



IN THE MATTER OF

the Utilities Commission Act

S.B.C. 1980, c. 60, as amended

and

IN THE MATTER OF

**a Rate Design Application by
British Columbia Hydro and
Power Authority**

DECISION

April 24, 1992

BEFORE:

**John G. McIntyre, Chairman
Ken L. Hall, Commissioner**

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1.0 INTRODUCTION

1.1 Applicant

The British Columbia Hydro and Power Authority ("B.C. Hydro", "the Utility" or "the Applicant") is a Provincial Crown Corporation, established by the amalgamation of the former British Columbia Electric Company Limited and the British Columbia Power Commission in 1962. Its mandate is to generate, transmit and distribute electricity in British Columbia. B.C. Hydro does so throughout B.C. except for a few municipal district utilities and in the Kootenay and South Okanagan areas which are served by West Kootenay Power Ltd. B.C. Hydro presently operates under the Hydro and Power Authority Act and is subject to regulation by the British Columbia Utilities Commission ("the Commission"). All the provisions of the Utilities Commission Act ("the Act") apply to the Utility except for sections dealing with utility financing and asset dispositions.

1.2 Regulatory Framework

The British Columbia Utilities Commission is a regulatory agency of the Provincial Legislature operating under, and administering the Act. The Commission's primary responsibility is the regulation of the energy utilities under its jurisdiction to ensure that the rates charged for service are fair, just, and reasonable, that utility operations are safe, that adequate and secure service is provided to customers, and that the opportunity for utilities to earn a fair and adequate financial return is preserved. It also approves construction of new facilities planned by the utilities. The Commission's function is quasi-judicial and its decisions and orders may be appealed to the Court of Appeal on questions of law or excess of jurisdiction with leave of a justice from the Court of Appeal.

The Commission is instructed and guided by the provisions of the Act inclusive of Special Directions pursuant to Section 3 of the Act. Without limiting the Commission's responsibility to meet all requirements of the Act, the following sections are particularly applicable to this Rate Design Application.

Section 65 states:

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

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

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

(4) In this section a rate is "unjust" or "unreasonable" if the rate is

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

Section 66 (1) states:

"(1) In fixing a rate under this Act or regulations

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

The Act also contains the following Section:

"3.1 The Lieutenant Governor in Council may issue a direction to the commission specifying the factors, criteria and guidelines that the commission shall or shall not use in regulating and fixing rates for the authority and the commission shall comply with the direction notwithstanding

- (a) any other provisions of this Act, or
- (b) any previous decision of the commission."

1.3 Rate Structure

In the past, as B.C. Hydro's year-to-year costs have increased, it has applied to the Commission for rate relief sufficient to cover those costs. In the absence of any rate design approach and to keep the impact on customer classes and rates neutral, such revenue requirement increases were usually a percentage applied across-the-board to all classes and all components of the rate structure.

B.C. Hydro's Electric Tariff contains the terms, conditions and rates for service to customers and any changes require the approval of the Commission. As stated by B.C. Hydro in its Application (Volume 1, Tab 2, page 1):

"The majority of B.C. Hydro's customers are served on Rate Schedules 1101 (Residential), 1220 (General under 35 kW), 1200, 1201, 1210 and 1211 (General 35 kW and over) and 1821 (Transmission service). B.C. Hydro's tariff also includes a number of rate schedules and rate codes that identify customers served under different metering arrangements and customers served in non-integrated supply areas. In addition, B.C. Hydro provides street lighting and irrigation service.

For rate making purposes, B.C. Hydro has four rate classes: Residential, Small General, Large General and Transmission. Rates to customers served under other rate schedules, codes or classes follow directly from the rates of these four classes."

Prior to the completion of the Revelstoke dam in 1984, B.C. Hydro and its customers benefited from economies of scale in the development of the transmission and distribution system, and from declining costs in the development of new generation. This was reflected in rates that had the cost of electricity declining with increased usage. This situation has reversed since B.C. Hydro now faces the prospect of developing higher cost resources to supply the growth in demand for electricity.

B.C. Hydro's current Electric Tariff contains rate structures with trailing blocks which charge lower rates per kW.h as the amount of electricity consumed increases. It also includes promotional rate structures that have been closed to new customers for many years. These rate structures, while appropriate when economies of scale were being achieved, are no longer seen to be justified as the costs of adding new sources of electricity supply are now increasing.

1.4 Special Direction No. 3

In 1988, the Provincial Government instructed the Ministry of Energy, Mines and Petroleum Resources to re-examine provincial electricity policy and to develop an electricity strategy for the 1990's. This review led to the issuing of Order-in-Council No. 1418, dated October 5, 1989, Special Direction No. 3 to the Commission and the Ministry of Energy's policy document, "British Columbia Energy Policy New Directions for the 1990's".

Special Direction No. 3 states:

"Application

1. This Special Direction is issued by the Lieutenant Governor in Council to the British Columbia Utilities Commission ("the Commission") under authority of Section 3.1 of the Utilities Commission Act with respect to the exercise of the Commission's powers and functions applying to the British Columbia Hydro and Power Authority (B.C. Hydro).

Conservation and Efficient Electricity Use

1. In setting B.C. Hydro electricity rates, the Commission shall ensure rate increases are smooth, stable and predictable and contribute to conservation and efficient electricity use by recognizing that electricity rates should gradually increase to meet the higher costs of new electricity supply.
2. The Commission shall further ensure that B.C. Hydro electricity rates remain fair, just and reasonable.

Financial Standards

1. The Commission shall ensure that electricity rates meeting the above requirements must also allow B.C. Hydro to generate adequate revenues in each financial year to:
 - (a) sustain an operating and capital regime that continues to provide a quality and reliable electrical service to all its customers and that contributes to conservation;

- (b) meet all debt service, tax and other financial obligations and generate a distributable surplus;
- (c) achieve before the end of the 1991/92 financial year, and maintain thereafter, a minimum interest coverage ratio of 1.3:1; and
- (d) achieve before the end of the 1991/92 financial year, and maintain thereafter a maximum debt/equity ratio of 80:20.

Return on Public Investment

1. Electricity rate setting pursuant to this Special Direction shall generate annual distributable surpluses for B.C. Hydro, which will be allocated in a manner specified by the Lieutenant Governor in Council by Special Direction No. 1 to B.C. Hydro under Section 54.1(a) of the Hydro and Power Authority Act.

This Special Direction revokes and replaces Special Direction No. 1 (Revised) of March 16, 1984."

1.5 Background

On November 30, 1989, based on its interpretation of Special Direction No. 3, B.C. Hydro filed a Rate Application for an across-the-board increase in revenue requirements over three years. The Commission heard that Application in a public hearing and issued a Decision on April 30, 1990. In that Decision at page 25, the Commission stated that it "rejects the Application for across-the-board rate increases as an appropriate or effective signal to promote conservation and efficient use of electricity." Instead, it ordered the filing of a Rate Design Application by December 1, 1990 (subsequently extended to January 15, 1991 by Commission Order No. G-95-90). In its Decision of April 30, 1990, the Commission approved increases in rates sufficient to allow B.C. Hydro to attain the financial requirements of Special Direction No. 3. It specified that Rate Design was the preferable vehicle for promoting conservation and efficient use through customer rates.

On January 15, 1991 B.C. Hydro filed its first Application for Rate Design of its Electric Tariffs and, by Commission Order No. G-28-91, Notice of a Public Hearing of the Application for June 10, 1991 was set. The hearing was subsequently adjourned at the request of the parties and the Commission ordered that the Authority's Industrial Rate Proposal, first filed with the Commission on May 21, 1991, be the subject of a consultation process under the coordination of the Commission Staff.

The consultation meetings took place over the summer and after receiving the Staff reports on the process, the Commission issued an Order to resume the public hearing on January 13, 1992. The Notice of Public Hearing was amended by Order No. G-96-91 to include a separate phase on an Agreement in Principle entered into between B.C. Hydro and West Kootenay Power Ltd. ("WKP") with regard to the rate for supply to WKP. This phase was subsequently deferred to enable the two utilities to complete contract negotiations.

1.6 Public Hearing

In addition to the usual Notice of Hearing required to be published in various newspapers in the service area, the Commission ordered B.C. Hydro to provide information to supplement the newspaper ads in order to adequately inform customers of the rate design proposals. B.C. Hydro was also required to mail detailed summaries of the proposed changes to Closed and Terminated Rate Schedules to affected customers. The Commission also held Pre-Hearing Conferences to identify principal issues, scheduling and the possible need for regional hearings.

The Rate Design public hearing required 20 days and was concluded on February 18, 1992. B.C. Hydro put forward witness panels covering Policy Overview, Residential and General Rate Design, Industrial Rate Proposal ("IRP"), Closed Rates, Least-Cost Integrated Resource Planning and Power Smart, Communications and Monitoring Plan, and various cost studies including the Fully Allocated Cost of Service ("FACOS") study, Long-Run Incremental Cost ("LRIC") and the cost of new supply.

These panels were extensively cross-examined by representatives of residential and industrial customer groups as well as individual customers and Commission Counsel. The Industrial User Intervenor put forward their own expert witness on B.C. Hydro's proposals for industrial rates. They also had a panel of Industrial Customers speaking to the determination of demand and quantities under the IRP. Other Intervenor gave written or oral submissions and numerous Interested Parties filed letters with the Commission.

2.0 APPLICATION

The January 15, 1991 Application was amended by B.C. Hydro on October 28, 1991. B.C. Hydro stated that its Rate Design Application began a process of establishing rates which will promote efficient use of electricity by ensuring that electricity will be sold at a price which reflects the cost of new supply. B.C. Hydro proposed to adjust rates in the residential and general rate categories, to result in a flat rate structure, and raised the possibility of eventually increasing the trailing block rates to equate to its LRIC. These adjustments would be done in connection with general rate increases and would be substantially completed by the end of the decade. However, B.C. Hydro recognized that it had insufficient information on customer consumption patterns and future responses to price and program changes. Accordingly, this Application, while establishing general principles, only asked for implementation of the first step of the total program and proposed a comprehensive Communication and Monitoring Plan to obtain the necessary information which would guide future applications and inform customers of the changes affecting them.

The proposal for the transmission rate category, now served by flat rate schedules (primarily Rate Schedule 1821), was to apply the next revenue increase across-the-board to the flat rate. B.C. Hydro stated that it had requests from its large industrial customers for services such as wheeling, standby and the ability to take excess supply from time to time at rates which reflect the cost of providing these services. In addition, the Application sought approval for an IRP which proposed optional rates and rates for wheeling, standby and backup services as well as access to the short-term market.

A further objective of the IRP was to establish a framework to encourage the development of private power production. B.C. Hydro stated in the Application that:

"...in allowing a customer to choose from an array of services and suppliers to meet its exact needs, B.C. Hydro and/or other suppliers may be able to provide these services at a lower cost to both B.C. Hydro and its customers than would be the case if only a standard package of services to all industrial customers was provided." (Exhibit 1, Tab 7I, page I-3)

B.C. Hydro also proposed to phase out many of its closed rates, some of which have been closed for years. Some are proposed for immediate elimination where the impacts would be small; others would be phased out gradually over several years.

B.C. Hydro has separate rate categories for all customers in the non-integrated area, called Zone II. This area is serviced largely by oil-fired generation and represents only about 5 percent of B.C. Hydro's customers and revenue. In the past, most of these rates have borne a direct relationship to one or other of the major integrated system rates. This may continue in the future but to date B.C. Hydro has not focused on how the structure of these rates will change other than to maintain these relationships.

In the Application (Exhibit I, Tab 1, page 1) B.C. Hydro stated:

"Zone II is a special case to which B.C. Hydro has devoted a lot of attention including extensive public consultation. Preliminary proposals have been formulated which are in line with the general philosophy of this Application (i.e., moving toward incremental costs) but the implications because of the high cost of service in Zone II are much greater for those customers. Accordingly, B.C. Hydro is currently exploring a greater scope for Power Smart initiatives and also ways of increasing the availability of alternative fuels so that customers will, for example, be able to utilize heating oil directly rather than the wasteful practice of electric space heating with oil-fired generation. When more information is available on the success of these programs, B.C. Hydro will submit a rate design proposal for Zone II."

and on page 14:

"Zone II, and other rate categories such as street lighting and irrigation, will be changed to maintain consistency with the treatment of the residential, general and industrial classes."

2.1 Orders Requested

The Application requested that the following Orders be issued:

Rate Restructuring

1. an Order pursuant to Section 67 of the Act allowing B.C. Hydro to amend its Electric Tariff from time to time to implement any rate increases it is granted in the future pursuant to Section 67(4) or Section 106 of the Act, in a manner consistent with the principles set out in this Application;

Service under Rate Schedules 1140, 1141, 1146, 1147, 1148, 1222, 1223, 1272, 1273, 1275, 1276, 1277, 1278, 1290, 1703, 1843 and 1844

2.
 - (a) an Order pursuant to Section 67 of the Act to terminate service under Rate Schedules 1140, 1141, 1146, 1147, 1148, 1272, 1273 and 1275 effective the date of the Commission's Decision on the terms and conditions set forth in Tab 4 of this Application;
 - (b) an Order pursuant to Section 64 of the Act to apply an increase of 10 percent to the rates charged for service under Rate Schedules 1277 and 1278 effective the date of the Commission's Decision and annually thereafter on April 1 of each year until such time as rate equity occurs with a standard open rate and a further Order pursuant to Section 67 of the Act to terminate the availability of service under Rate Schedules 1277 and 1278 at that time on the terms and conditions set forth in Tab 4 of this Application;
 - (c) an Order pursuant to Section 67 of the Act to terminate service under Rate Schedule 1276 effective five years after the date of the Commission's Decision;
 - (d) an Order pursuant to Section 64 of the Act to apply an increase of 20 percent to the pole contact charge under Rate Schedule 1703 effective the date of the Commission's Decision and annually thereafter on April 1 of each year until such time as equity is achieved with the level charged to other customers receiving similar service on the terms and conditions set forth in Tab 4 of this Application;
 - (e) an Order pursuant to Section 67 of the Act to close Rate Schedules 1222 and 1223 effective the date of the Commission's Decision;
 - (f) an Order pursuant to Section 67 of the Act to terminate service under Rate Schedules 1222 and 1223 effective one year after the date of the Commission's Decision on the terms and conditions set forth in Tab 4 of this Application;
 - (g) an Order pursuant to Section 64 of the Act to permit B.C. Hydro to reduce the bill impact that results from termination of Rate Schedules 1148, 1222, 1223, 1272 and 1275 to no more than 10 percent per year as set forth in Tab 4 of this Application;
 - (h) an Order pursuant to Section 67 of the Act to terminate availability of service under Rate Schedules 1290, 1843 and 1844 effective the date of the Commission's Decision and to allow B.C. Hydro to amend its Electric Tariff by removing pages C-37-2 and C-58 to C-63 inclusive.

Transmission Voltage Service

Optional Rate

3. an Order pursuant to Section 64 of the Act allowing B.C. Hydro to provide transmission voltage service at an optional two-tiered rate on the terms and conditions set forth in Tab 7 of this Application;

Alternative Sources of Supply

4. an Order pursuant to Section 67 of the Act allowing B.C. Hydro to provide transmission voltage service to customers who have an alternative source of electricity supply on the terms and conditions set forth in Tab 7 of this Application and transferring existing customers who have an alternative source of supply to that service;

Wheeling

5. an Order pursuant to Section 67 of the Act allowing B.C. Hydro to provide wheeling service at the rates and on the terms and conditions set forth in Tab 7 of this Application;

Standby

6. an Order pursuant to Section 67 of the Act allowing B.C. Hydro to provide standby service at the rates and on the terms and conditions set forth in Tab 7 of this Application;

Back-up

7. an Order pursuant to Section 67 of the Act allowing B.C. Hydro to provide back up service at the rates and on the terms and conditions set forth in Tab 7 of this Application;

Excess Demand

8. an Order pursuant to Section 67 of the Act allowing B.C. Hydro to charge for excess demand at the rates and on the terms and conditions set forth in Tab 7 of this Application;

Access to the Power Exchange Operation ("PEO")

9. an Order pursuant to Section 67 of the Act allowing B.C. Hydro to provide access to the PEO on the terms and conditions set forth in Tab 7 of this Application;

Amendments to Electric Tariff

10. an Order pursuant to Section 67 of the Act allowing B.C. Hydro to amend the terms and conditions of service under Rate Schedule 1821 to reflect the availability of other transmission voltage services as discussed in Tab 7 of this Application; and
11. an Order pursuant to Section 67 of the Act to terminate availability of service under Rate Schedule 1880 effective the date the amendments to Rate Schedule 1821 discussed in item 10 are accepted for filing and to amend its Electric Tariff by removing pages C-64 to C-66 inclusive.

2.2 Rate Design Principles

In developing its approach to rate design, B.C. Hydro started with the premise that, from a regulatory stand-point, it must fulfill at least two criteria (Exhibit 1, page I-1-2). First, the Act requires that B.C. Hydro's rates must be fair, just and reasonable. Second, government policy, as articulated through Special Direction No. 3 to the Commission, requires that B.C. Hydro's rates:

- contribute to conservation and the efficient use of electricity;
- recognize the higher cost of new electricity supply;
- provide for smooth and stable increases; and
- are otherwise fair, just and reasonable.

To ensure that B.C. Hydro rate design serves the specific objective of Special Direction No. 3 and is otherwise fair, just and reasonable, the Applicant undertook a comprehensive internal analysis of its rates and also retained outside expertise to assist it in developing a rate design appropriate for the future.

The rate design team considered 10 distinct traditional objectives of rate design, used in other North American jurisdictions, which define the fair, just and reasonable standard. These objectives were elaborated upon by B.C. Hydro's consultant, Mr. H.J. Vander Veen as:

1. Effectiveness in yielding total revenue requirements.
2. Revenue stability and predictability, with a minimum of unexpected changes.
3. Stability and predictability of rates themselves, with a minimum of unexpected changes seriously adverse to rate payers and with a sense of historical continuity.
4. Static efficiency of rate classes and rate blocks in discouraging wasteful use of service while promoting all justified types and amounts of use.
5. Reflection of all the present and future private and social costs and benefits.
6. Fairness of specific rates in the apportionment of total cost of service among the different rate payers so as to avoid arbitrariness and to attain equity.
7. Avoidance of undue discrimination in rate relationships.
8. Dynamic efficiency in promoting innovation and responding economically to changing demand and supply patterns.

9. The related practical attributes of simplicity, certainty, convenience of payment, economy in collection, understandability, public acceptability and feasibility of application.
10. Freedom from controversy as to proper interpretation.

Mr. Vander Veen summarized these objectives as follows (Exhibit 1, page I-10-4):

- the revenue requirement or financial need objective
- the optimum use of consumer rationing objective
- the fair cost apportionment objective
- the acceptability objective.

B.C. Hydro stated that having considered these traditional objectives, it believed that the requirement for fair, just and reasonable rates in the Act was entirely compatible with government policy requiring conservation, efficient use of electricity, and smoothness and predictability in rates. Examination of some of the traditional objectives suggests that the requirements of Special Direction No. 3 are at the heart of establishing fair, just and reasonable rates.

The requirement to conserve and promote the efficient use of electricity found in Special Direction No. 3 is echoed in three of the objectives from the list of traditional objectives in Mr. Vander Veen's testimony (4, 5 and 8). Similarly, the requirement for smoothness and predictability and the need to recognize the higher cost of new electricity supply are found in two objectives (2 and 3). Based on the work of its Rate Design team, B.C. Hydro believed that, generally speaking, the other traditional rate design objectives are adequately served by the Application (Exhibit 1, page I-1-3).

2.2.1 Commission Determinations

The Commission agrees with B.C. Hydro that the traditional rate design objectives, the Act and Special Direction No. 3 are compatible. However, the Rate Design Application has been directly linked to future illustrative changes in its Revenue Requirements. B.C. Hydro stated that it expected its next revenue requirement increase to be between 3 and 7 percent, but has been unable as yet to get to the Application stage. The timing and amount of further revenue requirement increases are even more uncertain. This means that the smooth, stable and predictable objectives cannot be adequately examined in a concrete and specific manner in this Decision.

2.3 B.C. Hydro Policy

Four basic policy judgments underlie B.C. Hydro's Rate Design Application. These judgments are based on the Utility's interpretation of Special Direction No. 3 and on its perception of the current relationships among customer classes. Specifically, the four policy judgments are that:

1. the current allocation of revenues among customer classes is acceptable;
2. the current declining rate block structure is inappropriate;
3. no customer bills should increase by more than ten percent; and
4. no customer bills should decline.

2.3.1 Allocation of Revenues Between Classes

Typically, a primary issue to be addressed by a rate design application is the appropriate allocation of embedded costs among customer classes while intra-class rate design issues are often given lesser priority. A FACOS study is used to measure the extent to which the revenues contributed by a particular customer class cover the historical costs attributed to serving that customer class. Ratios in excess of one indicate that class revenues exceed allocated costs while ratios less than one imply the opposite. The fundamental objective of B.C. Hydro's Application, however, is to change the structure of the current price levels in a manner that serves to alert customers to the rising cost of future power.

In this Application, B.C. Hydro relied primarily on the results of the FACOS study contained in Exhibit 1, Appendix E and later updated in Exhibit 4, Industrial Users' Question 27b. The results of the original and updated studies for major rate classes are given as follows:

Revenue to Cost Ratios - Major Rate Classes

	<u>Original Study</u>	<u>Updated Study</u>
Residential	.8910	.8697
General < 35 kW	1.1039	1.0969
General > 35 kW - Primary	1.1992	1.2337
General > 35 kW - Secondary	1.1395	1.1444
Transmission - Large Industrial	1.0049	1.0062

The Applicant stated that the revenue to cost ratios calculated by the studies for the major rate classes fell within generally acceptable bounds:

"B.C. Hydro also believes it is not necessary to deal with this issue with respect to its next general rate increase. This conclusion is supported by an analysis of the allocated cost of service of Hydro and an analysis of its Long-Run Incremental Cost. These studies indicate that the revenue collection from each of the residential, general and industrial customers is generally within acceptable bounds." (Exhibit 1, page I-1-6)

which B.C. Hydro considered to be a range of .85 to 1.15.

"Based upon experience, studies conducted for Manitoba Hydro, New Brunswick Power and Nova Scotia Power and related testimony before the regulatory authorities in the provinces of Manitoba, New Brunswick and Nova Scotia, a range of .85 to 1.15 would be generally acceptable bounds for revenue cost ratios as an initial guideline or objective." (Exhibit 2, BCUC Question 1-7-1)

Based on Schedule 1 of the FACOS study found in Exhibit 1, Appendix E, the total general service class has a revenue to cost ratio of 1.15 percent which lies just within B.C. Hydro's guideline of acceptable bounds for revenue to cost ratios (Exhibit 1, Tab 1, page 4). However, based on Exhibit 4, Industrial Intervenor's Question 27(b), which contains an updated FACOS study, the revenue to cost ratio is 1.16 percent. Within the General Service category, the highest revenue to cost ratio is found for General Service greater than 35 kW - Primary for which the updated study shows a revenue to cost ratio of 1.23 percent.

In explaining the decision not to reallocate revenue, the B.C. Hydro witness stated:

"Could I add, Mr. Chairman, that the changes that Hydro was looking at in the residential and general were looked at from the point of view primarily of efficiency. The question

of fairness did arise. We asked ourselves whether it would be better to let some bills go down, and the conclusion was that over the rate restructuring it was better not to, that the efficiency gains were the priority." (T. 502-503)

Mr. Vander Veen, an expert witness appearing for B.C. Hydro, stated:

"MR. JOHNSON: Q: And the question I pose to you was that the 10 percent range, plus or minus 10 percent, is a commonly used criterion in looking at revenues versus costs.

MR. VANDER VEEN: A: I would say 10 to 15 is commonly used, but certainly 10 is one of the boundaries." (T. 809)

However, he expressed concerns that the quality of the data used by B.C. Hydro was insufficient to allow for a narrower range.

"MR. VANDER VEEN: A: My conclusion is based on a significant lack of load research data for the residential and small general service customers, and that's my biggest concern. That is and of itself gives me a real concern about getting a narrow range in 84-115. There's just a complete lack of load research data." (T. 902).

In choosing to address intra-class rather than inter-class rate design concerns, the Utility stated:

"As well, B.C. Hydro believes that the focus of this hearing can more profitably be on the overall theory of rate restructuring and the specific steps in each class, intra-class, which B.C. Hydro is proposing. The intra-class issue will be consistently monitored by Hydro and if ever B.C. Hydro finds that the allocation of cost to the classes is outside the general acceptable bounds it believes exists today, then, of course, there would be an application to adjust the assignment of revenue responsibility accordingly, but it doesn't seek to do that in this application." (T. 58)

2.3.1.1 Commission Determinations

The Commission accepts that the revenue to cost ratios resulting from the FACOS study do not indicate that a reallocation of class revenues is imperative at this time. In making this determination, the Commission is influenced by the evidence given by Mr. Vander Veen that the data upon which the study relies is of insufficient quality to allow for narrower bounds to surround the revenue cost ratios such as the 10 percent bounds which the Commission has accepted in the past.

The Commission directs the Utility to undertake such measures as are necessary to improve the quality of its data so that a more reliable FACOS study may be prepared. Depending on the results of this study, a new allocation of revenues and costs among customer classes may be warranted. This undertaking may proceed without any special urgency since initial findings do not indicate a pressing problem. However, completion prior to a Revenue Requirement filing for 1993/94 would be most useful.

2.3.2 Declining Rate Block is Inappropriate

B.C. Hydro recognized that the current declining rate block structure is no longer fair, just and reasonable. In his opening remarks, counsel for B.C. Hydro stated:

"The implicit signal in that rate structure is clearly inconsistent with the reality that Hydro faces. Every time Hydro faces an increase in the aggregate demand on its system it must ensure it has new, ever more expensive resources to meet that demand, thus the decisions of consumers to consume more cost it ever increasing amounts so the declining rate block sends exactly the wrong price signal.

As the testimony will indicate the most obvious way to deal with that and the option that Hydro first considered is simply getting rid of the declining rate block. That can be accomplished, I suppose overnight, by moving all residential and general customers to a flat rate." (T. 47-48)

2.3.2.1 Commission Determinations

The Commission agrees that the current declining block rate structure is inappropriate in light of B.C. Hydro's resource realities and the direction of government policy. The first priority of the Commission will be to move from a declining block structure to a flat rate structure as soon as possible, recognizing rate shock and lack of data as constraints.

2.3.3 No Increases Over 10 Percent

B.C. Hydro's counsel suggested that it is simply too big a step to go all the way to flat rates overnight, and that, by any conventional definition, there would be a significant body of customers subjected to immediate and significant rate shock.

