

1.0 BACKGROUND

1.1 Chronology of Application

On January 17, 1990, Ocelot Chemicals Inc. ("Ocelot") filed a complaint with the British Columbia Utilities Commission ("the Commission") pursuant to Section 64 of the Utilities Commission Act ("the Act") requesting that the Commission commence an immediate inquiry into the reasonableness of the Pacific Northern Gas Ltd. ("PNG") rate structure. Section 64 states:

"Commission may order amendment of schedules

64. (1) The commission, on its own motion, or on complaint by a public utility or other interested person that the existing rates in effect and collected or any rates charged or attempted to be charged for service by a public utility are unjust, unreasonable, insufficient, unduly discriminatory or in contravention of this Act, regulations or any law, may, after a hearing, determine the just, reasonable and sufficient rates to be observed and in force, and shall, by order, fix the rates.

(2) The public utility affected by an order under this section shall amend its schedules in conformity with the order and file amended schedules with the commission."

Sections 65 and 66 of the Act deal with the assertions of Ocelot and the remedies available. Sections 65 and 66 state as follows:

"Discrimination in rates

65. (1) A public utility shall not make, demand or receive an unjust, unreasonable, unduly discriminatory or unduly preferential rate for a service furnished by it in the Province, or a rate that otherwise contravenes this Act, regulations, orders of the commission or other law.

(2) A public utility shall not, as to rate or service, subject any person or locality, or a particular description of traffic, to an undue prejudice or disadvantage, or extend to any person a form of agreement, a rule or a facility or privilege, unless the agreement, rule, facility or privilege is regularly and uniformly extended to all persons under substantially similar circumstances and conditions for service of the same description, and the commission may, by regulation, declare the circumstances and conditions that the substantially similar.

(3) It is a question of fact, of which the commission is the sole judge, whether a rate is unjust or unreasonable, or whether, in any case, there is undue discrimination, preference, prejudice or disadvantage in respect of a rate or service, or whether a service is offered or furnished under substantially similar circumstances and conditions.

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- (4) In this section a rate is "unjust" or "unreasonable" if the rate
 - (a) more than a fair and reasonable charge for service of the nature and quality furnished by the utility,
 - (b) insufficient to yield a fair and reasonable compensation for the service rendered by the utility, or a fair and reasonable return on the appraised value of its property, or
 - (c) unjust and unreasonable for any other reason."

"Rates

66. (1) In fixing a rate under this Act or regulations
- (a) the commission shall consider all matters that it considers proper and relevant affecting the rate,
 - (b) the commission shall have due regard, among other things, to the fixing of a rate that is not unjust or unreasonable, within the meaning of section 65, and
 - (c) where the public utility furnishes more than one class of service, the commission shall segregate the various kinds of service into distinct classes of service; and in fixing a rate to be charged for the particular service rendered, each distinct class of service shall be considered as a self contained unit, and shall fix a rate for each unit that it considers to be just and reasonable for that unit, without regard to the rates fixed for any other unit.

(2) In fixing a rate under this Act or regulations, the commission may take into account a distinct or special area served by a public utility with a view to ensuring, so far as the commission considers it advisable, that the rate applicable in each area is adequate to yield a fair and reasonable return on the appraised value of the plant or system of the public utility used, or prudently and reasonably acquired, for the purpose of furnishing the service in that special area, but, where the commission takes a special area into account, it shall have regard to the special considerations applicable to an area that is sparsely settled or has other distinctive characteristics.

(3) For this section, the commission shall exclude from the appraised value of the property of the public utility any franchise, licence, permit or concession obtained or held by the utility from a municipal or other public authority beyond the money, if any, paid to the municipality or public authority as consideration for that franchise, licence, permit or concession, together with necessary and reasonable expenses in procuring the franchise, licence, permit or concession."

A rate is defined in the "Interpretation" section of the Act as follows:

"rate' includes a general, individual or joint rate, fare, toll, charge, rental or other compensation of a public utility, a rule, practice, measurement, classification or contract of a public utility or corporation relating to a rate and a schedule or tariff respecting a rate."

Ocelot asserted that PNG's rates were unjust, unreasonable and unduly discriminatory, and in particular that the rates resulted in a cross-subsidy of some \$4 million from Ocelot to other customers, primarily residential.

After reviewing letter submissions and responses from Ocelot and PNG, and related information, the Commission issued Order No. G-20-90, dated March 14, 1990, requiring PNG to file a Rate Design Application by July 6, 1990. It also ordered a public hearing into the complaint to commence August 21, 1990 in Prince Rupert, B.C.

Pursuant to the Order, on July 6, 1990, PNG filed this Rate Design Application.

The Commission heard evidence on the complaint and the Application in Prince Rupert on August 21, 22, and 23, 1990 and in Kitimat on August 28, 1990. The interested parties requested (and the Commission granted) a delay in the hearing of argument to allow the participants to negotiate a settlement which could then be brought forward for Commission consideration. No settlement was reached and argument was heard in Terrace on November 6, 1990.

1.2 The Applicant

PNG transmits and distributes natural gas in the west central portion of British Columbia. The 350 mile system begins at Summit Lake, near Prince George, where it interconnects with the Westcoast Energy Inc. ("Westcoast") pipeline system, and terminates at the deep water ports of Kitimat and Prince Rupert. It is primarily an industrial gas transmission system. Currently, residential customers comprise three to four percent of PNG's load, while commercial, small industrial and natural gas vehicle customers comprise eight to nine percent. The balance, approximately 88 percent, is load from four major industrial

customers, namely Ocelot, Eurocan Pulp & Paper Co. ("Eurocan"), Skeena Cellulose Ltd. ("Skeena"), and Alcan Smelters and Chemicals Ltd. ("Alcan"). Approximately three-quarters of the large industrial load is firm, with the balance made up of interruptible sales.

The single largest customer on the PNG system is Ocelot. Ocelot comprises about 66 percent of PNG's total load, including approximately 75 percent of PNG's interruptible volumes. PNG service to Ocelot began in 1982 and caused the PNG system to be expanded. The expansion of the transmission system, which consisted of looping and compression, was initially expected to cost approximately \$30 million but ultimately cost \$43 million. Debt of approximately \$40 million was issued in two parts: \$30 million for a term of five years and at a coupon rate of 17.75 percent and \$10 million until 1997 at a coupon rate of 18 percent.

PNG holds long-term contracts with each of its major industrial customers which are not due to begin expiring until 1999.

PNG's gas requirements are met through a long-term contract (expiry: October 31, 2002) with CanWest Gas Supply Inc. ("CanWest"), the provincial aggregator and the successor to the British Columbia Petroleum Corporation ("BCPC"). Pricing provisions of the contract are negotiated annually or bi-annually. The current pricing provisions, which run through October 31, 1991, require PNG to take all its supply from CanWest. However, beginning November 1, 1991, PNG will be permitted to buy up to 25 percent of its core market requirements from sources other than CanWest. This percentage may increase over time.

1.3 The Complainant

Ocelot operates two petrochemical plants in Kitimat, B.C., which have the capability of producing more than 500,000 tonnes of methanol and 190,000 tonnes of ammonia annually. Gas supply to the plants consist of 44 MMcf/day of firm gas sales, 2 MMcf of firm gas transportation, and interruptible gas sales which average about 15.5 MMcf/day.

The arrangements for selling gas to Ocelot are complex and can best be understood by following the flow of gas from the wellhead. Producers sell their gas to CanWest which sells the gas to Westcoast, which in turn transmits the gas to the inlet of PNG's transmission system, at which point Westcoast sells the gas to PNG. PNG then sells the gas back to CanWest, which assigns the gas to BCPC (Kitimat) which, in turn, sells the gas to Ocelot.

This arrangement allows BCPC (Kitimat), a subsidiary of BCPC, a government agency, to guarantee minimum payments to PNG equivalent to an 80 percent minimum take provision on firm sales volumes.

