submitted on 29 June 1988 by Interprovincial Pipe Line Company, a division of Interhome Energy Inc., filed with the Board under File No. 1762-J1-13; and

IN THE MATTER of National Energy Board Directions on Procedure, Order RHW-1-89.

EXAMINED by means of written submissions.

BEFORE:

| | |
|-------------------|------------------|
| R.B. Horner, Q.C. | Presiding Member |
| J.-G. Fredette | Member |
| A.B. Gilmour | Member |

SUBMITTORS:

Interprovincial Pipe Line Company, a division of Interhome Energy Inc.
The Airlines: Air Canada and Canadian Airlines International
Alberta Petroleum Marketing Commission
Amoco Canada Petroleum Company Ltd.
Canadian Petroleum Association
Gulf Canada Resources Limited
Husky Oil Operations Ltd.
Imperial Oil Limited
Independent Petroleum Association of Canada
Koch Industries Inc.
Minister of Energy for Ontario
Murphy Oil Company Ltd.
PanCanadian Petroleum Limited
Petro-Canada Inc.
Procureur général du Québec
Shell Canada Limited

Chapter 1

Background

1.1 Board's Direction for IPL Toll Design Studies

IPL's last toll hearing was held pursuant to Board Order RH-4-86, and the resulting Reasons for Decision were dated June 1987. In that Decision, the Board directed IPL to undertake and submit to the Board, by 30 June 1988, several studies regarding the Company's toll design. Specifically, IPL was directed to:

1. perform a study to estimate the appropriate levels of surcharges or credits to reflect capacity utilization costs for each of the streams using IPL's system and address whether such surcharges should reflect operational factors (this study was to analyze, but not be limited to, the methodologies outlined in Appendix IV to the Reasons);
2. develop and analyze an incremental-cost approach for calculating fuel and power surcharges for medium and heavy crudes;
3. study the merits of the NGL and refined product power-cost credit methodology and alternatives to it; and
4. consider, in conjunction with the study noted in 1) above, whether any additional operating costs, other than fuel and power, should be assigned to medium and heavy crudes.

In addition to the above studies, the Board suggested that IPL review the methodology for calculating its terminalling charges and tankage credits, and report its findings to the Board in the Company's next Class 3 toll application.

On 29 June 1988, IPL filed "A Toll Design Study and Recommendations in Response to NEB Reasons for Decision RH-4-86" (IPL's study). This study examined not only the matters itemized above, but also addressed the calculation of IPL's terminalling charges.

In its Reasons for Decision dated July 1988 in respect of Trans Mountain Pipe Line Company Ltd.'s (TMPL) facilities and toll design hearing (OH-1-87, as amended), the Board directed TMPL to examine the capacity surcharge methodologies addressed by IPL's study and to provide comments in TMPL's next toll application. However, on 1 September 1988, the Board indicated to TMPL that its comments would be beneficial to the Board's review of IPL's study. Accordingly, the Board requested TMPL to file, by 31 October 1988, its comments on the toll design concepts addressed in IPL's study, as well as on the appropriateness of applying them, including any refinements, to TMPL. After being granted an extension, TMPL provided its comments to the Board on 7 December 1988.

Before setting IPL's study down for consideration in a formal proceeding, the Board provided interested parties with an opportunity to discuss the issues raised in the study and in TMPL's comments. On 23 February 1989, the Board indicated to IPL and TMPL that it favoured the use of the same toll design principles for both pipelines, subject to adaptation of methodologies to fit specific circumstances of each system. The Board requested IPL and TMPL to meet with interested parties to determine if parties could agree on the resolution of the toll design issues and thus facilitate the regulatory process. The Board

requested that IPL and TMPL provide the Board with the outcome of the meeting, including details of any agreement, by 31 May 1989.

In April both TMPL and IPL wrote to the Board submitting that no useful purpose would be served by convening a joint meeting of the companies' interested parties. IPL and TMPL cited differences in the two pipeline systems and the disparity in the interests of their shippers. In April and May, the Board also received comments from several interested parties who suggested that the review should proceed separately for IPL.

On 13 June 1989, the Board advised IPL and TMPL that it had decided to consider IPL's toll design study in the context of the IPL system only, and to proceed with the review by means of written submission. The Directions on Procedure were issued under Order No. RHW-1-89 (Appendix 1).

1.2 Overview of IPL's Study

IPL's study recommended that, for toll purposes, the commodities which the pipeline ships be grouped as light, medium, or heavy crudes, or as NGL or gasolines & condensates. Retaining the use of light crude as the base for toll calculations, IPL advocated the use of integrated percentage surcharges for capturing the cost differentials of shipping the other commodities relative to shipping light crude. The proposed percentage surcharges were designed to reflect fuel and power as well as capital-related (including "special facility"¹) cost considerations. Each surcharge (or credit, as in the case of gasolines & condensates and NGL) would be applied to the transmission component of the light-crude toll.

The surcharges which IPL proposed in its Study were as follows:

| | |
|---------------------------|-------|
| Heavy Crude | 20% |
| Medium Crude | 8% |
| Gasolines and Condensates | (8)% |
| NGL | (11)% |

IPL derived its proposed percentage surcharges by assuming a hypothetical, dedicated, optimal pipeline for each of the four commodities it ships other than light crude. The volume of each commodity to be accommodated in a hypothetical line was set approximately equal to its actual flow rate in the IPL system. For each commodity in turn, a hypothetical optimal line was also designed to accommodate a like volume of light crude. A long-run (20-year) average toll was calculated for the surchargeable commodity and for its companion light-crude scenario. The ratio of the two tolls was taken to yield a percentage surcharge.

Also included in IPL's study was an analysis of terminalling charges. IPL proposed that individual terminalling charges be designed for three distinct terminalling operations - receipt terminalling, receipt tankage, and delivery. IPL also designed a charge for refined products delivery tankage at Gretna.

