INTRODUCTION

This Decision is directed to resolution of the specific issues in dispute between the British Columbia Hydro and Power Authority ("B.C. Hydro" or "Hydro") and West Kootenay Power and Light Company, Limited ("WKPL"), which have precluded completion of the longer-term contractual arrangements desired by both parties. It focuses essentially on determination by the Commission of the just and reasonable rates for power and for wheeling services to be provided by B.C. Hydro to WKPL for a transition period, together with the appropriate terms and conditions to be associated with the rates in both the transition and longer-term periods of the required contract. The Decision therefore, while providing the principles on the basis of which the contract is expected to be drawn between the parties, leaves the actual choice of words reflecting those principles, for the parties themselves to decide.

In the absence of definitive and documented supply alternatives and system plans by WKPL, this Decision is based on the premise and WKPL's declared intention, that B.C. Hydro will be WKPL's sole supplier of future incremental power requirements until at least the year 1990. It is the firm belief of the Commission, however, that it is the duty and responsibility of every regulated public utility to be ultimately free to seek out and obtain the lowest cost, secure sources of supply consistent with the markets to be served. Where this is not undertaken by the utility the shareholders must be prepared to bear the ultimate responsibility and related costs.

Accordingly, this Decision is not to be interpreted as directing or restricting either party as to future system plans or alternatives. If WKPL ultimately undertakes a transition from total dependency to partial dependency or no dependency on B.C. Hydro for its incremental power requirements, the principles adopted and rates, terms and conditions in this Decision will continue to apply. The Commission recognizes and accepts, however, that circumstances may arise requiring changes to the Terms and Conditions and rates specified in this Decision, to ensure that they remain just and reasonable to both

SECTION 1.0 BACKGROUND

1.1 Matters in Dispute

A hearing into various matters in dispute between West Kootenay Power and Light Company, Limited and British Columbia Hydro and Power Authority began May 12, 1986. The hearing was originally set for December 11, 1985 but was adjourned* to April 18, 1986 upon application by B.C. Hydro. The hearing was adjourned once more to May 12, 1986 as a result of extensive additional evidence filed by B.C. Hydro on March 25, 1986.

The issues the Commission is asked to resolve can be stated simply as the appropriate power purchase and wheeling rates B.C. Hydro should charge WKPL, and the appropriate terms and conditions required to render those rates just, reasonable and not unduly discriminatory. Those issues are inevitably difficult, involving not only technical complexities but also in this instance, recognition of the historical relationship between the utilities and the principle of fairness.

The issues at the hearing, which are formally identified in the Adjournment Decision, are as follows:

(a) The November 7, 1985 application of WKPL pursuant to Sections 28, 32, 88 and 100 of the Utilities Commission Act ("the Act") to allow wheeling of WKPL power over B.C. Hydro facilities between South Slocan and delivery points at Vernon, Princeton and Creston at existing rates. Further, to allow emergency wheeling over B.C. Hydro facilities in the event of the loss of the Waneta-Boundary (transmission) line.

(b) The November 22, 1985 complaint of WKPL pursuant to Section 64 of the Act that B.C. Hydro Rate Schedule 1211 proposed to be charged for service to WKPL is unjust and unreasonable.

* The Commission's decision allowing the adjournment is dated December 18, 1985 (the "Adjournment Decision").

(c) The November 29, 1985 application by B.C. Hydro pursuant to Section 67 of the Act to establish rates with respect to the unexecuted General Wheeling Agreement.

(d) The complaint of WKPL in connection with B.C. Hydro's proposed General Wheeling Agreement rates.

1.2 West Kootenay Power and Light Company, Limited

West Kootenay Power and Light Company, Limited is an electric utility regulated under the provisions of the Utilities Commission Act. The Company was incorporated by an Act of the British Columbia Legislature on May 8, 1897 and is authorized to generate, transmit and distribute power within a radius of 150 miles of Rossland, British Columbia. WKPL serves residential, commercial, irrigation, street lighting, and industrial customers in an area roughly described as extending from Princeton in the west to Creston in the east, and from the U.S. Boundary north to Kelowna and Kaslo. The Company supplies wholesale power to electric utility operations conducted by the Cities of Grand Forks, Kelowna, Nelson and Penticton, and the District of Summerland. Princeton Light and Power Company, Limited, a privately-owned utility serving Princeton and vicinity, purchases its electric power requirements from WKPL.

WKPL is a wholly-owned subsidiary of Cominco Ltd. ("Cominco"), which owns all of the common shares and about 30 percent of the preferred shares. Cominco owns two hydro-electric power plants, Brilliant and Waneta, which are managed by WKPL. In 1982, Cominco sold three smaller power plants to WKPL for $20 million, as authorized by Ministerial order of the Government of British Columbia. It also gave WKPL an option to construct additional generation at the Brilliant and Waneta sites; undertook to provide 75 average annual megawatts on a firm basis to 1990 and gave WKPL the right of first refusal to buy the remaining power plants and any power generated which was surplus to Cominco's requirements, until 2005.

The WKPL/Cominco integrated system consists of the following generation plants:

Plant No.	Name	Capacity MW	Energy Entitlement (GWh)*	Location
1	Lower Bonnington	41.4	329.3	Kootenay R.
2	Upper Bonnington	59.4	429.6	Kootenay R.
3	South Slocan	53.2	422.9	Kootenay R.
4	Corra Linn	51.2	343.2	Kootenay R.
5	Brilliant**	128.9	853.4	Kootenay R.
6	Waneta**	373.9	2,465.4	Pend d'Or.

* Source - Canal Plant Sub-Agreement
** Cominco Facilities

1.3 B.C. Hydro

B.C. Hydro is the 5th largest corporation in Canada in terms of net assets. It was created as a Crown corporation by Act of the Provincial legislature on March 30, 1962 as the successor, by amalgamation, of the British Columbia Electric Company Limited and the British Columbia Power Commission, which had been the two major suppliers of electricity in the Province of British Columbia prior to that time.

The two electric utilities were amalgamated in order to facilitate integrated planning, generation and distribution of power in response to the growing requirements of the province. As well, the existence of a single major utility was considered necessary to the financing and construction of the large hydro-electric generating projects and other developments that would form the future base of the provincial power supply.

The principal components of the development strategy in the years immediately following the 1962 amalgamation were the dams and power plant constructed under the Columbia River Treaty with the United States, and the W.A.C. Bennett Dam and Gordon M. Shrum generating station on the Peace

River. Major high voltage transmission lines were also required to bring the power from remote power sites to the load centres where population and industry were located. Other significant generation and transmission projects followed as required.

B.C. Hydro built and operates the Canal Plant on the Kootenay River to optimize the total generating capacity of the Kootenay River system. Under the Canal Plant Agreement entered into in August 1972, B.C. Hydro gave average peak and average energy assurances to WKPL/Cominco to the year 2005 as an entitlement in exchange for water rights on the Kootenay River.

B.C. Hydro now owns and operates an electric service that supplies approximately 90 percent of the people of British Columbia. The percentage of the total market supplied with energy actually generated by the utility, however, is significantly less because of privately owned generation, of which the facilities of Cominco and Alcan are examples. B.C. Hydro became subject to general regulatory jurisdiction under the Utilities Commisson Act when the Act was proclaimed September 11, l980. The maps in Figures 1 to 3 indicate the generation and transmission systems of both WKPL and B.C. Hydro.

1.4 Background to the Dispute

1.4.1 Power Purchases

The aforementioned issues have been the subject of discussion between WKPL and B.C. Hydro for a number of years. The history of WKPL's purchases of power from B.C. Hydro is particularly complex. While power purchases are contemplated in the August 1, 1972 "Canal Plant Agreement" between B.C. Hydro and WKPL, purchases did not actually begin until 1978 pursuant to a "once only" agreement dated November 29, 1978, which provided for the sale of power at $1.00/kilowatt per month based on nominated capacity plus plant incremental costs for thermal supply. Thereafter, each year WKPL and B.C. Hydro entered into new "once only" agreements for sale and purchase of power. The price has steadily increased so that by 1984/85 it reached $3.782/kilowatt per month.

Figure 1

Map of British Columbia Showing
B.C. Hydro and WKPL Transmission Systems

Figure 2

Map of WKPL Service Area Showing
B.C. Hydro and WKPL Transmission Systems

Figure 3

Map of B.C. Hydro and WKPL Generation
Facilities in the Trail Area

Prior to 1978, WKPL obtained its entire power supply from owned generation and Cominco. (The Koch Creek Wheeling Agreement with B.C. Hydro had been in place since 1956.) Since that date, WKPL has been purchasing its incremental needs exclusively from B.C. Hydro at negotiated rates. It has on occasion attempted to obtain power from Bonneville Power Administration ("BPA") but B.C. Hydro has matched BPA's "full surplus" price thus ensuring its status as sole supplier of WKPL's incremental needs.

After the Commission was established in September of l980, B.C. Hydro filed with the Commission Rate Schedule 3807 covering rates, including terms and conditions applicable to these "once only" arrangements with WKPL.

During the period that B.C. Hydro has been supplying power to WKPL, the parties have from time to time attempted to negotiate a longer-term contract to govern the purchase of power from B.C. Hydro by WKPL. Commencing in June of l984, a renewed effort was made to resolve the long-term issue. This effort was continued until a November 12, 1985 meeting between the chief executive officers of the two companies failed to produce an agreement.

On July 10, 1985, during the course of the 1984/85 negotiations, B.C. Hydro advised WKPL that it would not enter into another "once only" annual contract. On October 18, 1985, B.C. Hydro advised that if a new long-term rate was not agreed on, B.C. Hydro Rate Schedule 1211 would be applied to WKPL.

On November 7 and 22, 1985, WKPL sought interim orders from the Commission compelling B.C. Hydro to wheel power and to supply power based on Rate Schedule 3807. The Commission, acting on B.C. Hydro's assurance that Rate Schedule 1211 was the most appropriate of its existing filed rate schedules to apply to WKPL issued Interim Orders G-88-85 and G-89-85, which respectively compelled B.C. Hydro to wheel power and to supply it on the basis of Rate Schedule 1211. These Orders were intended to ensure WKPL could obtain sufficient power to serve its customers on an uninterrupted basis.