Ocelot's total firm contract demand for sales gas is 44 MMcf/d of which the first 80 percent (35.2 MMcf/d) is sold at a rate of \$2.4920* per gigajoule. PNG sells the next 12.2 percent of contract demand (5.4 MMcf/d) at \$1.9950* per gigajoule, with the balance (3.4 MMcf/d) sold at an incentive rate of \$1.2050* per gigajoule. PNG recovers all of Westcoast's demand charges in the rates paid for the first 80 percent of contract demand while the incentive rate of \$1.2050* per gigajoule for gas taken above 92.2 percent of contract demand reflects the variable cost of providing this gas, i.e. the actual gas charge of \$1.03 per gigajoule, the Westcoast commodity charge of \$0.015, and a margin of \$0.16 to PNG to cover compressor fuel, incremental taxes, etc., and a small contribution to fixed charges (Exhibit 6, IR 31). All interruptible gas is priced at this rate (\$1.2050* per gigajoule).

As a result of these arrangements, PNG's financial exposure in serving Ocelot is limited to firm volumes between 80 percent and 92.2 percent of contract demand (5.4 MMcf/d).

* Pre 1991 Interim Rates.

In addition to the sales volumes discussed above, Ocelot takes 2 MMcf/d of gas through a transportation service contract with PNG. Ocelot pays PNG \$0.9510 per gigajoule for the first 92.2 percent of transportation volumes which is equal to PNG's margin on firm gas sales between 80 percent and 92.2 percent of firm contract demand discussed above. For gas taken in excess of 92.2 percent Ocelot pays \$0.16 per gigajoule. This rate is equal to PNG's margin on incentive and interruptible gas sales.

2.0 THE APPLICATION

2.1 PNG Proposal

PNG's Application proposes to restructure its rates to residential and large industrial customers but leaves unchanged its rates to commercial, natural gas vehicle and small industrial customers, as follows:

1. Residential Rates

Increase residential rates five percent per year for three years commencing January 1, 1991. This would result in a \$0.2366 per gigajoule increase in each of 1991, 1992 and 1993. In argument the proposal was amended to commence January 1, 1992.

2. Ocelot

Eliminate the incentive rate on firm gas sales and service in excess of 92.2 percent. This would increase the rate charged on sales and service for the last 7.8 percent of contract demand by \$.7348 per gigajoule, making it equal to the current rate charged on sales and service between 80 percent and 92.2 percent of contract demand.

Increase the current interruptible rate by \$0.055 per gigajoule.

Decrease Ocelot firm service rates by \$0.055 in 1991, using the revenues generated from the elimination of the incentive rate and from the increase in the interruptible rate. The proposed rates are \$2.4368 per gigajoule for the first 80 percent of contract demand and \$1.9398 per gigajoule for sales above 80 percent of contract demand.

3. Skeena Cellulose, Eurocan and Alcan

Decrease interruptible rates charged to the large industrial customers, other than Ocelot, by 10 percent or \$0.19 per gigajoule in 1991.

4. All Large Industrials

Reduce firm service rates for all large industrial customers using the additional revenues generated by the increase in residential rates in 1992 and 1993.

These proposals would increase the contribution to PNG revenue made by residential customers, decrease the contribution made by Skeena, Eurocan, and Alcan, and shift the contribution made by Ocelot from firm service to interruptible service while leaving the absolute contribution essentially unchanged. Total revenues collected by PNG would remain unchanged.

2.2 Ocelot Proposal

Ocelot in the alternative maintained that the large industrial customers are paying rates for firm service in excess of the cost of providing it and further, that residential customers, in particular, and commercial customers are paying rates that do not fully recover the cost of serving them. Ocelot stated that this results in a cross-subsidy from the large industrial customers to residential and commercial customers and urges the Commission to:

- "(1) Quantify the cross-subsidy from the large industrials to other customer classes.
- (2) Do all the Commission can to rebalance the rates to eliminate the cross subsidy."

(Exhibit 10, Tab 1, Page 3)

Ocelot states that it does not expect the Commission to rectify the problem in its entirety, in either the short or intermediate term but, rather to make a beginning. Such a beginning might consist of a five percent to seven percent increase in residential, commercial and small industrial rates, the increased revenues from which could be used to lower industrial rates. In addition, Ocelot proposed that industrial rates be restructured to contain a demand charge and a commodity charge.

3.0 GOALS OF RATE DESIGN

3.1 General Discussion

The legislative parameters with regard to the fixing of a rate are set forth in the Act and have been addressed in Section 1.1 of this Decision. However, depending on the perspective chosen, the parameters considered and weights given, different answers with respect to rates will result. The three primary perspectives are those of the utility, the customer and society. Society's perspective can be subdivided into further distinct categories, often with opposing objectives.

From the perspective of the utility, rates should ensure that revenue requirements, inclusive of return, are met; that the rate structure is strategically sound for load management, competition and long-term planning purposes; and that the negative cost impact, if any, of new customers and increased load is minimized or eliminated from both the customers' and shareholders' perspective.

From the perspective of the customer, the rates should be affordable, understandable, equitable and provide for an appropriate quality of service.

From the perspective of society, which may differ from that of the utility or the customer, rates should promote allocative efficiency, that is rates should encourage the appropriate levels of production and consumption while at the same time discourage the misallocation of society's resources. Society may also place a priority on the use of natural gas for one form of consumption over another and this may be reflected in pricing schemes.

PNG's expert witness, Dr. Robert H. Sarikas, testified that generally accepted objectives of rate design include the following:

- i) meeting the annual revenue requirement,
- ii) equity or fairness,
- iii) economic efficiency,
- iv) simplicity and understandability of the rate form,
- v) conservation of resources,
- vi) stability,
- vii) social goals,

- viii) administrative ease
- ix) employment, and
- x) protection of the environment.

He also testified that since these goals may sometimes be in conflict, informed judgment will be required to obtain a satisfactory compromise among the various goals listed above.

Four of the goals listed above received particular attention throughout this hearing. They were:

- i) economic efficiency,
- ii) equity or fairness
- iii) gradualism, and
- iv) employment and economic development.

3.2 Economic Efficiency versus Equity or Fairness

Throughout the hearing, the Commission heard evidence concerning economic efficiency, equity or fairness, possible conflicts between these two goals and the degree of weighting these goals should receive in establishing rates for service. Dr. Sarikas testified that it was his impression that the two goals of rate design considered most important by PNG were economic efficiency and fairness, with fairness being of slightly greater importance (T. 430). In contrast, Mr. Drazen, Ocelot's expert witness, placed greater emphasis on economic efficiency (Exhibit 10, Tab 2, Page 4).

No clear definition of either economic efficiency or fairness arose from the hearing. Dr. Sarikas testified that economic efficiency,

"requires the proper identity of cost and price so that there will be an efficient allocation of resources as a result of the purchasing decisions made by utility customers."

(Page 6, Tab 1, Exhibit 4)

while

"In the minds of many, fairness is attained when a customer pays what a service costs."

(Page 5, Tab 1, Exhibit 4)

It is not clear from these views, why economic efficiency and fairness should be seen as competing rather than complementary objectives.

Mr. Vidalin, Ocelot's policy witness, concurs with this view when he stated as follows:

"Industry can pay fair rates and prosper."

(Page 3, Tab 1, Exhibit 10)

3.3 Gradualism

Witnesses on behalf of both PNG and Ocelot testified that rate increases should be introduced gradually to allow customers time to adjust to rate changes and so that rate shock can be avoided (T. 440, T. 525). Dr. Sarikas testified that rate shock is usually defined as a rate increase in excess of 20 percent (T. 443). Concern with the avoidance of rate shock is the basis for PNG's recommendation that restructuring of the residential rates take place over three years as opposed to one year (T. 440) and lies behind Ocelot's statement that:

"the rate rebalancing problems faced by Pacific Northern Gas cannot be solved by rate shifts alone."