With the exception of Air Canada and Canadian Airlines International Ltd. (the Airlines) and Gulf Canada Resources Limited (Gulf), interested parties generally supported the concept of integrated capital and fuel and power surcharges, as well as IPL's proposed methods of calculating the percentage

¹ The term "special facility" is used to describe a facility which is installed to meet the unique requirements of a particular commodity and which is over and above that which is required to ship light crude.

surcharges and the terminalling charges. Most interested parties, however, objected to IPL's proposed integration of special facility and operating costs in the percentage surcharges.

1.3 Methodology for Calculating Light-Crude Tolls

IPL's light-crude tolls are currently calculated on an integrated basis. Here the term "integrated" refers to the combining of the Older System and Montreal Extension revenue requirements and throughputs for purposes of calculating the base light-crude tolls. In Section 8.4 of the June 1987 Reasons for Decision, the Board indicated that it would deal with the appropriate toll design for the Montreal Extension (eg. integrated or two-part) at the earliest opportunity. IPL's Study reflected integrated light-crude tolls, but did not address the issue of the Older System/Montreal Extension toll design.

In response to an information request, IPL indicated that its proposed surcharge methodology could be applied to various toll design approaches for the Montreal Extension. In addition, the Company submitted that the decision on the appropriate toll design treatment for the Montreal Extension is not dependent on, and should not be influenced by, the surcharge methodology.

In its comments, le Procureur général du Québec (Quebec) submitted that IPL operates an integrated pipeline system from Edmonton to Montreal and therefore the Older System and Montreal Extension costs should remain integrated for purposes of designing IPL's tolls. The Canadian Petroleum Association (CPA) objected to Quebec's recommendation, contending that the issue of Older System/Montreal Extension integration was not an issue in this proceeding.

The Board recognizes that the Directions on Procedure for the review of IPL's study did not limit parties to the five matters specifically listed in Appendix I to Order RHW-1-89. However, the Board does not consider this the opportune time to examine the question of what the appropriate design is for IPL's light crude tolls, vis-à-vis the Older System and Montreal Extension.

The Board believes that in order to test the robustness of IPL's proposed surcharge methodology, its ramifications, if any, on other aspects of the Company's toll design, including both current and possible methods of designing the light crude tolls, should be examined. However, any evidence submitted in this proceeding regarding the appropriate toll treatment as between the Older System and the Montreal Extension has been disregarded by the Board. The matter of the toll design for the Montreal Extension remains to be considered in a future forum.

Chapter 2

Commodity Groups

IPL's current toll design recognizes five categories of commodities: light, medium and heavy crudes; NGL; and refined products.

In its study, IPL recommended that the commodity groups be based on density and viscosity criteria. IPL submitted that these two characteristics are fundamental to the determination of a pipeline's capital and fuel and power requirements. These criteria resulted in the following five commodity groups:

| | Density Range kg/m ³ | Viscosity Range cs |
|---------------------------|---|----------------------------------|
| Heavy Crude | 904 to 927 | 100 to 250 |
| Medium Crude | 876 to 904 | 20 to 100 |
| Light Crude | 800 to 876 | 2 to 20 |
| Gasolines and Condensates | 600 to 800 | 0.4 to 2 |
| NGL | <600 | <0.4 |

IPL proposed that if a particular commodity's density and viscosity fell into different groups, the commodity would pay the higher of the two surcharges.

IPL submitted that its proposed commodity groups did not differ greatly from the present groupings. However, distillates (which includes diesels and other refined products with similar density and viscosity) would be classified as light crudes rather than being included in the refined products group as is currently the case; and condensates would be grouped with gasolines rather than being treated as light crude as is currently the case. IPL indicated that these changes, combined with its proposed surcharge design, would result in distillates not being charged for special facilities which they require, and condensates paying for special facilities which they do not require. IPL studied the impact of these grouping changes, and concluded that the effects were minimal. While IPL indicated that it would not be averse to creating more commodity groups to accommodate the small differences in costs, it stated that it had opted for fewer commodity groups in the interest of simplicity.

The Airlines submitted that, in view of the volumes involved in relation to the total volumes carried by IPL, all refined products should continue to be identified as a separate group. The Airlines suggested that if certain refined products were to be included in the Light Crude group, only the diesel fuels should be so treated.

Views of the Board

It is appropriate that the commodity groups chosen for toll design purposes reflect, to the extent reasonable, the manner in which the commodities cause costs. Classifying IPL's commodities on the basis of density and viscosity is appropriate. Creating a separate group for distillates and a separate group for condensates would be an unnecessary complication, given the small amount of surcharge distortion which is possible.

Decision

For purposes of IPL's toll design, the Board approves the five commodity groups proposed by IPL.

Chapter 3

Components of Surcharges/Integration of Components

Medium and heavy crudes shipped on IPL's system currently pay surcharges to the light-crude toll (which includes both terminalling and transmission charges) of 10% and 30% respectively. These levels comprise a fuel and power surcharge equal to 5% for medium crude and 15% for heavy crude. The surcharges also reflect a component for capacity which was set on a *pro tempore* basis in the Board's June 1987 Reasons for Decision. These levels are 5% for medium crudes and 15% for heavy crude.

The existing surcharges for NGL and refined products are additives to the light-crude toll (ie. expressed as \$/m³) and are derived by dividing a surchargeable revenue requirement by the volume of the commodity which is projected for the test period. The surchargeable revenue requirements for both NGL and refined products include costs in respect of special facilities, as well as credits for power and tankage. The calculation of the NGL revenue requirement also includes a charge for buffer shrinkage. The formula for deriving the NGL and refined product power-cost credits is based on the relative power used to ship these commodities versus light crude. Currently, the credits in the revenue requirements outweigh the costs and, accordingly, NGL and refined products are granted a credit to the light-crude toll.