Occasional willingness by the BPA to supply WKPL suggests that it could be an alternate supplier of power if the correct institutional and economic circumstances existed. Other domestic generators of electricity might also be able to provide some or all of WKPL's incremental needs if B.C. Hydro could not or would not sell power to WKPL at competitive prices. The most significant factor in determining how much power is required from B.C. Hydro, however, is the extent to which Cominco is able or willing to sell to WKPL. Currently, Cominco has an obligation to supply an annual average of 75 MW firm to 1990. After 1990, Cominco has agreed to provide firm power on the basis of a 3-year rolling nomination. In addition, it is obliged to offer WKPL the right of first refusal to purchase any surplus energy it has from time to time. These obligations are imposed by Cabinet Order-in-Council but may be amended by Cabinet upon application by Cominco.

1.4.2 Wheeling

Wheeling is the term used to describe transactions involving electric power in which the owner of a transmission line transmits from one location to another and for a specified charge or rate, energy owned by others for use by the energy owner or a third party. The original wheeling agreement between B.C. Hydro and WKPL, the Koch Creek Agreement, was signed on August 31, 1956. The contract provided for the joint use of existing B.C. Hydro facilities between Whatshan and Vernon and the construction of a new 138 kv. transmission line between Whatshan and South Slocan. (Exhibit #6, p. 28).

Initially there was no charge to WKPL for wheeling, since Cominco was selling power to the then B.C. Power Commission and using B.C. Power Commission facilities for delivery. By 1965 WKPL's wheeling requirements had increased and Cominco's sales had terminated. A supplementary agreement established a firm rate of $6,500/mo. for a 30 MW wheeling reservation. In 1985 a further amendment to the contract regarding wheeling rate was negotiated based on the original "hypothetical line" concept. Although the Koch Creek Agreement

gave WKPL access to 30 MW of transmission facility which was sufficient for a number of years after 1965, it has since become apparent that further wheeling will be necessary. (Exhibit #6, p. 29).

In 1977 WKPL negotiated for additional wheeling, mainly to avoid construction of their own facilities. B.C. Hydro was constructing a transmission grid to serve its own generation at the Canal Plant, Seven Mile, Mica and Revelstoke, and would have surplus capacity available to serve WKPL. Increased use of the system seemed to be mutually advantageous for both parties at the time, and a formula for the rate was developed based on a "hypothetical line". (Exhibit #6, pp. 30-31). Although the 1977 General Wheeling Agreement remained unsigned, the conduct of both parties was consistent with that Agreement until December 1, 1985 when B.C. Hydro applied to implement a new Wheeling Rate Schedule 1007. WKPL filed a complaint regarding this proposal and wheeling, therefore, became an issue requiring resolution by the Commission.

At the hearing, WKPL testified that wheeling will diminish, and increased power purchases from B.C. Hydro will be required to satisfy the load in the Creston and Okanagan areas. (Exhibit #6, pp. 30-31).

In summary, WKPL has historically obtained a relatively stable amount of power from Cominco and looked to B.C. Hydro for all its incremental needs. In the absence of contractual obligations, the Commission concludes that WKPL's future power purchase patterns are likely to be considerably more volatile, as the amount of power available from Cominco becomes less certain after 1990, and since the size of WKPL's incremental requirement will increase as its overall load increases.

SECTION 2.0 GENERAL PRINCIPLES GOVERNING THE RELATIONSHIP BETWEEN B.C. HYDRO AND WKPL : HISTORY, RATE- MAKING, PUBLIC INTEREST AND POLICY

2.1 Introduction

Numerous references were made by the proponents and various intervenors to the historical, current and future relationship between WKPL and B.C. Hydro. A number of participants made reference to this evidence in support of their submissions, in respect of the legal principles which should govern transactions between the two companies. In reviewing these submissions, the Commission has had regard to two overriding rate-making principles: efficient resource allocation and fairness.

For purposes of efficient resource allocation, the rate charged by B.C. Hydro to WKPL should represent the most economically efficient resolution of the dispute from the provincial point of view. This rate should be the one that carries the lowest marginal cost in supplying power to the WKPL service area, calculated on the basis of a reasonably long time frame (eg. 20 years). Ideally, this rate should be charged to all customers for the referenced group, which in this case is the province.

Efficient resource allocation does not necessarily ensure fairness. The issue of fairness usually centres on whether a particular group of customers is unfairly bearing the costs of a given project or policy. Social goals in this context include safeguarding existing employment and encouragement of new industry. In this case income distribution concerns include cross-subsidy between B.C. Hydro and WKPL, to the extent that the rates charged by B.C. Hydro are higher or lower than the marginal cost of providing service. Income distortion may also result from the use of rates based on average depreciated original costs, which fail to reflect current replacement costs. Impacts on income distribution are typically more difficult to assess, since any effects diffuse through the economy.

From society's perspective a rate must be established which represents a reasonable compromise towards achievement of these often conflicting goals. The positions taken by B.C. Hydro, WKPL and intervenors on how this might best be accomplished are summarized as follows:

2.2 B.C. Hydro's Position

B.C. Hydro argued that WKPL is a competing utility which should not be viewed as just another customer of B.C. Hydro (Tr. 1,949 and 1,953). In support of its position B.C. Hydro referred to the Canal Plant Agreement and the history of nominations and actual sales between the parties and the fact that both utilities have their own service areas (Tr. 160 and 195). Indeed, B.C. Hydro maintained throughout the hearing that it had no legal obligation to serve WKPL (Tr. 233), although it did acknowledge a "good neighbour" obligation (Tr. 284).

B.C. Hydro asked the Commission to arbitrate the matters in dispute (Tr. 151) and accepted that, pursuant to the Utilities Commission Act, the Canal Plant Agreement and applicable regulatory principles, the Commission is obliged to determine the just and reasonable rates to be charged for power sold to WKPL by B.C. Hydro. B.C. Hydro further argued that in the circumstances, to be just and reasonable the rate should allow it to charge the opportunity cost of foregone export sales in the short term, and the incremental cost of those facilities which WKPL's anticipated requirements made necessary in the longer term.

B.C. Hydro acknowledged that the proposed rates for WKPL were based on different criteria than for all other B.C. Hydro customers (Tr. 230) but maintained that it would not change its rate proposal regardless of WKPL's legal status (ie. customer or competitor) (Tr. 234). B.C. Hydro took this position on the basis that the Commission had the power to set rates even if they were not strictly cost-based (Tr. 238 and 390).

Thus, B.C. Hydro's position was that the situation between WKPL and B.C. Hydro is unique and that WKPL should therefore be treated differently than its customers (Tr. 205, 393-395). In particular, B.C. Hydro submitted that WKPL should not have the benefit of the average cost of B.C. Hydro's system (Tr. 363-65) but rather should pay the greater of the opportunity cost or the incremental cost of any sales B.C. Hydro makes to it.

In terms of economic efficiency, B.C. Hydro's position was that in the long-term the public interest would be best served by a rate reflecting its long-run marginal costs, thereby providing the appropriate price signals. Such a rate would ensure that the projects with the lowest long-term costs, whether WKPL's or Hydro's, would be implemented first. B.C. Hydro emphasized this aspect of the pricing issue because WKPL does have realistic supply alternatives in potential expansion at Brilliant or Waneta, and at one time could have acquired parts of the Canal Plant and/or the Revelstoke project (Tr. 1,956-7).

In the medium term, B.C. Hydro proposed an energy rate based on the marginal cost of operating the Burrard thermal plant. B.C. Hydro's proposed short-term rate (to 1990) was not based on marginal cost (i.e. supply side considerations) but rather on costs to B.C. Hydro based in part on foregone revenues from export sales. Although B.C. Hydro claimed that foregone revenue is a cost to B.C. Hydro customers, they acknowledged that it is an opportunity cost based on market or demand considerations, rather than an out-of-pocket expense (Tr. 755-56).

From the perspective of fairness, B.C. Hydro argued that its proposed rates were derived to prevent any adverse impacts on B.C. Hydro's customers. Indeed, the demand charge component in the proposed rate attempts to obtain payment for benefits WKPL has received in the past (Tr. 364). Hydro further argued that the demand rate it proposed was not only lower than the rates that would be involved in any of WKPL's alternatives (Tr. 1,966), but also more efficient and fair since it would allow WKPL's customers to share in the benefits of Hydro's economies of scale.

2.3 WKPL's Position

WKPL's position was diametrically opposed to that of B.C. Hydro. WKPL argued that B.C. Hydro had an obligation to serve WKPL under the Utilities Commission Act in the same way it must serve its other customers. WKPL further submitted that once that obligation exists, B.C. Hydro must treat it in a manner consistent with the Act. In particular, B.C. Hydro must provide a service to WKPL at a rate which is consistent with Section 65(1) of the Act, requiring that the rate be not unjust, unreasonable or unduly discriminatory (Tr. 2,003-4).

WKPL argued that it would be unduly discriminatory to charge WKPL on an opportunity or marginal cost basis, when the evidence indicated that no other customer of B.C. Hydro is being charged on such a basis. WKPL argued that in the absence of any evidence by B.C. Hydro to justify a distinction, WKPL's rates should be based on the same principles employed to determine the charge to large industrial customers or other distribution customers such as the City of New Westminster (Tr. 2,004). WKPL also argued that B.C. Hydro's service area extends to the entire province (Tr. 2,004).

WKPL further maintained that the criteria of economic efficiency can only be met with short-run marginal cost pricing, that B.C. Hydro has not built any facilities dedicated to supply WKPL's needs (Tr. 2,012), and that rates based on short-run marginal cost pricing would therefore be very low indeed (Tr. 1,385). It was WKPL's position that B.C. Hydro's proposed demand ratchet at a time of surplus would induce inefficiency, by sending out a price signal that would compel the implementation of expensive peak shaving measures at a time when the province is faced with significant surplus energy (Tr. 2,014).

WKPL conceded that additional generation options are available to it but argued that a fair and equitable rate from B.C. Hydro was required, to permit valid comparison with these options (Tr. 1,025). WKPL also pointed out that none of the options will resolve its short-term problems because the required planning horizons range up to five years (Tr. 1,027).

With regard to fairness and equity, Hydro had testified that its declared objective of no increases in rates for five years excluded WKPL's service area and customers (Tr. 2,002). WKPL argued that its exclusion was unfair and would result in WKPL's customers suffering income losses, directly due to higher electricity rates, and indirectly due to possible loss of employment opportunities and a lower resulting potential for economic growth. WKPL, however, conceded that if B.C. Hydro's proposals were accepted, the extent of the impacts, at least in later years, would be less than those shown in WKPL's Exhibit 64A. This was attributable to a reduction in requirements due to price impacts and load management, as well as WKPL exercising less costly alternative supply options (Tr. 1,878-81).

