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December 31, 2009

Honourable Blair Lekstrom
Minister of Energy, Mines and Petroleum Resources
Room 133
Parliament Buildings
Victoria, BC V8V 1X4

Dear Minister Lekstrom:

The British Columbia Utilities Commission October 17, 2003 Report and Recommendations "An Inquiry into a Heritage Contract for British Columbia Hydro and Power Authority's Existing Generation Resources and Regarding Stepped Rates and Transmission Access" recommended the Commission submit a report to Government of a three year review of the impacts of the Transmission Services Rate. By Special Direction HC2, dated November 27, 2003, the Commission was directed to complete this evaluation report by December 31, 2009.

In the review process, the Commission received an initial written submission from British Columbia Hydro and Power Authority ("BC Hydro"), Information Requests and Final Submissions from BC Hydro and two stakeholder groups.

The Commission submits the attached report "British Columbia Utilities Commission Report to Government on the British Columbia Hydro and Power Authority Transmission Service Rate Program" providing a review of the Transmission Service Rate during the Fiscal Year 2007 to Fiscal Year 2009.

Yours truly,

Original signed by:

Erica M. Hamilton

/yl

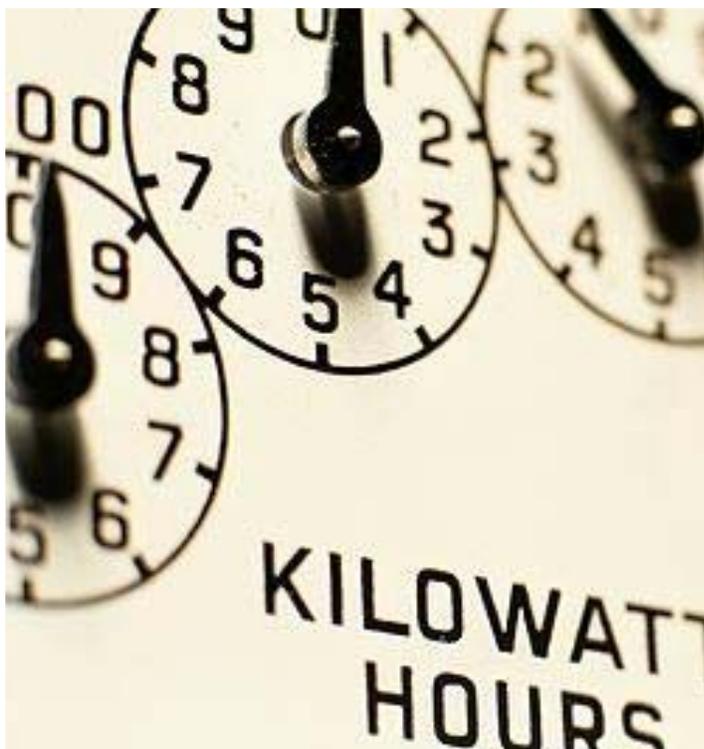
Enclosure

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British Columbia Utilities Commission Report to Government on the British Columbia Hydro and Power Authority Transmission Service Rate Program

December 31, 2009



Executive Summary

The Transmission Service Rate (TSR) program has been in place for three years, F2007-F2009. Recommendation 9 of the BC Utilities Commission's 2003 "Inquiry into a Heritage Contract for British Columbia Hydro and Power Authority's Existing Generation Resources and Regarding Stepped Rates and Transmission Access" requires the Commission to evaluate the program after three years. In February 2009, the Commission established the Terms of Reference for the evaluation, specifying eight questions to be addressed. The evaluation also provides recommendations for changes to Special Direction HC2 which was issued by Government in response to the Commission's 2003 report.

The TSR Program

The TSR applies to BC Hydro's largest industrial customers; a class that uses about one third of BC Hydro's total electric load. The TSR is a two-tier stepped rate, designed to incent conservation and be revenue neutral for the customer class and customer bill neutral at 100% of Customer Baseline Load (CBL). Each customer is designated an individual CBL based on historical usage and adjusted for annual energy activities. Customers are charged a lower Tier 1 rate up to 90% of CBL and a higher Tier 2 rate above 90% of CBL. The Tier 2 rate is set to signal BC Hydro's long-run cost of new energy supply, while the Tier 1 rate is calculated residually to maintain revenue neutrality for the customer class. The TSR program also has an optional Time of Use Rate and an Exempt Flat Rate which has been granted to specific customers.

Evaluation of the TSR Program

Economic Context

During the F2007-F2009 period, the international economy experienced a remarkable downturn. This recession caused TSR customers to reduce production and energy usage. The analysis of whether the TSR has elicited a conservation response for which it was designed, is clouded by the decreased energy usage caused by the recession.

Conservation Impact

The TSR facilitated conservation by incenting demand side management projects and encouraging companies to look for small savings at the operational or behavioural level. Although the recession may be responsible for some of the electricity savings seen since the TSR was implemented, the rate provides a financial conservation incentive to many industrial customers.

Cost Shifting

Costs have shifted from the TSR customer class to other customer classes but these costs shifts are either immaterial to the overall revenue generated by the class or are due to uncontrollable outside market events.