The integrated surcharge methodology proposed in IPL's study yielded a single percentage surcharge (or credit) for each commodity, which reflected capacity (through consideration of capital-related and fuel and power costs) and, where applicable, special facility and operating costs. IPL advocated the use of an integrated surcharge for capacity and power considerations in particular because, it submitted, capital and fuel and power are substitutable variables in the design of a pipeline. IPL contended that its pipeline system's capital and power requirements result in costs which are joint by nature and, consequently, that it is not feasible to directly attribute certain amounts to any specific commodity. IPL maintained that integrated surcharges provide the most appropriate basis on which to allocate capital and power costs, as both are required to provide system capacity. IPL's decision to integrate the special facilities into the percentage surcharge methodology is discussed separately in Chapter 6.

IPL's Assessment of Separate Capacity Surcharges

In response to Section 8.6.2.3 of the June 1987 Reasons for Decision, IPL addressed the alternative of deriving a separate capacity surcharge. IPL analyzed the four methodologies from Appendix IV of the June 1987 Reasons for Decision, and concluded that none of the methods would be appropriate. IPL observed that the four methodologies outlined in the Appendix were based on the capacity reduction caused by a commodity upon its introduction into a line, and IPL submitted that none of the methods considered the cost of providing capacity. This cost, IPL reiterated, is comprised of both capital-related and power costs. IPL also remarked that all four methodologies considered only the short term and that they would yield surcharges which could fluctuate widely depending on the assumptions used.

IPL's Analysis of Operational Factors

Also in response to Section 8.6.2.3 of the June 1987 Reasons for Decision, IPL recommended that the effect on capacity of operational factors such as batching and short hauls, not be reflected in the surcharges. IPL submitted that although short hauls affect the capacity of a line, their impact changes over time and, in the long term, could be overcome by designing the pipeline system to take them into account. IPL suggested that the effects of batching also change overtime but that because batching is done for all commodities, any increase in cost resulting therefrom is common to all commodities.

IPL's Assessment of Separate Fuel and Power Surcharges

In response to Section 8.6.3 of the June 1987 Reasons for Decision, IPL considered the appropriateness of an incremental-cost approach for deriving separate fuel and power surcharges. IPL concluded that the results of an incremental-cost methodology would vary widely depending on what order the commodities were assumed to be substituted for light crude. IPL also submitted that the incremental-cost approach assumes that light crude is transported first on the system. IPL submitted that this, and the exponential nature of power costs, distorts the incremental costs which are determined to be caused by the other commodities. IPL also examined the existing method of calculating power-cost credits for NGL and refined products. While IPL concluded that this method has advantages over an incremental-cost approach, the Company maintained that the power credit approach is incomplete as it considers only the short term and does not reflect power demand costs.

Views of Interested Parties

Most interested parties supported IPL's proposal to integrate capital and power considerations in surcharges. Some referred to the trade-off between capital costs for facilities, and operating costs for fuel and power in the provision of pipeline capacity. Husky Oil Operations Ltd. and the Independent Petroleum Association of Canada (IPAC) submitted that where capacity costs on IPL's system cannot be directly attributed to a commodity, it is appropriate to design integrated surcharges for capital-related and fuel and power costs.

The Airlines allowed that surcharges for capacity and power can be integrated in the sense of expressing them together as a single sum, but argued that integration in the sense of deriving lifetime toll relationships between imaginary pipelines, is not appropriate. The Airlines submitted that IPL's assumed substitution of operating and capital costs dampens the impact of changing assumptions and cost parameters.

Gulf also did not support the use of integrated surcharges, maintaining that surcharges should consist of two separate components - an operating cost component and a capacity component. Gulf submitted that the separation of power and capital-related costs is necessary in order to determine whether a surcharge is fair. Gulf argued that the net present value analysis used by IPL to integrate capital and operating cost considerations is inappropriate as the method is inherently biased toward the initial capital investment and discounts the future operating expenditures. Gulf also contended that IPL's study did not adequately address conditions of IPL operating at full and at less than full capacity. It recommended the continuation of the 15% fuel and power surcharge for heavy crude and an analysis of surcharges based on actual facilities and flows. Furthermore, Gulf concluded that, until such an analysis is done, the surcharge for heavy crude should remain at 30 percent.

In its response to interested parties, IPL stated that net present value analysis is a well established pricing technique to reflect the timing of expenditures and the trade-off between capital and operating costs and further that there is no viable alternative methodology. IPL submitted that the effect of different hydrocarbons on the capacity of IPL's system and a situation of operating at less than capacity are both short-term issues, and, to reflect them in the surcharges would violate the principle embraced by IPL of using long-term costs to set the surcharges. IPL also suggested that Gulf had not adequately supported its recommendation that a separate determination of incremental power costs be made. IPL submitted that fixing the power component of the surcharge at 15% would result in less than optimal conditions being assumed in the determination of the capacity component.

Views of the Board

It cannot be disputed that commodities of different densities and viscosities require different amounts of fuel and power and/or capital and that these inputs are, to a certain extent, interchangeable. This, combined with IPL's operations resulting in joint costs for the commodities, makes it difficult to separate capacity and fuel and power costs for purposes of surcharge design.

Decision

Capacity-related capital and fuel and power cost considerations shall be integrated for purposes of surcharge design on the IPL system. The appropriateness of integrating special facility costs is addressed in Chapter 6.

Chapter 4

Determination of the Surcharges

IPL's proposed surcharge methodology involves the design of hypothetical, dedicated pipelines for each commodity group that it ships. Reflecting IPL's contention that terminalling costs do not vary between commodity types¹, no tankage or other terminalling costs were included in these pipeline scenarios. For each commodity other than light crude, IPL designed a set of pipeline configurations for the approximate flow rate of the commodity on IPL's actual system. The optimal design for each commodity was that which produced the lowest long-run average toll. This life-cycle (20-year average) toll was calculated using the net present value of the revenue requirements (comprising both capital-related and operating costs) and throughput.