(Page 7, Tab 1, Exhibit 10)

In assessing the potential impact of a rate change, the Commission must be cognizant of all factors which will affect the price of the utility service. Through cross-examination it became clear that the increases in residential rates proposed by PNG as a result of the current rate design hearing are not the only increases faced by residential customers. Exhibit 24, prepared by PNG, outlines several sources of rate increases for residential customers over the 1991 to 1993 period. In addition to proposed increases due to this application, additional increases may arise from an imminent 1991 revenue requirement hearing, proposed changes to the handling of deferred taxes, an increase in Westcoast tolls, an increase in franchise fees and the impact of the seven percent Goods and Services tax. While not all of these changes lie within its jurisdiction the Commission believes it must consider the combined impact of all these factors in determining rates. If all the potential increases occurred as outlined in Exhibit 24, residential rates would increase 25.9 percent in 1991, followed by a further 5.2 percent increase in 1992 and a further 5.1 percent increase in 1993. Over the three year period the accumulated increases are projected to be

39.2 percent exclusive of any changes which may take place in the cost of gas. Over the same three year period, it is estimated that commercial rates would rise 14 percent , small industrial rates 14.8 percent and NGV rates 12.2 percent (Exhibit 24).

3.4 Employment and Economic Development

The impact of rates on economic development and employment was the subject of significant debate throughout the hearing. Dr. Sarikas testified that:

"Rates for industry that both attract new business to British Columbia and retain existing employers can be viewed as enhancing this goal [of full employment]."

(Page 9, Tab 1, Exhibit 4)

However he suggested that the goal of employment maximization should be pursued cautiously.

"In my opinion, employment or labour should be effective in marginal terms. I view the purpose of an economic system as the production of goods and services, not the maximization of employment per se. The distortion of the economic system to provide partial solutions to the problem of income distribution can result in less goods overall."

(Page 9, Tab 1, Exhibit 4)

Ocelot argued that rates must properly reflect the cost of serving industrial customers if negative impacts on employment and regional development are to be avoided.

"If industry is asked to continue to subsidize other classes of customers, existing industries in the Pacific Northern service area will suffer and it will be difficult, if not impossible, to attract new petrochemical operations to Kitimat."

(Page 2, Tab 1, Exhibit 10)

The Commission was pleased to receive the views of the City of Prince Rupert and the District of Kitimat on this issue. Mayor Lester, City of Prince Rupert, testified that employment considerations should not be the driving force in determining rates.

"There shouldn't be any possibility of the Commission thinking that because an industry provides employment or because they can present more facts, that their submission should be agreed to." (T. 261)

And in response to a specific question from Mr. Wallace, Counsel for Ocelot, Mayor Lester stated that he believed industrial customers for natural gas should subsidize residential customers even if it inhibited economic development (T. 264/265). In addition, Mayor Lester suggested that PNG absorb a gas price reduction to industrial users instead of implementing an offsetting price increase to residential gas customers.

"There doesn't seem to be any compelling reason why residential gas rates should be increased." (T. 261)

In contrast to Mayor Lester's position, the District of Kitimat stated

"Appreciating the competitive nature of petrochemicals, we are concerned about natural gas prices that are above those justified by rational cost allocation. Such a practice could hinder further development in Kitimat. We do not propose subsidizing natural gas prices to industry, but we can not support a system that charges industry more than a fair share."

(Page 3, Exhibit 32)

However, the District of Kitimat did support Mayor Lester's suggestion that the Commission investigate the possibility of PNG absorbing any rate decrease to industrial customers hence eliminating any impact on the residential consumers.

"While respecting PNG must cover its costs and be allowed a reasonable return, adjustments to one class should not automatically be passed to another class."

(Page 5, Exhibit 32)

4.0 COST OF SERVICE STUDIES

4.1 General Discussion

In fixing a rate under the Act the Commission shall have due regard, amongst other things, to fixing a rate that is not unjust and unreasonable within the meaning of Section 65. Section 65(4)(b) states that a rate is unjust or unreasonable if it is "insufficient to yield a fair and reasonable compensation for the service rendered by the utility, or a fair and reasonable return on the appraised value of its property". Accordingly, a cost of service study is required to give proper consideration of this parameter.

The steps to be taken in preparing a cost of service study are four-fold:

1. the determination of the total cost to be allocated;
2. the division of these costs by function (eg. purchased gas, transmission, distribution, and so on);
3. the classification of the functionalized costs between capacity, commodity, customers, and so on; and
4. an allocation of these costs to the rate classes.

Various degrees of judgement are required in the compilation of a cost of service study. The two most significant areas of judgement occur in the determination of the type of study to be undertaken (historical cost or marginal cost) and the method chosen to allocate the capacity costs to the rate classes (eg. Average Demand, Coincident Peak Responsibility, Average and Excess, Modified Partial Plant and others). Depending on the method selected, a rate class can be assigned a significant portion of capacity costs or no capacity costs at all. Less judgement is required in the functionalization and classification of costs.

In this particular case both PNG and Ocelot chose to present cost of service studies based on historical costs using a Fully Allocated Cost of Service ("FACOS") methodology. The adoption of this method by both PNG and the Complainant appears to be predicated on the assumption that average historical costs are unlikely to be substantially different from incremental costs, particularly as they pertain to the transmission component of the cost of service which is by far the largest cost component in this case. This assumption should be

reviewed if any disproportionate growth takes place on the system either through a significant increase in load by an existing customer or a major new user appearing on the system.

Using FACOS, the process of rate determination consists of three conceptually distinct steps. These are:

- i) estimation of total cost;
- ii) allocation of (i) above to the various customer classes (cost allocation); and
- iii) allocation of revenue requirements within each customer class to the various customers with differing consumption patterns (rate structure).

Step (i) was established prior to this hearing by adopting an 1989 test year. Step (ii), which concerns the allocation of costs between classes, is the primary focus of this hearing. Step (iii), which is sometimes referred to as intra-class allocation, was not addressed by the Applicant since:

"The Company believes the cost allocation principles and general rate design objectives should be established prior to the detailed assessment of changes in the various block rates."

(IR 37, Exhibit 6)

In order to allocate the cost of service among customer classes, a three step procedure has been developed. The first step is to separate the rate base and annual revenue requirement into functional categories; i.e. allocate costs to various categories based on functions such as purchased gas cost, transmission cost, distribution cost, and so on.

The second step is to further separate each functional amount into classifications based on cause or type of cost, e.g. demand or capacity, commodity use and customer cost. This step requires judgement since many costs, e.g. purchased gas costs, have both a capacity and commodity component. Although a variety of methods have been devised to help apportion costs between capacity, commodity and customer components, some degree of imprecision in the apportionment is unavoidable.

The third step is to allocate the various functionalized and classified costs to the appropriate rate classes. Allocation of the costs can be assigned directly when the amount of class responsibility is clear, as with gas commodity charges. However, this task becomes

significantly more difficult where there are joint costs; i.e. costs incurred to serve more than one customer or customer class, such as capacity costs.

This hearing addressed four major issues with respect to cost of service studies. These were (i) the role of cost of service studies, (ii) how should capacity be allocated amongst firm customer classes, (iii) to what extent should interruptible customers bear fixed costs, and (iv) how should interruptible revenues from large industrial customers be credited.

4.2 Role of Cost of Service Studies

PNG testified that the purpose of a fully allocated embedded cost of service study is to determine "the cost of serving the different rate classes and the ratio of revenue provided by each respective class to its allocated cost." (Page 3, Tab 2, Exhibit 4.) PNG stated that in carrying out its cost of service study, its choice of methodology was influenced by considerations other than cost and specifically by fairness. Ocelot's expert witness, Mr. Drazen, gave evidence that cost of service studies should reflect cost considerations only and that other goals of rate design, such as fairness, should be considered separately (T. 536).