In discussing rate shock, the Utility offered two alternative definitions. Rate shock was defined in the Application as increases greater than 10 percent per annum (Exhibit 4, CAC(B.C.) et al Question 3). In a response to a question from CAC(B.C.) et al counsel, Mr. Peterson, a B.C. Hydro witness, noted that the 10 percent level was a guideline rather than a very firm barrier (T. 176). The second definition made reference to the "two-times rule" which says:

"...if as a result of rate design bills were to increase by more than double the increase received on average by bills within the customer class, this would begin to encroach on the realm of rate shock, that is unacceptably high rate increases." (T. 485)

This definition would appear to give the Utility more flexibility within the context of a potential 7 percent revenue requirements increase; however, the 10 percent guideline on bill impacts appeared to be the more influential in the Application (T. 496).

2.3.3.1 Commission Determination

As indicated by the evidence, whether a particular increase constitutes rate shock depends on the overall rate environment and the circumstances of the particular customer (T. 175-178). It is the Commission's responsibility to assess these circumstances and determine when rate shock may be properly said to have occurred. The Commission accepts that, in the circumstances of this Application, the two-times rule can be used as a rough guideline.

2.3.4 No Customer Bills Should Decline

The other reason given by B.C. Hydro for not immediately eliminating the declining block rate structure is that one-half of its customers would see their bills go down.

"MR. GATHERCOLE: Q: One of the policies of your application as presently filed is it is inappropriate at this time to move to a flat rate structure and to eliminate the declining block totally now.

MR. PETERSON: A: Well it's not inappropriate, but it would have consequences that we don't feel would be acceptable to the customers because of the number of bills that would go up well beyond the ten per cent guideline.

MR. GATHERCOLE: Q: Well as I understood the testimony yesterday and the policy that's inherent in the application there appear to be two reasons for your decision not to move to a flat rate as a first step. The first was rate shock to some customers.

MR. PETERSON: A: Yes.

MR. GATHERCOLE: Q: The second was inappropriate price signals to other customers.

MR. PETERSON: A: Yes, approximately half the customers would get a bill decrease, that's correct." (T. 182)

B.C. Hydro suggests that no bills to any customer should decline since allowing decreases would result in customers receiving mixed messages as to the future of electricity costs, thereby diluting the incentive to avoid wasteful use of the resource (T. 571-572). In order to ensure that no customer's bills decrease, the Utility proposed to make changes only at times of revenue requirement increases.

2.3.4.1 Commission Determinations

The Commission agrees that a substantial decline in rates to a particular customer class or large group within a class would not conform with the spirit of the Special Direction. The Commission does not believe that this precludes decreases in bills to customers who are unlikely to be price sensitive, especially if there are offsetting benefits. The Commission will, where possible, direct the adoption of a strategy which will eliminate the declining block rate structure without creating the problems previously noted or adding to the uncertainties.

3.0 RESIDENTIAL AND COMMERCIAL RATE RESTRUCTURING

3.1 B.C. Hydro Proposal - Residential Service

As already noted several times, B.C. Hydro's residential tariffs have a declining block structure, the effect of which is to make the average cost of a kW.h consumed by a customer decrease as total consumption increases. B.C. Hydro stated that this results in residential customers receiving an inappropriate price signal which encourages demand growth and advances the need for new electricity supply (Exhibit 1, page I-9-4). The Utility believes such a structure is now inappropriate.

In line with the general principles guiding its rate design proposals, and based on its policy judgements, B.C. Hydro proposed to restructure its residential rates in conjunction with future general revenue requirement increases granted by the Commission so as to eliminate the declining block rate form over time and implement either a flat or inverted rate structure. Specifically, the Utility proposed to expand the size of the initial consumption block from 275 to 400 kW.h at the time of its first revenue requirement increase and apply any remaining revenues, not collected through expansion of the first block, to the trailing block rate paid by residential customers. Directionally, the Applicant envisaged expanding the initial block to 500 kW.h at the time of the second revenue requirement increase. All revenue requirement increases after the first two were assumed to be applied solely to the trailing block rate until a flat rate structure was achieved. Assuming that a series of 5 percent revenue increases were required, the Utility expected that flat rates would be achieved in five steps (Exhibit 1, pages I-3-3, I-3-4). At that time, the Utility would assess the results of its monitoring program, which it intends to implement, and determine whether it should apply to the Commission to move to an inverted rate structure or retain flat rates.

It should be noted, that at this time, the Utility is applying only for approval of the first step, i.e., expansion of the initial block from 275 kW.h to 400 kW.h with all revenue increases not collected through the expansion of the initial block applied to the trailing block rate. While further details of the longer term proposal have been provided for illustrative purposes and to inform the Commission and other interested parties of the Utility's future intentions with respect to residential rates, the Utility would re-apply to the Commission for further rate structure changes at the time of each revenue requirements application.

3.2 Residential Policy Framework

B.C. Hydro indicated that its residential rate proposal was designed to enhance the Utility's policy goals by providing customers with appropriate price signals as to the future costs of new electricity supply so that conservation and the efficient use of electricity would be encouraged (T. 218). To maximize conservation and efficient use, the Utility stated that the price signal should be delivered to the consumption range most capable of responding (Exhibit 1, Tab 8, page 2), that is, the consumption range with the greatest price elasticity (T. 525). The Applicant indicated that it expected the potential for restraint to be greatest at higher levels of consumption, indicating that the price signal should be targeted at this consumption level (T. 536) in order to get "the biggest bang for the buck" (T. 718).

For lower consumption ranges where use may be for basic lighting, cooking and refrigeration, the Utility stated that it did not expect the same level of price responsiveness but instead expected these ranges to be more program responsive. Conservation and efficiency improvements in this range would be achieved through Power Smart initiatives (T. 625).

However, Utility witness Mr. Epp stated that:

"Just in general, we don't have a good handle on what consumption ranges would be price responsive and which ones may not, and the whole area of where could we best effect efficiencies in conservation, we don't feel we have a very good understanding of."
(T. 213)

In order to improve this understanding, the Utility proposes to implement a monitoring program which would provide data on customer consumption patterns. This data would then be used to refine the Utility's residential rate proposal over the longer term, including making the determination to price residential electricity sales on a flat rate basis or move to an inverted rate structure (T. 464). The lack of data was not seen as a constraint to commencing rate redesign since the Utility stated it had sufficient data to "identify what the appropriate first step for the changing of rates was" (T. 30).

3.3 Expansion of Initial Block

As part of the first step to restructure its residential service rates, B.C. Hydro proposed to expand the initial service block from 275 kW.h to 400 kW.h and, as part of step two, further expand the initial service block to 500 kW.h. In explaining the proposal to expand the initial block, the Utility stated that:

"The rationale for expanding the first block of the residential rate was to establish an initial block of energy at the start of the process which would not be impacted through the inversion process. In establishing this block, consideration was given to basic lighting and appliance load and the degree of electric water heating. The current block size of 275 kW.h per month was thought to be too small to cover base or responsive use. This also allowed the impact on customer bills greater than 400 kW.h per month to be kept below 10%.

By establishing the block at the beginning of the process, consumption ranges of 400 kW.h per month or less will see less rate increase than if the block is established at any other time during the process." (Exhibit 4, BCUC Question 1)

A bill impact table illustrated the effect of step one, with the expansion of the initial service block, at different levels of consumption and assuming different potential revenue requirement increases (Exhibit 1, Tab 2, page 3). As the following table illustrates, bill impacts decline with consumption increases if the initial block is expanded so that low consumption bills increase proportionately more than high consumption bills. In contrast, if the initial block is left unchanged at 275 kW.h per month, bill impacts increase with increases in consumption (Exhibit 4, BCUC Questions 6, 7, 8, page 2).

**Comparison of Bill Impacts
5% Revenue Requirement Increase**

<u>Consumption Range</u>	<u>With Block Expansion</u>	<u>Without Block Expansion</u>
400 kW.h	9.2%	1.8%
1000 kW.h	5.5%	5.3%
2500 kW.h	3.5%	7.1%

In support of the statement that expansion of the initial block at the commencement of the rate restructuring process reduced the long-run impact on low consumption bills, B.C. Hydro introduced Exhibit 28 (see Appendix 3). This Exhibit showed bill impacts by consumption ranges at the end of a seven-step inversion process, assuming each step occurred in conjunction with a 5 percent revenue requirement increase and that the initial block expansion did not occur until after flat rates were achieved. Comparing the results of this table to the results shown in Exhibit 1, Tab 10, pages 27 and 28 indicated that for bills in the 400 kW.h consumption range, the bill at the end of the inversion process would be approximately \$1.28 per month higher if B.C. Hydro waited to expand the initial block. For bills in the 500 kW.h consumption ranges, bills would be approximately \$1.60 per month greater.

B.C. Hydro testified that expansion of the initial block allowed bill impacts in excess of 10 percent for other consumption ranges to be avoided (T. 714). Based on Exhibit 4, BCUC Questions 6, 7, 8, page 2, holding the initial block at 275 kW.h in combination with a 7 percent revenue requirement increase would result in bill impacts in excess of 10 percent for consumption ranges greater than 2500 kW.h per month.

Counsel for CAC(B.C.) et al expressed several concerns with this proposal. First, he indicated that expansion of the initial block at the start of the proposal led to bill impacts which did not appear consistent with the Utility's policy target of pricing with respect to sensitivity to price signals.

"Well, you see, you've got me confused, because I'd understood B.C. Hydro's evidence to be that the level of consumption most responsive to price signals was the higher consumption levels where there's more discretionary use. And I would have assumed from that, from reading Mr. Peterson's evidence, that when I looked at the proposal that I would be seeing the higher consumption levels targeted with the greater percentage increases than the lower consumption levels. But no, I'm seeing quite the opposite until two or three or four years down the road whenever we get to step three of the rate design proposal." (T. 731)

Second, CAC(B.C.) et al stated that the argument that postponing the expansion of the initial block would lead to a greater impact on low consumption bills was predicated on the assumption that the final structure for residential rates would be inverted (T. 907). However, he noted that this was not B.C. Hydro's Application. In effect, he argued, B.C. Hydro was justifying the expansion of the initial block at the start of the restructuring process by:

"...saying if a number of things happened, which we're not necessarily asking for now, which we might not ask for and if we do ask for, it might take place as we are projecting it, but might not, it's only on that premise that the customers benefit, if one can say that it's a benefit, having an increase now and potentially less years down the line. It's only in that context that that benefit can be said to exist." (T. 2723)

3.4 Timing of Movement to Flat Rates

Two factors influenced the decision to proceed to flat rates by a series of incremental changes rather than restructure to achieve flat rates immediately. In his opening statement, B.C. Hydro counsel said:

"It's simply too big a step, ... , to leap all the way to flat rates overnight. The reason for that is the dramatic impact it would have on many residential and general customers. They would see very substantial increases in their rates in some cases, in the residential sector, and even greater increases in the general class. By any conventional definition of the words there would be a significant body of customers subjected to immediate and significant rate shock." (T. 48)

In addition, he stated that :

"...if you did convert to flat rates immediately you would cause approximately half of the bills to B.C. Hydro's residential and general customers to go down, so that the rather ironic result of moving there quickly would be to send a signal to roughly half of the customers in those classes exactly inconsistent with the overall direction embodied in the application." (T. 49)

Assuming a 5 percent revenue requirement increase, approximately 50 percent of customers' bills would be reduced, some by as much as almost 14 percent, if flat rates were instituted (Exhibit 27, page 2) (see Appendix 1). Assuming no revenue requirement increase, over 66 percent of bills would be reduced, some by as much as 17 percent. Offsetting these declines would be increased bills at higher consumption ranges. Based on Exhibit 27 and assuming a revenue requirements increase, bills in consumption ranges in excess of 1600 kW.h per month would experience increases in excess of 10 percent, rising with consumption to approximately 14 percent.

An alternate scenario was shown in Exhibit 27A (see Appendix 2). Assuming a 5 percent revenue requirement increase and flattening of the rate structure in two steps, approximately 40 percent of bills declined, none by more than approximately 10 percent. As with the previous scenario, these declines were offset by increases in bills at higher consumption ranges. For bills with consumption in excess of 2,000 kW.h per month, increases in the 10 to 12 percent range were forecast.

While agreeing that it was not necessary for B.C. Hydro to commit to inverted rates at this time (T. 2726), counsel for CAC(B.C.) et al questioned the decision to move to flat rates gradually and only at the time of revenue requirement increases. Instead, CAC(B.C.) et al argued that a movement to flat rates either immediately or as part of a two-step process was more appropriate (T. 2729).

Several reasons for this stance were given. First, a faster movement towards flat rates resulted in more appropriate pricing signals since large monthly bills would receive higher percentage increases than smaller monthly bills (T. 2733) and, in testimony, B.C. Hydro's witness had stated that such a price effect would be logical (T. 717-718).

Second, CAC(B.C.) et al characterized the resulting reductions to low consumption bills as being very moderate and, based on Exhibit 29 (see Appendix 4), liable to effect less than 3 percent of B.C. Hydro's total residential customer base (T. 2733). Further, he suggested that the amounts of the decreases were so small as to have virtually no impact on the signal being sent to customers (T. 2745).

Thirdly, CAC(B.C.) et al suggested that moving quickly to a flat rate had the advantage of simplicity since a customer would always know what the impact of a decrease or increase in consumption would be (T. 2735-2736).

Fourthly, CAC(B.C.) et al suggested that a more rapid movement to flat rates did not result in a serious breach of B.C. Hydro's rate shock guideline of 10 percent. Assuming a movement to flat rates in one step within a revenue requirement increase of 5 percent, counsel stated that:

"The highest percentage increase, clearly in excess of the 10 percent ceiling is 13.9 percent for consumption at the 2,800 kW.h per month range, well within discretionary use, and this would result in a total monthly increase of \$19.79." (T. 2737)

In addition, CAC(B.C.) et al suggested that the declining block structure should be eliminated more rapidly than proposed in order to more fully support Power Smart programs (T. 2739).

Finally, CAC(B.C.) et al argued that linking the restructuring of residential rates to revenue requirement increases jeopardized its implementation.

"Without regular rate increases the rate design it puts before this Commission cannot and will not be implemented. To adopt B.C. Hydro's proposal as filed, the Commission has to assume that B.C. Hydro's revenue requirements over the next four or five years will be such as to require annual rate increases of the magnitude projected by B.C. Hydro. If that is not the case the rate design cannot be implemented within the time frame projected by B.C. Hydro and the price signals which it states are necessary to send to its customers will not be met." (T. 2724)

Alternatively, it was suggested that the desire to implement the rate design could provide its own impetus for revenue requirement increases which would not otherwise be needed (T. 2724).

3.5 Electric Space Heating

B.C. Hydro estimates that approximately 20 percent of its customers use electricity to heat their homes, although coding errors and problems in coding mixed heat source residences leave concerns about the accuracy of this number (T. 864). Given that electric space heating increases the amount of electricity used by these customers, the move to eliminate the declining block structure and implement flat or inverted rates will have a proportionally greater impact on this group of residential customers than on others.

In cross-examination, B.C. Hydro stated that it was aware that some electric heat customers would be unable to respond to higher rates by moving to natural gas either because of a lack of natural gas service in their areas or prohibitive conversion costs. The Utility proposes to mitigate the impacts of the proposed rate design on these customers through the use of Power Smart initiatives such as the residential retrofit program (Exhibit 1, Tab 8, page 3). Exhibit 42, a booklet entitled "Everything you wanted to know about Power Smart" further outlined initiatives with respect to electrically heated homes. In addition, there are other programs available in the non-integrated, diesel-electric areas. Unit costs of energy in these areas are usually two to three times the cost of energy in the integrated hydro system, and are thus more program sensitive.

In choosing to address the problems of electric heat customers through Power Smart initiatives rather than through rate design, the Utility stated that:

"...the options for manipulating the rates to serve a particular end use or a particular group of customers is limited by the long-term objectives." (T. 201)

and further:

"We would argue that there are additional reasons for not designing special end use rates. In fact that's one of the drivers behind cleaning up a lot of the closed rates, we could end up with another situation like that if there was an attempt to design an end-use rate for electric heat customers. We just think that that's an inappropriate price signal." (T. 202)

The Utility accepted that the effectiveness of Power Smart solutions might be diluted where electric heat customers are also tenants and stated that it intends to work with both landlords and tenants to determine the appropriate program structure to achieve results (Exhibit 4, CAC(B.C.) et al Question 6, page 2).

3.6 Commercial Rate Proposal

B.C. Hydro charges general service customers under three major rate schedules. These are:

- (i) General 35 kW and Under;
- (ii) General 35 kW and Over - Primary; and
- (iii) General 35 kW and Over - Secondary.

Customers receiving service under the first rate schedule pay a rate based solely on an energy charge while customers receiving service under either of the other two schedules are billed on a demand and energy basis. In the general service under 35 kW there are two trailing block rates, while for general service rates over 35 kW there are three trailing block rates. Types of general service customers cover a very wide and diverse group from small corner stores and in-home businesses to shopping centres, malls and small industry in the 35 kW and under group and large stores, warehouses and apartment buildings in the over 35 kW groups (T. 365-366).

As with residential service rates, B.C. Hydro is proposing to restructure the general service energy rates in conjunction with future general revenue requirement increases, so as to eliminate the declining block rates over time. The proposed initial step would increase all trailing blocks in all three rate schedules and in addition would increase the first service block from 275 to 400 kW.h as was proposed for the residential service class.

The proposed step one for the general 35 kW and under rate is shown in Table 2 of Exhibit 1, Tab 2, page 7 for 3 percent, 5 percent and 7 percent revenue increase scenarios. Assuming a 5 percent revenue increase the proposed changes in the rate may be summarized as follows:

35 kW and Under

	<u>Present Rate*</u>		<u>Proposed Rate with 5% Revenue Increase</u>
Basic charge	\$4.15/mo.	Basic charge	\$4.15/mo.
First 275 kW.h	0.0793	First 400 kW.h	0.0793
Next 6725 kW.h	0.0586	Next 6600	0.0609
Addition kW.h	0.0432	Addition kW.h	0.0478

* As of April 1, 1991.

The proposed step one for the 35 KW and over rates, again assuming a 5 percent revenue increase, is shown in Table 3 of Exhibit 1, Table 2, page 10. The changes in these rates are summarized below:

35 kW and Over

	<u>Present Rate*</u>		<u>Proposed Rate with 5% Revenue Increase</u>
Basic charge	\$4.15/mo.	Basic charge	\$4.15/mo.
First 275 kW.h	0.0793	First 400 kW.h	0.0793
Next 6725 kW.h	0.0586	Next 6600	0.0609
Next 23,000 kW.h	0.0432	Next 23,000 kW.h	0.0478
Additional kW.h	0.0280	Additional kW.h	0.0294

* As of April 1, 1991.

In explaining the general service proposal, B.C. Hydro stated that the movement to flat rates for this class of customers:

"...will be tempered or mitigated based upon the criteria established for limiting the maximum percentage increase. ...revenue increase impacts will require significant adjustments to the first and second blocks so as to limit the percentage increase to bills over 7,000 kW.h per month." (Exhibit 1, Tab 10, page 16)

These impacts were illustrated in bill impact tables (Exhibit 4, BCUC Questions 7 and 8) (see Appendix 5) which showed the effect of holding the initial service block constant at 275 kW.h when the revenue requirement increased 3, 5, and 7 percent. Assuming a 5 percent revenue requirement increase, the bill impact table for the 35 kW.h and under rate class, showed a maximum impact of 11.0 percent for bills in 50,000 kW.h consumption range. This comprises less than 1 percent of bills. For the 35 kW and

over rate class, a maximum bill impact of 10.07 percent was shown for 100 percent load factor bills using 40 kW of demand. Again this comprises less than 1 percent of bills in this rate class.

The Application did not provide illustrative changes for general service rates beyond the first step since B.C. Hydro witnesses testified that "it's not nearly as clear ... how one might achieve a flat rate" (T. 833) for general service customers. Witnesses testified that the problems faced by B.C. Hydro in designing such a rate included diversity of load size, size of blocks, number of blocks, current wide disparity in price between blocks and maintenance of articulation (T. 833-834). For these reasons, B.C. Hydro stated that achieving flat rates in the general service category was going to be very slow (T. 834).

B.C. Hydro stated that the general service group is:

"...a very complex category or class of customer and one of the things we want to do with our monitoring program is get some input so that we have more information on how we might deal with that fairly complex class." (T. 378)

However, in response to a Commission Staff request, the Utility provided Exhibit 37 (see Appendix 6) which illustrates the impact on customers of achieving a flat rate in one step. Assuming no change in the revenue requirement, for customers in the General Service under 35 kW class, an immediate movement to flat rates would result in bill decreases to approximately 81 percent of customers with approximately 26 percent enjoying declines in excess of 10 percent while less than 2 percent would experience increases in excess of 10 percent.

For customers in the General Service over 35 kW class approximately 78 percent of customers would experience declines with approximately 35 percent enjoying declines in excess of 10 percent while over 5 percent of customers would experience increases in excess of 10 percent. For approximately 2 percent of customers in the General Service over 35 kW class, the increases were expected to be in excess of 35 percent. With the addition of a revenue requirement increase, the impact would be greater.

The monitoring program is expected to address the appropriateness of the under and over 35 kW General Service rate division. B.C. Hydro stated that:

"...the current selection of 35 kW was somewhat due to design expediency but also addressed the issue of cost in installing demand meters for small customers." (Exhibit 2, Tab 11, page 1)

However, as a result of the monitoring program, B.C. Hydro believed that it would:

"...have to re-evaluate the 35 kW, and secondly whether or not the general services requires a small, medium and large delineation." (T. 835)

3.7 Commission Determinations

3.7.1 Residential Service

The Commission agrees with B.C. Hydro that declining block rate structures are inappropriate for residential and general service customers. Continued use of this rate structure signals customers that increasing consumption lowers the per unit cost of use. Such a signal is unwarranted in the current environment where new electricity supply can only be attained at an increasing cost and this may lead to inefficient or wasteful use of resources by customers. However, as stated by B.C. Hydro, there is insufficient evidence at the current time to set rates on an inverted basis. It is expected that the proposed monitoring program will provide data which will allow an informed decision as to the appropriate design of inverted rates to be made in future. Even so, the Commission accepts that a movement from a declining block structure towards a flat structure for residential and general service customers is all that may be appropriately ordered at this time.

Having accepted the appropriateness of flat rates, the Commission must be concerned with how best to implement them. With respect to the Utility's proposal to expand the initial service block for residential customers from 275 kW.h to 400 kW.h, the Commission is not convinced that expanding the initial block at this time results in the final rates associated with that block being lower than if the block were expanded after flat rates were attained.

Further, the Commission agrees with B.C. Hydro's witness that such an effect, if it were to occur, would occur only in the event that the final result of the Utility's rate design proposal were inverted rates (T. 907). As counsel for B.C. Hydro noted on several occasions, B.C. Hydro is not applying for inverted

rates at this time and will not apply for inverted rates unless the results of the monitoring program so warrant (T. 889).

Instead, it appears to the Commission that the main driving force behind early expansion is the avoidance of the potential for rate shock to bills in the upper consumption ranges. However, as the Exhibit 28 demonstrates such rate shock does not appear to occur when the revenue requirement increases are limited to 5 percent. Further, based on Exhibit 4, BCUC Question 6, page 2 (see Appendix 7), which shows the impact of a 7 percent revenue requirement increase on the initial step, it appears that postponement of the expansion leads to bill impacts in excess of 10 percent only for high consumption bills. While the Commission continues to believe that rate shock should be avoided where reasonable, it is not the only goal with which the Commission must be concerned. In this case, the potential for rate shock does not appear to be significant enough to warrant action at this time when the appropriateness of the size of the first block is unknown.

With respect to the speed with which flat rates for residential customers should be achieved, the Commission takes note of the prescription inherent in Special Direction No. 3 that rates be set which recognize the higher cost of new electricity supply. While fully cognizant of a second prescription, namely, that rates be smooth and stable, the Commission believes the thrust of Special Direction No. 3 indicates that flat rates should be achieved as expeditiously as possible, constrained only by potential rate shock and overall fairness criteria. Based on Exhibit 27A which assumes a 5 percent revenue requirement increase, it appears that flattening the residential rate in two steps would be unlikely to lead to significant rate shock. Further, while some lower consumption ranges would experience a bill decrease, the absolute amount of the decrease is sufficiently small that the Commission does not expect consumption would be stimulated.

Further supporting this decision is the concern that the slower process envisioned by the Utility will put the achievement of flat rates at risk. While B.C. Hydro should be able to predict with confidence the amount and timing of necessary revenue requirement increases in the near future, the Commission has less confidence that such determinations can be made for time periods further into the future. If B.C. Hydro's need for increased revenues should be less than currently envisioned, the achievement of flat rates would be slowed.

Should at any time in the future, the revenue requirement increases currently proposed by the Utility not be realized or, if proposed not be allowed, the Commission believes that compliance with Special Direction No. 3 requires B.C. Hydro to find an alternate method of flattening residential rates. Such a

method would be subject to Commission approval to ensure that the general guidelines established by the Decision with respect to potential rate shock and overall fairness are respected.

Therefore, anticipating revenue requirements increases of the illustrative magnitudes as indicated by B.C. Hydro in the hearing, the Commission orders B.C. Hydro to begin the restructuring of residential rates as follows:

- 1. the size of the current initial service block is to remain unchanged at 275 kW.h per month;**
- 2. at the time of the next revenue requirement increase to apply all of the increase to the trailing block rate; and**
- 3. at the time of the following revenue requirement to complete the movement to flat rates unless clear evidence of unacceptably high levels of rate shock can be shown. Such evidence should be in the form of bill impact tables showing the impact of applying all of the increase to the trailing block rate. Separate impact tables should be developed for those groups of customers using electric space heating.**

3.7.2 General Service

With respect to general service rates, the Commission believes that the diversity of size within this class provides further incentive to move to flat rates in as timely a manner as possible. However, the Commission recognizes that in the case of general service customers a more gradual approach may be required to avoid rate shock. The Commission is concerned that the estimated plus 35 percent increase to certain customers from a one time shift to flat rates clearly constitutes rate shock. The Commission is also concerned that a decline in rates to 80 percent of general service customers will dilute the message of increasing costs which it is required to give by Special Direction No. 3.

With respect to the initial restructuring of general rates, the Commission does not accept that expansion of the initial service block from 275 to 400 kW.h is necessary or useful at this time. In the Commission's view, the bill impact tables (Volume 4, BCUC Staff Request No. 3, Questions 7 and 8) do not indicate that higher use bills will experience shock if the initial block is held constant at 275 kW.h. Further, the Commission is concerned that expanding the initial block will retard the movement to flat rates and prolong the declining block rate structure. Such an outcome is not in accord with Special Direction No. 3.

With respect to future changes to the general service rates, the Commission is restricted by the lack of information from B.C. Hydro as evidenced by the lack of illustrative rates for steps 2 and beyond. The Commission expects that information gained through the monitoring program will be used to determine the appropriate method and timing to achieve flat rates. The Commission expects B.C. Hydro to exercise all reasonable diligence to develop appropriate further steps to accomplish the movement to flat rates for general service classes within the confines of rate shock.