For each of the flow rates of the respective commodities, an optimal pipeline design was also determined for light crude. A surcharge for each commodity was derived using a ratio of the commodity's optimal life-cycle toll to the optimal life cycle toll for the same flow rate of light crude. IPL's recommended surcharges were an average of the ratios resulting from thermodynamic and nonthermodynamic scenarios. The percentage surcharges so designed would be applicable to the transmission component of the light-crude toll.

In order to design the hypothetical pipelines and derive the surcharges, IPL made several assumptions including, *inter alia*, a 1,000 mile (1 609 km) length. To derive the revenue requirement for each pipeline scenario, costs typical of Western Canada were assumed. An inflation rate, discount factor, and other parameters were also set (a detailed explanation of the assumptions used by IPL to derive the revenue requirements for each pipeline scenario was provided in Appendix B to IPL's study). To examine the sensitivity of the surcharge levels, IPL developed optimal pipeline scenarios for different throughput levels. In response to information requests, IPL also provided calculations using different assumptions regarding length of the pipelines, consideration of Eastern Canadian costs, discount factors, capital maintenance, etc. In all cases, IPL concluded that its proposed methodology would yield surcharges which would be relatively insensitive to changes in these parameters.

Use of Hypothetical Pipeline Systems and Long-Term Pricing

IPL submitted that having regard to the pipeline's status as a common carrier, and given the evolution of its system, it is impossible to assign the pipeline's actual capacity costs to particular commodities on an equitable basis. IPL argued that the use of conceptual pipelines enables the determination of the costs of transporting each petroleum stream. Furthermore, IPL submitted that in view of toll design and economic theory, it is appropriate to design integrated surcharges on long-run average costs. IPL contended that such surcharges would not result in undue discrimination, would be cost-based, and would send the correct long-term price signals. IPL also noted that the surcharges would be developed on a consistent basis for all commodities, and that the surcharges would be relatively stable and simple to understand as well as to administer. Moreover, attempts to use the incremental costs of its actual system to design capacity surcharges could result in fluctuating and misleading price signals. The Company

¹ IPL stated that an exception is for NGL and refined products, which require special tankage facilities. However, as IPL generally require shippers of these commodities to provide their own tankage, IPL indicated that this factor has no effect on the toll design.

explained that the incremental costs required to add pipeline capacity at a given point in time depend on the operation of the pipeline at that time (eg. whether it is operating at capacity, what type of expansions are feasible; etc.). IPL added that the combination of historical costs with current costs would also lead to inappropriate results.

Interested parties generally supported the concept of using hypothetical pipelines and long-run costs to derive the surcharges for capacity and fuel and power (for their views regarding the use of hypothetical pipelines for special facility charges, see Chapter 6). IPAC, while supporting the use of hypothetical pipelines to determine proxy surcharges for IPL's existing system, suggested that in future, before the proxy is used, planned expenditures should be scrutinized to determine whether they can be attributed to specific commodities. The Alberta Petroleum Marketing Commission (APMC) submitted that IPL's optimal pipeline approach to determining surcharges has positive features as well as limitations, as does the use of existing facilities. APMC indicated that it would not object to IPL's optimal pipeline approach, but cautioned that the approach should be re-examined if experience demonstrates that the methodology is unsatisfactory.

Gulf supported the use of long-term cost considerations, but contended that it is impossible to verify the extent to which surcharges are cost-based unless an analysis is made of actual facilities and actual flows. As addressed in Chapter 3, Gulf also objected to the use of net present value analysis for determining integrated surcharges. The Airlines argued that, in order to discharge its statutory responsibilities and to exercise its jurisdiction over IPL, the Board must ensure that the Company's tolls are based on the actual pipeline system, throughputs, and costs which are foreseen at the time tolls are set. The Airlines submitted that short-term costs must be used, as it is inconsequential to a shipper "to assure him that he will be fairly treated if he stays around for the life of the pipeline".

IPL replied that its proposed toll design would yield tolls that would recover the costs of its actual pipeline system. Theoretical pipelines would only be used to determine the toll differentials (surcharges/credits) to be paid by each commodity group. IPL reiterated that charging for the incremental costs of its actual system would lead to unreasonable pricing, and added that the method would be discriminatory to the user considered to be the last on the system. CPA addressed the Airlines' implication that the use of long-term costs and theoretical pipeline systems would be beyond the jurisdiction of the Board. CPA argued that the discretion granted the Board under the Act is very broad, and that the Board is not restricted to short-term and actual pipeline considerations to determine just and reasonable tolls.

Views of the Board

The Board accepts that the day-to-day operations of IPL's pipeline, as well as plans for expansion, are generally carried out with regard for the requirements of the system as a whole. Therefore, it is generally not feasible to identify IPL's actual capacity-related capital or operating costs with certain commodities. Arbitrarily assigning specific capacity or power costs to certain commodities could be argued as conferring priority rights on certain commodities. IPL's proposal suggests the use of relative long-run costs for the allocation of actual costs across petroleum streams. The long-run costs have been estimated by IPL by means of hypothetical pipelines. The Board considers this approach to be acceptable.

As stated in Chapter 3, the Board finds it appropriate that IPL integrate capital-related and fuel and power costs in its surcharge methodology. Because this requires examining

both capital investments and operating expenses, a mechanism which can reflect the magnitude and timing of both types of expenditures is required. Net present value analysis is an appropriate tool for this purpose.

Decision

The Board approves the use of hypothetical pipeline systems as the base for calculating integrated capacity (capital) and fuel and power percentage surcharges. Furthermore, the integrated surcharges shall be based on long-term pricing considerations, through the use of 20-year life-cycle tolls based on net present value analysis.