2.4 Intervenors

2.4.1 The City of Kelowna, et al Position

The City of Kelowna submissions were largely supportive of those of WKPL. That is they also asserted that WKPL is a customer which B.C. Hydro was obliged to serve, and as such could not be discriminated against. The City went further than WKPL, however, and argued that there was a "cardinal jurisdictional constraint . . . that rates must be cost based" (Tr. 2,059). The City took the position that its submission would stand even if WKPL were found to be something other than a traditional utility customer of Hydro. This position was taken because Hydro had made its application to the Commission under Section 67 of the Act and the only jurisdiction that section gives the Commission is a jurisdiction to set cost-based rates (Tr. 2,071).

Based on that analysis of the law, the City argued that the Commission did not have the jurisdiction to accept B.C. Hydro's proposed rates because they were not based on cost. The City therefore concluded that the Commission should accept WKPL's proposal for modification of Rate Schedule 1821 as yielding the appropriate rate (Tr. 2075).

2.4.2 Regional District of Kootenay/Boundary

The Regional District supported the position of WKPL in its attempt to negotiate a long-term contract with B.C. Hydro for power purchase. In their view, WKPL is in the unenviable position of having to rely on only one supplier for all its incremental power needs and that B.C. Hydro's proposed rates were unreasonable and unacceptable. The District argued that WKPL had historically served the region well while B.C. Hydro had not, noting that B.C. Hydro is also exempt from property taxation despite the negative impacts on the region from several of B.C. Hydro's installations. Finally, the Regional District testified that the region has suffered severely from the recession and a lower power rate is critical for economic renewal. The regional district urged the Commission to assist WKPL in obtaining a satisfactory long-term contract with B.C. Hydro for power purchase (Tr. 1,123-7).

2.4.3 City of Trail

The City of Trail fully endorsed the submission by the Regional District of Kootenay/Boundary. In addition, the City raised a concern that an increase in power rates of the proposed magnitude would further adversely affect the local economy and increase the unemployment rate in the Greater Trail area, currently in excess of 20 percent. In the past, the City of Trail has borne much of the social cost of B.C. Hydro's construction locally, such as the loss of the City's water supply due to the Keenleyside project. The City and its citizens have been tolerant in accepting the adverse impacts of B.C. Hydro's installations and argued that they should at least have the benefit of maintaining their lower power rates (Tr. 1,144-51).

2.4.4 Association of B.C. Irrigation Districts

This Association, identified as a public body administered under the Municipal Act, has as its principal function the supply of water for irrigation. The Association expressed serious concern with respect to B.C. Hydro's proposed rates since power costs are a major component of irrigation districts' budgets, involving up to 40 percent of their annual operating costs. The Association testified that if WKPL were to increase its rates by the total 81 percent over 10 years implicit in B.C. Hydro's proposed rates, there would be a 35 percent increase in the irrigation districts' operating costs. The farmers served by the irrigation districts would then have to bear the impacts of the rate increase. The Association indicated that those farmers were already paying twice as much for their water in comparison to those on gravity irrigation systems. While no data was available, the Association was concerned with the ultimate impacts on the farmers.

The Association urged the Commission to reject B.C. Hydro's proposed marginal cost-based rates as unfair to British Columbians living in WKPL's service area, and argued that B.C. Hydro's proposed wheeling rates are also unreasonable. It was the Association's position that the industrial rate schedule should be used as the rate for power purchases by WKPL from B.C. Hydro, and that there should be no charges under the wheeling agreement (Tr. 1,158-65).

2.4.5 City of Rossland

The City of Rossland addressed the history of WKPL in the region and its role in economic growth and development of the area. In their view, WKPL has always met its obligations and requests for services with money provided by user rates and private borrowing. It built its dams with little environmental impact, and paid taxes locally, provincially, and federally. WKPL's power rates have always been one of the very few attractions in the region for industry.

The City of Rossland testified that B.C. Hydro entered the Kootenays in the 1960's to implement the Columbia River Treaty by building the Mica, Duncan and Keenleyside dams. Residents in the West Kootenays lost the Arrow Lakes Valley, with 2,000 people displaced, 20,000 acres of valuable agricultural land destroyed, and 50 miles of natural beaches wiped out. Compensation for such losses was hard-fought and in the end proved next to negligible. Two additional new dams were constructed by B.C. Hydro when the Canal Agreement was negotiated. The people of the Kootenays have been left with environmental and social impacts, with negligible compensation, and the feeling that they have been used, for someone else's benefit. Given that background, the City argued that B.C. Hydro has an historical obligation to WKPL to provide power at reasonable rates, and that the rates proposed by B.C. Hydro are excessive and unfair (Tr. 1,170-5).

2.4.6 The Town of Creston

The Town of Creston testified that WKPL has served the region well and its relations with local industries are excellent. It further testified that B.C. Hydro's proposed rates for the purchase of power by WKPL would have an extremely negative effect on existing industries, as well as on the region's growth potential. Creston attracts retired people and they look at property taxes and utility rates when choosing a place for retirement. Low and stable power rates at Creston are important for it to continue to attract seniors. Creston therefore urged the Commission to settle the dispute in a way that would maintain the region's ability to compete (Tr. 1,179-84).

2.4.7 The City of Castlegar

The City of Castlegar fully supported the brief submitted by the Regional District of Kootenay/Boundary (Tr. 1,194).

2.4.8 R.H. Brisco, M.P.

Mr. Brisco, M.P. for Kootenay West testified that any increase in WKPL's rates due to B.C. Hydro's proposed rates for power purchase would further depress the regional economy which has already suffered from a severe recession. He further testified that historically, B.C. Hydro had taken more out of the region than it has given back. The construction of dams by B.C. Hydro in the region has caused serious environmental and social impacts with little or no compensation. He noted also that B.C. Hydro does not contribute to Kootenay West financially, in spite of its operations and installations in the area. Finally, Mr. Brisco suggested that B.C. Hydro has not negotiated with WKPL in good faith and as efficiently as it could have (Tr. 1,197-214).

2.4.9 City of Penticton

The City of Penticton argued that B.C. Hydro's proposed rates are unacceptable indicating that they would induce a 17 percent increase in 1987 alone. In the region, wage increases have been minimized or rolled back and the unemployment rate is high. The City testified that the region has generally higher transportation and production costs than other parts of the province and the only competitive advantage has been a lower cost for hydro-electric power. B.C. Hydro's proposal would destroy this regional advantage. (Tr. 1,228-37).

2.4.10 Westar Timber Limited

Westar testified that its operations in the region employ over 700 people. All of its operations are faced with rising costs, and falling prices. The company has been trying to reduce its operating costs in every area. Additional cost increases arising from B.C. Hydro's proposed rates will seriously affect the company's operations (Tr. 1,237-41).

2.4.11 Community Economic Action Committee

The Action Committee is a citizen group organized to promote positive economic activity in the Greater Trail area. The Committee testified that the last recession had severely depressed the local economy. In 1981, there were 11,000 people employed in the Trail area. Today the number has dropped to about 6,500. Investment in the area is non-existent. The Community Action Committee urged the Commission to assist in protecting the remaining economic base of the area by limiting rate increases to those that are reasonable (Tr. 1,263-7).

2.4.12 C. D'Arcy, M.L.A.

Mr. D'Arcy made a submission to the Commission on behalf of his constituents in the Rossland/Trail area. He argued that this dispute is actually a dispute between B.C. Hydro and the people and industries of the South Okanagan, Similkameen, Boundary, West Kootenay and Creston Valleys. He maintained that B.C. Hydro wishes to charge the people of these areas high rates for reserved power that may not be needed for much of the year. Mr. D'Arcy agreed that B.C. Hydro's customers should not be required to subsidize WKPL's customers, but argued that the people in WKPL's service area should not be held to ransom by B.C. Hydro. In his view B.C. Hydro should be able to evaluate its cost of maintaining winter and emergency demand capability for all British Columbians in a way satisfactory to the Commission and defensible to the public. This cost of reserve power capability should be rolled into all regulated power rates on a prorated total sales basis regardless of whether the power is sold to Hydro's customers or another utility (Tr. 1,274-8).

2.4.13 Other Intervenors

The Commission received various other written briefs which were not examined at the hearing. All of these were considered by the Commission in reaching its decision.

2.5 Commission Summary and Conclusion

The Commission's jurisdiction to determine a just and reasonable rate for sales by B.C. Hydro to WKPL is accepted by all parties. Under the Act, the Commission may only approve rates which are just, reasonable and not unduly discriminatory. Accordingly, whether WKPL is viewed as a customer of B.C. Hydro in the traditional rate-making sense or is viewed as a competing utility, B.C. Hydro can only charge a rate which, in the judgement of the Commission and in the particular circumstances, is just, reasonable and not unduly discriminatory. For this reason, the Commission believes it is not essential to precisely characterize the nature of the relationship between B.C. Hydro and WKPL.

The parties clearly differ in their view as to how the Commission should determine what is just, reasonable and not unduly discriminatory. Both B.C. Hydro and WKPL would have the Commission consider the history of the relationship between the parties but would have the Commission draw very different conclusions from that history. In essence, B.C. Hydro's view of that history leads them to conclude that it would be just and reasonable to charge WKPL on an incremental cost basis. B.C. Hydro implied that, although this was unlike the treatment afforded any of its other customers, it was not unduly discriminatory because of the unique historical relationship between the parties. WKPL, on the other hand, argued that a review of the history simply underlines the need to treat WKPL as any other customer would be treated.

Thus, in the Commission's view the dispute comes down to this: Is it unduly discriminatory for B.C. Hydro to structure its rates to WKPL based on the greater of opportunity cost and marginal cost when it does not treat its other customers in this way?

The Commission believes that the principal factor tending to support distinguishing between the principles used to set WKPL rates and those of other B.C. Hydro customers, is that WKPL has other supply sources available to it, including expansion of its own generating capacity, Cominco surplus power, and purchases from other utilities.