Witnesses on behalf of PNG and Ocelot testified that cost of service studies require considerable amounts of judgment. In addition, there are limitations on what cost of service studies can measure. For example, there was considerable evidence to show that Ocelot receives a lower quality of interruptible service than do other interruptible customers. However, PNG testified that this was best captured outside of the cost of service study as an external adjustment to the rates indicated by the cost of service study (T. 275).

Similarly, PNG testified that it was subject to substantial business risk resulting from the composition of its load. PNG serves four large industrial customers which take approximately 88 percent of the company's gas sales with Ocelot taking 66 percent. The company testified that there is significant business risk associated with the loss of even one of these major customers (T. 257). This risk has been recognized previously by the Commission in the allowed rate of return on equity. However, in distributing the return on equity among customer classes for cost of service purposes, the company did not attempt to

reflect this difference in risk, although the company believed that residential customers imposed less risk on the system (T. 267). PNG testified that this imposed a limitation on the usefulness of its cost of service study (T. 267).

As a result, both the Applicant and the Complainant suggested that these studies are seen more as a guide than a prescription in setting rates (T. 273/274 and T. 670/671).

4.3 Capacity Allocation - Firm Customers

As indicated in Section 4.1, there are three steps necessary to allocate the cost of service amongst customer classes. No particular issues or concerns were raised with respect to the functionalization or classification of embedded costs and Ocelot accepted PNG's cost of service study results for these two areas. However, they held markedly different views with respect to the appropriate allocation of capacity costs to customer classes.

4.3.1 Modified Partial Plant

The cost of service study presented by PNG used the Modified Partial Plant method, a variation on the Partial Plant method, to allocate capacity costs amongst the different rate classes, including the interruptible class, during the time period they use the system. This method implicitly assumes that the facility is constructed to meet the annual load and each increment of load over the base load requires the addition of a series of partial plants to serve the load. As such, PNG argued it enhances fairness.

"Only those rate classes which utilize capacity in a time period are asked to pay for it."

(Exhibit 4, Tab 1, Page 13)

4.3.1.1 The First Step

The method consists of three steps. The first step assigns capacity cost responsibility to each time period. It begins with the assumption that system capacity can be viewed as a series of partial plants. Each increment of system load calls forth an additional partial plant which exists during the time the load is on the system. Once a load appears on the system,

it exists from that point in time on the load duration curve through all remaining periods including the peak.

Capacity responsibility for each partial plant is allocated on an equal basis to each time period in which the capacity is in use. For example, base capacity is allocated equally to each of 365 days while capacity responsibility for the peak period increment is allocated solely to the peak period. For each time period, capacity responsibility is the sum of the portion of all partial plants used in the time period. The sum of all time period capacity responsibilities equals peak capacity. By developing ratios of each accumulated increment to the total, a weighting factor for each period of the year is calculated.

4.3.1.2 The Second Step

The second step allocates the capacity cost responsibility across rate classes. Time period weights are calculated based on time period capacities determined in the first step. The relevant weights are then applied to class demand in each time period. Summing the weighted class demands across time periods gives the total capacity responsibility for each rate class. Determining the percentage distribution results in the initial cost allocation factors.

However, at this point a problem arises in that the sum of class capacities calculated in the second step does not equal peak capacity. Although the time period weights calculated in the first step are based on peak capacity, the calculated class capacity responsibilities are based on demand in each period, which except for the peak period, is less than peak demand. Thus, total peak capacity is not allocated and any percentage distribution of capacity cost based on this initial allocation will be skewed with more capacity cost being allocated to a 100 percent load factor customer than that customer's maximum demand.

4.3.1.3 The Third Step

The third step is to take the capacity left unallocated under step two, and allocate it based on the aggregate of excess of period use over average use. As Dr. Sarikas testified, (Page 15, Tab 1, Volume 1), this should result in the 100 percent load factor customer

being allocated the same capacity responsibility as he would have been allocated under the coincident peak day method.

The Commission heard several criticism of the Modified Partial Plant method. First, Ocelot argued that this method was inappropriate in principle since it was incorrect to allocate capacity costs based on usage in all time periods instead of solely at peak. Ocelot maintained that gas utilities design their system to meet the maximum expected firm load (Page 10, Tab 2, Exhibit 10) and it is on this basis that capacity costs should be allocated. Mr. Drazen, appearing on behalf of Ocelot, stated:

" I submit that ... the way you measure cost is, the way the utilities design their system, it's by how much do you have to serve at the time of the maximum demand, and how much gas is used on July 3rd or August 12th really doesn't have much impact, if any impact, on the cost of the system.

So if you're trying to measure cost the way you do it here ... is by the contribution to peak." (T. 521)

Second, Ocelot asserted that the method had operational difficulties due to its complexity and was therefore rarely used (T. 130/131).

Finally, Ocelot argued that the method gave results which were inconsistent with the evidence given by PNG (T. 837), in that high load factor customers were allocated capacity cost responsibility in excess of that which they would have been allocated under the coincident peak day method. This resulted in faulty price signals being given to high load factor customers. Specifically, Ocelot demonstrated that high load factor customers could reduce their total cost responsibility under this method (and presumably rates) by increasing gas usage to 100 percent load factor levels even if this resulted in an uneconomic and wasteful use of gas (T. 340/355)

4.3.2 Coincident Peak Method

Ocelot presented its own cost of service study using the coincident peak day method to allocate capacity cost responsibility and restricting capacity cost responsibility to firm service customers only. This method calculates capacity cost responsibility by measuring the load of each customer class relative to the total system load on the peak day. If a

customer class accounts for 40 percent of the load on the peak day, the class will be allocated 40 percent of capacity costs.

Ocelot argued that the coincident peak day method is a standard methodology (Page 9, Tab 2, Exhibit 10) and that other regulatory commissions have found it to be a more appropriate method of determining cost causation than the Modified Partial Plant method (Page 9, Tab 2, Exhibit 10). In particular, Ocelot argued that since gas utilities design their system to meet the maximum expected firm load (Page 10, Tab 2, Exhibit 10) it is on this basis that capacity costs should be allocated. No direct assignment of fixed costs should be made to other than those customers who used the system on the coincident peak.

However, over the course of the hearing, evidence was adduced to show that any method which does not consider mileage would be inappropriate for allocating capacity related costs on PNG's transmission system since customer classes are not evenly spread throughout PNG's distribution area. In particular, small industrial customers are located closer to the beginning of PNG's transmission system while large industrial customers are located towards the terminus of the system. This implies that if mileage is not considered, costs will be over-allocated to customers near the commencement of the system and under-allocated to customers located at the terminus of the system.

As a result, evidence was presented by both PNG and Ocelot with respect to the distance-weighted coincident peak day methodology.

4.3.3 Distance-Weighted Coincident Peak

The Distance-Weighted Coincident Peak Day method allocates capacity responsibility based on usage at peak, weighted by the distance gas is transported. Both Ocelot and PNG testified that the Distance-Weighted Coincident Peak Day Method was a reasonable method of capacity cost responsibility allocation. Ocelot testified that it was a refinement to the Coincident Peak Day method while PNG testified that it had been their second choice for the cost of service study.

Both PNG and Ocelot presented preliminary evidence indicating the impact which a change to the distance-weighted coincident peak-day method would have on their respective cost studies. Exhibit 20 presented by PNG, shows the results of a distance-weighted coincident peak day methodology assuming that interruptible customers are allocated capacity. The study indicated that a movement to this method from the Modified Partial Plant method would decrease PNG's estimate of Ocelot's capacity cost responsibility by approximately \$975,000 resulting in an estimated over-contribution of approximately \$3.6 million. Exhibit 33 shows the results of Ocelot's cost of service study using this method and assuming that no capacity cost allocation is made to interruptible customers, and indicates that Ocelot's capacity cost responsibility would increase by approximately \$600,000 resulting in an estimated over-contribution of approximately \$3.7 million.