Further, the Commission's expectations with respect to rate design in the absence of increased revenue requirements, as stated in Section 3.7.1 of this Decision, applies equally to General Service.

Therefore, the Commission orders B.C. Hydro to begin restructuring general rates as follows:

- 1. the size of the current initial service block is to remain unchanged at 275 kW.h per month;**
- 2. apply the maximum increase within the guidelines to the trailing block for all consumption levels between 7,000 and 30,000 kW.h per month in accordance with the illustration set out in the Application; and**
- 3. any remaining revenue requirements increase is to be obtained by appropriate increases to the other trailing blocks.**

4.0 INDUSTRIAL RATE PROPOSAL

4.1 Background

B.C. Hydro did an extensive amount of work to develop its IRP. The first public draft of the IRP was issued in January 1991 as part of the B.C. Hydro Rate Design Application. During the winter and spring, B.C. Hydro reviewed the IRP internally and discussed it with industrial customers, resulting in a number of changes. In June, the industrial customers proposed to the Commission that a further review be undertaken, under the auspices of the Commission Staff, so that the IRP could be better understood and potential difficulties overcome. The Commission directed its Staff, in Order No. G-51-91, to convene meetings with the parties to further develop an understanding of the IRP and report back to the Commission by September 30, 1991. The report of Commission Staff to the Panel on September 16, 1991 requested further time to allow the parties to respond to the changes made by B.C. Hydro.

In October, 1991, B.C. Hydro presented a detailed review of the then current IRP and following the presentation, the participants indicated that they, for the first time, understood what was being proposed by B.C. Hydro.

In developing the IRP, B.C. Hydro identified three objectives:

- "Specifically, B.C. Hydro has endeavoured to ensure that changes in the demands upon its system by its customers are made in an orderly manner and do not introduce unanticipated impacts on revenue collection."
- "B.C. Hydro has also considered equity between customers by ensuring that under the Industrial Rate Proposal the inter- and intra-class fairness of B.C. Hydro's rates is maintained both immediately and as revenue requirements change over time."
- "Finally, B.C. Hydro has sought to achieve diverse and difficult objectives in the simplest manner available to it and in a manner which attempts to recognize the concerns of all interested parties so as to avoid unnecessary controversy. The consultative process has assisted B.C. Hydro in identifying measures which may minimize controversy and, as a result, the IRP has been amended and improved." (Exhibit 1-7I, page 2)

Further to meeting the requirements of Special Direction No. 3, B.C. Hydro had a second related overall objective under the IRP to provide its transmission voltage customers with choices to meet their needs. Providing customers with choices is another potential source of conservation and the efficient use of electricity. In the absence of choice, a customer may be acquiring a service with characteristics that do not best satisfy its need. Currently, there is only one flat industrial rate available. B.C. Hydro has had

requests from its large industrial customers for services such as wheeling and standby and the ability to take additional supply from time to time at rates which reflect the cost to provide these services (Exhibit 1-7I, page 3).

4.2 The IRP Proposal

In describing the characteristics of the IRP, B.C. Hydro's witness stated (T. 79-80):

"MR. EPP: A: Well I feel it should be viewed as comprehensive, as tying together the full complement services which B.C. Hydro believes industrials are entitled to and which they have demanded. I believe it provides them with a significant opportunity to diminish their electricity expense and thus allows them to enhance their competitiveness. It allows them to maintain the existing arrangements where they think they will be better off if that suits their interests. It minimizes the risk associated with taking the opportunity to lower their energy costs while all the while insulating all other customers from the impact of their decision.

Specifically industrial customers who can predict whether their electrical needs will increase or decrease can only benefit from the proposal. In those rare cases where an industrial customer does not predict his energy needs accurately and makes the wrong election the amendments of the proposal incorporated in this sequence of the consultative process allow the industrial customer to ensure that impacts of the wrong decision are only short term.

From the perspective of B.C. Hydro and B.C. Hydro's other customers the development of our effectively lower-cost resources through the industrial rate proposal in the form either of conservation or alternate supply sources will lower future costs for everyone, and thus benefit all customers. Accordingly from our perspective we think that the IRP is in the interests of all our customers."

In its final form, the B.C. Hydro IRP contains schedules with distinct components involving:

1. Optional rates.
2. Alternate sources of electricity supply.
3. Wheeling services.
4. Standby services.
5. Backup services.
6. Excess demand.

The first component involves the introduction of a choice of rate structures to B.C. Hydro's transmission voltage customers. The second component is a revision to the conditions of service for those customers with an alternative source of electricity supply. The third through sixth components set forth the rates and conditions governing the provision of specialized services which are not currently offered by B.C. Hydro. A detailed description of each of these components is provided in the following pages and a summary of the proposed rates and services is shown in Exhibit 1A, page 43, (Appendix 8).

B.C. Hydro argued that each of these components under the rates, terms and conditions described are fair, just and reasonable on a stand-alone basis. Each of the components also forms an important part of an integrated initiative which B.C. Hydro believes would best serve the objectives set out in the Rate Design Application.

4.2.1 Optional Rate Structure

B.C. Hydro proposed to give transmission voltage customers the option of choosing a new rate structure which reflects LRIC but collects overall revenue based on embedded cost. Under the optional rate structure B.C. Hydro proposed a two-step rate. There would continue to be a demand charge and an energy charge. The demand (D1) and energy rates (R1) for the first portion (Q1) of a customer's consumption would be less than under the existing flat 1821 rate (RS). The rates (D2 and R2) for the second portion of a customer's consumption (Q2) would be higher than the flat 1821 rate at B.C. Hydro's current estimate of LRIC for demand and energy. The optional rate (Rate Schedules 1823 and 1824) can best be understood by direct comparison to the existing flat rate (Rate Schedule 1821). The key components of the existing industrial rate schedule are as follows:

Rate Schedule 1821 - Existing Standard Industrial Rate

- available to any transmission customer.
- electricity under this schedule is available only from B.C. Hydro.
- rates are flat up to nominated levels of demand (\$4.158/kV.A) and energy (2.376 cents/kW.h).
- consumption in excess of nominated levels will be supplied under existing Schedule 1880 (interruptible, emergency, maintenance and special supply).
- movement to Schedules 1823 and 1824 (optional rates), would depend on customer and B.C. Hydro's ability to arrive at appropriate base value for consumption levels.

- movement to 1822 would be without notice. Movement back to 1821 would require 4 years notice and obligation.

It should be noted that in B.C. Hydro's IRP, the only modification proposed for Rate Schedule 1821 is that all excess demand and associated energy would be billed under Rate Schedule 1882.

Following are the essential components of the proposed rate schedules:

Rate Schedule 1823 -
Optional Rate

- electricity supply is available only from B.C. Hydro.
- rate would be a split rate with the trailing block rate (R2) set at the LRIC and the first block rate (R1) set so that the total bill will initially be the same as if customer was billed under 1821.
- demand charges to be set (initially) at \$5.88/kV.A for the trailing step and \$2.436/kV.A for the first step.
- energy charges to be set (initially) at 3.23 cents/kW.h for the trailing block and 1.522 cents/kW.h for first block.
- the size of the first energy block and the first step in demand to be set using regression analysis on past consumption patterns and by discussions with the customer for elimination of anomalies in consumption pattern. Impasses to be arbitrated by the Commission.
- excess demand and energy must be taken under 1882.
- demand billed on highest kV.A less deemed demand under 1882.
- energy billed on kW.h less kW.h under 1882.
- movement from 1823 to 1821 would require 2 years served plus 2 years notice.
- movement to 1824 could be without notice.

4.2.2 Schedules Involving Alternative Sources of Electricity Supply

Currently some customers have their own on-site source of supply. Their only requirement for supply from B.C. Hydro is to establish a Contract Demand in their Electricity Supply Agreement. Under the IRP, all customers would have the potential for multiple sources of supply such as:

- energy wheeled from Independent Power Producers or an affiliated facility;

- self-generation/cogeneration; or
- energy purchased from the PEO, when operative.

These customers would be able to take supply from B.C. Hydro under either the flat rate (Rate Schedule 1822) or optional rate (Rate Schedule 1824).

Rate Schedule 1822 -
Standard Industrial with Alternate Sources

- customer would have the option of taking their base electricity requirement or a percentage of it from B.C. Hydro and the remainder from another source or sources, such as self-generation, wheeled energy, or from the PEO.
- excess requirements to be arranged for under Schedules 1852, 1881 or 1882.
- this schedule has the same energy and demand charges as 1821.
- demand billed is the highest kV.A taken less demand under Schedules 1851, 1852, 1881, 1882 or deemed under 1882.
- energy billed is total kW.h taken less kW.h under Schedules 1841, 1851 1852, 1881 or 1882.
- movement from Schedule 1822 to Schedule 1821 requires 4 years notice and obligation.
- movement from Schedule 1822 to Schedule 1824 requires 2 years served plus 2 years notice.

Rate Schedule 1824 -
Optional Rate With Alternative Supply

- combines the characteristics of Schedules 1823 and 1822.
- movement to Schedule 1822 would require 2 years served plus 2 years notice.
- movement to Schedule 1823 would require 4 years notice and obligation.

4.2.3 Wheeling Services

Wheeling is the transmission of electricity generated by one party to an end-user using the transmission system of a third party. The following sets out the rates and terms and conditions under which B.C. Hydro proposed to offer wheeling service.

Rate Schedule 1841 -
Wheeling Service

- a customer may use this service in conjunction with Schedules 1822 or 1824.
- contract for service must be for one year or greater.
- wheeling of customer generated electricity is limited to that which is in excess of that customer's requirements.
- energy is billed at 0.1 cents/kW wheeled.
- demand is billed under 1822 or 1824.
- a capacity credit would be given to customers with wheeling contracts of 6 years or greater under the following formula:
 - the capacity credit would be the sum of cost savings to B.C. Hydro of: [additional capacity in generation and system transmission + additional capacity of area transmission] x (monthly weighting factor to reflect the seasonal value of capacity).
 - capacity for generation and system transmission (in \$/kW) varies by region according to two tables [prior to April 1998, and on or after April 1998 (except for Vancouver Island which is up to 2002 and beyond 2002)].
 - additional capacity for area transmission (in \$/kW) would be determined on a case specific basis.
 - capacity supplied to the system would be calculated as the lesser of: the average capacity supplied during the hours 0700 to 2000 on weekdays (excluding statutory holidays); or the average capacity scheduled in the wheeling agreement during the same times.
 - energy balances in excess of a 3 percent allowable range would be sold to or bought by B.C. Hydro at the monthly short-term energy price.
 - the energy balance would be calculated as the result of: [(credit energy) - (wheeled energy) + (energy balance from previous billing period)].
 - credit energy is defined as the lesser of: nominated energy (energy specified in wheeling agreement, + or - 3%); or actual energy delivered to B.C. Hydro at source minus energy losses
 - energy losses would be calculated as wheeled energy x percentage loss.
 - percentage losses would be determined by region and voltage level.

4.2.4 Standby Services

Standby electric service involves both the readiness to supply and the actual supply of electric capacity and energy to serve all or part of a customer's load that is normally supplied by a customer's own generation. The following sets out the rates and terms and conditions under which B.C. Hydro proposed to offer standby service.

Rate Schedule 1881 - Firm Standby Service

- available to customers with alternate sources of supply (1822 and 1824) to substitute for temporary loss of the alternate supply.
- basic charge \$75.00.
- capacity nomination charge in \$/kV.A would vary by region and nomination must be made for 4 years minimum.
- demand charge in \$/kV.A would vary according to region and would be based on the highest demand taken for any outage in excess of two occurrences per month.
- an outage may be defined as either:
 - a deficit from the nominated capacity of an alternate supply which results in an increase in demand from B.C. Hydro over the highest demand which would have otherwise occurred during the billing period; or
 - when the customer exceeds the kV.A demand which the customer is permitted to establish under the Electricity Supply Agreement.
- energy charge to be at the posted monthly short-term market prices.

Rate Schedule 1882 - Interruptible Standby Service

- same as 1881 except there would be no capacity nomination and the supply is not firm (only available as long as system capacity is available)

- demand charge in \$/kV.A would be regional and applies to each outage.
- energy charge would be the posted monthly short-term market price.

4.2.5 Backup Services

B.C. Hydro proposed to provide backup service to customers who lose their alternate supply for an extended period of time on the following basis:

Rate Schedule 1852 - Backup/Supplementary Supply

- available to customers taking supply under 1822 and 1824.
- B.C. Hydro would substitute for all or portion of the alternative source of supply for a period of 1 year or greater and this would be supplied on a reasonable efforts basis.
- conditions and rates would be subject to negotiation and based on cost to B.C. Hydro.
- the customer would be responsible for additional costs related to reinforcement of the electric system, if required.

4.2.6 Excess Demand

Excess demand is any demand taken by a customer beyond the maximum kV.A demand permitted under its Electricity Supply Agreement.

B.C. Hydro proposed to impose a demand charge and energy charge for excess demand. The demand charge for excess demand would be calculated on the same basis as the standby demand charge for a customer who elected to receive standby service when it exceeded the maximum kV.A demand in its Electricity Supply Agreement (see Rate Schedules 1881 and 1882).

Energy associated with excess demand would be supplied at the short-term market price. This may involve access to the PEO, when available (Rate Schedule 1851).

Rate Schedule 1851 - Short-Term Electricity from PEO

- available to customers on 1822 and 1824 for electricity requirements beyond normal supply arrangement with B.C. Hydro.

- supply and rates for electricity would be established by the customer with PEO.
- supply must be pre arranged and pre-scheduled with PEO by customers.
- supply from PEO must be beyond maximum kV.A demand which customer is permitted to establish under the Electricity Supply Agreement.

4.2.7 B.C. Hydro Summary

Counsel for B.C. Hydro proposed, in final argument, that the Commission had three alternatives with respect to each proposal of the IRP. The Commission could accept, reject, or accept the IRP in principle, but call for further work before implementation (T. 2933-2934).

B.C. Hydro believed the proposals were a "unique and comprehensive" package of services but that each aspect could stand alone and should be accepted as proposed (T. 2947-2951).

4.3 **Intervenor Perspectives**

The Intervenors made every effort to understand the intent of the IRP and respond to the individual rate proposals. Intervenors stated that their ability to fully assess the proposals was hampered by the lack of detail concerning individual service terms and conditions, the complexity of the proposals and unresolved government policy regarding the IPP industry and the proposed PEO.

4.3.1 Industrial Users

The Council of Forest Industries of B.C., the Mining Association of B.C., and the Electro-Chemical Producers of B.C. ("Industrial Users") accepted the general philosophical thrust of the IRP but had objections to certain details of the proposal. This Intervenor believed that the current rate schedules have been successful and, while wheeling and standby services are welcome (with caveats), it was not clear that the two-tiered rate structure would serve the needs of all customers (T. 2825). Considering the important nature of the proposal and the possible ramifications of the proposal for B.C. Hydro, its customers and the Province, the Industrial Users felt that the proposal lacked specificity or detail (T. 2772), that not enough work was done to examine impacts (T. 2780, 2786), and that the proposal had not been subjected to a peer critique (T. 266, 2782). The Industrial Users requested that the Commission examine each aspect of the proposal and "reject the unworkable, approve that which is clearly workable, and give directions for future work where necessary" (T. 2773).

Evidence presented by a panel of Industrial Users raised the following concerns:

1. Optional rates

Problems with the optional rate structure fall into several categories: the two-tiered nature of the rate; the optionality of the rate; the setting of D's and Q's; the effectiveness of price signalling; the ability to acquire IPP power; and the time required to change schedules.

With respect to the two-tiered nature of the optional rate structure, the Industrial Users observed that, to achieve efficiency and conservation, the two-tiered rate must demonstrate advantages over the present flat rate in conjunction with Power Smart initiatives (T. 2780).

A witness for the Industrial Users expressed concerns as to whether the rates would remain truly optional and without financial impact between rates. He said:

"Well, from my point of view, Mr. Chairman, if the two-block system was truly optional, and there was some way of assuring that into the future, then I wouldn't be opposed to it being there as an option, as a true option, with the understanding that someone could take it or not take it, and that the revenue issues were kept distinct. In other words if someone who opted to remain on 1821 was not going to be involved with somehow cross-subsidizing the split-block rate." (T. 2529)

The same witness, in response to a question from B.C. Hydro counsel seeking agreement that the IRP should not be capable of being manipulated by B.C. Hydro in trying to get customers to move to the IRP, said:

"Yes. And, again, that is one of our concerns. I think some of the early — earlier testimony before this Panel indicated that, if customers didn't move, that Hydro would have to look at other methods of encouragement. And that caused me some concern." (T. 2506)

The Industrial Users felt that using the LRIC to set R2 could cause problems such as:

- only B.C. Hydro can estimate R2 (and only with difficulty) (T. 2795).
- the projection of R1 could lead to confusing results because average costs and LRIC costs are not correlated and if they change at different rates the results to R1 could be dramatic. As an example, an increase in average costs of 6 percent with marginal costs remaining constant would produce a change in R1 of 18 percent (T. 307-309).

- a change in discount rates has a large effect on LRIC (T. 2202-2203).
- the LRIC is only an estimate and can be subject to change in unforeseen ways (T. 2827-2878).
- As rates will be set by association with the LRIC they will tend to be formulaistic and less under control of the Commission (T. 2823).

With respect to the rates being optional, the Industrial Users remained concerned that pressures which may arise over time could cause future governments to reconsider the rate structures. The Industrial Users need a long-term commitment to take advantage of the rate structure (T. 2710). With respect to the setting of D's and Q's a regression analysis for a five-year history was said to be too simplistic and the Industrial Users would prefer to see a business cycle used (T. 2502, 2414). The setting of D and Q becomes a point of negotiation and they felt that it would have to be at an industry level, even at a facility level (T. 2501). This could lead to possible unfair application between like customers. Further, unfair penalties may occur where an industrial has already committed to conservation and now cannot save at the higher R2 rate, or where a new state-of-the-art plant coming on line must purchase all its power at a considerably higher average price (T. 2526-2827).

They argued that the price signals sent through the IRP could lead to less environmentally sound choices (i.e., use of fossil fuels) (T. 2822). Further, the signals are estimates which are subject to variations and therefore could be sending different messages at different times (T. 2827-2828). Also, the time required for switching between rate schedules presented a risk to the customers that would discourage them from taking up optional schedules (T. 2531).

2. Alternate Sources of Electricity Supply

B.C. Hydro has been working for some time with Independent Power Producers ("IPPs") on various initiatives relating to self-generation of electricity and load displacement programs. These fall generally into two categories. Some industrials generate power at their own site for their own consumption with the surplus being sold to B.C. Hydro. Others could produce power for transmittal to industrial electric consumers elsewhere in the province or for export. All of the projects could require services from B.C. Hydro in connection with wheeling, standby and backup. The IRP has been designed, in part, to supply these types of services.

A witness representing First Power Corporation presented evidence in connection with alternate sources of electricity supply. As a statement of principle he spoke in favour of B.C. Hydro's IRP. However, he

described serious concerns in connection with the long-term investment risk; project financing difficulties under the proposal; uncertainties of payback periods; inherent variability in LRIC; and backup support offered only on a "reasonable efforts" basis, subject to system constraints. In summary, he suggested that the IRP would require some modification before it would receive wide-ranging acceptance.

3. Wheeling, Standby and Backup Services

Counsel for the Industrial Users, a witness for Unocal Canada Limited, and the submission of Western Wind Industry Network of Canada were united in describing these services as needed but they believed that the proposed schedules for these services, as outlined in the IRP, required modification.

Problems cited with respect to these services were as follows:

- wheeling rates move toward regional pricing which has not been adequately debated or studied (T. 2810).
- services should be unbundled and costs and charges segregated (T. 2128, 2818).
- in general, the proposal for these services represent substantial change and have not received the scrutiny or debate they deserve because of the complexity of the IRP (T. 2810).
- the proposal does not include wheeling to border points for export (T. 2124).

4.3.2 Unocal Canada Ltd. ("Unocal")

Unocal is interested in developing IPPs in B.C. and was generally supportive of the intent of the IRP (T. 2124). Unocal had some significant concerns regarding the wheeling rates proposed by B.C. Hydro. In particular, Unocal would like to see a regulated rate for wheeling which was unbundled (i.e., without shaping, etc.) with rates for both domestic and export. This company further believed that the energy rates set by B.C. Hydro were too high, lack justification and do not reflect actual costs (T. 2128).

4.3.3 Western Wind Industry Network of Canada ("Western Wind")

Western Wind, is interested in establishing a viable IPP industry in B.C. and to the extent that B.C. Hydro's IRP proposal moves in that direction they were supportive of its direction and intent (page 1 of written final argument). However, Western Wind had objections to the present wheeling proposal and made some suggestions for improvement. Western Wind would like to see unbundled rates, the removal

of the generation component from the demand charge as it is seen as double charging (pages 10, 16, 17), the calculation of wheeling services based on embedded costs plus rate of return (page 13), consideration of an export wheeling rate (pages 10, 12), a change to the capacity credit to allow one year fixed contracts, and removal of the monthly weighting factor from the capacity credit (pages 15, 17, 18). Western Wind offered some suggestions for improving the IPP situation and while these do not directly impact the IRP, the success of the IRP, is limited, in part, by the future direction of the IPP industry.

4.3.4 CAC(B.C.) et al

CAC(B.C.) et al expressed the view that the IRP as presently filed (or even amended) should not be approved. CAC(B.C.) et al cited three main reasons for concern (T. 2748):

1. There is a potential adverse impact on other customer classes because:
 - the IRP encourages industrials to buy from IPPs, which, if they are less expensive may do nothing to encourage conservation (T. 2750), and the revenue shortfall which may result will have to be picked up by other classes (T. 2750, 2751, 2752).
 - if the IPP is a cheaper source of power, then all customer classes should benefit. Further, other classes will be left to pay for more expensive projects in the future (T. 2752-2753).
 - the setting of D's and Q's could result in revenue shortfalls if improperly negotiated (T. 2754).
2. Uncertain government policy to IPPs (T. 2756-2757).
3. The complexity of the IRP design leads to uncertainties and violates the precepts of rate design (T. 2758-2759). Because of the uncertainties caused by complexity (and for other reasons) the likelihood of industrials taking up the proposal will be low and therefore will not justify a complicated rate (T. 2756, 2728).

4.4 B.C. Hydro Reply

B.C. Hydro was receptive to the input from the Intervenors and attempted to deal with the individual concerns raised through further explanations of the philosophy and details of the IRP. Due to the innovative nature of the IRP and the evidence at the hearing it is appropriate for the Commission to reiterate here the B.C. Hydro response.

B.C. Hydro submitted that the IRP is not dependent on any initiatives of the Provincial Government with respect to IPPs, POWEREX, or regional pricing. Mr. Spafford testified that, of the 700-1200 MW of

non-utility sources of power expected to proceed, only about 15 percent was straight IPP (T. 1699). The bulk of the power available is self-generation/load displacement. Dr. El-Ramly testified that the higher rates in the IRP would move some of the onus to industrials to determine the extent of conservation, fuel substitution and cogeneration they would pursue. He testified (T. 1239):

"Because the fundamental difference is how they can do the conservation, the self-generation at the higher price which moves some of the onus of doing that on them from B.C. Hydro."

With respect to the wheeling and standby proposals B.C. Hydro counsel noted that, although there is a regional aspect to the capacity credit in the wheeling and standby charges, this reflects B.C. Hydro's power purchase decisions and that the postage-stamp rate approach is not under review by B.C. Hydro or the government (T. 2937).

Speaking to the impact of the IRP, B.C. Hydro argued that, unlike the residential and commercial rate design proposal, the IRP will not, by itself, change the manner of contribution to revenue requirement by industrial customers. Any changes that do result come from changes in consumptive behaviour in response to the change in rate structure. These changes can be estimated as done in Exhibit 38, but not predicted (T. 2939-2940). With regard to inter-class impacts, Mr. Kehl testified (T. 1265-67) that:

"Mr. Gathercole, if I might comment on that just a little bit; the question seems to be left that only the industrial customers would save because they have utilized other sources to supply their Q2, and in the process by them having released energy B.C. Hydro will be able to serve all of the rest of the customers at their embedded cost of the existing system that much longer, so those other customers have saved as well."

Again to put it in perspective we know that our industrial customers presently consume approximately 15,000 gigawatt hours a year and we know that our load growth, if it were to continue at the existing level, is about 1,500 gigawatt hours a year. As I stated yesterday that is, the load growth accounts for approximately 10 percent of what the industrial customers' load is. So if all of our customers were to go to the inverted rate and if all of our customers were to eliminate their Q2 consumption through alternate sources or through conservation or through their own self-generation over five years, if they were able to do that over five years then our load growth the way we see it presently would have consumed all of that and the benefactor of that are all of the other customers of B.C. Hydro because B.C. Hydro would have had to build no more system in order to accommodate that load growth.

So the winners are not just the industrial customers who have been able to make their savings but everybody else who benefits by Hydro using existing system. That is over, in the shortest term we can even think of, of five years, of all our customers going to 1823 and we don't expect that to happen."

With regard to the perceived fairness between new and old customers or those who have already committed to conservation, B.C. Hydro counsel claimed that any effort to encourage conservation will potentially produce that reaction. He claimed that that is exactly what Power Smart is about (T. 2945).

In B.C. Hydro's view, the IRP was designed to provide the full range of services to which the industrial customers are entitled, and which they have requested, while allowing them to maintain the existing arrangements if that suits their interests (T. 79). It was designed to provide a signal to industry of the future costs of electricity, to maximize their ability to develop cheaper methods of producing energy and to be introduced gradually to avoid disruption (T. 77). This rate design is seen as a necessary complement to Power Smart (T. 42, 131), rather than competing with it.

Mr. Fussel testified that B.C. Hydro used a 20-year LRIC result to set R2 (T. 2163). This diminishes the impact of short-term fluctuations and made the customer's decision regarding the rate consistent with the time frame of B.C. Hydro's system planning decisions (T. 2681). Only B.C. Hydro can set the calculation of R2, and it intends to publish its projections looking into the future. In order for a customer to make an investment decision, he must choose to acquire electricity from a source other than B.C. Hydro based on a projection of the LRIC. The LRIC is subject to periodic update and involves a discount rate. Dr. Sarikas agreed that the choice of discount rate does impact the LRIC results but he noted the variability in costs occurs in the short-run (T. 2162). However, the Industrial Users remained concerned about what might be a conflict of interest on the part of the Provincial Government as it both sets the discount rate and might be selling the Columbia River Downstream Benefits to B.C. Hydro (T. 2828).

B.C. Hydro agreed that the program had to be in place for the long-term to be successful but felt that the Industrial Users' concerns about pressure to reconsider the "low" R1 rate could be ameliorated by a clear expression of the Commission's views (T. 315-316). In response to a question from the Commission, a witness for B.C. Hydro replied:

"Mr. Chairman, B.C. Hydro is committed to the IRP on a long-term basis and we would certainly represent the view that since industry has, in this case, possibly made an investment, that has to be recognized, and that is a long-term obligation. The Industrial Rate Proposal is not a one or two year thing. It is really a multi-year proposal that we hope will reduce costs in the long-term and B.C. Hydro is committed to it on the long-term." (T. 316).