In practical terms, WKPL's alternate supply sources in the short-term are limited. A two to five year lead time is required for WKPL to expand its own generating capacity. Access to supply from other utilities is uncertain, given the absence of a general third party wheeling arrangement and WKPL's transmission constraints. Supply from Cominco is limited and uncertain. On the basis of the evidence presented at the hearing, it appears to the Commission that WKPL will be a captive customer of B.C. Hydro for some of its needs, at least until the end of the decade.

Other factors deemed pertinent by the Commission and which distinguish WKPL from other B.C. Hydro customers are:

1. In recent years, WKPL has provided electrical energy at rates considerably lower than in the rest of British Columbia. The communities served by WKPL have, in part at least, developed as a result of those low rates.

2. WKPL has required and will continue to require primarily a peaking service from B.C. Hydro until 1990 at least.

3. B.C. Hydro will likely have a firm surplus of energy and capacity until the end of the decade and possibly beyond.

The Commission has concluded that the low rates enjoyed in the WKPL service area will not exist indefinitely. WKPL has indicated that even if their proposed rates were accepted, WKPL rates would equal those of B.C. Hydro by 1995 (Exhibits #64 and 64A). Unless less costly alternative sources are found, the Commission concludes that the issue is not whether WKPL's rates will in fact approach those of B.C. Hydro, but only how quickly.

WKPL's peaking requirements also make it unique amongst the major purchasers from B.C. Hydro. There is currently no large customer under either Rate Schedules 1821 or 1211 with a load factor as low as WKPL's. The load factor improves as WKPL requirements from B.C. Hydro grow. Clearly, supply availability from Cominco affects WKPL's load factor with regard to purchases from B.C. Hydro. It also appears that, at least until the end of the decade, B.C. Hydro will have a firm surplus of capacity and energy. Thus, there are no direct costs to Hydro of supplying WKPL during this period but rather only that cost represented by sales foregone in the export market.

From the evidence, the Commission is of the view that all of the foregoing factors should remain reasonably constant until at least the end of the decade but may well alter fundamentally after that time. The Commission therefore concludes that a rate can not be determined that will be appropriate for the whole term of the contract. Accordingly, the Commission has developed a transitional rate for the period to 1990. Section 3 of this Decision details the basis for the transitional rate. In Section 4, the terms and conditions necessary to make that rate just and reasonable during the transitional period, have been specified by the Commission.

In summary, the Commission concludes that during the transitional period, fairness to both parties will be ensured by rates that are considerably lower than those in existing Schedules 1211 and 1821 and only marginally lower than Schedule 3807. Moreover, economic efficiency and the public interest should be adequately supported during this period by the terms and conditions set out in Section 4.0 of this Decision and relating to the transitional rates determined by the Commission.

Beyond 1990 the Commission concludes that the principles employed in determining the power purchase rate should be the same as those used to determine the rates applicable to other B.C. Hydro customers. The contract should, therefore, provide for renegotiation of the rate after 1990. In negotiating with respect to rates for the period beyond 1990, the parties should bear in mind the Commission's conclusion that the long-term rate should not be based on incremental costs. The Commission concludes that the terms and conditions attached to the transitional rate should reflect the unique characteristics of the B.C. Hydro/WKPL relationship, and should remain for the long-term.

SECTION 3.0 THE RATE FOR PURCHASED POWER

The current level of rates for power purchased by WKPL was established by negotiation, and in relationship to the level of charges to B.C. Hydro's large industrial customers and customers in the export market. B.C. Hydro indicated in 1985 that it would not enter into another ad hoc arrangement and offered WKPL electricity at rates WKPL felt were unacceptable. Both parties now desire rates that will be appropriate for the longer term.

3.1 B.C. Hydro's Position

The rates for power purchased by WKPL, as proposed by B.C. Hydro, are not designed to meet the same average cost criteria as for other customers (Tr. 363). The proposed rate is not based on historical costs. Instead, B.C. Hydro chose to utilize opportunity costs to 1990 (Tr. 178-179) by linking the energy segment of the rate to the projected selling price in the export market (Tr. 188). In support of this Hydro testified that, historically, WKPL had not been paying its fair share for existing B.C. Hydro facilities (Tr. 213-214) and that the proposed rates were just and reasonable because they would regain some of the lost revenue from unfair rates approved in the past (Tr. 365).

Between 1990 and 1995, Hydro proposed to relate the energy charge to the cost of operating the Burrard thermal plant (Tr. 228-229). Beyond 1995, the energy charge would be determined by the marginal cost of incremental supply from Hydro's next generation project (Tr. 1960-61). Hydro's proposed demand charge throughout the period is based on Rate Schedule 1821.

Hydro's proposed rates are:

Demand Charge	-	$3,918/MW/mo
Energy Charge	-	30 mills/kWh

Various other proposed charges having to do with minimum energy, excess peak demand, additional energy demand, etc. are considered in Section 4.

3.2 WKPL's Position

WKPL contended that the power purchase rate should be developed on an average cost basis (Tr. 1,038). As a cost of service study was not available, WKPL proposed that modifications to Rate Schedule 1821 would be an appropriate basis for determining the power rate.

WKPL's proposed modifications involved removing local transmission costs (Exhibit 6, p. 20). Since the necessary information from B.C. Hydro was not available, WKPL developed an approximation of these charges based on WKPL's 1983 cost of service study. The elimination of transmission charges reduced the demand component in Schedule 1821 by $828 per MW (Exhibit 6, p. 23). WKPL, therefore, proposed reducing the demand charge from $3,918/MW/mo. to $3,100/MW/mo. The proposed energy charge remained the same as the sum of Rate Schedules 1821 and 1899 at 22.39 mills/kWh (Exhibit 6, p. 22). No nomination requirement or ratchet clause was included in the rate, but a long-term agreement to the year 2005 was sought.

WKPL's proposed rates are:

Demand Charge	-	$3,100/MW/mo.
Energy Charge	-	22.39 mills/kWh

3.3 Commission Summary and Conclusions

As indicated heretofore in Section 2, the circumstances pertaining to WKPL and B.C. Hydro, at least in the medium term to 1990, in the Commission's view and to avoid inequities to either party, will require special rates appropriate to a transition period. These rates will not burden B.C. Hydro's other customers, since B.C. Hydro appears to be in a firm capacity and energy surplus

position until at least 1990. There is adequate evidence on the record from which to establish such a transitional rate. Beyond the transition period, the conceptual and methodological basis for establishing appropriate longer-term power rates have been set out in Section 2.5.

The Commission concludes that the transitional rate should lie within the range determined by the cost to WKPL of providing its own peaking supply as the upper limit, and B.C. Hydro's short-run marginal cost as the lower limit. Based on the evidence, WKPL's alternative source of peaking supply would be gas turbines. The cost of new turbines, therefore, provides the basis for the appropriate upper limit, while B.C. Hydro's short-run marginal cost comprising only the variable operating costs associated with generating more electricity from firm surplus water, is the appropriate lower limit.

Between these two limits, the evidence discloses a number of alternatives. These alternatives, in descending order of cost* and related rates, are as follows:

- new gas turbine
- used gas turbine
- B.C. Hydro Rate Schedule 1211
- B.C. Hydro proposed rates
- shared benefits (new gas turbine and water fee)
- shared benefits (old gas turbine and water fee)
- WKPL proposed rates
- B.C. Hydro short-run marginal cost

Table 1 contains WKPL's forecast capacity and energy requirements to the year 1990. Table 2 and Figure 4 indicate the total power costs for each of the alternatives listed above. Figures 5 and 6 present a breakdown of the demand and energy costs contained in Table 2. Table 3 and Figure 7 provide the cost per megawatt of measured or consumed demand.

* Annual total revenue requirements were obtained by using the WKPL load resource balance, as shown in Exhibit 8, Tab 5 and cost figures were obtained from Exhibits 8 and 32.

Table 1

WKPL Requirements from B.C. Hydro

Capacity Requirements from B.C. Hydro in MW (1986-1990)

Month	1986	1987	1988	1989	1990
January	135	140	174	190	203
February	118	125	150	170	182
March	0	34	55	69	80
April	0	6	23	37	46
May	0	0	0	0	0
June	0	0	0	0	0
July	0	0	0	0	0
August	0	0	0	0	0
September	0	0	22	36	43
October	0	0	19	39	47
November	65	76	90	106	118
December	90	100	124	142	152
	408	481	657	789	871

Energy Requirements from B.C. Hydro in GWh (1986-1990)

Month	1986	1987	1988	1989	1990
January	8	46	23	42	80
February	7	43	18	34	64
March	8	0	5	11	8
April	0	0	0	4	0
May	0	0	0	0	0
June	0	0	0	0	0
July	0	0	0	0	0
August	0	0	0	0	0
September	0	0	0	0	0
October	0	0	0	0	0
November	4	9	19	26	32
December	6	14	28	46	52
	33	112	93	163	236

Source: WKPL Exhibit 8, Tab 5

Table 2

Total Power Costs ($000)

		Rate	1986	1987	1988	1989	1990
(1) New Gas Turbines	D*		12510.7	13500.4	14511.2	15208.5	
	E		3841.6	3189.9	5590.9	8094.8	
	R	100%					
	Total		16352.3	16690.3	20102.1	23303.3	
(2) Used Gas Turbines	D		8257.3	8960.4	9622.9	10108.81	
	E		3841.6	3189.9	5590.9	8094.8	
	Total		12098.9	12150.3	15213.8	18203.61	
(3) BC Hydro (1211)	D	6010	5712.51	6016.0	7416.3	8221.7	8816.7
	E	26.4	871.2	2956.8	2455.2	4303.2	6230.4
	R	50%					
	Total		6583.71	8972.8	9871.5	12524.9	15047.1
(4) BC Hydro (Prop'd)	D	3918	4958.23	5152.2	6382.4	6993.6	7473.6
	E	30.0	990.0	3360.0	2790.0	4890.0	7080.0
	R	75%					
	Total		5948.23	8512.2	9172.4	11883.6	14553.6
(5) Shared** Benefits	1			8476.5	8574.9	10488.7	12285.3
(6) Shared*** Benefits	2		6350.2	6324.8	8044.6	9735.5	
(7) WKPL	D	3100	1264.8	1491.1	2036.7	2445.9	2700.1
	E	22.4	739.2	2508.8	2083.2	3651.2	5286.4
	R	0%					
	Total		2004.0	3999.9	4119.9	6097.1	7986.5
(8) SRMC	E	5.37		601.44	499.4	875.32	1267.32
(9) BCUC Dec'n	D		1428.0	2005.0	2933.0	3766.0	4561.0
	E		739.0	2509.0	2083.0	3651.0	5286.0
	R		0%	10%	20%	30%	40%
	Total		2167.0	4514.0	5016.0	7417.0	9847.0