4.4 Capacity Allocation - Interruptible Customers

4.4.1 PNG "Avoided Cost" Approach

The cost of service studies presented by PNG and Ocelot differed in their treatment of interruptible customers. PNG's study assumed that all customers, whether firm or interruptible, should bear capacity cost responsibility. PNG supported this method on the grounds that it is more equitable.

"Mr. Rice: Q: Now, its your view that customers ought to be allocated a portion of the total system capacity because that customer is enjoying the benefits of the system to a greater or lesser degree.

Dr. Sarikas: A: Yes, I generally favour someone paying for the use of a system even though they may not have caused an expenditure to be made in order to supply them, but that they should not enjoy the free use of the system that was provided by others." (T. 453)

In order to allocate capacity costs to interruptible customers, PNG employed an "avoided cost" approach. This approach requires that interruptible customers be treated as if they received firm service. Therefore, the costs of serving interruptible customers on a firm basis must be calculated. These costs include investment in plant needed to provide service and increased Westcoast demand charges. Second, it is assumed that these costs are incurred to serve all classes of customers and so are allocated across all customer classes based on the Modified Partial Plant allocation factors. Third, since these costs are not actually incurred, but represent the savings obtained by serving interruptible customers as firm, they must be subtracted from the "beefed-up" cost of service. Dr. Sarikas assumes that the savings are divided equally between interruptible and firm classes of customers. The rationale for the equal division is that equality would be the outcome of a hypothetical "hard bargaining" between interruptible and firm customers. Fourth, the 50 percent of savings allocated to interruptible customers are allocated on the basis of average load, while the 50 percent allocated to firm customers are allocated between firm classes on the basis of "valley gas", i.e. the difference between class peak load and firm requirements on any given day, and on previously determined capacity responsibility.

Dr. Sarikas testified that the avoided cost approach was chosen since it provides

"an equitable way of arriving at what the savings were first of all, because by knowing avoided cost you know what the savings are from interruptible service." (T. 368)

or put another way,

"it provides for a credit that is equal to the total savings derived from the provision of interruptible service."

(Exhibit 6, IR 8)

Specifically, he argued that the avoided cost method requires less judgment than the approach used by Ocelot, since the actual benefits of interruptibility are calculated. Mr. Drazen disagreed with this approach, arguing that it is inappropriate to assign capacity

responsibility to interruptible customers (Page 14, Tab 2, Exhibit 10). Support for this view was given by Mr. Dyce, who stated that PNG did not design its system to serve interruptible customers (T. 186).

However, a number of other problems with PNG's approach were also identified. First, two areas were identified which require the exercise of significant judgment. These are the estimate of the cost of making interruptible sales firm and the allocation of the savings from the provision of interruptible rather than firm service between interruptible and firm service customers.

PNG's cost of service study assumed that the savings are initially split equally between interruptible and firm service customers, arguing that this is the result which would likely be achieved through "hard negotiation" (Exhibit 6, IR 16). Dr. Sarikas stated that the equal allocation was entirely hypothetical (T. 366).

In addition, Counsel for Ocelot argued that the distribution of the estimated savings amongst firm and interruptible customers results in counter-intuitive results. In cross-examination, Dr. Sarikas and Mr. Bellin stated that this method resulted in an increased capacity cost allocation to high load factor firm industrial customers and that such a result was unlikely in a freely negotiated contract.

"Mr. Wallace: Q: But they're [industrial customers] going to say, aren't they, say to you, well, forget it. Just treat us as firm, as you did on page 21. This share the benefits has cost us two million dollars and it was a nice idea, but we're out of here, aren't they? Isn't that what a reasonable party is going to say?

Mr. Bellin: A: They probably would, yes."

(T. 374/375)

4.4.2 Ocelot Value of Service Approach

As indicated earlier, Ocelot's witness argued that interruptible customers impose no capacity costs on PNG's system and therefore should not be allocated any capacity responsibility for interruptible service. Mr. Drazen stated:

"Gas utilities do not build facilities to serve interruptible load. As a result, there is very little cost incurred in respect of such loads. There is no capacity-related cost; only commodity-related cost---that is, purchased gas, compressor fuel and pipeline commodity tolls. Therefore a standard method of calculating capacity cost is to allocate capacity costs only to the firm customers and to exclude the interruptible loads from that allocation."

(Exhibit 10, Tab 2, Page 12)

And later

"The allocation of costs to interruptible loads should be based only on those costs actually incurred, namely commodity costs but no capacity costs.

(Exhibit 10, Tab 2, Page 14)

And also

"That does not mean that the interruptible rates need to be set at the calculated cost. But the extent to which interruptible rates exceed the actual cost of service should be recognized for what it is, a pricing decision."

(Exhibit 10, Tab 2, Page 14)

To the extent that the market will bear interruptible rates in excess of variable costs, Ocelot acknowledged that a premium can be generated which may be used as a credit against the fixed costs assigned to firm customers and thus reduce firm rates. (Exhibit 10, Tab 2, Page 14). Specifically, Ocelot argued that interruptible rates should be set on a value of service basis. And, though PNG did not espouse this methodology, Dr. Sarikas gave evidence that:

"Allocated cost of any kind can't be applied in the face of market forces."
(T. 369)

thus, suggesting that value of service considerations must be taken into account regardless of the method of capacity allocation.

Witnesses for both PNG and Ocelot testified that incremental or variable costs are the floor for interruptible rates; however, they appear to hold differing views as to the value of the floor. Given Ocelot's proposed demand commodity rate structure for industrial customers,

it would appear that Ocelot views the floor as being \$0.08. This number may be partially supported by Commission staff Information Request 31, Exhibit 6, which shows the makeup of the current \$0.16 incentive and interruptible rate to Ocelot to be as follows:

Fuel Consumption	\$0.0665
1 percent in lieu of Property Tax	\$0.0121
Misc. O&M and A&G Expense	\$0.0121
Contribution to Fixed Cost	<u>\$0.0693</u>
Total Cost	\$16.0000 cents

However, in cross-examination, Mr. Dyce testified that during some periods the variable cost of moving gas exceeded \$0.16 (T. 41/42).

Witnesses for both parties testified that for the PNG system the ceiling price for interruptible gas is the firm service rate. Ocelot witnesses testified that if rates for interruptible service equalled the firm rate, Ocelot would take firm service in preference to interruptible service.

Ocelot did not present evidence to indicate the market value of interruptible sales or the amount of premium that might be generated by interruptible sales. However, it is clear that one factor which will influence the value of interruptible gas sales to Ocelot is the value of methanol. Methanol is a primary petrochemical produced mainly from natural gas. The two largest markets for methanol are for formaldehyde which is used in the production of resin for wood panel board and building materials and for methyl tertiary butyl ether ("MTBE") which is used as an octane enhancer. This second use for methanol is expected to grow rapidly as MTBE has proven effective in reducing motor vehicle carbon monoxide and nitrous oxide emissions.

Ocelot testified that methanol is sold in a world market rather than in regional markets. Traditionally, the demand for methanol has been inelastic, i.e. changes in the price of methanol have had little impact on the demand for it, and cyclical. Therefore when excess world supply exists the price will fall significantly and vice versa.

For the purposes of the cost of service study, Ocelot assumed that interruptible customers contribute \$2 million above incremental costs, allocated as in the PNG study. The \$2 million reflects the approximate difference between current revenue from interruptible sales and the cost of providing interruptible sales exclusive of any capacity allocation. Based on total (Ocelot plus others) interruptible sales of 7800 TJ, this would give rise to an interruptible rate of \$0.253 per gigajoule. The PNG proposed rates for interruptible customers, which include a transportation rate for interruptible service to Ocelot of \$0.215 per gigajoule also gives rise to the \$2 million credit (Exhibit 11, Response to Staff IR 5).