Dr. El-Ramly objected to the use of "negotiation" to describe the setting of D and Q. He stated that, if approved by the Commission, B.C. Hydro would estimate Q2, based on the procedure defined in Exhibit 1, Tab 7, Attachment A (T. 292). Anomalies would be brought before the Commission, but he estimated that two-thirds to three-quarters of the customers would fall within the procedure (T. 301). B.C. Hydro argued that the Commission can, and must, decide on all of the main policy issues and rate structure with respect to the specific rate schedules proposed by B.C. Hydro. The Utility took the view that, if specific details are seen not to work, then some fine tuning can be done at a later date, as was done in the gas industry (T. 2947-2949). B.C. Hydro felt that any further consultative process, in the absence of working examples, would not be productive (T. 2950).

4.5 Commission Determinations

The Commission acknowledges the substantial creative efforts of the utility to develop alternative rate schedules which may have the potential of furthering all the Rate Design objectives, inclusive of Special Direction No. 3. The proposals of B.C. Hydro are novel in the industry, and may prove to be a stepping stone to more efficient rate schedules for industrial customers generally.

In reviewing the IRP it is easy to become embroiled in the technicalities of the proposal; however, the Commission must first ensure that the proposal meets the various objectives of rate design and will promote efficient electricity use and conservation at costs below the long-run incremental costs of the Utility, so as to forestall future additions to generation. The Commission also believes it relevant to reflect on the environmental consequences of the proposed rate structures. While this individual objective may not yet be explicit within the rate design objectives, it is an obviously relevant and emerging goal of

public policy. For example, the Commission could become concerned if the IRP resulted in load shifting from B.C. Hydro to fossil fuels that could have significant unaccounted for environmental detriments.

The Commission also recognizes the obvious link between the IRP and the demand-side management initiatives in Power Smart programs. Power Smart and the optional rates within the IRP are potentially complementary vehicles to achieve efficient industrial operations and conservation. These should work together to identify specific efficiencies and conservation to attain the maximum reduction in energy demand at the least cost to all utility customers through a mix of incentives under Power Smart and the IRP.

The second principal benefit of the IRP is that it could provide a means of encouraging IPP sales directly to industrial customers thereby reducing B.C. Hydro's generation commitment to those customers. B.C. Hydro argued that the IRP is not contingent upon there being a market for IPP sales directly to industrial customers, but it is obvious that the need for the IRP would be lessened substantially if IPP sales were made directly to the Utility rather than targeted to individual consumers. The government identified in Exhibit 68 that the policy of IPP sales to industry was under review.

The Commission recognizes that if IPP sales directly to industry were to be encouraged, a mechanism would be required to account for the higher costs of new generation from IPPs compared with the average embedded costs in the Utility sales schedules. Given the reconsideration of public policy in this regard, the Commission believes that it would be premature to consider IPP direct sales as justification for early implementation of the IRP. Therefore, the Commission agrees with B.C. Hydro that the review of the IRP at this stage must look only at the value of the IRP in attaining rate design objectives, without overlaying an objective of encouraging IPP direct sales.

The IRP is clearly complicated as witnessed by the many months required to achieve understanding of the proposals. Although B.C. Hydro has proposed that the base volumes be set on a relatively straight forward basis, the Commission is concerned that much controversy will occur and simple formulistic approaches may not work.

There are many components which must be set to allow the IRP to work effectively. These items include the base volume (Q), the split between the first block of power and the second block of power, the appropriateness of the LRIC forecasts as they apply to R2, the potential for technological advancement to provide windfall gains, and any other as yet unidentified conservation that the industrial might put in place at rates below R2. The consideration of the foregoing indicates there is considerable room for discrimination to occur between similar customers. The Commission is also concerned that the long-term decision making required in the Agreements will lead to a lack of flexibility for the Utility to encourage efficiency and conservation through other means. At the same time, the Commission notes the evidence of the Industrial users that any commitment between an industrial and the Utility must be long-term in nature to assure the industrial that the future R2 savings will fund a proposed investment in efficiency and conservation.

The Commission is particularly concerned that no customers came forward to explicitly support the IRP and provide a concrete demonstration of how the IRP would be put in place in specific instances. This lack of tangible support for the IRP, coupled with the lack of detailed tariff terms and conditions which might apply, leads the Commission to the finding that the IRP is premature to be approved as a scheduled service.

Even though the Commission cannot authorize its implementation at this point in time, the Commission is reluctant to discard a potential service which may have a significant value in the future. For example, there may be opportunities to harmonize the activities of Power Smart with a more targeted IRP initiative so as to maximize the efficiency and conservation at each Industrial Users' site. In recognizing the inter-action and opportunities between incentives under Power Smart, legislative controls under the Provincial Ministry of Energy, Mines and Petroleum Resources and incentive rate proposals under the IRP, the Commission sees that detailed reviews of each bulk customer will be required. It is fundamental to the design of conservation and efficiency enhancements that one have good knowledge of the customer's current use of power and heat so as to identify what can be improved and the best means of encouraging that improvement. For example, motor efficiency might be best legislated while alternate on-site generation might respond best to direct financial incentive.

This type of detailed analysis is already on-going within B.C. Hydro through the Power Smart collaborative process. The Commission encourages that this inventory and information base be completed. With this type of information at hand the full range of energy efficiency and conservation improvements can be identified and married to the appropriate mechanism to ensure that the reduction in energy demand occurs efficiently and at least cost. The flexibility inherent in this approach will allow for

the acquisition of energy resources at least cost. This is demonstrated by the Howe Sound Pulp contract, previously filed with the Commission, wherein B.C. Hydro used its financial strength to provide funds for the project initiation and received in return a supply of energy over the long-term at a reduced cost. This type of initiative may be more responsive to the concerns of the CAC(B.C.) et al, that all customer groups should share equitably in the benefits that private power and efficiency measures in the industrial class may bring to utility costs.

The Commission and B.C. Hydro have a responsibility to also reflect on how pressing the need may be for rate initiatives like the IRP, if we are faced with a situation where the proposal has many unknown practical problems to overcome. Given the more modest demand forecast and the outstanding commitments to call for some 180 MW of small hydro and supply from woodwaste it is not clear that the amount of supply reduction that may emerge from the IRP will be required by B.C. Hydro at the time or in the amounts to satisfy system needs. It will be important to avoid over supply purchased at too high a cost if the LRIC drops through time. Offsetting the concern for oversupply is the evidence of B.C. Hydro that the annual increase in overall system demand will likely consume the additional supply and, failing that, the potential for export at equal or better prices exists.

It is also relevant to consider the needs of the industrial sector from which the alternate supply is hoped to come. Given the current recessionary pressures, most industries are constrained with respect to large capital outlays. Coupling this financial weakness with the high discount rates required by industry, it is possible that many conservation load self-displacement initiatives could be foregone simply as a result of the structure of the rate schedule enhancements for encouraging the alternate supply. This converse of the oversupply possibility would be unfortunate since it would seem that the amount of energy available through load self-displacement and demand-side reductions through Power Smart may adequately meet the requirements of the Utility for most of the 1990's. B.C. Hydro may be able to purchase new supplies at a lower cost to all customers by initiating financial incentives for industry that are tailor made to an industry's individual requirements. The Howe Sound Pulp contract may prove to be a model whereby load self-displacement projects can be funded at large industrial sites at low utility cost while providing terms and conditions satisfactory to the industrial customer. While these initiatives take place, B.C. Hydro can further develop the IRP to ensure that it also encourages efficiency and conservation at least long-run cost to all utility customers. It may be that first generation energy savings can be acquired more effectively and at lower cost by direct incentives, while later implementation of a two-tiered rate may

best target residual efficiency. This view may prove to be true even in more buoyant economies simply as a function of the higher discount rates of industry making them more responsive to upfront assistance rather than long-term paybacks.

As B.C. Hydro works towards a more fully developed IRP proposal it must deal with the matters raised in this decision and raised during the hearing. In particular, the proposal must be better matched with Power Smart to provide a more cohesive incentive program and it must overcome the difficulties of extensive negotiations (or Commission arbitration) and potential discrimination.

The Commission therefore directs B.C. Hydro to work with its industrial customers and with Power Smart to develop a cohesive package of incentive programs and rate incentives to acquire efficiency and conservation energy savings for Industrial customers at least cost to the Utility. This work must begin with the gathering of data on each industrial customer's operation to identify economic savings and methods of attainment of load reductions. A progress report on B.C. Hydro's findings is to be filed with the Commission by January 1, 1993.

4.5.1 Wheeling Policy

There was only limited discussion about B.C. Hydro's wheeling policy during the course of the hearing. In part, many participants devoted their attention to the IRP and recognized that the government was reconsidering its policy with respect to IPP sales directly to industry. Those participants who addressed the wheeling proposal categorized it as premature and not having had the level of review and debate required before the service should be implemented. Given the current reconsideration of government policy, it is not appropriate to establish wheeling services at this time. Any future wheeling policy will have to be compatible with government policy that is not yet known.

The Commission feels, however, that it should give some direction to B.C. Hydro to assist it in formulating a wheeling policy if IPP direct sales to industrial are allowed. The most obvious discontinuity in the wheeling policy is that the wheeling rates have been developed accounting for regional costs even though the industrial sales rates for utility service continue to be based on postage-stamp rates. Consequently there is a potential for discrimination in utility transmission service if

the utility generation component is stripped away. The Commission is concerned that a misallocation of resources can occur as a result of customers choosing between different generation sources based on different transmission charges (capacity credits) in the utility tariffs for like services. The Commission is not yet able to assure itself that the wheeling policy incorporating capacity credits will result in optimum resource location. This matter will have to be addressed following the government's determination of the future role of IPPs in British Columbia.

5.0 CLOSED AND TERMINATED RATES

5.1 Background

B.C. Hydro has applied under Sections 64 and 67 of the Act to close and/or terminate certain rate schedules currently serving approximately 9,000 customers. The Applicant has also applied to increase the pole contact charge for street lighting owned by certain municipalities. Closing a schedule means that no new customers will be served under the rate schedule. Terminating a schedule means that the schedule will be eliminated and all customers will be transferred to an open rate schedule.

The Application at Tab 4 sets out the policy and methodology that is proposed to be applied. In response to BCUC Question 19c, the Applicant stated that these special end-use rate schedules were mainly developed in the years from 1920 to 1950 and were inherited from utilities taken over when B.C. Hydro was first formed in 1962. The rates which are to be terminated, were closed to new customers 17 years ago or more (T. 32). B.C. Hydro believes that these rates give preferential treatment over customers on standard rate schedules.

One of the reasons given by the Applicant for not terminating these rates during the 1970's was that to do so would have caused excessive increases in customer bills (T. 1364). This same concern is expressed in the current Application where "undue hardship" is to be avoided by the five-year phase-in (T. 56, 1364, 2673). The phase-in is to be accomplished in two different ways. The electric arc furnace foundry customers on Rate Schedules 1277 and 1278 will experience 10 percent increases in their rates per year, in addition to rate increases for other reasons, until these schedules generate the same revenue as would occur under the open schedules (Exhibit 1, Tab 4, page 3). Customers served under the other rate schedules would be provided with an immediate, one-time credit to their account to provide that the immediate transfer of their accounts to the open schedules will not increase their bills by more than 10 percent per annum. B.C. Hydro advanced Exhibit 46 to explain how the credit procedure would be applied.

The cost of implementing the termination of rates is estimated by B.C. Hydro to be approximately \$1.1 million (Exhibit 2, BCUC Question 19b). By way of contrast, the additional annual revenue to be obtained from two groups of customers currently served under Rate Schedules 1272 and 1275 is approximately \$.75 million (Exhibit 2, BCUC Question 19b). It is not clear if the other rate schedule terminations will result in net revenue increases or decreases to B.C. Hydro. However, it appears that the changes will not impose costs upon the other customers of the Utility.

5.2 Impacts

The increases in customers' bills, as summarized below, reflect the magnitude of the impact if the changes were to occur in the absence of any mitigation procedures.

5.2.1. Rate Schedules 1140, 1141, 1146, 1147 and 1273

These rates originated as B.C. Electric rates designed to encourage greater use of electricity for residential water heating.

- Flat Rate Water Heating - Closed in 1970 (Rate Schedule 1273 in 1964).
- Number of customers affected - 17 residential, 7 commercial.
- Immediate Termination and Transfer to Rate Schedule 1101 for residential and Rate Schedule 1220 for commercial.
- Customer Impact - nil, with a decrease on Rate Schedule 1101 (Exhibit 51).
- Cost to B.C. Hydro - \$7,200 for rewiring meters.

5.2.2. Rate Schedule 1148

This rate originated in 1966 to protect approximately 100 electric space heat customers from changes in subsidization policy.

- Zone II Residential Space Heating - closed in 1966.
- Number of customers affected - 13 residential.
- Immediate Termination and Transfer to Rate Schedule 1107.
- Customer Impact - 0 to 35 percent increase in bill (Exhibit 1, Tab 4, page 8).
- Cost to B.C. Hydro - interest cost on credits of \$2,000.

5.2.3 Rate Schedule 1272

These rates originated as B.C. Electric rates designed to increase commercial use of electricity.

- General - Space, Water Heat and Air Conditioning - premises and equipment served continuously after closure, January 1, 1975.
- Number of customers affected - 5,224.
- Immediate Termination and Transfer to Rate Schedules 1220, 1200, 1201, 1210 or 1211.
- Customer Impact - 19 percent decrease to 30 percent increase (Exhibit 4B).
- Cost to B.C. Hydro - interest on credits of \$40,000 (T. 1473).
- Credit method is expected to save B.C. Hydro \$150,000 in administrative expenses (T. 1432).

5.2.4 Rate Schedule 1275

This rate schedule originated as a promotional B.C. Electric rate designed to increase the use of electricity by restaurants.

- General - Baking, Cooking, Heating for Restaurants - premises and equipment served continuously after closure, January 1, 1975.
- Number of customers affected - 398.
- Immediate Termination and Transfer to Rate Schedules 1220, 1200, 1201, 1210 or 1211.
- Sample of 50 customers (Exhibit 4C), mostly bill decreases.

5.2.5 Rate Schedule 1276

This rate was designed to promote direct current usage for elevator service.

- Unmetered Direct Current Elevator Service - closed in 1968.
- Number of customers affected - 2.
- Termination in five years.
- Customer Impact - conversion to AC operation.
- B.C. Hydro is willing to sell its DC converters to these customers (T. 1485).

5.2.6 Rate Schedules 1290, 1843 and 1844

These were special purpose rates, for example, the Expo '86 lighting program.

- Availability period expired.
- No customers.
- Immediate termination.

5.2.7 Rate Schedule 1703

This rate schedule is restricted to municipal customers that own and maintain street lights on B.C. Hydro poles.

- Street Lighting - Municipality-owned fixtures- restricted availability.
- Number of customers affected - 4.
- Increase at 20 percent Annually Until Parity.
- Customer Impact - pole contact charge doubles to \$1.08 per month.
- B.C. Hydro Impact - at parity, rate schedule will be open to others.

5.2.8 Rate Schedules 1222 and 1223

These rates originated in 1963 as a concession that simulated the proportion of private versus commercial use in mixed use premises.

- Converted House - originally constructed and used as single family.
- Number of customers affected - 3,629.
- Close Immediately and Terminate in One Year.
- Customer Impact range if transferred to Rate Schedule 1121, + or (-) 18 percent (T. 1388).
- Impact range if transferred to Rate Schedule 1131, +39 percent, (-) 20 percent (T. 1388).
- Impact range if transferred to Rate Schedule 1220, +25 percent, (-) 9 percent (T. 1388).

5.2.9 Rate Schedules 1277 and 1278

These rates originated with B.C. Electric and were designed to encourage industrial development in the 1920's.

- Electric Arc Furnaces - closed in 1975 (1278 in 1970).
- Number of customers affected - 4.
- Increase at 10 percent Annually and Transfer at Parity.
- Customer Impact - 2.75 percent to 42.5 percent increases.
- Cost to B.C. Hydro - \$12,000 for cost of totalized metering.

5.3 Discrimination and Promotional Rates

B.C. Hydro stated that the "Closed Rates" Application is completely independent from the Rate Design Application (T. 1512). All of the rate schedules for which B.C. Hydro requested termination were in effect before the Act was proclaimed and, by Section 141(4) of the Act, were deemed to be the lawful, enforceable and collectable rates of B.C. Hydro (Exhibit 2, BCUC Question 1-19c). The Application is being made under Sections 64 and 67 of the Act, in effect making a complaint that the present rates are unjust, unreasonable, insufficient, or unduly discriminatory. B.C. Hydro's counsel noted that:

"...the overriding theory is to, in time, maintain consistency between all customers and get rid of over time the anomalies, ... without undue hardship to the members of each class." (T. 56)

However, B.C. Hydro has not applied to re-design or terminate all of the closed rate schedules. Closed Rate Schedules 1150, 1761 and 1770 are not involved in this Application (Exhibit 1, Tab 4, page 1). As well, B.C. Hydro withdrew its original Application to terminate Rate Schedule 1755 (Private Outdoor Lighting).

Some of the closed rate schedules, 1272 and 1275 for example, were originally designed to provide preferential treatment to those customers who qualified, but it now appears that a substantial number of customers served under these rates would enjoy lower bills if their consumption was transferred to and, in some cases combined with an appropriate open rate. This is clear from Exhibit 2, BCUC Question 19b (5 of 5) and Exhibits 4B and 4C. The bill impacts shown in Exhibit 4B demonstrate that, of the 104 bills

analysed, representing a 2 percent non-random sample, 18 bills would decrease if Rate Schedule 1272 was terminated. On the other hand, of the 50 bills analysed in Exhibit 4C, representing a 13 percent non-random sample, 42 bills would decrease if Rate Schedule 1275 was terminated. Some customers who would be affected by the termination of Rate Schedule 1272 either intervened or made written submissions. Mr. Nemetz, an owner of property served under this schedule, explained the history of the rate from his perspective. His father was offered the special rate and acted upon the offer by installing particular equipment. Mr. Nemetz contends that a deal is a deal and the rate should continue until the buildings served under it are demolished (T. 2871-2873). Letters from small business customers and others, including School District No. 88, expressed the same opinion. Mr. Siemens wrote to say he felt that Rate Schedule 1272 does not encourage usage since it is a flat rate, rather than a declining block structure. Rate Schedule 1272 currently charges 5.03 cents per kW.h, with a minimum charge of \$9.69 per month.

Special Direction No. 3 requires rates that encourage conservation and efficient use. Some of the subject rates schedules promote consumption by rewarding some higher volume customers with lower bills. To that extent, those rate schedules are inconsistent with the Direction. However, no consideration was given by the Applicant to modify the rate design of any of the rate schedules as an alternative to termination (T. 1499, 1502). The fact remains that, by comparison with open rates, closed rates were, in most cases, promotional and are now discriminatory because only those customers currently served can take advantage of the lower rates. **The Commission agrees with B.C. Hydro that this determination can be made independently of the rate design issues. Closed rate schedules, with flat rates lower than the average rates applicable to comparable open rates, were intended to promote new uses for electric power. These rates are now discriminatory.**

5.4 Termination Methodology

B.C. Hydro proposed several different methods for the termination of rate schedules that it considers discriminatory. These were:

1. Immediate termination of expired rate schedules.
2. Immediate termination and transfer of accounts to the appropriate open schedule.
3. Notice of termination in five years.

4. Immediate termination and transfer to the appropriate open schedule with an immediate credit to phase-in parity with the open schedule through an annual bill increase limited to 10 percent.
5. Rate increases of 10 percent on April 1, each year until parity is reached with the appropriate open rate with termination and transfer occurring at that time.

An alternative to termination, referred to as the "attrition solution", is considered by the Commission in Section 5.4.3. The complementary use of effective customer communication, Power Smart targeting and monitoring are also considered.

5.4.1 10 percent per Annum Bill Impact Limitation

B.C. Hydro has determined that an annual increase of 10 percent for five years would bring all of the rate schedules proposed for termination to parity with open rate schedules as the latter stood on April 1, 1991.

B.C. Hydro's Rate Design witnesses made various references to a 10 percent limit on rate increases:

"What I want to ensure we do is that any increase, even on an accumulated basis like that, [water rental increase], we're going to look at any increases that are above 10 percent to see if we can avoid them." (T. 496)

"But in closed rates the 10 percent criteria will be especially difficult to deal with, because there obviously is a lot of catchup to be done, so we're going to make every effort that we can to try and not exceed the 10 percent where possible." (T. 497)

B.C. Hydro also stated that the 10 percent limit as it applies to terminated rates is not related to rate shock but rather to the desire for a five-year phase-in period (T. 1470). B.C. Hydro stated:

"The 10 per cent was chosen because we felt it was a reasonable level at which to close the gap between sort of preferential rates and standard rates, and the 10 per cent was chosen also from the perspective that it will eliminate these closed rates over a five year period, if they were increased at 10 per cent per year. It's nothing to do with the two-time rule or any of the rate shock discussion that went on."

In argument, B.C. Hydro also stated that the five-year phase-in represented a good balance between what they regard as discrimination and the means to correct it (T. 2673).

The Commission recognizes that the 10 percent annual increase in bills as proposed by B.C. Hydro relates to a five-year phase-in and is separate and distinct from the rate design impact guideline. The Commission understands that the 10 percent limit is the maximum annual increase in the bills of customers on closed schedules for the purpose of termination. The Commission also acknowledges that those bills could be increased beyond 10 percent per annum on account of other reasons including revenue requirements.

5.4.2 Immediate Termination/Immediate Credit

In order to facilitate the immediate termination of rate schedules, B.C. Hydro proposed that an immediate credit be used to apply the 10 percent per annum bill limit to accounts being terminated and transferred to higher rates (Exhibit 1, Tab 4, page 2). B.C. Hydro explained that the alternative of computing a 10 percent annual rate increase to its Rate Schedule 1272 customers, until the rate schedule produced parity in combination with open schedules, would cost about \$150,000 in additional administrative costs. The immediate credit approach would cost B.C. Hydro about \$40,000 in interest expense (T. 1473). The credit concept was not extensively tested with B.C. Hydro customers (T. 1473). It is not clear that customers will understand the concept. The credit would be computed on historic consumption and customers could use up the credit, sell the property and leave the next owner to face the full impact. **For these reasons, the Commission is concerned about the possibility of a high frequency of complaints.**

B.C. Hydro indicated an appreciation of the need for specific communications efforts with those customers affected by termination or closure of rate schedules (T. 1478). The Power Smart message was recognized by B.C. Hydro as being particularly important and relevant to these customers (T. 1452, 1843).

In the absence of conclusive information about the impact on each individual customer, caused by the termination of closed rates and transfer to open rates, the Commission faces considerable uncertainty as to the magnitude and frequency of the impacts. It is possible that some customers could experience financial hardship or be in jeopardy because of the aggregate impact of rate termination and other causes of bill increases. The immediate termination/credit approach, while apparently more cost effective than annual increases until parity, could become very costly if the Utility experiences a large number of complaints from customers who may not understand the underlying fairness of this concept. The credit may exacerbate the problem by "artificially" reducing the bill from normal levels until the full impact occurs. Also, the numbers of customers requiring an annual computation will be reduced by those transferring immediately to open rates and by those whose bills will reach parity in the near future

5.4.3 Attrition Solution

B.C. Hydro was questioned about any closed rate schedules that they did not plan to terminate (T. 1515). One of these involves some 11,000 customers on Rate Schedule 1755 taking service for private outdoor lighting. The reasons the Applicant gave for not applying to terminate this rate were that the service is popular and that the rates are identical with open tariffs. B.C. Hydro is willing to phase-out this rate through attrition. Attrition could mean change of ownership or the service is no longer needed by the customer. B.C. Hydro stated that they are informed in advance of the billing about a property changing ownership only about 80 percent of the time (T. 1448) and that it would be a very expensive addition to their systems to improve on this if the entire customer base was involved (T. 1450). The fact that the "attrition solution" is being employed by B.C. Hydro for the 11,000 Rate Schedule 1755 customers indicates that it could be feasible for the information process to accommodate the 9,000 customers on rate schedules that are the subject of termination. The attrition solution for Rate Schedule 1755 customers did not require a modification of information systems for the entire customer base.

5.5 Commission Determinations

The Commission directs B.C. Hydro to increase all bills on rate schedules approved for termination up to a maximum 10 percent annual limit on April 1 of each year until parity with open rates is achieved. The use of the credit mechanism is denied. The Commission will consider alternative approaches that would counteract its concerns should B.C. Hydro make such an application.

The Commission also directs B.C. Hydro to specifically target the Power Smart message to all those customers affected by termination of rates where the bill impact is significant. The consumption behaviour of a representative sample of these groups of customers should be monitored.

The Commission finds that, in those situations where the attrition solution is preferred to termination, accounts shall be transferred to the open rate when the premises change ownership or a change in use occurs. The Commission directs B.C. Hydro to file tariff revisions clearly stating the restricted availability of these rate schedules to the existing owners. The Commission also directs B.C. Hydro to include an advisory on the bills for these rate schedules stating that the rate is not available for new owners of the property. Customers so affected should also be notified of these changes with special bill stuffers.

Power Smart information should be targeted toward customers of those rate schedules that are phased-out through attrition to encourage improvements in end-use efficiency.

The Commission, considering its determinations with regard to the general issues involved, has also examined any specific issues relevant to each rate schedule. The determinations that follow combine both the general and the specific directives of the Commission.

5.5.1 Rate Schedules 1290, 1843 and 1844
 - Various Expired Schedules

The Application to terminate is approved.

5.5.2 Rate Schedules 1140, 1141, 1146,
 1147 and 1273 - Flat Rate Water Heating

The Application to immediately terminate and transfer to open rates is approved.

5.5.3 Rate Schedule 1276 - Unmetered DC Elevator

B.C. Hydro explained that it did not know how much it would cost a customer to convert their direct current ("DC") elevators to alternating current ("AC") but made the following comments (T. 1485):

"I mean B.C. Hydro would be quite prepared to sell the AC to DC converters that are now currently in the lane to these customers and they could install them within their own buildings and take AC on a standard rate as other customers do. What the cost of that would be I don't know. It would just be a matter—I don't think we would want very much for the equipment, but they would have to continue to maintain it."

The Application to terminate with a five year notice is approved, and B.C. Hydro should negotiate the sale and relocation of its AC to DC converter equipment at a fair cost to these customers.

5.5.4 Rate Schedules 1272 and 1275 - General Service Space/Water
Heating and Air Conditioning and Baking and Cooling for Restaurants

Both rate schedules are similar in that the service is through a meter separate from the regular commercial consumption. It would not be necessary to rewire the service. Instead, B.C. Hydro proposes to add together the consumption shown on both meters and bill the total on the open rate schedule.