* D = Demand
E = Energy
R = Ratchet

** (5) = $\frac{(1) + (8)}{2}$ ***(6)=$\frac{(2) + (8)}{2}$

Figure 4

Figure 5

Total Demand Cost ($000)

Figure 6

Total Energy Cost

Table 3

Projected Capacity Costs per MW of Registered Demand
($/MW)

		1986	1987	1988	1989	1990
1.	New Gas Turbine	-	26,010	20,548	18,392	17,460
2.	Used Gas Turbine	-	17,166	13,638	12,196	11,606
3.	B.C. Hydro (1211)	14,002	12,507	11,288	10,421	10,123
4.	B.C. Hydro (Prop.)	12,132	10,711	9,715	8,864	8,580
5.	Shared Benefits #1	-	13,000	10,274	9,196	8,730
6.	Shared Benefits #2	-	8,583	6,819	5,210	5,061
7.	WKPL (Proposed)	3,100	3,100	3,100	3,100	3,100
8.	Commission	3,500	4,169	4,464	5,053	5,236

Figure 7

Capacity Cost ($/MW)

After careful consideration of all of the aforementioned factors, the Commission concludes that the fair transitional rate for power purchased by WKPL from B.C. Hydro will include a demand charge of $3500/MW per month and an energy charge equal to the sum of such charges in Rate Schedules 1821 and 1899 or approximately 22.4 mills per kWh. The resulting effective cost per MW is shown in Table 4, and is based on WKPL's capacity forecast and an escalating ratchet clause. The Commission would note that B.C. Hydro Rate Schedules 1211 and 1821 as well as WKPL's wholesale rate schedules all contain demand ratchets. The Commission's basis for its ratchet provision is in Section 4 of this Decision.

The transitional power purchase rate thus determined by the Commission lies in the acceptable range as defined heretofore on page 28 and should permit a relatively smooth transition to the longer-term rate. The Commission concludes that the resulting effective rates are fair to both parties to the dispute. The Commission further concludes that since those rates take into account the historic factors and relationships as well as mutual benefits and the implications of rate impacts on the local economy, that the rates as determined herein are in the public interest. Moreover, by limiting those impacts to gradually increasing levels, such rates will provide both the time and the incentive for WKPL to fulfill its responsibility to undertake effective system planning without further delay.

Comparison of the results of the B.C. Hydro and WKPL proposals with those as determined by the Commission Decision, in terms of the demand, energy and total costs involved, is provided in Tables 2 and 3 and graphically in Figures 4 to 7 inclusive.

Table 4

Projected Effective Capacity Cost per MW and Total Capacity Cost Based on Commission Rate

Year	Ratchet (%)	Aggregate Billing Demand (MW)	Total Demand Cost ($000's)	Aggregate Registered Demand (MW)	Cost/MW of Registered Demand ($)
1986	0	408	1,428	408	3,500
1987	10	573	2,005	481	4,169
1988	20	838	2,933	657	4,464
1989	30	1,139	3,987	789	5,053
1990	40	1,303	4,561	871	5,236

SECTION 4.0 POWER PURCHASE TERMS AND CONDITIONS

In this case and because of the unique circumstances involved, the terms and conditions to be attached to the rate to be paid by WKPL for purchased power are of particular importance. The Commission has determined only the principles which are to be applied in developing an appropriate contract. The precise wording of the contract should be worked out between the parties for final approval by the Commission when the contract is filed. The principal issues are:

- capacity and energy nominations and penalties
- demand ratchet
- term of contract

4.1 B.C. Hydro's Position

It was B.C. Hydro's position that some of its current facilities are in place, in part, due to WKPL over-estimates of their requirements. B.C. Hydro argued that WKPL should pay for those committed plants, whether or not WKPL makes use of them (Tr. 162). Hydro therefore proposed to include a demand nomination and a firm energy nomination for each nomination period for the term of the proposed Power Purchase Agreement to 1990 (Exhibit/#5, Volume 2, Tab 6). It suggested a nomination period of one year from October 1 to September 30, until 1990. Shorter nomination periods to September 30, 1986 and between October 1, 1990 to December 31, 1990 were also included.

Hydro testified that historically WKPL has overestimated its forecast requirements (Tr. 205-06). To ensure that some risk is borne by WKPL, Hydro's latest proposal stipulates a 75 percent demand ratchet on nominated capacity (Exhibit 7, Volume 2, Tab 1). This would ensure that fixed capacity costs would be met (Tr. 202-03). Hydro also testified that the 75 percent demand ratchet makes the rate compatible with the rates paid by other customers served at the same voltage level (Tr. 70), and that Hydro is reluctant to put forward a different rate (especially a capacity rate) since this

would encourage other Rate Schedule 1821 customers to demand the same treatment (Tr. 771). Hydro's original demand ratchet of 90 percent was based on a contract term to 2005. The revised demand ratchet of 75 percent was for the contract term to 1990 and was based in part on alternative energy costs (Tr. 801).

Hydro's proposed billing demand or ratchet clause is as follows:

1. Nominated demand if the current month is the peak month.

2. 75% of the nominated demand if the current month is other than the peak month.

3. 75% of the maximum demand of the Purchase Power Agreement in any one of the immediately preceding eleven months, providing that the maximum demand was greater than the nominated demand.

Hydro also proposed a 100 percent take or pay on energy as well as penalties for both capacity or energy requirements in excess of the nominations. The excess peak demand penalty is 10 percent and the additional energy rate is the higher of 3.3¢ per kWh or 105 percent of Burrard Thermal Plant costs (Exhibit 5, Volume 2, Tab 1, Exhibit 21).

4.2 WKPL's Position

WKPL essentially took the position that it should not be subject to any demand ratchet, and that the term of the contract should be to 2005. WKPL also argued that nominations are unnecessary, since it is experiencing steady load growth, and demand from B.C. Hydro is relatively firm (Exhibit 21).

In Exhibit 68 WKPL did, however, propose conditions under which supply and demand may be changed.

Specifically, WKPL proposes that additions to future firm supply may be made, subject to the following conditions:

1. In any manner, with six years' notice in writing;

2. Without notice where it can be reasonably determined by B.C. Hydro that there will be no adverse economic impacts on B.C. Hydro from any surplus which results;

3. Additions from third party resources under 10 megawatts;

4. Any addition with B.C. Hydro's prior written approval; and

5. Any addition to cover losses from an event of force majeure.

Conditions proposed by WKPL under which it can increase or reduce demand through load management are as follows:

1. No notice required for changes under one MW.

2. Three years' notice is required for changes over 10 MW.

3. Varying periods are required for changes between 1 and 10 MW.

With regard to B.C. Hydro's requirement for a demand ratchet, WKPL argued that it would be inappropriate in its case since ratchets are usually only employed by the supplying utility where specific facilities are dedicated solely to serve a group of customers. In such cases, minimum bills or demand ratchets are implemented to ensure recovery of the fixed costs of the dedicated facilities. Since Hydro's facilities are "backbone" in nature, having many purposes other than service to WKPL, there should be no demand ratchet (Exhibit 6, Vol. 1, p. 24).
WKPL also opposed the ratchet for the following additional reasons: (Tr. 1,334-36)

1. Past rates have not included a ratchet and such rates were deemed to be fair and reasonable by B.C. Hydro.

2. B.C. Hydro has surplus capacity and has never really been capacity constrained, although it has been energy constrained.

3. The impact on WKPL customers may not be in the provincial interest.

4. B.C. Hydro has installed very limited facilities exclusively for WKPL.

5. B.C. Hydro's rate proposal is inconsistent since energy is priced on marginal cost basis and demand is not. If demand rates were based on short-run marginal cost, they would be substantially lower.

6. WKPL has an extremely low load factor of approximately 2 percent and therefore merits special consideration.

Take or pay on energy was opposed by WKPL since this would prevent use of Cominco power (Tr. 879). WKPL testified that a long term contract of 20 years was required in order to permit adequate planning for future system expansion (Tr. 1,024-27, 1,040).

4.3 Commission Summary and Conclusions

The Commission's views on the relationship between WKPL and B.C. Hydro centre on the fact that the circumstances between WKPL and B.C. Hydro are unique. This uniqueness should be reflected in the terms and conditions of the contract, as distinct from the rate charged. The Commission maintains that although WKPL is not an incremental customer, WKPL is nevertheless a utility with the responsibility and obligation to undertake system planning functions. Alternative supply sources include Brilliant and Waneta expansion, gas turbine, thermal, and generation by private industry or other utilities. The WKPL load as seen by B.C. Hydro is equal to the WKPL native load, less WKPL supply inclusive of supply from alternative sources. Both load and generation are subject to the vagaries of weather and rainfall, and in particular WKPL's supply is subject to the power requirements of Cominco. Accurate forecasting by WKPL therefore becomes particularly important since the timing of future additions to B.C. Hydro generating capacity and related facilities may be adversely affected by poor demand forecasting or variations in Cominco supply.

The Commission also notes that since WKPL can now expect service from B.C. Hydro, there are costs to B.C. Hydro for supplying such service. Since B.C. Hydro's system is expected to remain base load hydraulic generation, it is unlikely to be capacity limited for their firm market.

There are, however, future transmission constraints as well as certain capacity costs which are inherent in B.C. Hydro's system. These cost considerations tempered by WKPL's low load factor lead the Commission to conclude that an escalating demand ratchet during the transitional period, with a peak demand ratchet of 50 percent thereafter, are just, reasonable and not unduly discriminatory provisions of the required contract.

In light of the foregoing, the Commission has determined that the required contract between the parties must include the following:

l. The term of the contract shall be from the date of this Decision to September 30, 2005.

2. Both parties shall supply annually a ten-year forecast of load resource balance including a program for resource acquisition, transmission and firm loads. The degree of detail shall be decided upon by mutual agreement.

3. WKPL shall nominate both capacity and energy, effective immediately on a five-year rolling basis.

4. The demand ratchet clause shall provide for the following ratchets:

Year	% Ratchet
1986	Zero
1987	10
1988	20
1989	30
1990	40
Thereafter	50

5. There shall be a 90 percent take or pay provision on energy nominations.

6. During the transition period, nominations shall be binding for a two-year period. Thereafter, nominations are binding for a five year period. Changes beyond the third and sixth year nominations, for the transitional period and post-transitional period respectfully, may be undertaken in the immediately following year so that the previous third and sixth years become the current second and fifth years, and so on. Changes to nominations during the transition period shall be unconstrained. Thereafter, changes shall be as shown in Appendix B of this Decision.