Ocelot's witness stated that setting interruptible rates equal to firm rates at a 200 percent load factor would result in interruptible rates ranging from \$0.2659 to \$0.3070 per Mcf. Ocelot's rate would be \$0.2842 per Mcf. These rates would also generate a \$2 million credit. In testimony, Ocelot's witness testified that a 200 percent load factor rate appeared reasonable for interruptible service.

4.5 Results of Cost of Service Studies

4.5.1 PNG Cost of Service Study Results

The major conclusions of the PNG study are as follows:

1. The revenues resulting from rates charged to residential gas users appear to be less than the allocated cost of providing such service, by approximately \$1.8 million.
2. The revenues resulting from rates charged to commercial gas users appear to be more than the allocated costs of providing such service by approximately \$900,000.
3. The revenues resulting from rates charged to the large industrial firm gas users for firm gas deliveries are greater than the allocated cost of delivering such gas. In total, firm sales and service revenues for large industrial customers exceed cost of service by about \$3.8 million. Ocelot's portion of this amount is estimated by PNG at \$2.6 million.
4. The revenues resulting from rates charged to Skeena Cellulose Inc., Eurocan Pulp and Paper Co. Ltd. and Alcan Smelters and Chemicals Ltd. for interruptible gas deliveries are greater than the allocated cost of delivering such gas by an estimated \$300,000.
5. The revenues resulting from rates charged Ocelot for interruptible service are less than allocated costs by an estimated \$3.0 million.

4.5.2 Ocelot's Cost of Service Study Results

The major conclusions of the Ocelot cost of service study are as follows:

1. The revenues resulting from rates charged to residential gas users appears to be less than the allocated cost of providing such service by approximately \$4.0 million.
2. The revenues resulting from rates charged to commercial gas users appears to be less than the allocated cost of service by approximately \$1.6 million.
3. The revenues resulting from rates charged to large industrial firm gas users for firm gas deliveries are greater than the allocated cost of delivering such gas by approximately \$5.9 million, of which Ocelot's share is \$4.3 million.

In addition, a comparison of the revenues received from large industrial customers to the costs assigned to them in the Ocelot cost of service study shows that the revenues resulting from rates being charged large industrial customers for interruptible gas delivery are greater than the allocated cost of delivery of such gas by approximately \$1.8 million.

The following table summarizes and compares the differences between the revenues collected under current rates and the allocated costs developed by the Applicant and Complainant using their respective cost of service methodologies.

**Comparison of Cost of Service Results
Revenue Less Allocated Revenue Requirement
(Thousands of Dollars)**

	<u>PNG</u>		<u>Ocelot</u>	
	\$000		\$000	
	<u>Under</u>	<u>Over</u>	<u>Under</u>	<u>Over</u>
	<u>Contribution</u>	<u>Contribution</u>	<u>Contribution</u>	<u>Contribution</u>
Residential	(1,828)		(4,046)	
Commercial		912	(1,563)	
Small Industrial	(195)		(321)	
NGV		16		37
Ocelot		2,639		4,290
Skeena		607		778
Eurocan		444		735
Alcan		80		81
Interruptible				
- Large Commercial	(19)		-	
Interruptible				
- Ocelot	(2,976)			-
- Skeena		214		-
- Eurocan		78	-	
- Alcan		28		-

Source: PNG and Ocelot Cost of Service Studies.

4.6 Commission Summary and Conclusions

4.6.1 Role of Cost of Service Studies

A cost of service study is a guide to determine whether the revenues generated by the rates charged to a particular class of customer are sufficient to cover the cost of serving that class of customer. As such, cost of service studies should reflect costs only. Other considerations, while important in determining fair, just and reasonable rates, should be included following a review of the cost of service study results.

Given the above, the results of cost of service studies should be seen as a tool to be used in the setting of fair, just and reasonable rates. They are not, in and of themselves, fair, just and reasonable rates.

The Commission is also cognizant of the considerable reliance upon judgement involved in the undertaking of a cost of service study. Although judgement is required in lesser amounts to determine the specific component of the total cost of service and functionalization of costs, significant judgement is required to classify costs between capacity, commodity and customer components. Even greater judgement is required in determining the appropriate method to allocate these costs amongst rate classes. For example, compressor costs have been allocated 100 percent to capacity even though annual usage contributes to a decreased service life. Similarly, different classes of customers impose different levels of risk on the utility, but quantifying the appropriate cost differential is not attempted in these studies. Finally, there are benefits attributable to serving certain classes of customers but these, too, have not been included as an offset against costs within the study as they are not easily quantified.

Therefore, even as a tool for indicating the level of costs attributable to serving a particular class of customer, cost of service studies must be viewed as an indicator only, of the sufficiency or insufficiency of rates to cover a particular set of costs. Given the imprecision inherent in cost of service studies in general, and in particular the studies in issue, the Commission believes that as long as revenues from a particular class of service and costs allocated to that class of service do not differ by more than 10 percent, there is no compelling evidence to determine that the cost of service results indicate rate restructuring is required.

4.6.2 Capacity Allocation - Firm Customers

The primary issue before the Commission is whether capacity costs should be allocated amongst customer classes solely on the basis of usage at peak or on a basis that in addition reflects usage in all time periods. Secondary issues include the reasonableness of the results generated by each study and the ease of understanding each method.

Capacity was defined in this proceeding as the maximum amount of service a utility will be required to provide at any one point in time. Evidence was clear that it is on this basis that PNG's facilities were designed and constructed.

PNG testified that the Modified Partial Plant method is based on the assumption that capacity responsibility is a function of capacity use in all time periods and not solely the peak-day period. In assessing this assumption, the Commission had regard to its stated belief that cost of service studies should reflect costs only. If capacity costs are a function of capacity use in all time periods, then a reduction in usage off peak should result in a reduction in capacity costs. PNG presented no evidence at the hearing to lead to the conclusion that decreased usage off peak would result in such a reduction.

Additionally, if there were some portion of costs currently classified as capacity found to vary with a change in throughput, it would be more appropriate to separate out the commodity component during the classification stage of the cost of service study rather than to allocate capacity based on commodity usage.

Cost allocation methodologies, like rates, should be easily understandable, within the constraints of theoretical correctness, and additional complexities should have clear and identifiable benefits. Even if off-peak usage influenced capacity costs it would be difficult to endorse the Modified Partial Plant due to its complexity.

In assessing the reasonableness of the results generated by the Modified Partial Plant methodology, the Commission was influenced by the apparent inducement to wastefulness afforded high load factor customers. An appropriate method of cost allocation should not provide an incentive to the uneconomic use of energy or a commitment to higher firm nomination, which in turn could cause unnecessary capital expansions to the pipeline system.

Therefore the Modified Partial Plant method of capacity allocation proposed by PNG is found to be deficient as it is applied to the current circumstances of the PNG system.

The Coincident Peak Day method proposed by Ocelot allocates capacity costs based on rate class demand at system peak. Assuming full utilization of the system, if the demand for service at peak by one rate class increases then costs are imposed on the system. These costs occur since either facilities will need to be built to provide the increased service or

another customer's demand at system peak will not be met. Therefore, in general terms, the Coincident Peak Day method results in a proper allocation of capacity costs between rate classes in these circumstances.

However, evidence adduced at the hearing did identify a deficiency with respect to the allocation of costs. PNG's customers are not distributed evenly throughout the service area. Small industrial customers are located near the beginning of the system while large industrial customers are located near the terminus. Therefore, if capacity is allocated solely with respect to use at peak, small industrial customers will be allocated capacity costs for facilities which they do not use. This problem can be overcome by weighting the Coincident Peak Day allocation factors by the average distance each customer class is located from the origin of PNG's system.

Therefore, given these particular circumstances, PNG's capacity costs to firm customers should be allocated using a Distance-Weighted Coincident Peak Day methodology.