Chapter 5

Treatment of Terminalling-related Costs

Currently, IPL's toll design charges for transmission service on the basis of cubic metre-kilometres and terminalling services on the basis of cubic metres. The existing terminalling charges are equal for receipt and for delivery terminalling, notwithstanding that the facilities provided by IPL differ between these two functions. IPL's terminalling charges are presently designed to recover the costs of all terminalling-related facilities, including tankage. However, because IPL does not provide receipt tankage to NGL or to refined products, a tankage credit is included in the calculation of the additive surcharges for these commodities.

In its study, IPL proposed to create separately determined terminalling charges for each of the following functions: receipt terminalling, receipt tankage, and delivery. IPL also designed a charge for the use of its refined product delivery tankage at Gretna. Each commodity would be charged the terminalling charge(s) corresponding to the services provided to it by IPL. Accordingly, (and given that tankage costs would no longer be embedded within another terminalling charge), there would not be a need to calculate tankage credits.

IPL submitted that its proposed changes to the calculation of terminalling charges would result in charges which are more cost-based, by better reflecting the different costs associated with the different terminalling services offered by the Company. IPL suggested that the added complexity of its proposal and the decreased stability of the charges were not serious enough to outweigh the benefit of attaining cost-based tolls.

The majority of interested parties who addressed the matter agreed that IPL's proposed refinements to the calculation of its terminalling charges were appropriate as they would better reflect the different costs of services provided to shippers.

The Airlines submitted that there appear to be differences in the costs of providing terminalling services to different commodities. The Airlines suggested that if the transmission surcharges adequately measure these differences, it would not be objectionable to combine the terminalling and transmission functions. Quebec submitted that the cost of terminalling services should be integrated with those of transmission since both services are essential to the operation of a pipeline system.

CPA submitted that Quebec's suggestion of rolling in terminalling costs with those of transmission is inconsistent with Quebec's support for the user-pay principle. Tolls based on an integration of terminalling with transmission costs would not reflect that not all costs vary as a function of distance.

Views of the Board

Terminalling-related costs should continue to be collected on a cubic metre basis, separate from transmission. This better reflects the behaviour pattern of such costs and, therefore, more closely adheres to the concept of cost causality. The terminalling-charge refinements proposed by IPL are appropriate, as they will result in charges which reflect the costs of the different terminalling services provided by IPL.

Decision

With the exception of the details discussed in Sections 5.1 and 5.2 below, the Board approves the terminalling charge calculations as proposed by IPL in its study.

5.1 Cone Roofs

IPL's policy has been to provide delivery tankage only in instances where the tanks can serve more than one connecting carrier or shipper. The only instance where IPL currently provides delivery tankage is to refined products at Gretna. The cone roofs on these tanks are treated in IPL's current toll design as special facilities, surchargeable to refined products (for more detail regarding the concept of special facilities, see Chapter 6). The remainder of the tanks' costs are included in the calculation of the light-crude terminalling charge.

IPL's proposed toll design includes a specific charge for the refined product delivery tankage at Gretna, applicable to the distillates and gasolines that use the tanks. It comprised a charge equivalent to the charge for receipt tankage, plus a charge for the costs associated with the special cone roofs. During the proceeding, IPL indicated that cone roofs should no longer be considered a special requirement of refined products. IPL indicated that it is installing similar roofs on all its new tanks, even if they are for crude. Accordingly, IPL submitted that it was no longer appropriate to charge the cost of cone roofs exclusively to shippers of refined products. IPL recommended that the Gretna delivery tankage charge be eliminated, and that the cost of the cone roofs be instead included in the terminalling portion of the light-crude toll.

Views of the Board

As roofs similar in purpose to cone roofs are now being installed on all IPL's new tanks, it is no longer appropriate that cone roofs be considered a unique requirement of refined products. Accordingly, their costs should be included with the base costs for crude.

Decision

The inclusion of the costs of cone roofs with those of light crude terminalling is approved.

5.2 Delivery Tankage Charge

IPL indicated that it chose not to calculate a basic delivery tankage charge because it believed it would be misleading to post such a charge when it has generally been the Company's policy not to provide delivery tankage (unless the tankage could benefit more than one connecting shipper or carrier). IPL submitted that, in any case, delivery tankage is identical in nature and cost to receipt tankage. Accordingly, in its calculation of the charge for its delivery tanks at Gretna, IPL used the (light crude) receipt tankage charge.

In response to an information request, IPL indicated that it has recently changed its policy regarding tankage, and that the Company will now provide delivery tanks where it is economic to do so. IPL recommended, accordingly, that a separate delivery tankage charge be incorporated into its toll design.

Views of the Board

The introduction of a separate delivery tankage charge is appropriate, given IPL'S proposed toll design refinement of distinguishing between the various terminalling-related services which the Company provides. The Board notes, however, that the only instance where IPL presently provides delivery tankage is at Gretna.

Decision

IPL shall calculate a separate delivery tankage charge.

5.3 Tankage Credits

As noted earlier in this Chapter, IPL's current toll design extends tankage credits to NGL and refined products, as these commodities generally provide their own tankage. In the instance where IPL provides delivery tankage to refined products at Gretna, the tankage credit is revoked.

IPL's proposed refinements to the calculation of terminalling charges would result in a separate charge for tankage, which would be levied only if a commodity uses tankage provided by IPL. This would eliminate the need for the existing tankage credits.

Interested parties generally supported IPL's proposed refinements to the calculation of terminalling charges. IPAC favoured the concept of recognizing tankage provided by shippers, but submitted that further study of the tankage requirements on IPL's system is required.

Views of the Board

Shippers to whom IPL does not provide tankage and who instead provide their own, should receive credit. IPL's proposal regarding the calculation of terminalling-related charges and how the charges would be levied is reasonable.