The rates have been closed for at least 17 years (T. 32). Rate Schedules 1272 and 1275 contain the reference "only with respect to equipment served under this schedule on 1 January, 1975 and continuously thereafter." B.C. Hydro has taken a generous interpretation of these words to mean the same type of equipment (T. 1480). If a strict interpretation were applied, it is questionable how much of the original equipment is still in service. Such an investigation has not occurred.

As discussed in Section 5.3, "Discrimination and Promotional Rates", the Commission has determined that Rate Schedules 1272 and 1275 are discriminatory. **Therefore, the Application to terminate service effective the date of the Commission's Decision is approved according to the directions as set out in Section 5.5, "Commission Determinations".**

5.5.5 Rate Schedule 1148
 - Zone II Residential Space Heating

Service under this rate schedule is provided to 13 customers in Bella Coola and the Queen Charlotte Islands who obtained the promotional rate by installing electric heating prior to 1966. B.C. Hydro plans to implement a Power Smart heating retrofit program targeted to these customers for the purpose of minimizing the impact of the transfer to the open rate schedule (T. 1452). The Commission observes that the retrofit program could also be a means of mitigating the impact upon B.C. Hydro of the promotional rate by reducing consumption billed on the lower rate.

The Commission agrees that Rate Zone II is a special case. The Application to terminate service effective the date of the Commission's Decision is not approved and the Commission directs B.C. Hydro to apply the attrition solution as set out in Section 5.5. The Commission also directs that the Power Smart retrofit program be aggressively targeted to the customers on Rate Schedule 1148.

5.5.6 Rate Schedules 1222 and 1223 - Converted House

These schedules contain special rates developed for houses built originally as single family dwellings and then converted, or partially converted, to apartments, boarding houses, nursing homes or other commercial uses (T. 1387). Rate Schedules 1222 and 1223 are not considered promotional by B.C. Hydro (T. 1499). B.C. Hydro's claim of discrimination with regard to Rate Schedules 1222 and 1223 converted houses centres on the fact that, in other situations where a home is used in part for the conduct of a business, the entire electric service is charged on a commercial rate (T. 1497). The customer does have the option of separate circuits and meters to split the consumption as between commercial and residential (T. 1498) and Rate Schedules 1222 and 1223 attempt to simulate this.

Mr. Ross, an owner of a converted house served under Rate Schedule 1222, provided computations that demonstrated the bill impact of a transfer to Rate Schedule 1131 - All Purpose Multi-Residential Service. He demonstrated that application of that rate on the basis of "per single-family dwelling" would result in a significant increase. He determined that B.C. Hydro does not experience a difference in cost of service for multiple unmetered units as found in boarding houses (T. 1437). He argued (T. 2874) that Rate Schedule 1131 does not fit the boarding house case and is not cost-based if used for that purpose.

In response to his Information Requests, B.C. Hydro stated that it has no program to identify customers in buildings which were previously single family dwellings but which now contain more than one single-family dwelling and are presently on a rate schedule other than Rate Schedule 1222 (Exhibit 3, Ross 3c). B.C. Hydro witness, Mr. Colin Fussell, noted that the reason the Utility wants a year before transferring customers to new schedules is that it is not clear as to which rate they should be transferred (T. 1388).

B.C. Hydro argued (T. 2674) that the definition section of their Tariffs at page A-8 identifies nursing homes, boarding and rooming houses as General (commercial) Service. If a property was originally constructed for these purposes the definition would hold. However, the definition does not refer to residential property partially or substantially converted to commercial purposes; this is accomplished with the specific Rate Schedules 1222 and 1223.

The Commission finds that the rate schedules pertaining to Converted Houses, are not unduly discriminatory. These rate schedules were originally introduced to prevent a discriminatory treatment of private residential use if that use was contained in a home partially converted to commercial use. A more practical approach for future conversions would be the installation of separate meters for the private and commercial uses. Customers planning to convert private houses would need to be informed of the need for separate meters prior to the start of construction.

The Application to close the rate schedules is approved. The Commission directs B.C. Hydro to advise any customer who enquires about the conversion of an existing house of the need to install separate metering for private use.

The Application to terminate the schedules in one year's time is denied. The Commission directs that all customers who will experience bill decreases be transferred to the applicable open rates immediately. The Commission directs B.C. Hydro to apply the attrition solution as set out in Section 5.5 to those customers remaining on the rate schedule.

5.5.7 Rate Schedules 1277 and 1278
- Foundries and Arc Furnace

B.C. Hydro applied to increase these rates by 10 percent annually until rate equity occurs with a standard open rate and then terminate availability of service. Rate Schedule 1277 serves electric arc furnace loads where demand is not less than 150 kV.A and has three customers, Nye's Foundry Ltd., CAE Machinery Ltd., and Reliance Foundry Company Ltd. ("The Foundries"). B.C. Hydro proposed to install totalized metering at a cost of \$9,000. The customer impact would range from increases of 2.75 to 42.5 percent. Rate Schedule 1278 serves arc furnace loads greater than 2000 kV.A and currently has only one customer, Esco Limited. The metering cost would be \$3,000 and the rate impact, 21.2 percent.

In response to a question from the Foundries, B.C. Hydro stated that the rate schedules were established as early as the 1920's and that it had no information on the original rationale. As in the case of other closed rates, the reason given for the proposal was to treat equals as equals (T. 1363). The transfer to a standard schedule will not be immediate as B.C. Hydro recognizes that these customers have peculiar load characteristics and wants an opportunity to see how they can be addressed (T. 1382). Reliance submitted, in its intervention, that the request was excessive and that conversion costs should be paid by B.C. Hydro and the increases limited to 5 percent. Nye's and Esco were represented by counsel.

All parties recognized that the Foundries have peculiar load characteristics (T. 1382, 2841) and may not have an ability to respond to the movement to the new schedules (T. 1428). B.C. Hydro believed that by not moving the customers to the new rate schedule immediately, there may be an opportunity to address the concerns. The Foundries believed that the present rate schedules already do that (T. 2851). Both Rate Schedules 1277 and 1278 have a special condition in the Tariff, put there to deal with the lagging power factor caused by the operation of the arc furnace (T. 1396). The general service rate schedules do not contain this special condition and, although it is not in the General Service Tariff, B.C. Hydro charges a penalty of up to 16 percent to those with power factors of less than 90 percent. Based on recent power factor measurements by B.C. Hydro, the combined bills for Nye's on Rate Schedule 1200 would be 42.6 percent higher and for Esco on Rate Schedule 1821, the increase would be 21.7 percent (Exhibit 3A). This does not include the impact of the power factor surcharge. According to Reliance Foundry's intervention, the cost of compensating equipment could be extremely expensive, although Mr. Fussell indicated that Power Smart would make a contribution towards those costs (T. 1412).

B.C. Hydro acknowledged that its closed rate proposals are separate from its general principles for the Rate Design Application, which are to encourage conservation and the efficient use of energy. However, in response to an Information Request (Exhibit 3, Foundries-12), B.C. Hydro stated it did not have any information on the price responsiveness of these customers. In addition, the move for both Rate Schedules 1277 and 1278 customers would decrease energy charges and increase demand charges at a time when B.C. Hydro's evidence is that the future cost of demand is not a priority (T. 368). The evidence from the Foundries' witnesses was that both have improved their energy efficiencies through participation in Power Smart programs but that B.C. Hydro had not expressed concerns about the reduction of demand (T. 2075, 2094-2095).

B.C. Hydro also stated that it "recognizes the competitiveness of B.C. industry as vital to the province and that industrial customers rely on our low average cost rates" (T. 372). From the time the Rate Design Application was filed in January 1991, three foundries have gone out of business (T. 1424). In the case of Transmission Service customers, B.C. Hydro did not want to force customers to move to different rate schedules if that would affect their competitive position and has left the choice of movement up to them (T. 376).

Mr. George argued (T. 2884) in favour of the attrition solution for the Foundries served under Rate Schedules 1277 and 1278, saying that "B.C. Hydro would not be harmed by the goodwill generated from backing off on this issue" and that "the numbers involved are relatively small".

The Commission notes that rate structures that differ are not necessarily discriminatory (T. 2849). In the case of Rate Schedules 1277 and 1278, the Commission believes that movement from a schedule specifically designed for arc furnaces, to classes that contain a wide diversity of load characteristics, and whose future rate structure is either uncertain or optional, is inappropriate. The Commission finds that the "attrition solution" as set out in Section 5.5 of this Decision is preferable and B.C. Hydro's Application, pursuant to Section 64, to increase Rate Schedules 1277 and 1278 rates by 10 percent annually is not approved. B.C. Hydro may terminate availability pursuant to Section 67 only when ownership changes or the service is no longer needed by the customer.

**5.6 Rate Schedule 1703
- Street Lighting - Municipality Owned Fixtures**

In the Application, B.C. Hydro suggested that a pole contact charge, in place for cable companies but not presently in any filed rate schedule, is appropriate for the four municipalities now served under Rate Schedule 1703. This could only be fair if the characteristics of the service are substantially the same. The City of Victoria receives service under Rate Schedule 1703 but has sent the Commission a 1960 contract that assured the City of preferential pole contact rates for a period of 75 years in exchange for surrendering the poles to B.C. Hydro. If similar contracts with the other municipalities existed, then Rate Schedule 1703 and its appropriateness to other customers could be better determined.

The Application to increase the pole contact charge from 56 cents per pole per month to \$1.08 and to open this schedule is denied. The Commission directs B.C. Hydro to conduct an investigation to determine if contracts similar to the one produced by the City of Victoria existed with other customers served under this rate schedule. The City of Victoria and such other municipalities that are found to have entered into contracts with B.C. Hydro similar to the City of Victoria contract will continue to be served under the existing Rate Schedule 1703. If a municipality currently served under Rate Schedule 1703 is found not to have entered into such a contract, then B.C. Hydro may file an application for a new rate schedule with an appropriate pole contact charge.

6.0 MONITORING PROGRAM

In this decision, several references have been made to a monitoring program which B.C. Hydro intends to institute in order to improve traditional load research and gain information on customer reaction to both pricing and demand-side management programs. In its Application, the Utility stated:

"In order to optimize integrated resource planning as a result of innovative pricing and program availability, it is essential that a carefully planned monitoring program is implemented that is sound methodologically and cost effective to determine the permanence of the magnitude and extent of shifts in customer consumption patterns. It is also essential that the effectiveness of Power Smart programs as well as rate restructuring be audited. In order to accomplish this, the monitoring program will focus on customer needs, their decision processes when faced with rate restructuring and program options, and the values a customer places on the various services and options offered. In short, Hydro intends to characterize customer behaviour to better integrate customer needs (i.e. demand for services) with Hydro's supply options." (Exhibit 1, Tab 6, page 2, lines 3-15)

The goals and objectives of the programs were stated (Exhibit 2, Tab 6, page 2) as:

- "1. To provide information on customer needs and values.
2. To measure customer response to rate level and rate restructuring by different market segments and income levels.
3. To measure energy saving and load shape impacts due to Power Smart programs.
4. To evaluate Power Smart programs and to identify modifications that would make them more effective.
5. To establish reliable estimates of end-use consumption and load shape and to determine trends over time."

The estimated original budget for the monitoring program over five years was approximately \$5.3 million. This covered overall design and management, surveys, hardware, software, installation and maintenance, data analysis, and reporting. B.C. Hydro provided a draft business plan for the monitoring project including a revised estimated five year budget in the amount of \$6.5 million (T. 1929). The increase over the original estimate of \$5.3 million was to provide additional metering and analysis costs for individual Power Smart Program requirements and overhead. The Utility, in its "Monitoring Program Plan, page 35", explained that the \$6.5 million does not cover the continuing cost of evaluating specific

Power Smart programs and that a budget for this is included in the Power Smart Program budget (Exhibit 2, BCUC Question 31c). The distinction between the two budgets is portrayed in a graph on page 28 of the Monitoring Program Plan where the "DSM Evaluation Team" is shown as separate but linked with the monitoring team. A project information output plan was produced as Exhibit 64 and is included here as Appendix 9. According to this plan, it will take some time before useful information can be obtained from the monitoring program. The Utility currently expects significant results possibly by the third year of the program (T. 383):

"THE CHAIRMAN: So it's not likely that you would have meaningful information from the monitoring program, that would impact on the second year or maybe even the third year?

MR. PETERSON: A: The third year probably but the second year not."

As indicated earlier, B.C. Hydro's Rate Design Application generally deals with principles apart from the specific changes for which they have applied. In the residential, commercial and industrial sectors a high level of uncertainty regarding the future exists. Not only is the proposed rate design dependent on potential revenue requirement increases, but also on the uncertain level of acceptance of the IRP by industrial customers and by the impact of rate changes on other classes. B.C. Hydro characterized this:

"...that the whole proposal in the residential and commercial sectors in particular, but really the whole proposal in every characteristic, hinges very much on the successful implementation of a monitoring program which is designed to ensure that, as the rate proposals are implemented, their effects are identified and understood.

B.C. Hydro believes that this monitoring program is at the forefront of this sort of initiative amongst utilities in North America in terms of knowing precisely what the demands its customers place on it are, and in terms of being able to accurately assess the impact of its rates on conservation and the efficient use of electricity." (T. 34)

It is clear from the evidence that the monitoring program is essential to future determinations in the rate design proposal. Without the program, B.C. Hydro cannot make informed decisions. This is reflected in the following exchange (T. 1939-1940):

"THE CHAIRMAN: And it is not — I apologize again, Mr. Sanderson — it is not a program designed specifically for this rate design proposal. I want to be very clear on that.

MR. BRUNETTO: A: It is a program that is designed to provide information to analyze rates and also the specific information to actually answer the questions for this rate proposal.

THE CHAIRMAN: Well, you understand our interest here in the Commission on this point in that I think it's been established in evidence, at least there has been evidence that this is a very unique, certainly the IRP is. There are unique aspects to the other aspects of the rate design, and I hope that the Applicant will permit to paraphrase perhaps and summarize, that a lot depends on the monitoring of the program of the rate design that's implemented. It is a key factor I think the Applicant is saying. And so I think that it's important to the Commission to recognize whether we're dealing with a general program or one that has attributes which will complement the Commission's decision on a rate design, the impacts of which are perhaps not fully known, or won't be known for some time, and I don't mind, Counsel, if you quarrel with anything I said there, but I think you understand the point.

MR. SANDERSON: Mr. Chairman, I do, I think, I hope. And perhaps I can crystalize it with one particular question.

THE CHAIRMAN: Yes.

MR. SANDERSON: Q: And that is: If I understood your evidence, Mr. Brunetto, the monitoring program you've designed is tailored to provide the information required of this particular rate design proposal.

MR. BRUNETTO: A: That is correct.

MR. SANDERSON: Q: But if I also understood the Chairman's concern it will also provide information which would be necessary and useful to alternate ways to amend rates.

MR. BRUNETTO: A: That is correct also."

B.C. Hydro submitted Exhibit 1B for the purpose of adding to the monitoring program a "case study approach" for the IRP. Five key issues would be monitored: customer satisfaction, impacts on load and business, Power Smart impact, self-generation and cogeneration impact and frequency of rate switching. Exhibit 1C also identified the intention to monitor the customer communication program and to test three key items: the effectiveness of the new bill format, the rate brochure and monthly billing rather than bi-monthly.

It is apparent that the monitoring program is still evolving and the budget may increase as well over time (Exhibit 4, BCUC Question 14). However, inasmuch as B.C. Hydro has chosen to submit rate design proposals which are evolutionary in their future implementation and which may or may not be successful in achieving their goals over time, the Commission agrees that a monitoring program, while difficult and costly to implement, is necessary (T. 2034).

The Commission directs that copies of these monitoring plans and progress reports are to be provided to the Commission as they become available. It is the full expectation of the Commission that its staff work with the Utility throughout the planning, implementation and assessment of the monitoring program to maximize the potential for joint understanding of what future rate design actions will fulfill the ongoing requirements of Special Direction No. 3 and other rate design objectives. The Commission directs that a budget for this program be submitted with the next revenue requirements application along with the corresponding work plan.

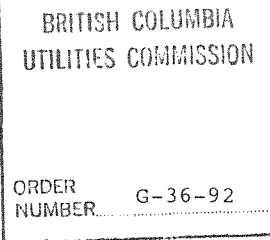
DATED at the City of Vancouver, in the Province of British Columbia, this 24th day of April, 1992.

Original signed by:

John G. McIntyre, Chairman

Original signed by:

K.L. Hall, Commissioner



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

and

IN THE MATTER OF an Application by
British Columbia Hydro and Power Authority

BEFORE: J.G. McIntyre,)
Chairman; and)
K.L. Hall,) April 24, 1992
Commissioner)

ORDER

WHEREAS:

- A. On January 15, 1991 British Columbia Hydro and Power Authority ("B.C. Hydro") filed an Application for Rate Design of its Electric Tariffs ("the Application"), as required by Commission Decision and Order No. G-31-90 dated April 30, 1990 and Order No. G-95-90 dated November 30, 1990; and
- B. By Order No. G-28-91 the Commission set down the Application for public hearing to commence June 10, 1991 in Vancouver, B.C.; and
- C. On May 31, 1991 the Industrial Users requested that the Rate Design Application be adjourned until the late Fall of 1991; and
- D. On June 5, 1991, at the public hearing into the adjournment request, the Commission issued a notice to registered intervenors and interested parties that the public hearing into Distribution Extension Policies and the Residential Electric Space Heating Connection Charge would commence on June 10, 1991, but the other Rate Design matters including the termination of Closed Rate Schedules, Cost of Service studies, proposed Residential and General Service rate structuring and the Industrial Rate Proposal would be postponed to a later date and be the subject of a future Commission Order and Notice; and
- E. Commission Order No. G-51-91, dated June 25, 1991, granted an adjournment, sine die, based on the Reasons for Decision in Appendix A of the Order. The Order outlined the basis of the consultation process and reporting designed to ensure that the focus of the Industrial Rate Proposal was clarified and supported the Commission's mandate to set rates in support of the Act inclusive of Special Directions; and
- F. The Commission has received the Reports contemplated by Commission Order No. G-51-91 and on October 4, 1991 issued Order No. G-93-91 which set down the Application for public hearing to resume on January 13, 1992 in Vancouver, B.C.; and
- G. On October 10, 1991, B.C. Hydro filed for Commission approval an Agreement in Principle ("the Agreement") entered into between B.C. Hydro and West Kootenay Power Ltd. ("WKP") for bulk electricity supply for the period from October 1, 1991 to September 20, 2010. Supply under the Agreement is intended to replace supply under Rate Schedule 3807, the availability of which expired on September 30, 1991 under Commission Order No. G-22-90; and
- H. Pursuant to Section 67 of the Utilities Commission Act, B.C. Hydro requested an Order:
 - approving of a contract incorporating the principles set out in the Agreement;

- approving an interim rate for supply to WKP at the level previously charged under Rate Schedule 3807 effective October 1, 1991 until the approval of the Agreement is given; and
 - establishing a deferral account to maintain any difference in revenue collected under the interim rate and the rates set forth in the Agreement until approval of the rates set forth in the Agreement is given; and
- I. Commission Order No. G-96-91 referred the Agreement to the public hearing authorized by Order No. G-93-91; and
 - J. A public hearing into the Application commenced, in Vancouver, B.C., on January 13, 1992 and concluded on February 18, 1992.

NOW THEREFORE the Commission, for reasons stated in the Decision, orders as follows:

1. The determinations of the Commission regarding residential and commercial class rate restructuring are provided in Chapter 3 of the Decision.
 - The request to increase the first block of the residential and general service rate to 400 kW.h per month is denied.
 - At the time of the next revenue requirement application, all of the increase applicable to the residential customer class is to be applied to the residential service trailing block; and, at the time of the following revenue requirement the move to flat rates is to be completed unless rate shock can be shown.
 - At the time of the next revenue requirement application, the increase applicable to the General Service Customer class is to be applied such that the maximum increase is given to the general service trailing block (7,000 to 30,000 kW.h) subject to rate shock guidelines; and, any remaining revenue requirement is to be obtained from other trailing blocks.
2. The B.C. Hydro Industrial Rate Proposal ("IRP"), identifying a series of optional services available to transmission customers, requires further work to develop the IRP and coordinate it with Power Smart. Chapter 4 of the Decision provides a detailed review of the highly complex initiatives.

All proposed new services involving optional rates, alternative sources of electricity supply, wheeling services, standby services, backup services and excess demand are denied at this time. These include proposed Rate Schedules 1823, 1822, 1824, 1841, 1881, 1882, 1852, 1851, amendments to Rate Schedule 1821 and termination of Rate Schedule 1880.
3. Proposals to close or terminate various rate schedules are ordered as follows:
 - The Application to immediately terminate service on Water Heating Rate Schedules 1140, 1141, 1146, 1147 and 1273 and transfer to open rates is approved.
 - The Application to terminate service on Rate Schedule 1148 for Zone II Residential Space Heating is not approved and the Commission directs B.C. Hydro to apply the attrition solution as set out in Section 5.5 of this Decision. The Commission also directs that the Power Smart retrofit program be aggressively targeted to the customers on Rate Schedule 1148.
 - The Application to terminate service on Rate Schedule 1272 - Water Heating, Space Heating and Air Conditioning and Rate Schedule 1275 - Baking, Cooking and Heating for Restaurants, effective the date of the Commission's Decision, is approved according to the directions as set out in Section 5.5 of this Decision.

- The Application to increase Rate Schedule 1277 - Industrial Service and Rate Schedule 1278 - Power Service for Foundries with Arc Furnaces, by 10 percent annually is not approved. The Commission directs that the attrition solution as set out in Section 5.5 of this Decision be implemented.
 - The Application to terminate Rate Schedule 1276 - DC Service, Elevators and Motors, with a five-year notice is approved, as set out in Section 5.5.3 of this Decision.
 - The Application to increase the pole contact charge for Rate Schedule 1703 - Street Lighting, Municipality Owned Fixtures, and to open this schedule is denied.
 - The Application to close Rate Schedules 1222 and 1223 - Converted House is approved.
 - The Application to terminate in one year Rate Schedules 1222 and 1223 - Converted House, is denied. The Commission directs that all customers who will experience bill decreases be transferred to the applicable open rates immediately. The Commission directs B.C. Hydro to apply the attrition solution as set out in Section 5.5 of this Decision to those customers remaining on the rate schedule.
 - The Application to reduce the bill impact that results from the termination of Rate Schedules 1272 and 1275 to no more than 10 percent per year is approved, but according to the conditions set out in Section 5.5 of this Decision rather than by means of an immediate credit.
 - The Application to terminate expired Rate Schedules 1290, 1843 and 1844 is approved.
4. The Commission accepts the need for a Monitoring Program with reporting requirements and budget proposals as itemized in Chapter 6 of the Decision.
 5. The WKP/B.C. Hydro Power Purchase/Supply Agreement will be the subject of a future Commission Order and is conditional upon the filing of a fully executed agreement between the parties.
 6. The Commission will accept, subject to timely filing, amended Electric Tariff Rate Schedules which conform to the terms of the Commission's Decision.
 7. B.C. Hydro will comply with all directions contained in the Decision accompanying this Order.

DATED at the City of Vancouver, in the Province of British Columbia, this *24th* day of April 1992.