4.6.3 Capacity Allocation - Interruptible Customers

The issues to be considered are two-fold: (i) are interruptible customers properly allocated capacity costs and if so how should these costs be determined and (ii) if interruptible customers are not allocated capacity costs how should rates be set .

PNG's argument with respect to interruptible customers follows from its endorsement of the Modified Partial Plant Method of cost allocation. Specifically, PNG argued that interruptible customers should be allocated capacity costs since they use the system and that the amount should reflect a portion of the "avoided cost " of capacity resulting from interruptible rather than firm service.

As stated in previous sections of this decision, cost of service studies should reflect costs. If interruptible customers impose capacity costs on the system, then a decline in interruptible service should lead to a reduction in capacity costs. There is no evidence to indicate that this would occur. Therefore, interruptible customers should not be allocated capacity supply costs.

If interruptible customers were to be allocated capacity costs there would still be problems with the avoided cost approach. Although this approach purports to be equitable, the equity is based on the assumption that the avoided costs can be known with a reasonable degree of certainty. However, in actual practice the approach requires significant reliance on judgement, not only with respect to the estimate of the cost of making interruptible service firm, but also with respect to the allocation of savings from interruptible service between firm and interruptible customers, and between firm service classes. Thus, the results of this methodology are likely to owe more to the assumptions which underlie the study than they do to an objective determination of costs.

However, the fact that interruptible customers are not properly allocated capacity costs does not mean that rates for interruptible service should be set without regard to capacity usage considerations. Although interruptible customers do not impose capacity costs, it is clear that they benefit from using the capacity installed and paid for by firm service customers. To the extent that this usage is valued by interruptible customers, it is fair that interruptible customer rates should be set so that this value is captured. Further, in order to preserve the integrity of the revenue requirement, the positive difference between the value and cost of interruptible service, ("the Premium") should be credited against firm service costs so that the rates for firm service customers may be reduced. The premium resulting from interruptible service should be credited to firm service customers in the same manner as that which made the interruptible gas available in the first instance, by capacity installed to meet the needs of the coincident peak day customers. Accordingly the adjustment is made pro-rata on the basis of one minus the load factor for each customer class.

The evidence led by both PNG and Ocelot suggested that an upper limit on interruptible rates is set by firm service rates. Similarly, the evidence suggested that the floor on interruptible rates is set by the variable cost associated with providing the service.

Given that revenues from interruptible service, over and above the cost of providing that service, are used to offset firm service capacity costs, the rates for interruptible service should be set so as to maximize this differential. The size of this differential will reflect the value of the final product using the interruptible gas and the amount of interruptible gas which the utility can provide. The Commission recognizes that the value of interruptible

sales will reflect its demand at various prices and the avoidance of fixed costs of increased firm nominations. While the price must exceed the minimum variable costs of making interruptible gas available, the optimum price will depend on the amount of gas available, the production profiles of the industrial customers, the firm demand charges on the PNG and Westcoast systems, the inherent advantages of this form of service and the price of alternative fuels. This price could exceed the 100 percent firm load factor price.

The Commission's findings with respect to interruptible rates are set forth in Section 5.3.

5.0 RATE PROPOSALS

5.1 PNG Rate Proposal

Based on the results of PNG's study, the Company has recommended the following changes to its rates.

"1. Effective January 1, 1991:

- a) residential rates be increased by 5.0 percent (\$0.237 per gigajoule) to generate additional revenue of approximately \$318,000 per year;
- b) interruptible rates to large industrial firm gas users, other than Ocelot, be reduced by approximately 10.0 percent (\$0.188 per gigajoule) resulting in a reduction in revenue of \$318,000 per year; and
- c) Ocelot's rates for firm incentive gas and interruptible gas be amended to eliminate the incentive gas rate, and that Ocelot's interruptible rate be increased by \$0.55 per gigajoule. The additional revenues generated by these changes would be credited to Ocelot's firm gas rates which would result in no change to Ocelot's overall cost of gas based on its 1989 normalized gas requirements.

2. Effective January 1, 1992 and 1993

- a) residential rates be increased by 5.0 percent on January 1, 1992 and by a further 5.0 percent on January 1, 1993. Each 5.0 percent increase would generate additional revenue of approximately \$318,000 per year and by the end of 1993 would result in the elimination of approximately 50 percent of the current difference between residential rates and allocated cost; and
- b) the additional revenues collected from the residential sector be credited to large industrial firm gas rates with a view to making the revenue to cost ratios of all large industrial firm gas users equal as of December 31, 1993."

(Executive Summary Pages 3/4)

The proposal leaves commercial, small industrial and natural gas vehicle rates unchanged. Also unchanged are intra-class rate structures for all classes of service.

PNG put forward this proposal as reflecting the findings of their cost of service study. In addition, PNG argued that further changes are unnecessary since Ocelot's initial rates for service can be assumed to have been fair and that there have been no changes in circumstances since then to render them unfair today.

5.2 Ocelot Rate Proposal

Based on the results of Ocelot's cost of service study, Ocelot has recommended the following changes to PNG's rates.

1. Firm rates for all classes of service should move towards costs as rapidly as possible even if this results in concurrent increases in interruptible rates. Ocelot argued that this would allow it to make proper operating decisions based on whether incremental purchases were advantageous.
2. Interruptible rates should reflect market conditions.
3. There should be a five percent increase annually for the next three years for all classes currently under contributing to the cost of service. This would particularly affect residential, commercial and small industrial rates.
4. The increased revenues obtained from the under contributing classes should be used to reduce large industrial rates on a pro rata basis based upon their over contribution.
5. Rates to large industrial customers be restructured to reflect demand and commodity charges instead of the current commodity only rates which require industrial customers to take a certain minimum quantity. The demand charge would cover most or all of the capacity related costs while the commodity charge would recover only commodity related costs (T. 859 - 861).

Ocelot suggested the appropriate rates would be around \$16-\$19 per Mcf of Demand while the commodity charge would be about \$0.08 per Mcf. The \$0.08 commodity charge is proposed by Ocelot on the grounds that it covers a penny and a half of Westcoast commodity tolls, \$0.03 to \$0.04 of compressor gas and supply-related overheads (T. 675).

Ocelot supports this structure on the grounds that it is easier and makes it unnecessary for industrial customers to specify load factor. Ocelot further testified that it reduced the risk to the utility if the demand charge covered the fixed cost.

Although PNG did not propose the implementation of a demand commodity charge for industrial customers, the company testified that it would find such a rate structure acceptable in theory (T. 271). However, PNG argued that the Commission should not order such a rate change as part of this hearing but instead PNG and Ocelot should hold further discussions on the matter so that the full consequences of such a change could be adduced (T. 820).

Several potential consequences of this rate structure were discussed during the course of the hearing. Although it would eliminate the potential for extra profits on incentive rate gas sales, PNG testified that this rate structure would reduce the overall business risk from serving industrial customers.

"Mr. Dyce: It certainly would go a long way to reducing the risk, if we had 100 percent of fixed costs for the industrial customers in the form of a demand charge and strictly the variable cost as a commodity, it certainly would go a long way to reduce the risk on the PNG system." (T.269)

As a result, the company testified that it was likely that such a structure could result in the company being awarded a lower rate of return on equity than it would otherwise receive.

"Mr. Dyce: I agree, Mr. Rice, when you reduce the risk by having a demand charge that covers 100 percent of the fixed costs, it does reduce the risk and I would expect we would end up with a reduced return." (T. 280)

Although PNG did not testify as to the likely level of the demand charge and commodity charge, evidence presented at the hearing indicated that PNG would likely see the appropriate commodity charge as being in excess of \$0.08 per Mcf and most likely around 16 cents per Mcf. In response to a staff information request, PNG testified that \$0.16 is required to recover the variable cost of providing industrial gas plus a small contribution to fixed costs (IR 31, Exhibit 6) and in cross-examination, indicated that for certain sales, \$0.16 may be insufficient to cover the variable cost of service (T. 42).