Decision

IPL's proposed method of calculating and levying terminalling charges is approved.

Chapter 6

Treatment of Special Facility and Operating Costs

As noted in Chapter 3, IPL's existing toll design includes additive surcharges (or credits) for the commodity groups of NGL and Refined Products. Included in these surcharges, and thus separated from the general revenue requirement to be paid for by all shippers, are the costs of special facilities on IPL's system and the operating costs specific to shipping NGL and refined products. Special facilities are considered to be facilities which are over and above those required to ship light crude oil, and whose identifiable costs can be directly attributed to a specific commodity.

IPL recommended that each of its proposed integrated surcharges be applied to light-crude transmission charges determined from a rolled-in transmission revenue requirement for the system. This would eliminate the separate identification and charging of certain of IPL's facilities and operating costs as special. IPL submitted that each of the optimal, dedicated lines which it designed to determine its proposed percentage surcharges included whatever facilities would be required to ship each commodity (for example, certain types of facilities were included in the design of the optimal NGL line which were not included in the design of the light-crude line). IPL maintained that, as a result, the concept of special facilities would be recognized and additional costs associated therewith would be reflected in the integrated surcharges.

IPL indicated in its study that an alternative to its proposal would be to exclude the cost of special facilities from the optimal pipelines and consequently from the determination of the integrated surcharges. Special facilities could, instead, continue to be identified separately and included in a separate surcharge. However, IPL explained that it chose to integrate special facilities into the percentage surcharges because this would yield a consistent approach to the design of all the surcharges on its system. IPL submitted that one of the attributes of the integrated surcharges is that they reflect long-term cost differentials. The existing short-term approach of calculating additive surcharges could result in significant fluctuations in the surcharges as a result of special facility additions or volume changes. IPL also indicated that integrated surcharges are simple to understand and to administer. IPL suggested that the allocation of special facility costs is a difficult process, because it can involve facilities which are joint in nature. Furthermore, IPL submitted that, as its pipeline system evolves, circumstances which resulted in costs being considered special and surchargeable can change, thus making the past surcharges inappropriate. IPL stated that certain allocations of costs in the past have been discriminatory, in effect conferring priority rights upon certain hydrocarbon streams.

IPL noted that the facilities which are currently considered surchargeable to refined products include assets which are designed to prevent contamination. However, IPL considers that costs incurred to prevent contamination between commodities should no longer be charged to any specific commodity. IPL submitted that the need to protect commodities from contamination arises from the interaction between the variety of commodities shipped in a batch pipeline system. IPL was of the view that if there are no priority rights on a common carrier such as IPL, no one commodity should be deemed responsible for the cost of minimizing contamination between commodities. Instead, all commodities should share the costs. IPL indicated that other than these contamination-related assets, the cone roofs on its refined product tankage at Gretna, and a few minor special facilities, IPL's integrated surcharges

would reflect all of the types of facilities which are presently considered to be special and surchargeable (IPL's proposed treatment of the cone roofs at Gretna is discussed in Section 5.1).

Most interested parties opposed IPL's proposed treatment of special facilities. Generally, these parties argued that the concepts of user-pay and cost causality dictate that the costs of special facilities not be rolled in to the general revenue requirement, but be charged specifically to those commodities requiring the facilities. These parties rejected IPL's proposed inclusion of special facilities in the hypothetical pipelines, favouring instead the present approach of identifying and charging for the special facilities on IPL's actual system.

Several parties suggested that IPL's proposed methodology would result in unfair cross-subsidization. IPAC and CPA (whose submission was endorsed by several parties) submitted that IPL's argument that historical surcharges may, in hindsight, have been inappropriately determined, is not a valid reason for ceasing to identify certain of the facilities on the actual pipeline system as special. IPAC and CPA also did not believe that IPL's argument regarding the potential instability of additive surcharges had merit. CPA submitted that integrated surcharges are designed to differentiate between commodities on the basis of their flow characteristics, but that special facilities relate to the unique requirements of a particular stream. Accordingly, inclusion of special facilities in the integrated surcharges is inappropriate and arguments of consistency do not justify their inclusion in the integrated surcharges. IPAC allowed that it is acceptable to charge for common facilities, which are required by all commodities and which pose a significant practical problem of allocating joint costs, on the basis of a proxy surcharge determined from hypothetical pipelines. However, when actual system costs can be attributed to a particular commodity stream, they should be charged to that stream.

Koch Industries Inc. and Murphy Oil Company Ltd. recommended early implementation of IPL's study, and did not address specifically the matter of special facilities. Quebec supported an integrated approach to toll design on IPL's system and endorsed the elimination of the concept of special facilities.

While generally favouring continued identification of actual special facilities, APMC noted that when it would be administratively too costly to recover special facility costs through a separately determined charge (relative to the revenue derived from the resulting charge), an integrated approach may be justified. The Airlines also indicated that immateriality of costs may justify avoiding the distinction of special facilities.

In its reply to interested parties, IPL submitted that the differentiation between flow and unique characteristics is arbitrary and that costs incurred to ship a commodity are a function of that commodity's fundamental characteristics. These include not only density and viscosity but other characteristics such as vapour pressure. IPL also argued that because special facility costs are built in to the integrated surcharges, the argument of cross subsidization occurring is overstated. IPL also suggested that the process used to identify a facility as special is often arbitrary.

Recognizing, however, the opposition to its proposed treatment of special facilities, IPL addressed the retention of additive surcharges for special facility capital and operating costs. IPL noted its current view on facilities designed to prevent contamination and, accordingly, suggested that costs of interaction between commodities be removed from the pool of facilities which are considered surchargeable. IPL also emphasized its contention that cone roofs should no longer be considered surchargeable facilities.