7. For both excess capacity and energy requirements there shall be a 10 percent penalty provision applicable to each. However, an excess capacity requirements penalty shall be applicable only if B.C. Hydro is capacity-limited with regard to firm sales. Excess energy requirements penalties shall be applicable only if those requirements are attributable to changes in WKPL's supply from other sources (eg. Cominco or other utilities).

8. The only allowed changes in the above stipulated rates shall be those approved for B.C. Hydro on either an interim or permanent basis for Rate Schedules 1821 and 1899. Such changes shall be applied on the same percentage basis applicable to those schedules.

SECTION 5.0 WHEELING RATE

WKPL requires wheeling because its generation is remote from a significant part of its load and lacks sufficient transmission capacity to transmit the energy which it generates in its own facilities. WKPL therefore uses B.C. Hydro's transmission lines for wheeling to avoid the need to construct transmission facilities of its own.

B.C. Hydro and WKPL have been unable to agree on either the rate or the terms and conditions which should govern the provisions of a wheeling service to WKPL. Sections 5 and 6 review their positions and present the Commission's determination of the wheeling rates and associated terms and conditions.

5.1 B.C. Hydro's Position

B.C. Hydro testified that it has provided wheeling services to WKPL for a number of years and that firm wheeling services have been provided under the terms and conditions of two unsigned Draft General Wheeling Agreements (1977 and 1980). B.C. Hydro argued that the 1977 and 1980 Drafts are obsolete because they are based on a methodology employing a single circuit notional line which is not consistent with the quality of service WKPL now receives from B.C. Hydro (Tr. 314-19). Power is in fact wheeled over a complex network of 230 and 500 kV lines, stations, and transformers within B.C. Hydro's south interior region and was identified by B.C. Hydro as the specified system (Tr. 316, 447-65).

B.C. Hydro also identified the following factors that in their view have rendered the 1977 Draft obsolete:

1. The Draft uses 1977 first year costs;

2. The assumption of the notional line does not reflect the higher level of security and reliability actually provided by the existing system;

3. There are 18 line terminals in the actual wheeling path instead of two as represented in the notional lines;

4. No transformation charge is included in the 1977 rates yet power is wheeled through five transformers in the actual system;

5. While the transfer capability of the actual complicated network is difficult to determine, a deemed value of 250 MW is used in the 1977 method; and

6. A rate based on transfer capability will not reflect the actual cost of wheeling.

Citing these deficiencies, Hydro proposed a wheeling rate based on the average embedded costs of a specified portion of its regional transmission system. B.C. Hydro further proposed that a percentage of use method (rather than the percentage capacity method) should be used to assign these costs, as this method allocates all of the annual costs of transmission facilities among each of the firm users (Tr. 261, 417). B.C. Hydro acknowledged that its present south interior network has temporary excess capacity that is unavoidable (Tr. 510) but argued that it is appropriate that WKPL should share in the cost of this unavoidable capacity since it benefits in having spare capacity available to it rather than having to provide its own facilities which would also have spare capacity (Exhibit #3).

B.C. Hydro argued that its proposed wheeling rates, based on average costs for a specified system allocated on the usage basis, are fair and reasonable (Tr. 269). B.C. Hydro testified that the single contingency criteria planning of their transmission system provides WKPL with benefits beyond those it would be realizing if it had built its own system (Tr. 414-15). B.C. Hydro acknow- ledged, however, that the incremental cost of wheeling WKPL electrical energy is essentially zero (Tr. 601).

B.C. Hydro's preferred method of determining wheeling rates for WKPL was based on computer-simulated load flows for their specified system with no loop flow (ie. the line open). These load flows assumed a 20 MW load analyzed separately for each point of interconnection; namely Vernon, Creston and Princeton (Exhibit 5, Volume 2, pp. 36-70). B.C. Hydro testified that it is impossible to define typical load flows that result in typical loop flows since loop flows are sometimes clockwise and other times counter-clockwise, depending on the time of year (Tr. 625-31).

B.C. Hydro's proposed firm annual wheeling rates are:

To Vernon	$61,100 per megawatt
To Creston	$30,200 per megawatt
To Princeton	$75,000 per megawatt

Although B.C. Hydro did not apply to have wheeling rates determined on the basis of shared benefits, they did address this issue in Argument. Hydro proposed that the benefits attributable to WKPL's avoided cost should be based on the cost of a stand-alone system constructed today (Tr. 549-50), and urged the Commission to keep two factors in mind in determining how those benefits should be shared, as WKPL gains benefits from using B.C. Hydro's transmission system which would have been unattainable had WKPL built its own transmission lines. Firstly, WKPL has greater flexibility since, had it built its own system, it would be paying the fixed costs related thereto for the life of the transmission line, regardless of WKPL's transmission requirements. Secondly, WKPL's reliability by using B.C. Hydro's system is much higher than for any stand-alone system (Tr. 1,976-77).

5.2 WKPL's Position

Although WKPL was prepared to accept most of the clauses contained in the draft General Wheeling Agreement (Exhibit F), it did not agree with the method B.C. Hydro proposed for determining the wheeling rate. It was WKPL's position that employment of the specified system, the method of

allocating costs and the 1985 dollar costs as proposed by B.C. Hydro were incorrect for the circumstances which actually prevail in this case.

WKPL argued for a point-to-point or deemed transmission path, which was considerably smaller than B.C. Hydro's specified system (Exhibit 8, Volume 3, Tab 3, pp. 46-47, Tr. 1,373-75, 2,028) and a capacity allocator on a line by line basis (Tr. 1,636).

WKPL also testified that their requirement for wheeling is inversely related to the amount of power purchased from B.C. Hydro for the designated points of delivery of that power, so that, as WKPL increases power purchases from B.C. Hydro, the need for wheeling will diminish (Tr. 1,856). Accordingly, in WKPL's view declining wheeling requirements ruled out justification for additional transmission line construction.

WKPL further testified that as B.C. Hydro's surplus transmission capacity decreased, so would WKPL's wheeling requirements, due to increased generation at the Canal Plant, Seven Mile, Mica and Revelstoke, resulting in a natural fit which would be advantageous to both parties (Exhibit 6, Volume 1, Tab 4, pp. 30-31).

In view of the foregoing WKPL proposed the following annual general wheeling rates:

To Vernon	$10,729 per megawatt
To Creston	$ 5,560 per megawatt

Although WKPL did not seek wheeling rates determined on the basis of shared benefits, they did address this issue during the hearings. It was argued that WKPL's avoided costs should be determined on the basis of the cost of the notional system in 1977 (Tr. 1,109). This would take into account such historical factors as WKPL's provision to B.C. Hydro of the required transmission rights of way and WKPL's expectation that wheeling rates would be determined as in the draft 1977 General Wheeling Agreement (Tr. 1,363).

5.3 Commission Summary and Conclusions

The Commission concludes that except for the cost of establishing interconnections, the wheeling service requested by WKPL will not affect the timing or extent of B.C. Hydro transmission investment. Thus, there is no burden on other B.C. Hydro customers as a result of currently projected wheeling activity. This, in effect, means that B.C. Hydro's short-run marginal costs of providing wheeling services for WKPL are negligible and, the Commission concludes, establishes a fair lower limit for the wheeling rate. Use by WKPL of B.C. Hydro facilities will result in a substantial avoided cost for WKPL. That avoided cost fairly establishes the upper limit of any wheeling rate that might be imposed.

In the Commission's view, a wheeling rate within this range and designed to meet the test of fairness should be established on either an allocated cost of service basis, or on the basis of sharing of benefits between the two parties. In either case the wheeling rate should lie within the upper and lower limits. Indeed B.C. Hydro agreed that, however determined, the wheeling rate to be acceptable should be below the avoided costs and above the marginal cost. The Commission notes that Hydro acknowledged that they had not checked to see if their proposed rate met that test (Tr. 374).

In any calculation of cost-based wheeling rates, a determination of costs to be included and an equitable method of assigning those costs to wheeling service and other users must be made. The range of allocated costs cited in evidence at the hearing included the costs relating to the following:

- a specified system
- a notional line
- a deemed path

The question of "postage-stamp" wheeling rates, while briefly mentioned at the hearing, was not seriously considered in any detail. Postage-stamp rates would require inclusion of all facilities involved in the transmission system, which the Commission concludes is inappropriate in this case.

The specified system proposed by B.C. Hydro includes only those transmission lines and related facilities identified by B.C. Hydro in Exhibit #3, Tab 2, page 62 as providing the present link between WKPL's generation and its load centres.

WKPL's approach, using the concept of a deemed path, identifies a route in the specified system adequate to carry the full amount of load to be wheeled. This is similar to the notional line approach, which involves a hypothetical line connecting the point of entry and exit of the wheeled power and which is adequately sized to transmit the requisite amount of power.

Whichever approach is used, cost allocation can be based on the relative usage by each party at the time of peak demand as proposed by B.C. Hydro, or on the basis of wheeling demand as a percentage of the capacity of the line or other facility as proposed by WKPL. Capacity of the facility can be established in terms of thermal, voltage level, or stability limits. WKPL uses thermal limits while B.C. Hydro recognizes whichever limitation applies to each element of its specified system. Costing may be performed on an aggregate, or as has been done by B.C. Hydro, on a distance-related basis.

The Commission has a number of concerns with respect to the approach to costing employed by the two proponents. These concerns are related not only to their cost allocation methodology, but also to the assumed operating conditions in B.C. Hydro's specified system with respect to loop flows and the potential for double-counting in the B.C. Hydro method.

With respect to allocation, in the Commission's view the use of a specified system with the allocation methodology as proposed by either WKPL or B.C. Hydro poses certain conceptual problems. Specifically, the load flow on a particular line under normal conditions can be relatively small. However, the magnitude of the load flow on such a line under contingency outage conditions elsewhere, however, may be quite large. This is evident in the B.C. Hydro integrated system load flow data when cases with and without loop flow are

compared (Exhibit #5, Tab 1, pp. 36-70). Thus, if B.C. Hydro's flow in a line is small relative to capacity, then if the usage allocation method proposed by B.C. Hydro is applied, a modest wheeling flow could result in the allocation of nearly all of the cost of the line to the wheeling customer. This has a bearing on the reasonableness of including such lines in the specified system, and in the Commission's opinion must be recognized in the setting of rates and charges.