BY ORDER



John G. McIntyre
Chairman

/ds

Residential Rate 1101 Bill Comparisons (Monthly) - Res

Current			Flat Rate with a BC, no change in RR		
Basic Charge	275 kW.h	\$3.4600 /mo.	Basic Charge	0 kW.h	\$3.4600 /mo.
First	0 kW.h	\$0.0681 /kW.h	First	0 kW.h	\$0.0000 /kW.h
Next	0 kW.h	\$0.0474 /kW.h	Next	0 kW.h	\$0.0000 /kW.h
Additional	0 kW.h	\$0.0474 /kW.h	Additional	0 kW.h	\$0.0536 /kW.h

Based on the Mar 90					
BFA % of Bills in Incremental kW.h Range	Monthly kW.h	Monthly Bill \$	Monthly Bill \$	% Change	\$ Change
	0	\$3.46	\$3.46	0.0%	\$0.00
	100	\$10.27	\$8.82	(14.1%)	(\$1.45)
	200	\$17.06	\$14.18	(17.0%)	(\$2.90)
	300	\$23.37	\$19.54	(16.4%)	(\$3.83)
28.2%	400	\$28.11	\$24.90	(11.4%)	(\$3.21)
	500	\$32.85	\$30.26	(7.9%)	(\$2.59)
	600	\$37.59	\$35.62	(5.2%)	(\$1.97)
25.1%	700	\$42.33	\$40.98	(3.2%)	(\$1.35)
	800	\$47.07	\$46.34	(1.6%)	(\$0.73)
	900	\$51.81	\$51.70	(0.2%)	(\$0.11)
	1,000	\$56.55	\$57.06	0.9%	\$0.51
23.7%	1,100	\$61.29	\$62.42	1.8%	\$1.13
	1,200	\$66.03	\$67.78	2.6%	\$1.75
	1,300	\$70.77	\$73.14	3.3%	\$2.37
	1,400	\$75.51	\$78.50	4.0%	\$2.99
	1,500	\$80.25	\$83.86	4.5%	\$3.61
	1,600	\$84.99	\$89.22	5.0%	\$4.23
	1,700	\$89.73	\$94.58	5.4%	\$4.85
	1,800	\$94.47	\$99.94	5.8%	\$5.47
	1,900	\$99.21	\$105.30	6.1%	\$6.09
17.0%	2,000	\$103.95	\$110.66	6.5%	\$6.71
	2,100	\$108.69	\$116.02	6.7%	\$7.33
	2,200	\$113.43	\$121.38	7.0%	\$7.95
	2,300	\$118.17	\$126.74	7.2%	\$8.57
	2,400	\$122.91	\$132.10	7.5%	\$9.19
2.7%	2,500	\$127.65	\$137.46	7.7%	\$9.81
	2,600	\$132.39	\$142.82	7.9%	\$10.43
	2,700	\$137.13	\$148.18	8.1%	\$11.05
	2,800	\$141.87	\$153.54	8.2%	\$11.67

BRITISH COLUMBIA UTILITIES COMMISSIO		
EXHIBIT 27		
DAY	ENTERED BY	DATE
7	BC Hydro	Jan 21/9

Residential Rate 1101 Bill Comparisons (Monthly) - Res

Current			Flat Rate with a BC, RR increase 5%		
Basic Charge	\$3.4600 /mo.		Basic Charge	\$3.4600 /mo.	
First	275 kW.h	\$0.0681 /kW.h	First	0 kW.h	\$0.0000 /kW.h
Next	0 kW.h	\$0.0474 /kW.h	Next	0 kW.h	\$0.0000 /kW.h
Additional	kW.h	\$0.0474 /kW.h	Additional	kW.h	\$0.0565 /kW.h

Based on the Mar 90 BFA					
% of Bills in Incremental kW.h Range	Monthly kW.h	Monthly Bill \$	Monthly Bill \$	% Change	\$ Change
	0	\$3.46	\$3.46	0.0%	\$0.00
	100	\$10.27	\$9.11	(11.3%)	(\$1.16)
	200	\$17.08	\$14.76	(13.6%)	(\$2.32)
	300	\$23.37	\$20.41	(12.7%)	(\$2.96)
25.2%	400	\$28.11	\$26.06	(7.3%)	(\$2.05)
	500	\$32.85	\$31.71	(3.5%)	(\$1.14)
	600	\$37.59	\$37.36	(0.6%)	(\$0.23)
25.1%	700	\$42.33	\$43.01	1.6%	\$0.68
	800	\$47.07	\$48.66	3.4%	\$1.59
	900	\$51.81	\$54.31	4.5%	\$2.50
	1,000	\$56.55	\$59.96	8.0%	\$3.41
25.7%	1,100	\$61.29	\$65.61	7.6%	\$4.32
	1,200	\$66.03	\$71.26	7.9%	\$5.23
	1,300	\$70.77	\$76.91	8.7%	\$6.14
	1,400	\$75.51	\$82.56	9.3%	\$7.05
	1,500	\$80.25	\$88.21	9.9%	\$7.96
	1,600	\$84.99	\$93.86	10.4%	\$8.87
	1,700	\$89.73	\$99.51	10.9%	\$9.78
	1,800	\$94.47	\$105.16	11.3%	\$10.69
	1,900	\$99.21	\$110.81	11.7%	\$11.60
27.0%	2,000	\$103.95	\$116.46	12.0%	\$12.51
	2,100	\$108.69	\$122.11	12.3%	\$13.42
	2,200	\$113.43	\$127.76	12.6%	\$14.33
	2,300	\$118.17	\$133.41	12.9%	\$15.24
	2,400	\$122.91	\$139.06	13.1%	\$16.15
2.7%	2,500	\$127.65	\$144.71	13.4%	\$17.06
	2,600	\$132.39	\$150.36	13.6%	\$17.97
	2,700	\$137.13	\$156.01	13.8%	\$18.88
	2,800	\$141.87	\$161.66	13.9%	\$19.79

Residential Rate 1101 Bill Comparisons (Monthly) - 5% Revenue Increase

Flat Rate in 2 Steps

Current			Step 1			Step 2		
Basic Charge	\$3.4600 /mo.		Basic Charge	\$3.4600 /mo.		Basic Charge	\$3.4600 /mo.	
First 275 kW.h	\$0.0681 /kW.h		First 275 kW.h	\$0.0681 /kW.h		First 0 kW.h	\$0.0000 /kW.h	
Next 0 kW.h	\$0.0474 /kW.h		Next 0 kW.h	\$0.0000 /kW.h		Next 0 kW.h	\$0.0000 /kW.h	
Additional kW.h	\$0.0474 /kW.h		Additional kW.h	\$0.0515 /kW.h		Additional kW.h	\$0.0595 /kW.h	

Based on the Mar 90								
BFA	Monthly	Monthly	Monthly	%	\$	Monthly	%	\$
% of Bills in	Monthly	Bill	Bill	Change	Change	Bill	Change	Change
Incremental kW.h Range	kW.h	\$	\$			\$		
28.2%	0	\$3.46	\$3.46	0.0%	\$0.00	\$3.46	0.0%	\$0.00
	100	\$10.27	\$10.27	0.0%	\$0.00	\$9.41	(8.4%)	(\$0.86)
	200	\$17.08	\$17.08	0.0%	\$0.00	\$15.36	(10.1%)	(\$1.72)
	300	\$23.37	\$23.48	0.4%	\$0.10	\$21.31	(9.2%)	(\$2.17)
	400	\$28.11	\$28.63	1.8%	\$0.51	\$27.26	(4.8%)	(\$1.37)
25.1%	500	\$32.85	\$33.78	2.8%	\$0.92	\$33.21	(1.7%)	(\$0.56)
	600	\$37.59	\$38.93	3.5%	\$1.33	\$39.16	0.6%	\$0.23
	700	\$42.33	\$44.08	4.1%	\$1.74	\$45.11	2.3%	\$1.04
	800	\$47.07	\$49.23	4.6%	\$2.15	\$51.06	3.7%	\$1.83
	900	\$51.81	\$54.38	4.9%	\$2.56	\$57.01	4.8%	\$2.64
23.7%	1,000	\$56.55	\$59.53	5.3%	\$2.97	\$62.96	5.8%	\$3.44
	1,100	\$61.29	\$64.68	5.5%	\$3.38	\$68.91	6.5%	\$4.24
	1,200	\$66.03	\$69.83	5.7%	\$3.79	\$74.86	7.2%	\$5.04
	1,300	\$70.77	\$74.98	5.9%	\$4.20	\$80.81	7.8%	\$5.84
	1,400	\$75.51	\$80.13	6.1%	\$4.61	\$86.76	8.3%	\$6.64
17.0%	1,500	\$80.25	\$85.28	6.3%	\$5.02	\$92.71	8.7%	\$7.44
	1,600	\$84.99	\$90.43	6.4%	\$5.43	\$98.66	9.1%	\$8.23
	1,700	\$89.73	\$95.58	6.5%	\$5.84	\$104.61	9.5%	\$9.03
	1,800	\$94.47	\$100.73	6.6%	\$6.25	\$110.56	9.8%	\$9.84
	1,900	\$99.21	\$105.88	6.7%	\$6.66	\$116.51	10.0%	\$10.64
2.7%	2,000	\$103.95	\$111.03	6.8%	\$7.07	\$122.46	10.3%	\$11.44
	2,100	\$108.69	\$116.18	6.9%	\$7.48	\$128.41	10.5%	\$12.24
	2,200	\$113.43	\$121.33	7.0%	\$7.89	\$134.36	10.7%	\$13.04
	2,300	\$118.17	\$126.48	7.0%	\$8.30	\$140.31	10.9%	\$13.84
	2,400	\$122.91	\$131.63	7.1%	\$8.71	\$146.26	11.1%	\$14.64
	2,500	\$127.65	\$136.78	7.1%	\$9.12	\$152.21	11.3%	\$15.44
	2,600	\$132.39	\$141.93	7.2%	\$9.53	\$158.16	11.4%	\$16.24
	2,700	\$137.13	\$147.08	7.3%	\$9.94	\$164.11	11.6%	\$17.04
	2,800	\$141.87	\$152.23	7.3%	\$10.35	\$170.06	11.7%	\$17.84

BRITISH COLUMBIA UTILITIES COMMISSION

EXHIBIT 27A

DAY	ENTERED BY	DATE
7	BC Hydro	Jan 21/92

Residential Rate 1101 Bill Comparisons (Monthly) - 5% Revenue Increase - Option 3

Current			Step 1			Step 2			Step 3			Step 4		
Basic Charge \$3.4600 /mo.			Basic Charge \$3.4600 /mo.			Basic Charge \$3.4600 /mo.			Basic Charge \$3.4600 /mo.			Basic Charge \$3.4600 /mo.		
First	275 kW.h	\$0.0681 /kW.h	First	275 kW.h	\$0.0681 /kW.h	First	275 kW.h	\$0.0681 /kW.h	First	275 kW.h	\$0.0681 /kW.h	First	275 kW.h	\$0.0681 /kW.h
Next	0 kW.h	\$0.0474 /kW.h	Next	0 kW.h	\$0.0515 /kW.h	Next	0 kW.h	\$0.0558 /kW.h	Next	0 kW.h	\$0.0603 /kW.h	Next	0 kW.h	\$0.0650 /kW.h
Additional	kW.h	\$0.0474 /kW.h	Additional	kW.h	\$0.0515 /kW.h	Additional	kW.h	\$0.0558 /kW.h	Additional	kW.h	\$0.0603 /kW.h	Additional	kW.h	\$0.0650 /kW.h

Based on the Mar 90 BFA			Monthly Bill			Monthly Bill			Monthly Bill			Monthly Bill		
% of Bills in	Monthly	Monthly	Monthly	%	\$	Monthly	%	\$	Monthly	%	\$	Monthly	%	\$
Incremental kW.h Range	kW.h	Bill \$	Bill \$	Change	Change	Bill \$	Change	Change	Bill \$	Change	Change	Bill \$	Change	Change
28.2%	0	\$3.46	\$3.46	0.0%	\$0.00	\$3.46	0.0%	\$0.00	\$3.46	0.0%	\$0.00	\$3.46	0.0%	\$0.00
	100	\$10.27	\$10.27	0.0%	\$0.00	\$10.27	0.0%	\$0.00	\$10.27	0.0%	\$0.00	\$10.27	0.0%	\$0.00
	200	\$17.08	\$17.08	0.0%	\$0.00	\$17.08	0.0%	\$0.00	\$17.08	0.0%	\$0.00	\$17.08	0.0%	\$0.00
	300	\$23.37	\$23.48	0.4%	\$0.10	\$23.58	0.5%	\$0.11	\$23.70	0.5%	\$0.11	\$23.81	0.5%	\$0.12
	400	\$28.11	\$28.63	1.8%	\$0.51	\$29.16	1.9%	\$0.54	\$29.73	1.9%	\$0.56	\$30.31	2.0%	\$0.59
25.1%	500	\$32.85	\$33.78	2.8%	\$0.92	\$34.74	2.9%	\$0.97	\$35.76	2.9%	\$1.01	\$36.81	3.0%	\$1.06
	600	\$37.59	\$38.93	3.5%	\$1.33	\$40.32	3.6%	\$1.40	\$41.79	3.6%	\$1.46	\$43.31	3.7%	\$1.53
	700	\$42.33	\$44.08	4.1%	\$1.74	\$45.90	4.1%	\$1.83	\$47.82	4.2%	\$1.91	\$49.81	4.2%	\$2.00
	800	\$47.07	\$49.23	4.6%	\$2.15	\$51.48	4.6%	\$2.26	\$53.85	4.6%	\$2.36	\$56.31	4.6%	\$2.47
	900	\$51.81	\$54.38	4.9%	\$2.56	\$57.06	4.9%	\$2.69	\$59.88	4.9%	\$2.81	\$62.81	4.9%	\$2.94
23.7%	1,000	\$56.55	\$59.53	5.3%	\$2.97	\$62.64	5.2%	\$3.12	\$65.91	5.2%	\$3.26	\$69.31	5.2%	\$3.41
	1,100	\$61.29	\$64.68	5.5%	\$3.38	\$68.22	5.5%	\$3.55	\$71.94	5.4%	\$3.71	\$75.81	5.4%	\$3.88
	1,200	\$66.03	\$69.83	5.7%	\$3.79	\$73.80	5.7%	\$3.98	\$77.97	5.6%	\$4.16	\$82.31	5.6%	\$4.35
	1,300	\$70.77	\$74.98	5.9%	\$4.20	\$79.38	5.9%	\$4.41	\$84.00	5.8%	\$4.61	\$88.81	5.7%	\$4.82
	1,400	\$75.51	\$80.13	6.1%	\$4.61	\$84.96	6.0%	\$4.84	\$90.03	6.0%	\$5.06	\$95.31	5.9%	\$5.29
17.0%	1,500	\$80.25	\$85.28	6.3%	\$5.02	\$90.54	6.2%	\$5.27	\$96.06	6.1%	\$5.51	\$101.81	6.0%	\$5.76
	1,600	\$84.99	\$90.43	6.4%	\$5.43	\$96.12	6.3%	\$5.70	\$102.09	6.2%	\$5.96	\$108.31	6.1%	\$6.23
	1,700	\$89.73	\$95.58	6.5%	\$5.84	\$101.70	6.4%	\$6.13	\$108.12	6.3%	\$6.41	\$114.81	6.2%	\$6.70
	1,800	\$94.47	\$100.73	6.6%	\$6.25	\$107.28	6.5%	\$6.56	\$114.15	6.4%	\$6.86	\$121.31	6.3%	\$7.17
	1,900	\$99.21	\$105.88	6.7%	\$6.66	\$112.86	6.6%	\$6.99	\$120.18	6.5%	\$7.31	\$127.81	6.4%	\$7.64
2.7%	2,000	\$103.95	\$111.03	6.8%	\$7.07	\$118.44	6.7%	\$7.42	\$126.21	6.6%	\$7.76	\$134.31	6.4%	\$8.11
	2,100	\$108.69	\$116.18	6.9%	\$7.48	\$124.02	6.8%	\$7.85	\$132.24	6.6%	\$8.21	\$140.81	6.5%	\$8.58
	2,200	\$113.43	\$121.33	7.0%	\$7.89	\$129.60	6.8%	\$8.28	\$138.27	6.7%	\$8.66	\$147.31	6.5%	\$9.05
	2,300	\$118.17	\$126.48	7.0%	\$8.30	\$135.18	6.9%	\$8.71	\$144.30	6.7%	\$9.11	\$153.81	6.6%	\$9.52
	2,400	\$122.91	\$131.63	7.1%	\$8.71	\$140.76	6.9%	\$9.14	\$150.33	6.8%	\$9.56	\$160.31	6.6%	\$9.99
	2,500	\$127.65	\$136.78	7.1%	\$9.12	\$146.34	7.0%	\$9.57	\$156.36	6.8%	\$10.01	\$166.81	6.7%	\$10.46
	5,000	\$246.15	\$265.53	7.9%	\$19.37	\$285.84	7.7%	\$20.32	\$307.11	7.4%	\$21.26	\$329.31	7.2%	\$22.21
	10,000	\$483.15	\$523.03	8.3%	\$39.87	\$564.84	8.0%	\$41.82	\$608.61	7.7%	\$43.76	\$654.31	7.5%	\$45.71
	25,000	\$1,194.15	\$1,295.53	8.5%	\$101.37	\$1,401.84	8.2%	\$106.32	\$1,513.11	7.9%	\$111.26	\$1,629.31	7.7%	\$116.21

Residential Rate 1101 Bill Comparisons (Monthly) - 5% Revenue Increase - Option 3

Step 4				Step 5				Step 6				Step 7				Step 8			
Basic Charge \$3.4600 /mo.				Basic Charge \$3.4600 /mo.				Basic Charge \$3.4600 /mo.				Basic Charge \$3.4600 /mo.				Basic Charge \$3.4600 /mo.			
First	275	kW.h	\$0.0681 /kW.h	First	400	kW.h	\$0.0681 /kW.h	First	500	kW.h	\$0.0700 /kW.h	First	500	kW.h	\$0.0713 /kW.h	First	500	kW.h	\$0.0713 /kW.h
Next	0	kW.h	\$0.0650 /kW.h	Next	0	kW.h	\$0.0704 /kW.h	Next	0	kW.h	\$0.0762 /kW.h	Next	300	kW.h	\$0.0800 /kW.h	Next	300	kW.h	\$0.0800 /kW.h
Additional		kW.h	\$0.0650 /kW.h	Additional		kW.h	\$0.0704 /kW.h	Additional		kW.h	\$0.0762 /kW.h	Additional		kW.h	\$0.0840 /kW.h	Additional		kW.h	\$0.0840 /kW.h
Based on the Mar 90 BFA				Monthly				Monthly				Monthly				Monthly			
% of Bills in Incremental kW.h Range				Monthly Bill \$	% Change	\$ Change		Monthly Bill \$	% Change	\$ Change		Monthly Bill \$	% Change	\$ Change		Monthly Bill \$	% Change	\$ Change	
28.2%	0			\$3.46	0.0%	\$0.00		\$3.46	0.0%	\$0.00		\$3.46	0.0%	\$0.00		\$3.46	0.0%	\$0.00	
	100			\$10.27	0.0%	\$0.00		\$10.46	1.9%	\$0.19		\$10.59	1.2%	\$0.13		\$10.59	0.0%	\$0.00	
	200			\$17.08	0.0%	\$0.00		\$17.46	2.2%	\$0.38		\$17.72	1.5%	\$0.26		\$17.72	0.0%	\$0.00	
	300			\$23.81	0.3%	\$0.08		\$24.46	2.4%	\$0.57		\$24.85	1.6%	\$0.39		\$24.85	0.0%	\$0.00	
	400			\$30.31	1.3%	\$0.39		\$31.46	2.5%	\$0.76		\$31.98	1.7%	\$0.52		\$31.98	0.0%	\$0.00	
25.1%	500			\$36.81	2.5%	\$0.93		\$38.46	1.9%	\$0.72		\$39.11	1.7%	\$0.65		\$39.11	0.0%	\$0.00	
	600			\$43.31	3.4%	\$1.47		\$46.08	2.9%	\$1.30		\$47.11	2.2%	\$1.03		\$47.11	0.0%	\$0.00	
	700			\$49.81	4.0%	\$2.01		\$53.70	3.6%	\$1.88		\$55.11	2.6%	\$1.41		\$55.11	0.0%	\$0.00	
	800			\$56.31	4.5%	\$2.55		\$61.32	4.2%	\$2.46		\$63.11	2.9%	\$1.79		\$63.11	0.0%	\$0.00	
	900			\$62.81	4.9%	\$3.09		\$68.94	4.6%	\$3.04		\$71.51	3.7%	\$2.57		\$71.51	0.0%	\$0.00	
23.7%	1,000			\$69.31	5.2%	\$3.63		\$76.56	5.0%	\$3.62		\$79.91	4.4%	\$3.35		\$79.91	0.0%	\$0.00	
	1,100			\$75.81	5.5%	\$4.17		\$84.18	5.3%	\$4.20		\$88.31	4.9%	\$4.13		\$88.31	0.0%	\$0.00	
	1,200			\$82.31	5.7%	\$4.71		\$91.80	5.5%	\$4.78		\$96.71	5.3%	\$4.91		\$96.71	0.0%	\$0.00	
	1,300			\$88.81	5.9%	\$5.25		\$99.42	5.7%	\$5.36		\$105.11	5.7%	\$5.69		\$105.11	0.0%	\$0.00	
	1,400			\$95.31	6.1%	\$5.79		\$107.04	5.9%	\$5.94		\$113.51	6.0%	\$6.47		\$113.51	0.0%	\$0.00	
17.0%	1,500			\$101.81	6.2%	\$6.33		\$114.66	6.0%	\$6.52		\$121.91	6.3%	\$7.25		\$121.91	0.0%	\$0.00	
	1,600			\$108.31	6.3%	\$6.87		\$122.28	6.2%	\$7.10		\$130.31	6.6%	\$8.03		\$130.31	0.0%	\$0.00	
	1,700			\$114.81	6.5%	\$7.41		\$129.90	6.3%	\$7.68		\$138.71	6.8%	\$8.81		\$138.71	0.0%	\$0.00	
	1,800			\$121.31	6.6%	\$7.95		\$137.52	6.4%	\$8.26		\$147.11	7.0%	\$9.59		\$147.11	0.0%	\$0.00	
	1,900			\$127.81	6.6%	\$8.49		\$145.14	6.5%	\$8.84		\$155.51	7.1%	\$10.37		\$155.51	0.0%	\$0.00	
2.7%	2,000			\$134.31	6.7%	\$9.03		\$152.76	6.6%	\$9.42		\$163.91	7.3%	\$11.15		\$163.91	0.0%	\$0.00	
	2,100			\$140.81	6.8%	\$9.57		\$160.38	6.6%	\$10.00		\$172.31	7.4%	\$11.93		\$172.31	0.0%	\$0.00	
	2,200			\$147.31	6.9%	\$10.11		\$168.00	6.7%	\$10.58		\$180.71	7.6%	\$12.71		\$180.71	0.0%	\$0.00	
	2,300			\$153.81	6.9%	\$10.65		\$175.62	6.8%	\$11.16		\$189.11	7.7%	\$13.49		\$189.11	0.0%	\$0.00	
	2,400			\$160.31	7.0%	\$11.19		\$183.24	6.8%	\$11.74		\$197.51	7.8%	\$14.27		\$197.51	0.0%	\$0.00	
	2,500			\$166.81	7.0%	\$11.73		\$190.86	6.9%	\$12.32		\$205.91	7.9%	\$15.05		\$205.91	0.0%	\$0.00	
	5,000			\$329.31	7.7%	\$25.23		\$381.36	7.6%	\$26.82		\$415.91	9.1%	\$34.55		\$415.91	0.0%	\$0.00	
	10,000			\$654.31	8.0%	\$52.23		\$762.36	7.9%	\$55.82		\$835.91	9.6%	\$73.55		\$835.91	0.0%	\$0.00	
	25,000			\$1,629.31	8.2%	\$133.23		\$1,905.36	8.1%	\$142.82		\$2,095.91	10.0%	\$190.55		\$2,095.91	0.0%	\$0.00	

TOTAL NUMBER OF RECORDS	=	1341693
NUMBER OF 11XX ACCOUNTS	=	1193407
NUMBER WITH 0 READING	=	97114
NUMBER WITH READING 550 > X <= 800		304503
AVERAGE CONSUMPTION		490.88
NUMBER ALL READING 800 > X <=1000		704
NUMBER ALL READING 550 > X <= 800		5684
NUMBER ALL READING 400 > X <= 550		3149
NUMBER ALL READING 200 > X <= 400		19888
NUMBER ALL READING 1 > X <= 200		8791

BRITISH COLUMBIA UTILITIES COMMISSION		
EXHIBIT 29		
DAY	ENTERED BY	DATE
7	BC Hydro	Jan 21/98

B.C. Hydro - 1st Step Flat Rate - Selected Customer Impact - 5% Increase

Current			Step 1			Step 2			Step 3		
Basic Charge	\$3.4600 /mo.		Basic Charge	\$3.4600 /mo.		Basic Charge	\$3.4600 /mo.		Basic Charge	\$3.4600 /mo.	
First	275 kW.h	\$0.0681 /kW.h	First	0 kW.h	\$0.0000 /kW.h	First	0 kW.h	\$0.0000 /kW.h	First	0 kW.h	\$0.0000 /kW.h
Next	0 kW.h	\$0.0474 /kW.h	Next	0 kW.h	\$0.0000 /kW.h	Next	0 kW.h	\$0.0000 /kW.h	Next	0 kW.h	\$0.0000 /kW.h
Additional	kW.h	\$0.0474 /kW.h	Additional	kW.h	\$0.0565 /kW.h	Additional	kW.h	\$0.0595 /kW.h	Additional	kW.h	\$0.0627 /kW.h
Month	Monthly kW.h	Monthly Bill \$	Monthly Bill \$	% Change	\$ Change	Monthly Bill \$	% Change	\$ Change	Monthly Bill \$	% Change	% From Current
January	600	\$37.59	\$37.36	(0.6%)	(\$0.23)	\$39.16	4.8%	\$1.80	\$41.08	4.9%	9.3%
February	500	\$32.85	\$31.71	(3.5%)	(\$1.14)	\$33.21	4.7%	\$1.50	\$34.81	4.8%	6.0%
March	500	\$32.85	\$31.71	(3.5%)	(\$1.14)	\$33.21	4.7%	\$1.50	\$34.81	4.8%	6.0%
April	400	\$28.11	\$26.06	(7.3%)	(\$2.05)	\$27.26	4.6%	\$1.20	\$28.54	4.7%	1.5%
May	400	\$28.11	\$26.06	(7.3%)	(\$2.05)	\$27.26	4.6%	\$1.20	\$28.54	4.7%	1.5%
June	300	\$23.37	\$20.41	(12.7%)	(\$2.96)	\$21.31	4.4%	\$0.90	\$22.27	4.5%	(4.7%)
July	300	\$23.37	\$20.41	(12.7%)	(\$2.96)	\$21.31	4.4%	\$0.90	\$22.27	4.5%	(4.7%)
August	200	\$17.08	\$14.76	(13.6%)	(\$2.32)	\$15.36	4.1%	\$0.60	\$16.00	4.2%	(6.3%)
September	400	\$28.11	\$26.06	(7.3%)	(\$2.05)	\$27.26	4.6%	\$1.20	\$28.54	4.7%	1.5%
October	400	\$28.11	\$26.06	(7.3%)	(\$2.05)	\$27.26	4.6%	\$1.20	\$28.54	4.7%	1.5%
November	500	\$32.85	\$31.71	(3.5%)	(\$1.14)	\$33.21	4.7%	\$1.50	\$34.81	4.8%	6.0%
December	500	\$32.85	\$31.71	(3.5%)	(\$1.14)	\$33.21	4.7%	\$1.50	\$34.81	4.8%	6.0%
Total	5,000	\$345.28	\$324.02	(6.2%)	(\$21.26)	\$339.02	4.6%	\$15.00	\$355.02	4.7%	2.8%
Average Rate		\$0.0691	\$0.0648			\$0.0678			\$0.0710		

B.C. Hydro - 1st Step Flat Rate - Selected Customer Impact - 5% Increase

Current			Step 1			Step 2			Step 3		
Basic Charge			Basic Charge			Basic Charge			Basic Charge		
		\$3.4600 /mo.			\$3.4600 /mo.			\$3.4600 /mo.			\$3.4600 /mo.
First	275 kW.h	\$0.0681 /kW.h	First	0 kW.h	\$0.0000 /kW.h	First	0 kW.h	\$0.0000 /kW.h	First	0 kW.h	\$0.0000 /kW.h
Next	0 kW.h	\$0.0474 /kW.h	Next	0 kW.h	\$0.0000 /kW.h	Next	0 kW.h	\$0.0000 /kW.h	Next	0 kW.h	\$0.0000 /kW.h
Additional	kW.h	\$0.0474 /kW.h	Additional	kW.h	\$0.0565 /kW.h	Additional	kW.h	\$0.0595 /kW.h	Additional	kW.h	\$0.0627 /kW.h
Monthly Bill			Monthly Bill			Monthly Bill			Monthly Bill		
Month	Monthly kW.h	Monthly Bill \$	Monthly Bill \$	% Change	\$ Change	Monthly Bill \$	% Change	\$ Change	Monthly Bill \$	% Change	% From Current
January	800	\$47.07	\$48.66	3.4%	\$1.59	\$51.06	4.9%	\$2.40	\$53.62	5.0%	13.9%
February	700	\$42.33	\$43.01	1.6%	\$0.68	\$45.11	4.9%	\$2.10	\$47.35	5.0%	11.9%
March	600	\$37.59	\$37.36	(0.6%)	(\$0.23)	\$39.16	4.8%	\$1.80	\$41.08	4.9%	9.3%
April	500	\$32.85	\$31.71	(3.5%)	(\$1.14)	\$33.21	4.7%	\$1.50	\$34.81	4.8%	6.0%
May	400	\$28.11	\$26.06	(7.3%)	(\$2.05)	\$27.26	4.6%	\$1.20	\$28.54	4.7%	1.5%
June	300	\$23.37	\$20.41	(12.7%)	(\$2.96)	\$21.31	4.4%	\$0.90	\$22.27	4.5%	(4.7%)
July	300	\$23.37	\$20.41	(12.7%)	(\$2.96)	\$21.31	4.4%	\$0.90	\$22.27	4.5%	(4.7%)
August	400	\$28.11	\$26.06	(7.3%)	(\$2.05)	\$27.26	4.6%	\$1.20	\$28.54	4.7%	1.5%
September	500	\$32.85	\$31.71	(3.5%)	(\$1.14)	\$33.21	4.7%	\$1.50	\$34.81	4.8%	6.0%
October	500	\$32.85	\$31.71	(3.5%)	(\$1.14)	\$33.21	4.7%	\$1.50	\$34.81	4.8%	6.0%
November	600	\$37.59	\$37.36	(0.6%)	(\$0.23)	\$39.16	4.8%	\$1.80	\$41.08	4.9%	9.3%
December	700	\$42.33	\$43.01	1.6%	\$0.68	\$45.11	4.9%	\$2.10	\$47.35	5.0%	11.9%
Total	6,300	\$408.45	\$397.47	(2.7%)	(\$10.98)	\$416.37	4.8%	\$18.90	\$436.53	4.8%	6.9%
Average Rate		\$0.0648	\$0.0631			\$0.0661			\$0.0693		