Views of the Board

Cost causality and user-pay are important concepts in toll design. Tolls for transporting each commodity type should reflect both the level and/or nature of the service provided and the facilities or operating costs associated with providing service to each commodity. The Board recognizes that the identification of facilities as special is not a precise exercise, and is subject to judgement. Section 8.6.4.1. of its June 1987 Reasons for Decision illustrates this point. That section dealt with the appropriate toll treatment of certain costs related to the expansion of IPL's Line 1 which carries NGL and refined products. The Board recognized that NGL and refined products alone were not directly responsible for requiring the capacity expansion. In that case, the Board stated that the principle of cost causality dictated that the cost of the new special facilities included in the expanded Line 1 not be assigned to NGL and refined products. IPL was directed to continue charging NGL and refined products for the special facilities which were on the original Line I and not those on the new line. This case demonstrates that, for a multi-commodity common carrier as IPL, appropriate regard for cost causality does not always result in actual-system costs being included in the calculation of surcharges.

Section 8.3.1 of the aforementioned Reasons for Decision also addressed the practical matter of identifying special facilities. This section noted IPL's explanation that certain types of costs which, in isolation, could have been viewed as NGL-surchargeable have become, over time, indistinguishable from the rest of the pipeline system's costs.

The above matters lead the Board to believe that actual special facility costs are not as readily identifiable or assignable to specific commodities as one might believe. The Board questions whether the continued segregation of actual costs is necessarily, as interested parties suggest, a more appropriate method of reflecting cost causality on IPL's system than the exercise of designing hypothetical pipelines.

The Board recognizes that each hypothetical optimal pipeline designed by IPL reflects the transmission facilities required to ship each commodity. Therefore, each integrated surcharge is based on the types and levels of facilities and operating costs that are required for shipping each commodity. Accordingly, IPL's proposed surcharge methodology does not depart from the concept of cost causality, but incorporates it in a different fashion than the current method of using actual facilities and operating costs to produce additive surcharges.

The Board notes that the facilities which are presently recognized as being special are relatively immaterial compared to the total IPL system. The Board also notes the relative administrative ease and simplicity offered by IPL's proposed methodology. These factors together with the maintenance of the concept of cost causality lead the Board to consider that the proposed methodology is appropriate.

While the Board recognizes that IPL's proposed toll methodology will accommodate changes in many variables, it would be unrealistic to expect that all facility additions, expansions, or other changes to IPL's system (comprising special facilities or not), would automatically be appropriate for inclusion in a general pool of transmission costs, eligible for the toll treatment of integrated surcharges. Changes to IPL's system will

continue to be carefully evaluated to determine, inter alia, whether they conform to the principles and concepts of the approved toll design.

Decision

The Board approves the integration of special facilities and operating costs into the percentage surcharges derived from the optimal pipelines and also approves the discontinuation of the special pools of actual costs.

Chapter 7

Functionalization of the Revenue Requirement

As IPL's toll design comprises transmission and terminalling charges, one of the first steps in designing the tolls is to allocate each component of IPL's overall revenue requirement between these two functions. IPL currently allocates its facilities between three functions, terminalling, transmission and other, and uses the resulting ratios to functionalize several components of its revenue requirement (eg. equity return, depreciation, etc.). In respect of other components of the revenue requirement, operating expenses are allocated, where possible, to the function associated with a cost centre's primary activity. The operating expenses of other cost centres (including the operating field locations) are allocated using separate bases depending on the nature of each operating expense (eg. their salaries are allocated based on a survey of staff activities). Administrative cost centres' operating expenses are generally allocated to "other". The final step is to allocate all "other" costs to terminalling and transmission on the basis of their already-identified costs.

To accommodate IPL's recommended refinements for calculating terminalling charges, the Company's revenue requirement would have to be allocated among more service categories. In its study, IPL presented a change in the method for functionalizing its revenue requirement. With the exception of fuel and power and tank lease revenue, IPL used plant as the sole basis for allocating the revenue requirement to the service categories (fuel and power was allocated 100% to transmission; and tank lease revenue credited to delivery terminalling). Net plant was used to allocate return and income taxes; gross plant for the remaining items of revenue requirement.

IPL explained that its revenue requirement is currently allocated largely on the basis of plant allocators, and that the other allocation factors are somewhat subjective and difficult to update, making the overall allocation exercise relatively complex. IPL submitted that its fixed assets are a highly reliable and logical predictor of operating costs, because they are a prime, if indirect, cause of such costs. IPL indicated that it had used the revenue requirements from its last three toll applications to compare the cost allocations which result from using both its current and its proposed functionalization methods. IPL concluded that the variety of allocation factors currently used do not provide any additional accuracy.

Views of the Board

The revised allocation bases presented in IPL's Study are reasonable and will yield a cost allocation which is more readily verifiable than that resulting from the existing methodology.

Decision

The cost allocation method used by IPL in its Study to functionalize its revenue requirement between the service categories is approved.

Chapter 8

Adjustment Mechanism for the Surcharges

IPL proposed the following mechanism for monitoring the continued appropriateness of the surcharge levels, and for adjusting the levels when appropriate. The Company would update the surcharge calculations approximately every five years, or earlier if significant shifts in underlying factors were to occur. IPL considered some of these factors to be energy markets, pipeline costs, and technology. IPL would include the updated surcharge calculations as part of its Class 2 or Class 3 toll applications, and recommend surcharge levels for each of the commodities. IPL would address at the same time the continued appropriateness of the optimal pipeline approach to calculating the surcharges.

Views of the Board

The Board notes that IPL provided extensive sensitivity analyses which demonstrated the relative stability of its proposed surcharges. Nevertheless, the Board views IPL's proposed surcharge design methodology as a significant departure from the approaches used to determine IPL's existing surcharges. As a result, the Board believes that until more experience is gained with IPL's new surcharge methodology, a two-year timeframe is reasonable for re-examination of both the surcharge levels and the appropriateness of the methodology.