The Commission also recognizes that allocation of wheeling cost on the basis of a percentage use of capacity is biased in favour of the wheeling customer, unless each line segment is used to full capacity. If there is a substantial amount of surplus capacity, the wheeling customer does not pay for it, even though he may benefit.

The allocation process by B.C. Hydro used the absolute value of the component flows in the line segments. This allocates the same cost to the wheeling load whether that load increases the total load on a line segment or transformer, or reduces it due to counterflow. The Commission concludes that such methodology, while not totally devoid of merit, means that if a wheeling load on a line segment is zero, no cost is allocated to the wheeling load. If, however, the wheeling load in fact reduces the total line loading through a negative or counterflow wheeling load, a cost penalty is nevertheless incurred by the wheeling load.

With regard to the exclusion of loop flows, the B.C. Hydro proposal allocated the cost of the specified system, on the basis of no loop flow in the BPA system by assuming that the ties with BPA are open. The Commission, however, concludes that since those ties are normally closed, this condition must be taken into account in the allocation of costs.

Moreover, the evidence indicates that the individual line segments of the specified system have different costs and that both the wheeling and B.C. Hydro load flows traverse the entire length of each line segment.

With respect to the potential for double-counting, B.C. Hydro's approach was to calculate the line flows on the specified system on the basis of a 20 MW assumed wheeling load, independently for the Creston, Vernon and Princeton wheeling paths. The results were then prorated based upon the actual wheeling load of 21 MW for Creston, 70 MW for Vernon and 1 MW for Princeton. The Commission concludes that this can lead to double-counting in the allocation process if, for example, a Creston wheeling flow were to run counter to a Vernon wheeling flow.

In order to circumvent or at least alleviate these problems, the Commission has made an alternative calculation based on the following steps:

1. The Commission has assumed that the ties between B.C. Hydro and BPA are closed, as shown in B.C. Hydro's Exhibit #5, Tab 1. In this Exhibit, B.C. Hydro has provided load flow data for wheeling, given the existence of loop flows.

2. The Commission has analysed costs on a line by line basis using the relative flows of B.C. Hydro and WKPL in the respective line segment or transformer. Also, since the allocation has been performed on a line by line basis, the use of distance as a factor has been obviated. The Commission also assigned zero costs to any line for which total line flow was negligible or negative as a result of wheeling load.

3. The Commission then prorated wheeling loads based on the combined wheeling flow to the three wheeling load centres; Creston, Vernon and Princeton, before allocating the costs to the above three factors.

The results of the Commission's allocation process are recorded in Table 6 and displayed in the graph in Figure 8. Appendix B shows the calculations in greater detail.

The Commission notes that B.C. Hydro's proposed wheeling rate is very much higher than that resulting from the avoided cost approach (ref. Figure 8). Even after adjustments to the loop flows and combined wheeling load on B.C. Hydro's specified system (as made by the Commission), the resulting rate is still, in the Commission's view, unjustifiably higher than that produced by the avoided cost approach. The Commission therefore concludes that B.C. Hydro's proposed wheeling rates are not just or reasonable.

In the circumstances, the Commission finds the shared benefits approach, based on WKPL's avoided costs, to be the appropriate methodology to determine the wheeling rates in this case. With respect to that approach, the Commission has concluded that the passage of time has been such that any attempt to attribute responsibility for failure of the 1977 negotiations to either party, would be inappropriate. Moreover, there is little evidence to justify attempting to identify or interpret the respective expectations of the parties as to the shared benefits at that earlier time.

The Commission does recognize, however, the benefits available to WKPL by buying rather than building additional transmission capacity. Such benefits, attributable principally to avoidance of the "lumpiness" of capital expenditures required for the construction alternative, and to the greater security provided by utilizing the B.C. Hydro system, in the Commission's view are both tangible and significant. Accordingly, the Commission has concluded in favour of the shared benefits approach, as developed from WKPL's avoided cost, in this instance leaning in the direction of a wheeling rate based on the avoided cost of a notional transmission line deemed to have been built by WKPL in 1985.

On that basis, the Commission has determined that the firm wheeling rates shall be as follows:

Vernon	$19,000/MW/year
Creston	$11,000/MW/year
Princeton	$45,000/MW/year

The graph on page 54 shows projected general wheeling total costs as proposed by WKPL and B.C. Hydro. Several other options considered at the hearing are also shown, including the notional line costs in 1977 and 1985 dollars, the combined case developed by the Commission and the Commission Decision.

Table 5

Forecast Wheeling Demand and Total Wheeling Costs

	Y E A R				
	1986	1987	1988	1989	1990
	Peak Demand (MW)				
Vernon	55	65	69	69	79
Creston	18	13	13	12	13
Princeton *	1	1	1	1	1

Source: WKPL Exhibit #64A
* An estimate only

		Total Cost ($000)				
1.	WKPL Proposal	690	770	813	806	920
2.	B.C. Hydro Proposal	3,979	4,364	4,609	4,653	5,220
3.	Notional Line 1977	1,053	1,168	1,232	1,222	1,393
4.	Notional Line 1985	1,856	2,059	2,172	2,156	2,456
5.	Combined Method	2,512	3,056	3,211	2,723	3,600
6.	BCUC Decision	1,288	1,473	1,499	1,488	1,689

Table 6

Wheeling Rates

1. WKPL Proposal:

Vernon	$10,729 / MW / yr
Creston	$5,560 / MW / yr

2. BCH Proposal:

Vernon	$61,100 / MW / yr
Creston	$30,200 / MW / yr
Princeton	$75,000 / MW / yr

3. Notional Line Constructed in 1977:

Vernon	$16,109 / MW / yr
Creston	$9,258 / MW / yr

4. Notional Line Constructed in 1985:

Vernon	$28,400 / MW / yr
Creston	$16,360 / MW / yr

5. Combined Method:
(Zero Cost if Negative Flow, with Loop Flow)

Vernon	$31,800 / MW / yr
Creston	$39,200 / MW / yr
Princeton	$58,000 / MW / yr

6. BCUC Decision:

Vernon	$19,000 / MW / yr
Creston	$11,000 / MW / yr
Princeton	$45,000 / MW / yr

Figure 8

Total Wheeling Costs ($000)

SECTION 6.0 WHEELING TERMS AND CONDITIONS

In this section the issues related to determination of appropriate terms and conditions to be attached to the wheeling rates are reviewed. As indicated heretofore in the Introduction, this Decision is confined to determination of the principles which are to be incorporated into the required contract. The Commission expects the precise wording of the contract to be worked out between the parties for final approval when the contract is filed. The principal issues are firm versus non-firm wheeling and nominations. Non-firm wheeling includes interruptible wheeling as well as wheeling for foreseen and unforeseen outages.

6.1 B.C. Hydro's Position

B.C. Hydro proposed to terminate ad hoc wheeling (Tr. 428). In the 1977 General Wheeling Agreement there is an ad hoc wheeling rate clause specifying the basis on which B.C. Hydro establishes the rate applicable to incidental transmission of electrical energy for WKPL, using excess capacity as available [Exhibit 3, Tab 13, Clause (n)(iii)]. It was Hydro's view that WKPL's nominations should be set high enough to eliminate the need for ad hoc wheeling (Tr. 433). Hydro argued that WKPL should not be allowed to backstop a firm wheeling requirement of 35 MW which WKPL obtains under the interruptible wheeling rate in the Koch Creek Wheeling Agreement, with ad hoc wheeling under the General Wheeling Agreement. Hydro contended that the principle regarding firm wheeling is clear; namely that firm wheeling requirements must be supported by firm nominations (Tr. 1,983).

Hydro also proposed that firm nominations include requirements for the planned outages required for maintenance and installation (Tr. 4,309, 1985-86).

With regard to emergency wheeling due to forced outages, B.C. Hydro initially proposed that a separate contract be negotiated (Tr. 431). In final argument, however, Hydro stated that for sudden and accidental forced outage

occurrences that are repaired with reasonable diligence, Hydro is prepared to supply emergency wheeling on an "as available" basis at the current de facto rate of one mill per kWh (Tr. 1985).

6.2 WKPL's Position

WKPL proposed that ad hoc wheeling, as defined in the 1977 draft General Wheeling Agreement, be continued (Tr. 2030). This proposal would provide WKPL with security and continuity of supply in their service area (Tr. 1366). WKPL did agree, if WKPL's wheeling rate proposal is accepted (Tr. 1869), to increase its firm nomination by 35 MW which would firm up the 35 MW of interruptible under the Koch Creek Wheeling Agreement.

6.3 Commission Summary and Conclusions

The Commission concludes that firm wheeling requirements must in fairness be supported by firm nominations, and that such nominations should be on a 5-year rolling basis. The Commission further concludes that a nomination penalty is not required, but the billing demand charge for wheeling should reflect the greater of nominated demand and capacity actually utilized. Firm wheeling should include peak period planned outages for maintenance and construction, but not requirements for unforeseen outages or any other bona fide emergency. This should not affect the firm nomination requirement, since planned outages for maintenance and construction will normally be undertaken during off-peak periods.

B.C. Hydro and WKPL were ultimately in agreement that bona fide emergency wheeling should be charged at one mill per kilowatt hour and the Commission concurs. The Commission concludes that, for firm wheeling requirements, WKPL should nominate for five years.

SECTION 7.0 COMPARATIVE IMPACT ON WKPL'S UNIT COSTS FOR PURCHASED POWER

For illustrative purposes only, the impacts on WKPL's unit costs for purchased power of the rates and related terms and conditions as proposed by WKPL and by B.C. Hydro, are compared in Table 7 on page 60 to those determined by this Decision.

Table 7 displays the costs to WKPL in mills per kWh and the resulting percentage increases by year to 1990, based on the data provided in WKPL's Exhibit #64A. The Commission notes and concurs with WKPL's testimony (Tr. 1,878-81) that the ultimate impacts on WKPL's revenue requirements and hence rates to its customers, at least in the later years, would be less than those indicated by Exhibit #64A since those impacts do not reflect the effect of price elasticity for any forecast other than that forming the basis for the WKPL proposal. Thus, if it is assumed that the WKPL forecasts for both demand and energy are reasonable for the level of rates for purchased power projected by WKPL, the impact on revenue requirements of any higher rates would be less than indicated in Exhibit #64A. Under such circumstances, therefore, the indicated spread between the results for WKPL, B.C. Hydro and the Commission would be less than illustrated by Table 7.