B.C. Hydro - 1st Step Flat Rate - Selected Customer Impact - 5% Increase

Current			Step 1			Step 2			Step 3		
Basic Charge \$3.4600 /mo.			Basic Charge \$3.4600 /mo.			Basic Charge \$3.4600 /mo.			Basic Charge \$3.4600 /mo.		
First	275 kW.h	\$0.0681 /kW.h	First	0 kW.h	\$0.0000 /kW.h	First	0 kW.h	\$0.0000 /kW.h	First	0 kW.h	\$0.0000 /kW.h
Next	0 kW.h	\$0.0474 /kW.h	Next	0 kW.h	\$0.0000 /kW.h	Next	0 kW.h	\$0.0000 /kW.h	Next	0 kW.h	\$0.0000 /kW.h
Additional	kW.h	\$0.0474 /kW.h	Additional	kW.h	\$0.0565 /kW.h	Additional	kW.h	\$0.0595 /kW.h	Additional	kW.h	\$0.0627 /kW.h

Month	Monthly kW.h	Monthly Bill \$	Monthly Bill \$	% Change	\$ Change	Monthly Bill \$	% Change	\$ Change	Monthly Bill \$	% Change	% From Current
January	800	\$47.07	\$48.66	3.4%	\$1.59	\$51.06	4.9%	\$2.40	\$53.62	5.0%	13.9%
February	1,000	\$56.55	\$59.96	6.0%	\$3.41	\$62.96	5.0%	\$3.00	\$66.16	5.1%	17.0%
March	900	\$51.81	\$54.31	4.8%	\$2.50	\$57.01	5.0%	\$2.70	\$59.89	5.1%	15.6%
April	800	\$47.07	\$48.66	3.4%	\$1.59	\$51.06	4.9%	\$2.40	\$53.62	5.0%	13.9%
May	800	\$47.07	\$48.66	3.4%	\$1.59	\$51.06	4.9%	\$2.40	\$53.62	5.0%	13.9%
June	600	\$37.59	\$37.36	(0.6%)	(\$0.23)	\$39.16	4.8%	\$1.80	\$41.08	4.9%	9.3%
July	600	\$37.59	\$37.36	(0.6%)	(\$0.23)	\$39.16	4.8%	\$1.80	\$41.08	4.9%	9.3%
August	600	\$37.59	\$37.36	(0.6%)	(\$0.23)	\$39.16	4.8%	\$1.80	\$41.08	4.9%	9.3%
September	800	\$47.07	\$48.66	3.4%	\$1.59	\$51.06	4.9%	\$2.40	\$53.62	5.0%	13.9%
October	800	\$47.07	\$48.66	3.4%	\$1.59	\$51.06	4.9%	\$2.40	\$53.62	5.0%	13.9%
November	800	\$47.07	\$48.66	3.4%	\$1.59	\$51.06	4.9%	\$2.40	\$53.62	5.0%	13.9%
December	1,000	\$56.55	\$59.96	6.0%	\$3.41	\$62.96	5.0%	\$3.00	\$66.16	5.1%	17.0%
Total	9,500	\$560.13	\$578.27	3.2%	\$18.14	\$606.77	4.9%	\$28.50	\$637.17	5.0%	13.8%
Average Rate		\$0.0590	\$0.0609			\$0.0639			\$0.0671		

B.C. Hydro - 1st Step Flat Rate - Selected Customer Impact - 5% Increase

Current			Step 1			Step 2			Step 3		
Basic Charge \$3.4600 /mo.			Basic Charge \$3.4600 /mo.			Basic Charge \$3.4600 /mo.			Basic Charge \$3.4600 /mo.		
First	275 kW.h	\$0.0681 /kW.h	First	0 kW.h	\$0.0000 /kW.h	First	0 kW.h	\$0.0000 /kW.h	First	0 kW.h	\$0.0000 /kW.h
Next	0 kW.h	\$0.0474 /kW.h	Next	0 kW.h	\$0.0000 /kW.h	Next	0 kW.h	\$0.0000 /kW.h	Next	0 kW.h	\$0.0000 /kW.h
Additional	kW.h	\$0.0474 /kW.h	Additional	kW.h	\$0.0565 /kW.h	Additional	kW.h	\$0.0595 /kW.h	Additional	kW.h	\$0.0627 /kW.h
Month	Monthly kW.h	Monthly Bill \$	Monthly Bill \$	% Change	\$ Change	Monthly Bill \$	% Change	\$ Change	Monthly Bill \$	% Change	% From Current
January	1,600	\$84.99	\$93.86	10.4%	\$8.87	\$98.66	5.1%	\$4.80	\$103.78	5.2%	22.1%
February	1,700	\$89.73	\$99.51	10.9%	\$9.78	\$104.61	5.1%	\$5.10	\$110.05	5.2%	22.6%
March	1,200	\$66.03	\$71.26	7.9%	\$5.23	\$74.86	5.1%	\$3.60	\$78.70	5.1%	19.2%
April	1,000	\$56.55	\$59.96	6.0%	\$3.41	\$62.96	5.0%	\$3.00	\$66.16	5.1%	17.0%
May	800	\$47.07	\$48.66	3.4%	\$1.59	\$51.06	4.9%	\$2.40	\$53.62	5.0%	13.9%
June	600	\$37.59	\$37.36	(0.6%)	(\$0.23)	\$39.16	4.8%	\$1.80	\$41.08	4.9%	9.3%
July	400	\$28.11	\$26.06	(7.3%)	(\$2.05)	\$27.26	4.6%	\$1.20	\$28.54	4.7%	1.5%
August	400	\$28.11	\$26.06	(7.3%)	(\$2.05)	\$27.26	4.6%	\$1.20	\$28.54	4.7%	1.5%
September	600	\$37.59	\$37.36	(0.6%)	(\$0.23)	\$39.16	4.8%	\$1.80	\$41.08	4.9%	9.3%
October	800	\$47.07	\$48.66	3.4%	\$1.59	\$51.06	4.9%	\$2.40	\$53.62	5.0%	13.9%
November	1,000	\$56.55	\$59.96	6.0%	\$3.41	\$62.96	5.0%	\$3.00	\$66.16	5.1%	17.0%
December	1,200	\$66.03	\$71.26	7.9%	\$5.23	\$74.86	5.1%	\$3.60	\$78.70	5.1%	19.2%
Total	11,300	\$645.45	\$679.97	5.3%	\$34.52	\$713.87	5.0%	\$33.90	\$750.03	5.1%	16.2%
Average Rate		\$0.0571	\$0.0602			\$0.0632			\$0.0664		

B.C. Hydro - 1st Step Flat Rate - Selected Customer Impact - 5% Increase

Current			Step 1			Step 2			Step 3		
Basic Charge	\$3.4600 /mo.		Basic Charge	\$3.4600 /mo.		Basic Charge	\$3.4600 /mo.		Basic Charge	\$3.4600 /mo.	
First	275 kW.h	\$0.0681 /kW.h	First	0 kW.h	\$0.0000 /kW.h	First	0 kW.h	\$0.0000 /kW.h	First	0 kW.h	\$0.0000 /kW.h
Next	0 kW.h	\$0.0474 /kW.h	Next	0 kW.h	\$0.0000 /kW.h	Next	0 kW.h	\$0.0000 /kW.h	Next	0 kW.h	\$0.0000 /kW.h
Additional	kW.h	\$0.0474 /kW.h	Additional	kW.h	\$0.0565 /kW.h	Additional	kW.h	\$0.0595 /kW.h	Additional	kW.h	\$0.0627 /kW.h

Month	Monthly kW.h	Monthly Bill \$	Monthly Bill \$	% Change	\$ Change	Monthly Bill \$	% Change	\$ Change	Monthly Bill \$	% Change	% From Current
January	900	\$51.81	\$54.31	4.8%	\$2.50	\$57.01	5.0%	\$2.70	\$59.89	5.1%	15.6%
February	800	\$47.07	\$48.66	3.4%	\$1.59	\$51.06	4.9%	\$2.40	\$53.62	5.0%	13.9%
March	900	\$51.81	\$54.31	4.8%	\$2.50	\$57.01	5.0%	\$2.70	\$59.89	5.1%	15.6%
April	800	\$47.07	\$48.66	3.4%	\$1.59	\$51.06	4.9%	\$2.40	\$53.62	5.0%	13.9%
May	1,000	\$56.55	\$59.96	6.0%	\$3.41	\$62.96	5.0%	\$3.00	\$66.16	5.1%	17.0%
June	1,000	\$56.55	\$59.96	6.0%	\$3.41	\$62.96	5.0%	\$3.00	\$66.16	5.1%	17.0%
July	1,400	\$75.51	\$82.56	9.3%	\$7.05	\$86.76	5.1%	\$4.20	\$91.24	5.2%	20.8%
August	1,800	\$94.47	\$105.16	11.3%	\$10.69	\$110.56	5.1%	\$5.40	\$116.32	5.2%	23.1%
September	1,400	\$75.51	\$82.56	9.3%	\$7.05	\$86.76	5.1%	\$4.20	\$91.24	5.2%	20.8%
October	1,000	\$56.55	\$59.96	6.0%	\$3.41	\$62.96	5.0%	\$3.00	\$66.16	5.1%	17.0%
November	800	\$47.07	\$48.66	3.4%	\$1.59	\$51.06	4.9%	\$2.40	\$53.62	5.0%	13.9%
December	800	\$47.07	\$48.66	3.4%	\$1.59	\$51.06	4.9%	\$2.40	\$53.62	5.0%	13.9%
Total	12,600	\$707.07	\$753.42	6.6%	\$46.35	\$791.22	5.0%	\$37.80	\$831.54	5.1%	17.6%
Average Rate		\$0.0561	\$0.0598			\$0.0628			\$0.0660		

General Under 35kW Rate Design Response to BCUC Question #7

Based on the Jul-90 Load Forecast

Revenue adj factor for miscellaneous residential rates

0.989124

1991/92 Forecast Sales	Current	3%	5%	7%
General Under 35 kW				
Year End Accounts				
Average Accounts	135,037	135,037	135,037	135,037
Sales (kW.h X 1000)	3,028,000	3,028,000	3,028,000	3,028,000
Revenue (\$ X 1000)	188,450	194,104	197,875	201,646
Revenue after adj factor	186,400	191,993	195,723	199,453
Average cents/kW.h	6.156	6.341	6.464	6.587

Revenue Increase 3.00% 5.00% 7.00%

Current

Gen 35 kW & Under Rate 1220 Eff.

1-Apr-91

Basic Charge	\$	4.1500 /month
First	275 kW.h @ \$	0.0793 /kW.h
Next	6725 kW.h @ \$	0.0586 /kW.h
Addit.	9999999 kW.h @ \$	0.0432 /kW.h

3%

Basic Charge	\$	4.1500 /month
First	275 kW.h @ \$	0.0793 /kW.h
Next	6725 kW.h @ \$	0.0605 /kW.h
Addit.	9999999 kW.h @ \$	0.0478 /kW.h

5%

Basic Charge	\$	4.1500 /month
First	275 kW.h @ \$	0.0793 /kW.h
Next	6725 kW.h @ \$	0.0620 /kW.h
Addit.	9999999 kW.h @ \$	0.0485 /kW.h

7%

Basic Charge	\$	4.1500 /month
First	275 kW.h @ \$	0.0793 /kW.h
Next	6725 kW.h @ \$	0.0635 /kW.h
Addit.	9999999 kW.h @ \$	0.0492 /kW.h

General 35 kW & Under Rate 1220 Bill Comparisons (Monthly) - Response to BCUC Question # 7

Current			3%			5%			7%		
Basic Charge \$4.1500 /mo.			Basic Charge \$4.1500 /mo.			Basic Charge \$4.1500 /mo.			Basic Charge \$4.1500 /mo.		
First	275 kW.h	\$0.0793 /kW.h	First	275 kW.h	\$0.0793 /kW.h	First	275 kW.h	\$0.0793 /kW.h	First	275 kW.h	\$0.0793 /kW.h
Next	6,725 kW.h	\$0.0586 /kW.h	Next	6,725 kW.h	\$0.0605 /kW.h	Next	6,725 kW.h	\$0.0620 /kW.h	Next	6,725 kW.h	\$0.0635 /kW.h
Additional	kW.h	\$0.0432 /kW.h	Additional	kW.h	\$0.0478 /kW.h	Additional	kW.h	\$0.0485 /kW.h	Additional	kW.h	\$0.0492 /kW.h

Based on the Mar 90											
BFA		Monthly Bill \$	Monthly Bill \$	% Change	\$ Change	Monthly Bill \$	% Change	\$ Change	Monthly Bill \$	% Change	\$ Change
% of Bills in	Incremental kW.h Range										
		0	\$4.15	\$4.15	0.0%	\$0.00	\$4.15	0.0%	\$0.00	\$4.15	0.0%
		50	\$8.12	\$8.12	0.0%	\$0.00	\$8.12	0.0%	\$0.00	\$8.12	0.0%
		100	\$12.08	\$12.08	0.0%	\$0.00	\$12.08	0.0%	\$0.00	\$12.08	0.0%
		200	\$20.01	\$20.01	0.0%	\$0.00	\$20.01	0.0%	\$0.00	\$20.01	0.0%
		275	\$25.96	\$25.96	0.0%	\$0.00	\$25.96	0.0%	\$0.00	\$25.96	0.0%
26.6%		400	\$33.28	\$33.52	0.7%	\$0.24	\$33.71	1.3%	\$0.42	\$33.90	1.8%
		500	\$39.14	\$39.57	1.1%	\$0.43	\$39.91	2.0%	\$0.76	\$40.25	2.8%
		600	\$45.00	\$45.62	1.4%	\$0.62	\$46.11	2.5%	\$1.11	\$46.60	3.5%
		700	\$50.86	\$51.67	1.6%	\$0.81	\$52.31	2.8%	\$1.45	\$52.95	4.1%
		800	\$56.72	\$57.72	1.8%	\$1.00	\$58.51	3.1%	\$1.79	\$59.30	4.5%
		900	\$62.58	\$63.77	1.9%	\$1.19	\$64.71	3.4%	\$2.13	\$65.65	4.9%
		1,000	\$68.44	\$69.82	2.0%	\$1.38	\$70.91	3.6%	\$2.47	\$72.00	5.2%
23.7%		1,100	\$74.30	\$75.87	2.1%	\$1.57	\$77.11	3.8%	\$2.80	\$78.35	5.4%
		1,200	\$80.16	\$81.92	2.2%	\$1.76	\$83.31	3.9%	\$3.15	\$84.70	5.7%
		1,300	\$86.02	\$87.97	2.3%	\$1.95	\$89.51	4.1%	\$3.48	\$91.05	5.8%
		1,400	\$91.88	\$94.02	2.3%	\$2.14	\$95.71	4.2%	\$3.83	\$97.40	6.0%
		1,500	\$97.74	\$100.07	2.4%	\$2.33	\$101.91	4.3%	\$4.16	\$103.75	6.1%
		1,800	\$115.32	\$118.22	2.5%	\$2.90	\$120.51	4.5%	\$5.19	\$122.80	6.5%
		2,000	\$127.04	\$130.32	2.6%	\$3.28	\$132.91	4.6%	\$5.87	\$135.50	6.7%
24.2%		2,500	\$156.34	\$160.57	2.7%	\$4.23	\$163.91	4.8%	\$7.57	\$167.25	7.0%
		5,000	\$302.84	\$311.82	3.0%	\$8.98	\$318.91	5.3%	\$16.07	\$326.00	7.6%
		6,000	\$361.44	\$372.32	3.0%	\$10.88	\$380.91	5.4%	\$19.47	\$389.50	7.8%
		7,000	\$420.04	\$432.82	3.0%	\$12.78	\$442.91	5.4%	\$22.87	\$453.00	7.8%
		7,500	\$441.64	\$456.72	3.4%	\$15.08	\$467.16	5.8%	\$25.52	\$477.60	8.1%
		8,000	\$463.24	\$480.62	3.8%	\$17.38	\$491.41	6.1%	\$28.17	\$502.20	8.4%
		9,000	\$506.44	\$528.42	4.3%	\$21.98	\$539.91	6.6%	\$33.46	\$551.40	8.9%
		10,000	\$549.64	\$576.22	4.8%	\$26.58	\$588.41	7.1%	\$38.77	\$600.60	9.3%
25.5%		25,000	\$1,197.64	\$1,293.22	8.0%	\$95.58	\$1,315.91	9.9%	\$118.27	\$1,338.60	11.8%
		50,000	\$2,277.64	\$2,488.22	9.2%	\$210.58	\$2,528.41	11.0%	\$250.77	\$2,568.60	12.8%

General 35kW & Over Bill Comparisons- Rates 1200/1211 - Monthly

Response to BCUC Question # 8

Current Apr 1/91					3%				
Basic Charge		\$4.15 /mo			Basic Charge		\$4.15 /mo		
Demand Charges					Demand Charges				
First	35 kW	@	\$0.00	/kW	First	35 kW	@	\$0.00	/kW
Next	115 kW	@	\$3.32	/kW	Next	115 kW	@	\$3.32	/kW
Additional	kW	@	\$6.37	/kW	Additional	kW	@	\$6.37	/kW
Energy Charges					Energy Charges				
First	275 kW.h	@	\$0.07930	/kW.h	First	275 kW.h	@	\$0.0793	/kW.h
Next	6,725 kW.h	@	\$0.05860	/kW.h	Next	6,725 kW.h	@	\$0.0605	/kW.h
Next	23,000 kW.h	@	\$0.04320	/kW.h	Next	23,000 kW.h	@	\$0.0478	/kW.h
Additional	kW.h	@	\$0.02800	/kW.h	Additional	kW.h	@	\$0.0281	/kW.h
Discounts		1.5% of Bill \$0.25 /kW			Discounts		1.5% of Bill \$0.25 /kW		

Comparative Bills on Rate 1200											
% of Bills in Load Factor Range	Load Factor	Hours Use	40 kW			150 kW			300 kW		
			Present Bill	Proposed Bill	% Change	Present Bill	Proposed Bill	% Change	Present Bill	Proposed Bill	% Change
5%	10%	73	\$198	\$203	2.54%	\$972	\$1,003	3.18%	\$2,401	\$2,482	3.39%
9%	20%	146	\$369	\$379	2.87%	\$1,446	\$1,527	5.63%	\$3,137	\$3,257	3.82%
15%	30%	219	\$513	\$534	4.07%	\$1,875	\$1,994	6.34%	\$3,751	\$3,873	3.26%
9%	34%	250	\$566	\$593	4.69%	\$2,005	\$2,125	5.95%	\$4,011	\$4,134	3.07%
12%	40%	292	\$639	\$673	5.37%	\$2,182	\$2,302	5.50%	\$4,364	\$4,488	2.85%
20%	50%	365	\$765	\$813	6.24%	\$2,488	\$2,609	4.86%	\$4,977	\$5,103	2.54%
15%	60%	438	\$891	\$952	6.86%	\$2,795	\$2,917	4.37%	\$5,590	\$5,719	2.30%
9%	70%	511	\$1,017	\$1,092	7.33%	\$3,102	\$3,225	3.97%	\$6,203	\$6,334	2.11%
5%	80%	584	\$1,143	\$1,231	7.70%	\$3,408	\$3,533	3.65%	\$6,817	\$6,950	1.95%
2%	90%	657	\$1,270	\$1,371	7.99%	\$3,715	\$3,840	3.38%	\$7,430	\$7,565	1.82%
1%	100%	730	\$1,396	\$1,511	8.23%	\$4,021	\$4,148	3.15%	\$8,043	\$8,180	1.71%

Comparative Bills on Rate 1211											
% of Bills in Load Factor Range	Load Factor	Hours Use	500 kW			2000 kW			5000 kW		
			Present Bill	Proposed Bill	% Change	Present Bill	Proposed Bill	% Change	Present Bill	Proposed Bill	% Change
2%	10%	73	\$4,019	\$4,136	2.92%	\$16,076	\$16,204	0.80%	\$40,189	\$40,339	0.37%
3%	20%	146	\$5,026	\$5,147	2.41%	\$20,102	\$20,245	0.71%	\$50,256	\$50,441	0.37%
9%	30%	219	\$6,032	\$6,157	2.07%	\$24,129	\$24,286	0.65%	\$60,322	\$60,544	0.37%
6%	34%	250	\$6,460	\$6,586	1.95%	\$25,839	\$26,002	0.63%	\$64,597	\$64,834	0.37%
9%	40%	292	\$7,039	\$7,167	1.82%	\$28,156	\$28,327	0.61%	\$70,389	\$70,647	0.37%
20%	50%	365	\$8,046	\$8,177	1.64%	\$32,182	\$32,368	0.58%	\$80,456	\$80,749	0.36%
21%	60%	438	\$9,052	\$9,188	1.50%	\$36,209	\$36,409	0.55%	\$90,522	\$90,852	0.36%
16%	70%	511	\$10,059	\$10,198	1.38%	\$40,236	\$40,450	0.53%	\$100,589	\$100,955	0.36%
9%	80%	584	\$11,066	\$11,208	1.29%	\$44,262	\$44,491	0.52%	\$110,656	\$111,057	0.36%
4%	90%	657	\$12,072	\$12,218	1.21%	\$48,289	\$48,532	0.50%	\$120,722	\$121,160	0.36%
2%	100%	730	\$13,079	\$13,229	1.15%	\$52,316	\$52,573	0.49%	\$130,789	\$131,263	0.36%

General 35kW & Over Bill Comparisons- Rates 1200/1211 - Monthly

Response to BCUC Question # 8

Apr 1/91					5%				
Basic Charge		\$4.1500 /mo			Basic Charge		\$4.15 /mo		
Demand Charges					Demand Charges				
First	35 kW	@	\$0.0000 /kW		First	35 kW	@	\$0.00 /kW	
Next	115 kW	@	\$3.3200 /kW		Next	115 kW	@	\$3.32 /kW	
Additional	kW	@	\$6.3700 /kW		Additional	kW	@	\$6.37 /kW	
Energy Charges					Energy Charges				
First	275 kW.h	@	\$0.0793 /kW.h		First	275 kW.h	@	\$0.0793 /kW.h	
Next	6,725 kW.h	@	\$0.0586 /kW.h		Next	6,725 kW.h	@	\$0.0620 /kW.h	
Next	23,000 kW.h	@	\$0.0432 /kW.h		Next	23,000 kW.h	@	\$0.0485 /kW.h	
Additional	kW.h	@	\$0.0280 /kW.h		Additional	kW.h	@	\$0.0290 /kW.h	
Discounts		1.50% of Bill \$0.25 /kW			Discounts		1.5% of Bill \$0.25 /kW		

Comparative Bills on Rate 1200												
% of Bills in Load Factor Range	Load Factor	Hours Use	40 kW			150 kW			300 kW			
			Present Bill	Proposed Bill	% Change	Present Bill	Proposed Bill	% Change	Present Bill	Proposed Bill	% Change	
5%	10%	73	\$198	\$207	4.55%	\$972	\$1,016	4.50%	\$2,401	\$2,503	4.24%	
9%	20%	146	\$369	\$388	5.13%	\$1,446	\$1,547	7.04%	\$3,137	\$3,296	5.05%	
15%	30%	219	\$513	\$545	6.28%	\$1,875	\$2,023	7.87%	\$3,751	\$3,931	4.81%	
9%	34%	250	\$566	\$605	6.85%	\$2,005	\$2,158	7.59%	\$4,011	\$4,201	4.73%	
12%	40%	292	\$639	\$686	7.46%	\$2,182	\$2,340	7.27%	\$4,364	\$4,566	4.64%	
20%	50%	365	\$765	\$828	8.25%	\$2,488	\$2,658	6.81%	\$4,977	\$5,201	4.51%	
15%	60%	438	\$891	\$970	8.82%	\$2,795	\$2,976	6.46%	\$5,590	\$5,836	4.40%	
9%	70%	511	\$1,017	\$1,111	9.25%	\$3,102	\$3,293	6.17%	\$6,203	\$6,471	4.32%	
5%	80%	584	\$1,143	\$1,253	9.58%	\$3,408	\$3,611	5.94%	\$6,817	\$7,107	4.25%	
2%	90%	657	\$1,270	\$1,395	9.85%	\$3,715	\$3,928	5.74%	\$7,430	\$7,742	4.20%	
1%	100%	730	\$1,396	\$1,536	10.07%	\$4,021	\$4,246	5.58%	\$8,043	\$8,377	4.15%	

Comparative Bills on Rate 1211												
% of Bills in Load Factor Range	Load Factor	Hours Use	500 kW			2000 kW			5000 kW			
			Present Bill	Proposed Bill	% Change	Present Bill	Proposed Bill	% Change	Present Bill	Proposed Bill	% Change	
2%	10%	73	\$4,019	\$4,168	3.71%	\$16,076	\$16,332	1.60%	\$40,189	\$40,661	1.18%	
3%	20%	146	\$5,026	\$5,210	3.68%	\$20,102	\$20,503	1.99%	\$50,256	\$51,088	1.66%	
9%	30%	219	\$6,032	\$6,253	3.66%	\$24,129	\$24,673	2.26%	\$60,322	\$61,514	1.98%	
6%	34%	250	\$6,460	\$6,696	3.66%	\$25,839	\$26,444	2.34%	\$64,597	\$65,941	2.08%	
9%	40%	292	\$7,039	\$7,296	3.65%	\$28,156	\$28,844	2.44%	\$70,389	\$71,940	2.20%	
20%	50%	365	\$8,046	\$8,338	3.64%	\$32,182	\$33,014	2.59%	\$80,456	\$82,366	2.37%	
21%	60%	438	\$9,052	\$9,381	3.63%	\$36,209	\$37,185	2.70%	\$90,522	\$92,793	2.51%	
16%	70%	511	\$10,059	\$10,424	3.63%	\$40,236	\$41,355	2.78%	\$100,589	\$103,219	2.61%	
9%	80%	584	\$11,066	\$11,466	3.62%	\$44,262	\$45,526	2.85%	\$110,656	\$113,645	2.70%	
4%	90%	657	\$12,072	\$12,509	3.62%	\$48,289	\$49,696	2.91%	\$120,722	\$124,071	2.77%	
2%	100%	730	\$13,079	\$13,551	3.61%	\$52,316	\$53,867	2.96%	\$130,789	\$134,497	2.84%	