Finally, Ocelot asked the Commission to make a "strong endorsement of the principle that rates should be cost-based" (T. 860) in order to send a signal to Ocelot and other potential investors that the Commission is concerned with economic development in the Kitimat area.

5.3 Commission Summary and Conclusions

On the basis of the evidence in this proceeding, and for the purposes of a cost of service study, the Commission accepts the functionalization and classification of costs as prepared and presented by PNG in their cost of service study and accepted by Ocelot. Further, for the purposes of a preliminary cost of service study, the Commission accepts the total gross cost allocation presented in Exhibit 33, a cost of service study prepared by Mr. Drazen using the Distance-Weighted Coincident Peak Day Allocation, and allocating no capacity costs to interruptible customers.

This preliminary allocation of gross costs requires modification. Gross costs for firm service customers shall be reduced by the estimated amount of the Premium to be obtained from interruptible customers with the Premium distributed on the basis of one minus the class load factor at system peak. Where the class load factor at system peak is in excess of 100 percent, it shall be assumed, for these purposes, that the class load factor is 100 percent. For the purposes of the Commission's estimate of the results of the cost of service study, the premium shall be assumed to be \$1.9 million which is the amount by which interruptible customers revenues exceed their allocated costs.

Table 2 presents the Commission's estimates of the results that would be obtained from a cost of service study undertaken as directed by this decision.

Table 2
Commission Cost of Service Study Estimates

	<u>Revenue (1)</u>	<u>Gross Costs (2)</u>	<u>Allocated Premium</u>	<u>Net Costs</u>	<u>Revenue- Net Cost</u>	<u>Revenue/ Cost</u>
Residential	6,086	10,386	(667)	9719	(3,633)	.63
Commercial	6,102	7,930	(678)	7252	(1,150)	.84
Small Ind	4,327	4,208	(387)	3821	506	1.13
NGV	186	140	0	140	46	1.33
Ocelot - firm	39,220	36,037	(34)	36,003	3,217	1.09
Skeena - firm	2,938	2,699	(66)	2,633	305	1.12
Euro- firm	6,221	5,664	(81)	5,583	638	1.11
Alcan - firm	677	611	(5)	606	71	1.12
Lge Comm - Interruptible	330	226	104	330	0	1.0
Lge Ind Interruptible	10416	8,602	1814	10,416	0	1.0
Total	76,503	76,503	0	76503	0	1.0

(1) Page 1, Tab 3, Exhibit 4

(2) Exhibit 33

Based on the above, the Commission finds the following:

1. The Commission accepts that firm rates should move as rapidly as possible towards costs, modified by the zone of reasonableness whereby, in the absence of compelling evidence to the contrary, a revenue to cost ratio of 90 to 110 percent shall be seen as revenue cost equality. Accordingly, the Commission orders that residential rates increase by five percent and commercial rates by three percent per annum for three years commencing in accord with the implementation date described in Section 6.2. The increases will be calculated exclusive of any changes in the cost of gas which may arise. The increased revenues received from residential and commercial customers will be used to lower firm rates to those customers whose rates are in excess of the zone of reasonableness established by this decision.

2. The cost of service study results indicate that current small industrial rates fall outside the zone of reasonableness. Therefore, the Commission directs that rates for service for small industrial customers decline on a one time basis by approximately \$.09 per gigajoule. Such a decline will act to bring these rates within the required zone.
3. The cost of service study results indicate that Natural Gas Vehicle rates do not fall within the required zone. Therefore the Commission directs that rates for service for these customers decline on a one time basis by approximately \$.52 per gigajoule.
4. The cost of service study results indicate that the firm service rates for Skeena, Eurocan and Alcan fall outside the zone of reasonableness. Therefore the Commission orders that their rates for service fall on a one time basis by approximately \$.01 per gigajoule, \$.03 per gigajoule and \$.03 per gigajoule, respectively, in order to bring their rates into line with the required zone.
5. Further, the Commission directs that the balance of the increased revenues obtained from the increase in rates to residential and commercial customers ordered in (1) above shall be redistributed to firm service industrial and natural gas for vehicle customers on a pro rata basis, based on consumption volumes.

The Commission rejects the suggestion advanced by Ocelot that the increased revenue resulting from the increase in residential and commercial rates be distributed to large industrial customers based on the absolute over-contribution of each customer since the Commission finds that this would result in an unfair distribution.

6. The Commission does not object in principle to the introduction of a demand/commodity charge for large industrial customers, but agrees to PNG's request to allow time for further negotiation on the subject to take place between PNG and all its large industrial customers prior to the implementation of such a rate structure.

7. The Commission accepts PNG's proposal to eliminate the incentive rate charged to Ocelot for the last 7.8 percent of contract demand and orders that the increased revenues resulting from the elimination of the incentive rate be used to reduce Ocelot's existing firm service rates.
8. The Commission accepts Ocelot's position that rates for large industrial interruptible service should be based on value of service. The absolute value of interruptible rates must be a matter for negotiation between the utility and its customers. However, until such time as negotiations can take place the Commission sets the rates for interruptible service at the existing levels.

Negotiation must be completed by July 1, 1991 and presented to the Commission for consideration on or before this date. To ensure equitable treatment of firm customers, PNG will be required to provide evidence that it has achieved market value prior to approval of the interruptible rate of rates. Upon approval of the negotiated rates by the Commission, adjustments to the interruptible rates will be made. In the absence of negotiated rates by July 1, 1991, the Commission will fix the rates following a summary inquiry or hearing.

9. In setting these rates, the Commission recognizes that rate design is an evolving process with limits on precision. Therefore, the Commission directs PNG to file an updated cost of service study prior to November 1, 1993, inclusive of proposed rates. Among other matters, this study will further review the functionalization and classification of costs presented in this proceeding; the appropriateness of the determination of the peak day including whether or not more than a single day should be used; other costs, if any, emanating from the use of the system; and the impact of different levels of risk imposed upon one class of customers by another. The study must also address the appropriate intra-class rate structures, the impact of rate structures on Demand Side Management and the reasons, if any, for different rate structures within the large industrial class.

6.0 POSTPONEMENT OF IMPLEMENTATION

6.1 Issue

Three days prior to the commencement of final argument, PNG gave notice that it wished to amend its application to change the date the proposal would be effective to January 1, 1992 from January 1, 1991. PNG argues that the total potential rate, effective January 1, 1991, arising out of this proposal together with potential increases arising from an increase in PNG's revenue requirement, recovery of deferred income taxes, the implementation of the Goods and Services tax, an increase in Westcoast tolls and an increase in franchise fees would expose the residential consumer to rate shock as discussed in Section 3.3. PNG states that shifting the Application forward one year would eliminate this potential (T. 816).

In response Ocelot argues that "It would be very wrong for [the Commission] to defer implementing a proper decision, having heard this case, simply to make it easier for PNG to apply to you to increase rates for other reasons upon which you have no evidence at this time." (T. 827).

6.2 Commission Summary and Conclusions

The Commission accepts the argument put forward by Ocelot and directs PNG to file new rates at such time as the Commission has issued its Decision with regard to the Revenue Requirements hearing (commencing on March 18, 1991) and in any event, no later than July 1, 1991.

DATED at the City of Vancouver, in the Province of British Columbia, this day of
February, 1991.

J.D.V. Newlands, Deputy Chairman

N. Martin, Commissioner

W.M. Swanson, Commissioner

IN THE MATTER OF
the Utilities Commission Act
S.B.C 1980, c. 60, as amended

and

IN THE MATTER OF
a Complaint by Ocelot Chemicals Inc.
against Pacific Northern Gas Ltd.

and

IN THE MATTER OF
a Rate Design Application
by Pacific Northern Gas Ltd.

DECISION

February 27, 1991

BEFORE:

J.D.V. Newlands, Deputy Chairman;
N. Martin, Commissioner; and
W.M. Swanson, Q.C., Commissioner

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