Accordingly, and in light of the available evidence, the Commission concludes that the rates determined by this Decision are just, reasonable and not unduly discriminatory.

Table 7

Summary of Illustrative Rate Increases

	1986	1987	1988	1989	1990
B.C. Hydro Proposal					
Average Rate (mills/kWh)	30.2	35.8	35.8	36.8	40.8
Percent Increase		18.6	0	2.7	10.8
WKPL Proposal					
Average Rate (mills/kWh)	30.2	31.8	31.8	32.4	35.8
Percent Increase		5.2	0	2.0	10.6
Commission Decision					
Average Rate (mills/kWh)	30.2	32.3	32.5	33.4	37.
Percent Increase		7.1	.5	2.7	10.8

Source: WKPL's Exhibit #64A

SECTION 8.0 THE DECISION - SUMMARY

In summary, this Decision provides for the following :

1. A transitional period, from the date of this Decision to December 31, 1990, during which the rate paid by WKPL for power purchased from B.C. Hydro will rise gradually in response to an increasing ratchet on the demand charge portion of the rate.

2. The 1986 demand charge shall be $3,500/MW/month reflecting zero ratchet, rising by 1990 to reflect a ratchet of 40% applicable to WKPL's peak billing demand in that year (Ref. Table 4, page 37 of this Decision).

3. The energy charge shall be the sum of the energy charges provided in Rate Schedules 1821 and 1899 for any given year, or approximately 22.4 mills/kWh in 1986.

4. The terms and conditions relating to both the specified transitional and to any longer-term rates for purchased power, shall be as determined in Section 4.3 of this Decision and set out in Order No. G-61-86 attached.

5. The rates to be charged for firm wheeling of WKPL power by B.C. Hydro, shall be as follows :

Vernon	$19,000/MW/year
Creston	$11,000/MW/year
Princeton	$45,000/MW/year

6. The terms and conditions relating to the wheeling rates shall be as defined in Section 6.3 of this Decision and Order No. G-61-86 attached.

7. All of the foregoing rates shall be subject to whatever percentage increases or decreases in rates result from general rate applications by B.C. Hydro.

The Commission emphasizes that its determination of the foregoing specific transitional rates for purposes of settling a dispute, does not relieve WKPL from its overriding responsibility for obtaining the lowest-cost, secure long-term sources of supply. The rates specified by this Decision are intended to provide WKPL with a basis for comparison with other supply alternatives, arising from the intensified system planning activity by WKPL which the Commission now expects the utility to undertake without further delay.

The Commission will further expect that without further delay B.C. Hydro and WKPL will produce and file with the Commission a contract covering the period to the year 2005, reflecting the principles, terms and conditions as determined by this Decision and, for the transitional period to 1990, based on the rates specified in this Decision as just and reasonable in the circumstances, and in the public interest.

DATED at the City of Vancouver, in the Province of British Columbia, this 10th day of October, l986.

M. TAYLOR, Chairman

J.D.V. NEWLANDS, Deputy Chairman

D.B. KILPATRICK, Commissioner

N. MARTIN, Commissioner

APPENDIX A

AVOIDED COST - ANNUAL RATE FOR FOR "NEW" GAS TURBINES

1. Avoided Cost was determined on the basis of Exhibit #32 which is a cost estimate to install two gas turbines of 40 MW (41.2 MW) in the Okanagan.

eg. New Equipment	1987	
Rate Base	24.42	
Required Revenue		8.03
Fuel		.75
Required Revenue without Fuel		7.28

Ratio of Required Revenue to Rate Base $\frac{7.28}{24.42} = .29812$

Annual cost for the operation of the gas turbines.

Cost of maintenance for gas turbines is $250,000 over three years.

$24,420,000 x .29812 + 1/3 ($250,000) =

$7,280,090 + $83,333.3 = $7,363,424

The cost per MW per month is :

$7,363,423 / 82.4 MW / 12 mo. = $7,446.83/MW/mo.

From Exhibit #8, Volume 3, peak capacity purchase from B.C. Hydro in 1987 is 140 MW.

Total demand cost in 1987 is $7,446.83 x 140 x 12 = $12,510.67 x 10^3

From Exhibit #8, Volume 3, Tab 5, total energy is 112 GWh.

Total Energy cost in 1987 is 112 GWh x 3.43¢ / kWh = $3,841.6 x 10^3

Therefore, total demand and energy cost in 1987 is :

Demand = $12510.7 x 10^3

Energy = $ 3841.6 x 10^3

$16,352.3 x 10^3

APPENDIX B

FOR POST-TRANSITIONAL PERIOD

By May 31st in each year of this Agreement, the nominated firm capacity and energy for each point of interconnection shall be provided by WKPL according to the following schedule:

(a) The former sixth year's nominations may be varied by + or - 5% to become the new fifth year's nominations.

(b) The former seventh year's nominations may be varied by + or - 10% to become the new sixth year's nominations.

(c) The former eighth year's nominations may be varied by + or - 15% to become the new seventh year's nominations.

(d) The former ninth year's nominations may be varied by + or - 20% to become the new eighth year's nominations.

(e) The former tenth year's nominations may be varied by + or - 25% to become the new ninth year's nominations.

(f) The new tenth year's nominations.

COMBINED WHEELING CALCULATION

The three specific areas of cost transmission lines, line terminals and transformers are allocated to the three take-off points (Creston, Vernon and Princeton) by the following method:

1. Transmission Lines

Wheeling with loop flow was taken from Exhibit #5, Volume #2, pg. 27-70.

Step #1

Wheeling flow under the design of 20 MW was determined for Creston, Vernon and Princeton.

Wheeling Flow = (Line Flow with Wheeling - Line Flow No Wheeling)

Step #2 - "Individual Wheeling Basis"

Wheeling loop flows under the design of 20 MW adjusted for 21/20 MW - Creston, 70/20 MW - Vernon and 1/20 MW - Princeton.

Step #3 - "Combined Wheeling Basis"

The wheeling flows in Step #2 were added together.

Step #4 - (Individual and Combined Wheeling)

A MW*km calculation was determined for:

B.C. Hydro : Line Flow with no Wheeling x Line Distance (km)

WKPL : Wheeling Flow after Wheeling x Line Distance (km)

Step #5 - Allocation of Costs

A summary of annual transmission line costs were taken from Exhibit #7, Tab 13.

The annual cost of the line was allocated to B.C. Hydro and WKPL based on the WKPL (MW * km) and B.C. Hydro (MW * km).

A zero cost was inserted if the flow was negative.

$$\text{Allocation to WKPL Line} = \frac{\text{WKPL (MW} * \text{km)}}{\text{WKPL (MW*km) + BCH (MW*km)}} \times \text{Annual Cost}$$

2. Line Terminals (Individual & Combined)

Costs for transformers and line terminals were taken from Exhibit #7, Tab 13.

Step #1

A percentage of the total line terminal cost for each station was allocated to each of the 13 lines on the basis of the number of lines emanating from the respective system.

Step #2 - (Individual & Combined)

The cost allocation to WKPL and B.C. Hydro for each terminal was made on the same percentage basis as the individual basis transmission line and then combined.

3. Transformers (Individual & Combined)

Allocation of cost to WKPL and B.C. Hydro were established by the following calculation:

$$\frac{\text{Usage for 20 MW Wheeling (adj. to individual basis)}}{\text{No Wheeling + Usage for 20 MW Wheeling (adj. to individual basis)}} \times \text{Cost of Transformers}$$

The "Individual Wheeling Basis" provides for transmission lines, line terminals and transformers to be assigned to WKPL for the three take-off points (Creston, Vernon and Princeton).

The "Combined Wheeling Basis" provides totals for transmission lines, line terminals and transformers. The individual costs are downgraded by a ratio of the total in the combined system to the total on an individual basis. This method is intended to approximate simultaneous wheeling at all of the take-off points under loop flow conditions (as shown in the following tables).

The annual rate ($/MW/yr) is then :

Creston	824/21	=	39,200
Vernon	2232/70	=	31,900
Princeton	51.8/1	=	51,800

Specified System - With Loop Flow
Zero Cost if Negative Flow

Line	Particulars	(1) Total	(2) Creston	(3) Vernon	(4) Princeton	(5) Total	(9) Cre
			A L L O C A T E D				
			Individual Basis				
1	Transmission Lines		764.0	1,905.9	43.2	2,713.1	5
2	Line Terminals		88.8	434.7	15.3	538.8	
3	Transformers		206.3	503.7	7.3	717.3	1
4	TOTAL		1,059.1	2,844.3	65.8	3,969.2	8
5	MW		21	70	1		2
6	Annual Rate ($/MW)						3

Footnotes:

1/ Line 1, col. (2) x [Line 1, col. (9)/Line 1, col. (5)]
2/ Line 2, col. (2) x [Line 2, col. (9)/Line 2, col. (5)]
3/ Line 3, col. (2) x [Line 3, col. (9)/Line 3, col. (5)]

4/ Line 1, col. (3) x [Line 1, col. (9)/Line 1, col. (5)]
5/ Line 2, col. (3) x [Line 2, col. (9)/Line 2, col. (5)]
6/ Line 3, col. (3) x [Line 3, col. (9)/Line 3, col. (5)]

7/ Line 1, col. (4) x [Line 1, col. (9)/Line 1, col. (5)]
8/ Line 2, col. (4) x [Line 2, col. (9)/Line 2, col. (5)]
9/ Line 3, col. (4) x [Line 3, col. (9)/Line 3, col. (5)]

IN THE MATTER OF
the Utilities Commission Act
S.B.C. l980, c. 60, as amended

and

IN THE MATTER OF
Matters in Dispute
between
British Columbia Hydro and Power Authority
and
West Kootenay Power and Light Company, Limited

DECISION

October 15, l986

Before :

M. Taylor, Chairman
J.D.V. Newlands, Deputy Chairman
D.B. Kilpatrick, Commissioner
N. Martin, Commissioner

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COURT REPORTER	Allwest Reporting Ltd.

LIST OF EXHIBITS

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(Cont'd)

Proposed Fixed Entitlement

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