General 35kW & Over Bill Comparisons- Rates 1200/1211 - Monthly
Response to BCUC Question # 8

Apr 1/91				7%			
Basic Charge		\$4.1500 /mo		Basic Charge		\$4.15 /mo	
Demand Charges				Demand Charges			
First	35 kW	@	\$0.0000 /kW	First	35 kW	@	\$0.00 /kW
Next	115 kW	@	\$3.3200 /kW	Next	115 kW	@	\$3.32 /kW
Additional	kW	@	\$6.3700 /kW	Additional	kW	@	\$6.37 /kW
Energy Charges				Energy Charges			
First	275 kW.h	@	\$0.0793 /kW.h	First	275 kW.h	@	\$0.0793 /kW.h
Next	6,725 kW.h	@	\$0.0586 /kW.h	Next	6,725 kW.h	@	\$0.0635 /kW.h
Next	23,000 kW.h	@	\$0.0432 /kW.h	Next	23,000 kW.h	@	\$0.0492 /kW.h
Additional	kW.h	@	\$0.0280 /kW.h	Additional	kW.h	@	\$0.0299 /kW.h
Discounts		1.50% of Bill \$0.25 /kW		Discounts		1.5% of Bill \$0.25 /kW	

Comparative Bills on Rate 1200											
% of Bills in Load Factor Range	Load Factor	Hours Use	40 kW			150 kW			300 kW		
			Present Bill	Proposed Bill	% Change	Present Bill	Proposed Bill	% Change	Present Bill	Proposed Bill	% Change
5%	10%	73	\$198	\$211	6.56%	\$972	\$1,029	5.83%	\$2,401	\$2,523	5.10%
9%	20%	146	\$369	\$396	7.40%	\$1,446	\$1,568	8.46%	\$3,137	\$3,335	6.28%
15%	30%	219	\$513	\$556	8.49%	\$1,875	\$2,052	9.41%	\$3,751	\$3,989	6.37%
9%	34%	250	\$566	\$617	9.00%	\$2,005	\$2,191	9.23%	\$4,011	\$4,267	6.39%
12%	40%	292	\$639	\$700	9.55%	\$2,182	\$2,379	9.04%	\$4,364	\$4,644	6.43%
20%	50%	365	\$765	\$844	10.27%	\$2,488	\$2,706	8.76%	\$4,977	\$5,299	6.47%
15%	60%	438	\$891	\$987	10.78%	\$2,795	\$3,034	8.54%	\$5,590	\$5,954	6.50%
9%	70%	511	\$1,017	\$1,131	11.17%	\$3,102	\$3,361	8.37%	\$6,203	\$6,609	6.53%
5%	80%	584	\$1,143	\$1,275	11.47%	\$3,408	\$3,689	8.23%	\$6,817	\$7,263	6.56%
2%	90%	657	\$1,270	\$1,418	11.71%	\$3,715	\$4,016	8.11%	\$7,430	\$7,918	6.57%
1%	100%	730	\$1,396	\$1,562	11.90%	\$4,021	\$4,343	8.01%	\$8,043	\$8,573	6.59%

Comparative Bills on Rate 1211											
% of Bills in Load Factor Range	Load Factor	Hours Use	500 kW			2000 kW			5000 kW		
			Present Bill	Proposed Bill	% Change	Present Bill	Proposed Bill	% Change	Present Bill	Proposed Bill	% Change
2%	10%	73	\$4,019	\$4,199	4.49%	\$16,076	\$16,461	2.40%	\$40,189	\$40,984	1.98%
3%	20%	146	\$5,026	\$5,274	4.95%	\$20,102	\$20,761	3.28%	\$50,256	\$51,734	2.94%
9%	30%	219	\$6,032	\$6,349	5.26%	\$24,129	\$25,061	3.86%	\$60,322	\$62,484	3.58%
6%	34%	250	\$6,460	\$6,806	5.36%	\$25,839	\$26,887	4.06%	\$64,597	\$67,049	3.80%
9%	40%	292	\$7,039	\$7,424	5.48%	\$28,156	\$29,361	4.28%	\$70,389	\$73,234	4.04%
20%	50%	365	\$8,046	\$8,499	5.64%	\$32,182	\$33,661	4.59%	\$80,456	\$83,983	4.38%
21%	60%	438	\$9,052	\$9,574	5.77%	\$36,209	\$37,961	4.84%	\$90,522	\$94,733	4.65%
16%	70%	511	\$10,059	\$10,649	5.87%	\$40,236	\$42,261	5.03%	\$100,589	\$105,483	4.87%
9%	80%	584	\$11,066	\$11,724	5.95%	\$44,262	\$46,560	5.19%	\$110,656	\$116,233	5.04%
4%	90%	657	\$12,072	\$12,799	6.02%	\$48,289	\$50,860	5.33%	\$120,722	\$126,983	5.19%
2%	100%	730	\$13,079	\$13,874	6.08%	\$52,316	\$55,160	5.44%	\$130,789	\$137,732	5.31%

General 35 kW & Over Rate Design

Response to BCUC Question # 8

1991/92 Sales Forecast	Current	3%	5%	7%
General Over 35 kW				
Year End Accounts				
Average Accounts	20,604	20,604	20,604	20,604
Sales (kW.h X 1000)	10,646,000	10,646,000	10,646,000	10,646,000
Revenue (\$ X 1000)	490,716	505,146	514,981	524,816
Revenue after adj factor	491,386	505,835	515,683	525,532
Average cents/kW.h	4.616	4.751	4.844	4.936

Revenue Change	2.94%	4.94%	6.95%
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Load Forecast	Jul-90	Average Load Factor based on total
Adj Factor for misc rates:	1.001364	Bill Frequency Analysis 49.59%

Current		General Over 35 kW Rate 1200 Effective:		1-Apr-91	
Basic Charge		\$	4.1500 /month		
Demand				Energy	
1st	35 kW	\$	0.0000 /kW	1st	275 kW.h \$ 0.0793 /kW.h
Next	115 kW	\$	3.3200 /kW	Next	6725 kW.h \$ 0.0586 /kW.h
Addit	9999999 kW	\$	6.3700 /kW	Next	23000 kW.h \$ 0.0432 /kW.h
				Addit.	9999999 kW.h \$ 0.0280 /kW.h
Discounts for Rates 1201, 1210, & 1211:				1.50% of bill	
				\$0.25 /kW	

3% Revenue Increase

Basic Charge		\$	4.1500 /month				
Demand			Energy				
1st	35 kW	\$	0.0000 /kW	1st	275 kW.h	\$	0.0793 /kW.h
Next	115 kW	\$	3.3200 /kW	Next	6725 kW.h	\$	0.0605 /kW.h
Addit	9999999 kW	\$	6.3700 /kW	Next	23000 kW.h	\$	0.0478 /kW.h
				Addit.	9999999 kW.h	\$	0.0281 /kW.h
Discounts for Rates 1201, 1210, &1211:				1.50% of bill			
				\$0.25 /kW			

5% Revenue Increase

Basic Charge		\$	4.1500 /month	
Demand			Energy	
1st	35 kW	\$	0.0000 /kW	1st 275 kW.h \$ 0.0793 /kW.h
Next	115 kW	\$	3.3200 /kW	Next 6725 kW.h \$ 0.0620 /kW.h
Addit	9999999 kW	\$	6.3700 /kW	Next 23000 kW.h \$ 0.0485 /kW.h
				Addit. 9999999 kW.h \$ 0.0290 /kW.h
Discounts for Rates 1201, 1210, & 1211:			1.50% of bill	
			\$0.25 / kW	

7% Revenue Increase

Basic Charge		\$	4.1500 /month		
Demand				Energy	
1st	35 kW	\$	0.0000 /kW	1st	275 kW.h \$ 0.0793 /kW.h
Next	115 kW	\$	3.3200 /kW	Next	6725 kW.h \$ 0.0635 /kW.h
Addit	999999 kW	\$	6.3700 /kW	Next	23000 kW.h \$ 0.0492 /kW.h
				Addit.	9999999 kW.h \$ 0.0299 /kW.h
Discounts for Rates 1201, 1210, & 1211:				1.50% of bill	
				\$0.25 /kW	

BRITISH COLUMBIA UTILITIES COMMISSION

EXHIBIT

37

General Under 35 kW Rate Design - Rate 1220

DAY

8

ENTERED BY

BCHydro

DATE

Jan 22/92

Impact on customer bills by adopting a flat rate structure with no change in revenue requirement:

Rate Effective: 1 April 1991

Basic Charge: \$4.15/month
 First 275 kW.h @ \$0.0793/kW.h
 Next 6,725 kW.h @ \$0.0586/kW.h
 Additional kW.h @ \$0.0432/kW.h

Flat Rate (no change in revenue)

Basic Charge: \$4.15/month
 All kW.h @ \$0.06/kW.h

<u>Bill Impact</u>	
<u>% Increase/Decrease</u>	<u>% of Bills</u>
-20.1% & >	0.30%
-15.1 to -20.0 %	13.40%
-10.1 to -15.0 %	13.70%
-5.1 to -10.0 %	18.50%
-1 to -5.0 %	24.60%
0%	3.20%
+1 to +5.0 %	21.10%
+5.1 to +10.0 %	3.10%
+10.1 to +15.0 %	0.79%
+15.1 to +20.0 %	0.00%
+20.1 to +25.0 %	0.00%
+25.1 to +30.0 %	1.30%
+30.1 to +35.0 %	0.01%
+35.1 & >	0.00%
	100.00%

Response to CAC (BC) et al - Question 4, (a) & (b)

Current Apr 1/91					Flat Rate with a BC, no change in RR				
Basic Charge		\$4.15 /mo			Basic Charge		\$4.15 /mo		
Demand Charges					Demand Charges				
First	35 kW	@	\$0.00	/kW	First	35 kW	@	\$3.915	/kW
Next	115 kW	@	\$3.32	/kW	Next	115 kW	@	\$3.915	/kW
Additional	kW	@	\$6.37	/kW	Additional	kW	@	\$3.915	/kW
Energy Charges					Energy Charges				
First	275 kW.h	@	\$0.07930	/kW.h	First	275 kW.h	@	\$0.0359	/kW.h
Next	6,725 kW.h	@	\$0.05860	/kW.h	Next	6725 kW.h	@	\$0.0359	/kW.h
Next	23,000 kW.h	@	\$0.04320	/kW.h	Next	23,000 kW.h	@	\$0.0359	/kW.h
Additional	kW.h	@	\$0.02800	/kW.h	Additional	kW.h	@	\$0.0359	/kW.h
Discounts		1.5% of Bill \$0.25 /kW			Discounts		1.5% of Bill \$0.25 /kW		

Comparative Bills on Rate 1200											
% of Bills in Load Factor Range	Load Factor	Hours Use	40 kW			150 kW			300 kW		
			Present Bill	Proposed Bill	% Change	Present Bill	Proposed Bill	% Change	Present Bill	Proposed Bill	% Change
5%	10%	73	\$198	\$266	34.43%	\$972	\$985	1.24%	\$2,401	\$1,965	-18.17%
9%	20%	146	\$369	\$370	0.47%	\$1,446	\$1,378	-4.70%	\$3,137	\$2,751	-12.31%
15%	30%	219	\$513	\$475	-7.30%	\$1,875	\$1,771	-5.57%	\$3,751	\$3,537	-5.69%
9%	34%	250	\$566	\$520	-8.21%	\$2,005	\$1,938	-3.38%	\$4,011	\$3,871	-3.49%
12%	40%	292	\$639	\$580	-9.20%	\$2,182	\$2,164	-0.83%	\$4,364	\$4,323	-0.92%
20%	50%	365	\$765	\$685	-10.47%	\$2,488	\$2,557	2.75%	\$4,977	\$5,110	2.67%
15%	60%	438	\$891	\$790	-11.38%	\$2,795	\$2,950	5.55%	\$5,590	\$5,896	5.47%
9%	70%	511	\$1,017	\$895	-12.06%	\$3,102	\$3,343	7.79%	\$6,203	\$6,682	7.72%
5%	80%	584	\$1,143	\$999	-12.60%	\$3,408	\$3,736	9.62%	\$6,817	\$7,468	9.56%
2%	90%	657	\$1,270	\$1,104	-13.02%	\$3,715	\$4,129	11.16%	\$7,430	\$8,255	11.10%
1%	100%	730	\$1,396	\$1,209	-13.37%	\$4,021	\$4,522	12.46%	\$8,043	\$9,041	12.41%

Comparative Bills on Rate 1211											
% of Bills in Load Factor Range	Load Factor	Hours Use	500 kW			2000 kW			5000 kW		
			Present Bill	Proposed Bill	% Change	Present Bill	Proposed Bill	% Change	Present Bill	Proposed Bill	% Change
2%	10%	73	\$4,019	\$3,098	-22.92%	\$16,076	\$12,379	-22.99%	\$40,189	\$30,942	-23.01%
3%	20%	146	\$5,026	\$4,389	-12.67%	\$20,102	\$17,542	-12.73%	\$50,256	\$43,849	-12.75%
9%	30%	219	\$6,032	\$5,679	-5.85%	\$24,129	\$22,705	-5.90%	\$60,322	\$56,756	-5.91%
6%	34%	250	\$6,460	\$6,227	-3.60%	\$25,839	\$24,897	-3.64%	\$64,597	\$62,237	-3.65%
9%	40%	292	\$7,039	\$6,970	-0.98%	\$28,156	\$27,868	-1.02%	\$70,389	\$69,663	-1.03%
20%	50%	365	\$8,046	\$8,261	2.67%	\$32,182	\$33,031	2.64%	\$80,456	\$82,570	2.63%
21%	60%	438	\$9,052	\$9,551	5.51%	\$36,209	\$38,193	5.48%	\$90,522	\$95,477	5.47%
16%	70%	511	\$10,059	\$10,842	7.79%	\$40,236	\$43,356	7.76%	\$100,589	\$108,384	7.75%
9%	80%	584	\$11,066	\$12,133	9.64%	\$44,262	\$48,519	9.62%	\$110,656	\$121,291	9.61%
4%	90%	657	\$12,072	\$13,423	11.19%	\$48,289	\$53,682	11.17%	\$120,722	\$134,198	11.16%
2%	100%	730	\$13,079	\$14,714	12.50%	\$52,316	\$58,844	12.48%	\$130,789	\$147,105	12.47%

Residential Rate 1101 Bill Comparisons (Monthly)

Response to BCUC Question #6

Current			3%			5%			7%		
Basic Charge \$3.4600 /mo.			Basic Charge \$3.4600 /mo.			Basic Charge \$3.4600 /mo.			Basic Charge \$3.4600 /mo.		
First	275 kW.h	\$0.0681 /kW.h	First	275 kW.h	\$0.0681 /kW.h	First	275 kW.h	\$0.0681 /kW.h	First	275 kW.h	\$0.0681 /kW.h
Next	0 kW.h	\$0.0474 /kW.h	Next	0 kW.h	\$0.0499 /kW.h	Next	0 kW.h	\$0.0515 /kW.h	Next	0 kW.h	\$0.0532 /kW.h
Additional	kW.h	\$0.0474 /kW.h	Additional	kW.h	\$0.0499 /kW.h	Additional	kW.h	\$0.0515 /kW.h	Additional	kW.h	\$0.0532 /kW.h
Based on the Mar 90											
BFA		Monthly	Monthly			Monthly			Monthly		
% of Bills in	Monthly	Bill	Bill	%	\$	Bill	%	\$	Bill	%	\$
Incremental kW.h Range	kW.h	\$	\$	Change	Change	\$	Change	Change	\$	Change	Change
28.2%	0	\$3.46	\$3.46	0.0%	\$0.00	\$3.46	0.0%	\$0.00	\$3.46	0.0%	\$0.00
	100	\$10.27	\$10.27	0.0%	\$0.00	\$10.27	0.0%	\$0.00	\$10.27	0.0%	\$0.00
	200	\$17.08	\$17.08	0.0%	\$0.00	\$17.08	0.0%	\$0.00	\$17.08	0.0%	\$0.00
	300	\$23.37	\$23.44	0.3%	\$0.06	\$23.48	0.4%	\$0.10	\$23.52	0.6%	\$0.15
	400	\$28.11	\$28.43	1.1%	\$0.31	\$28.63	1.8%	\$0.51	\$28.84	2.6%	\$0.72
25.1%	500	\$32.85	\$33.42	1.7%	\$0.56	\$33.78	2.8%	\$0.92	\$34.16	4.0%	\$1.31
	600	\$37.59	\$38.41	2.2%	\$0.81	\$38.93	3.5%	\$1.33	\$39.48	5.0%	\$1.89
	700	\$42.33	\$43.40	2.5%	\$1.06	\$44.08	4.1%	\$1.74	\$44.80	5.8%	\$2.47
	800	\$47.07	\$48.39	2.8%	\$1.31	\$49.23	4.6%	\$2.15	\$50.12	6.5%	\$3.05
	900	\$51.81	\$53.38	3.0%	\$1.56	\$54.38	4.9%	\$2.56	\$55.44	7.0%	\$3.63
23.7%	1,000	\$56.55	\$58.37	3.2%	\$1.81	\$59.53	5.3%	\$2.97	\$60.76	7.4%	\$4.21
	1,100	\$61.29	\$63.36	3.4%	\$2.06	\$64.68	5.5%	\$3.38	\$66.08	7.8%	\$4.79
	1,200	\$66.03	\$68.35	3.5%	\$2.31	\$69.83	5.7%	\$3.79	\$71.40	8.1%	\$5.36
	1,300	\$70.77	\$73.34	3.6%	\$2.56	\$74.98	5.9%	\$4.20	\$76.72	8.4%	\$5.94
	1,400	\$75.51	\$78.33	3.7%	\$2.81	\$80.13	6.1%	\$4.61	\$82.04	8.6%	\$6.52
17.0%	1,500	\$80.25	\$83.32	3.8%	\$3.06	\$85.28	6.3%	\$5.02	\$87.36	8.9%	\$7.11
	1,600	\$84.99	\$88.31	3.9%	\$3.31	\$90.43	6.4%	\$5.43	\$92.68	9.0%	\$7.69
	1,700	\$89.73	\$93.30	4.0%	\$3.56	\$95.58	6.5%	\$5.84	\$98.00	9.2%	\$8.26
	1,800	\$94.47	\$98.29	4.0%	\$3.81	\$100.73	6.6%	\$6.25	\$103.32	9.4%	\$8.85
	1,900	\$99.21	\$103.28	4.1%	\$4.06	\$105.88	6.7%	\$6.66	\$108.64	9.5%	\$9.42
2.7%	2,000	\$103.95	\$108.27	4.1%	\$4.31	\$111.03	6.8%	\$7.07	\$113.96	9.6%	\$10.01
	2,100	\$108.69	\$113.26	4.2%	\$4.56	\$116.18	6.9%	\$7.48	\$119.28	9.7%	\$10.59
	2,200	\$113.43	\$118.25	4.2%	\$4.81	\$121.33	7.0%	\$7.89	\$124.60	9.8%	\$11.17
	2,300	\$118.17	\$123.24	4.3%	\$5.06	\$126.48	7.0%	\$8.30	\$129.92	9.9%	\$11.75
	2,400	\$122.91	\$128.23	4.3%	\$5.31	\$131.63	7.1%	\$8.71	\$135.24	10.0%	\$12.33
	2,500	\$127.65	\$133.22	4.4%	\$5.56	\$136.78	7.1%	\$9.12	\$140.56	10.1%	\$12.91
	5,000	\$246.15	\$257.97	4.8%	\$11.81	\$265.53	7.9%	\$19.37	\$273.56	11.1%	\$27.41
	10,000	\$483.15	\$507.47	5.0%	\$24.31	\$523.03	8.3%	\$39.87	\$539.56	11.7%	\$56.41
	25,000	\$1,194.15	\$1,255.97	5.2%	\$61.81	\$1,295.53	8.5%	\$101.37	\$1,337.56	12.0%	\$143.41

Residential Rate Design: Response to BCUC Question #6

Based on the

Jul-90 Load forecast

Revenue adj factor for miscellaneous residential rates

0.999457

1991/92 Forecast Sales	Current	3%	5%	7%
Total Residential				
Year End Accounts				
Average Accounts	1,144,795	1,144,795	1,144,795	1,144,795
Sales (kW.h X 1000)	11,708,000	11,708,000	11,708,000	11,708,000
Revenue (\$ X 1000)	674,826	695,303	708,450	722,418
Revenue after adj factor	674,460	694,925	708,065	722,026
Average cents/kW.h	5.761	5.935	6.048	6.167

Revenue Increase

3.03%

4.98%

7.05%

Current

Residential Rate 1101 Effective:

1-Apr-91

Basic Charge	\$	3.4600 /month
First	275 kW.h @ \$	0.0681 /kW.h
Next	0 kW.h @ \$	0.0474 /kW.h
Addit.	9999999 kW.h @ \$	0.0474 /kW.h

3%

Basic Charge	\$	3.4600 /month
First	275 kW.h @ \$	0.0681 /kW.h
Next	0 kW.h @ \$	0.0499 /kW.h
Addit.	9999999 kW.h @ \$	0.0499 /kW.h

5%

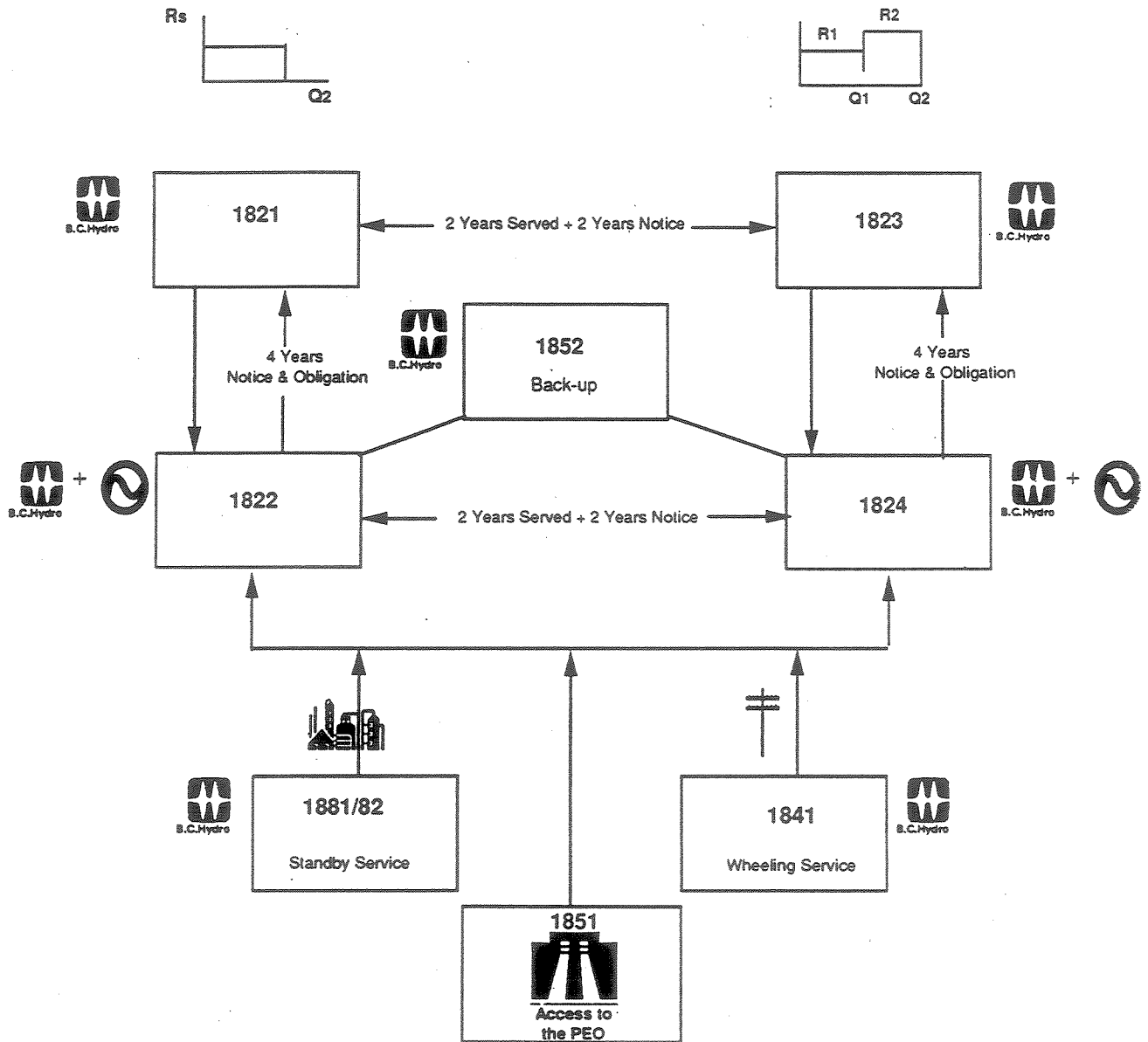
Basic Charge	\$	3.4600 /month
First	275 kW.h @ \$	0.0681 /kW.h
Next	0 kW.h @ \$	0.0515 /kW.h
Addit.	9999999 kW.h @ \$	0.0515 /kW.h

7%

Basic Charge	\$	3.4600 /month
First	275 kW.h @ \$	0.0681 /kW.h
Next	0 kW.h @ \$	0.0532 /kW.h
Addit.	9999999 kW.h @ \$	0.0532 /kW.h

Summary of Industrial Rates & Services

7-IV-2
Ex # 1A



BRITISH COLUMBIA UTILITIES COMMISSION		
EXHIBIT		1A
DAY	ENTERED BY	DATE
2	Wallace	Jan 14/92

BRITISH COLUMBIA UTILITIES COMMISSION		
EXHIBIT 64		
DAY 13	ENTERED BY BC Hydro	DATE Jan 30/92
April 1, 1996		April 1, 1997

PROJECT INFORMATION OUTPUT

April 1, 1992

April 1, 1993

April 1, 1994

April 1, 1995

End use by kW.h
groups (above and
below 500 kW.h)

Response to commu-
nication effort

Awareness of bills
vs structure

Market segmenta-
tion and needs
assessment

Initial load data

Usage patterns by
kW groups (above
and below 35 kW)

Some Power Smart
assessment

Initial response
to rate change

Initial assess-
ment of bills vs
structure

Additional load
data

Improved usage
patterns by kW
group

Additional Power
Smart assessment

Initial elasti-
city, estimates
and changes

Separation of
Power Smart and
rate impact

Class load
profiles

Improved assess-
ment of bills vs
structure

Improved elasti-
city estimates &
changes

Improved separa-
tion Power Smart &
rate impact

Summary of Key Components of Illustrative Rate Design Steps

Step 1
Expand 1st Block
to 400 kW.h

Step 2
Expand Block 400
to 500 kW.h

Step 3
Increase Trailing
Block

Step 4
Increase Trailing
Block

Step 5
Invert Rate After
500 kW.h

Step 6
Second Inversion
after 800 kW.h