Decision

Until otherwise directed, IPL shall update the integrated surcharge calculations every two years, or earlier if so requested by the Board or if there are significant changes in the factors which underlie the calculations. These calculations, including a discussion of the continued appropriateness of the optimal pipeline approach, shall be filed with the Board and served on interested parties as part of a Class 2 or Class 3 toll application.

Chapter 9

Disposition

The foregoing chapters constitute the Board's Reasons for Decision and Decision on this matter.

R.B. Horner, Q.C.
Presiding Member

J.-G. Fredette
Member

A.B. Gilmour
Member

Ottawa, Canada
November 1989

Appendix I

Directions on Procedure Order RHW-1-89

Our File: 1762-J1-13
1762-T4

13 June 1989

VIA TELECOPIER

Mr. D.B. MacDermott
Vice President and General Counsel
Interprovincial Pipe Line Company, a division of Interhome Energy Inc.
IPL Tower
10201 Jasper Avenue
P.O. Box 398
Edmonton, Alberta
T5J 2J9

Mr. G.A. Irving
Vice-President
Secretary and General Counsel
Trans Mountain Pipe Line Company Ltd.
Suite 800
Broadway Plaza
601 West Broadway
Vancouver, B.C.
V5C 4C5

Dear Sirs:

Re: Interprovincial Pipe Line Company, a division of Interhome Energy Inc. (IPL) Toll Design Study
and Comments by Trans Mountain Pipe Line Company Ltd. (TMPL)

On 23 February 1989, the Board requested IPL and TMPL to convene a joint meeting of interested parties of both pipelines to discuss IPL's Toll Design Study dated June 1988 and TMPL's comments thereon. Subsequently, the Board received letters from IPL and TMPL asking the Board to reconsider this request. The Board also received letters from the CPA, Esso Petroleum Canada and Amoco commenting on the proposed procedures for dealing with the IPL Toll Design Study.

In light of the comments of the companies and parties, the Board has now decided to consider the IPL Toll Design Study in the context of the IPL system only, and to proceed by way of written submissions.

Accordingly, enclosed is a copy of Order No. RHW-1-89 providing the Directions on Procedure for the review of the above-noted study.

The Board requires that IPL serve a copy of this letter on interested parties referred to in paragraph 7 of Order No. TO-4-85, and by TMPL on those interested parties referred to in paragraph 14 of Order No.

TO-2-86. In addition, the Board requires that IPL and TMPL also serve on the Board a copy of the list of interested parties so served.

Yours truly,

Louise Meagher
Secretary

Encl.

File No. 1762-J1-13
13 June 1989

ORDER NO. RHW-1-89

Directions on Procedure

Interprovincial Pipe Line Company Toll Design Study

Pursuant to a direction issued by the National Energy Board (the Board), Interprovincial Pipe Line Company, a division of Interhome Energy Inc. (IPL), filed a study entitled "A Toll Design Study and Recommendations in Response to NEB Reasons for Decision RH-4-86". Copies of the study were served on interested parties to paragraph 7 of TO-4-85. The Board has decided on 8 June 1989 to proceed with an examination of the IPL Toll Design Study by way of written submissions. Accordingly, the Board directs as follows.

Public Viewing

1. IPL shall deposit and keep on file, for public inspection during normal business hours, a copy of the report entitled "A Toll Design Study and Recommendations in Response to NEB Reasons for Decision RH-4-86" in its offices at IPL Tower, 10201 Jasper Avenue, Edmonton, Alberta. A copy of the report is also available for viewing in the Board's Library, Room 962, 473 Albert Street, Ottawa, Ontario and its office in Calgary, Alberta at 4500-16th Avenue, N.W.

Interested Parties

2. Parties intending to comment are required to file their intention with the Secretary by 26 June 1989.
3. The Secretary will issue a list of interested parties shortly after 26 June 1989.

Information Requests

4. Information requests addressed to IPL are required to be filed with the Secretary and served on IPL and all other parties by 7 July 1989.
5. IPL's response to information requests received within the time limit shall be filed with the Secretary and served on all other parties by 21 July 1989.

Comments of Interested Parties

6. Comments by interested parties on the attached list of issues (Appendix I), and other aspects of the Toll Design Study, shall be filed with the Secretary and served on IPL and all other parties by 11 August 1989.
7. Any reply to comments from interested parties shall be filed with the Secretary and served on IPL and all other parties by 25 August 1989.

Filing Requirements

8. The following number of copies shall be filed or served:
 - (a) for submissions to be filed with the Board, provide 35 copies; and
 - (b) for submissions served on each of the interested parties, including IPL, provide 1 copy.

General

9. All interested parties are asked to quote file number 1762-J1-13 and Order No. RHW-1-89 when corresponding with the Board in this matter.
10. These Directions supplement the Draft NEB Rules of Practice and Procedure.
11. For information on this proceeding or the procedure governing this proceeding contact Mrs. Kathy Pope, Regulatory Support Officer, at (613) 990-3156.

Louise Meagher Secretary
National Energy Board
473 Albert Street
Ottawa, Canada
K1A 0E5
Telecopier: 990-7900

Attachment

List of Issues

The Board invites parties to address, inter alia, the following issues:

1. The appropriate components of surcharges including, for example, whether surcharges for fuel and power, and capacity, should be separate or integrated.
2. The appropriate means of estimating costs when determining surcharges including, for example,
 - whether costs should be determined on a long or short-term basis, and
 - whether costs should be allocated on the basis of hypothetical pipelines, actual facilities and actual flows, relative marginal costs of expansion for heavy and light crude oil or some other approach.
3. Whether terminalling should be considered a separate function distinct from transmission and, if so, the appropriate method of allocating costs between functions.
4. The appropriate treatment of special facilities.
5. The appropriateness of tankage credits and their derivation.