Retail Access

The TSR has not facilitated retail access from other electricity suppliers because BC Hydro is the lowest cost electricity provider and sourcing from other suppliers increases a firm's transactions costs and supply risk.

Time-of-Use Rate

No customers opted for the Time of Use rate because they view the rate as overly complicated and expect it to increase energy costs.

Elements Leading to Suboptimal Results

The revenue and customer bill neutrality principles of the rate limit the financial incentive to conserve and the TSR does not incent energy efficiency measures which specifically decrease energy use per unit of output. As well, the rate structure creates inconsistent customer bills and can bias cost benefit analyses against large project investments.

Other Considerations

Within the industrial class, firms vary in the extent to which they can respond to the TSR incentives. Surveyed companies reported that having company energy managers and help from BC Hydro Key Account Managers supported their conservation response to the TSR program.

Recommendations

BC Hydro contracted Innovologie Inc. to survey TSR customer opinions about the program. Respondents resoundingly reported a preference for the TSR not to be changed. The Commission agrees that the current TSR structure should not be significantly altered until either economic conditions stabilize or general Time of Use rates, in connection with smart metering initiatives, are put forward by BC Hydro. It is the Commission's position that any future changes to the TSR program should be made in consultation with stakeholders.

The Commission recommends the following changes to Special Direction HC2:

1. Heritage Contract Recommendation 8: Remove the principles that the Tier 1/Tier 2 split should be set at 90/10 and that the Tier 1 rate should be derived from the Tier 2 rate to achieve revenue neutrality. However, consistent with the position stated by TSR customers, the Commission does not support revising the TSR at this time. The Commission does support removing the two principles to add flexibility to the TSR program as a foundation for future program redesign; and
2. Heritage Contract Recommendations 9, 10 and 13: The Commission supports the removal of these three Recommendations as they are now outdated.

As well, the Commission recommends BC Hydro consider minor amendments to the program, including:

1. Removal of the requirement for customers to enter into three year contracts for retail access;
2. Implementation of a comprehensive sales and purchase policy to address the situation where customers are awarded contracts to supply energy to BC Hydro at a higher rate than the Tier 2 price; and
3. Development of cost-effective performance measurements for the TSR program.

If the TSR is revised at a future time, the Commission recommends BC Hydro consider the following:

4. Changes to the CBL determination methodology to:
 - i. account for firms with variable production;
 - ii. reward energy intensity (efficiency) savings;
 - iii. allow customers to select energy years; and
 - iv. supplement the current CBL adjustment process with the use of customer's average multi-year historical energy use.

If the above noted changes to Special Direction HC2 are accepted, the Commission recommends BC Hydro consider the following changes at a future time:

5. Modification of the Tier 2/Tier 1 split from 90/10 to a level that increases the conservation incentive; and
6. Modification of the calculation of the Tier 1 and 2 rates so conservation is not limited and costs are not shifted to other classes.

Contents

Executive Summary	i
I. Introduction	1
The TSR Program	2
Economic Context for the TSR Evaluation	3
Report Outline	3
1. Has the transmission services stepped rate facilitated conservation by BC Hydro transmission customers?	4
1.1 Other Factors Which May be Responsible for Energy Savings	5
1.2 Other Conservation Considerations	6
1.3 Further Conservation Potential	6
2. Does the transmission services stepped rate, as currently structured contain barriers or obstacles to further conservation, load reduction, or preservation and optimization of self generation by BC Hydro's transmission customers?	6
2.1 Barriers to Conservation and Load Reduction	6
2.2 Barriers to Preservation or Optimization of Self-generation	7
3. Has the transmission services stepped rate caused costs to shift to other BC Hydro customer classes or to the shareholder?	8
4. If there is cost shifting taking place, what are the reasons?	8
3-4.1 Forecast Variances	8
3-4.2 Actual Variances	9
5. Has the transmission services stepped rate facilitated retail access by BC Hydro's transmission customers?	10
6. If no retail access has occurred, why not? Are there features of the transmission services stepped rate design that detract from the attractiveness of retail access?	10
5-6.1 BC Hydro is the Least-Cost Supplier	10
5-6.2 Financial Risks and Transaction Costs to Access Third-Party Electricity	10
7. Why have no customers used the Time of Use Rate?	11
7.1 TOU Adds Complexity to an Already Complex Rate	11
7.2 TOU Offers Low Margins	12
7.3 Production Timing Risk	12

8. Are there elements of the rate structure that could lead to less than optimal results in the future? If so, what are those elements, and what are the less than optimal results?	12
8.1 Revenue and Customer Bill Neutrality	12
8.2 CBL Effect on Conservation	12
8.3 Lack of Incentive for Energy Efficiency Measures	13
8.4 CBL Constraint on Large Project Opportunities	13
8.5 Customer Bill Variability	14
8.6 Three Year Regulatory Window	15
II. Administration of the Rate	15
Administrative Costs	15
Key Account Manager Support	15
Performance Measurement	16
III. Recommendations for Special Direction HC2	17
Proposed Changes	17
Commission Recommendations for Special Direction HC2	20
IV. Summary of Recommendations for BC Hydro	20

Appendices

Appendix A	BC Utilities Commission. “Inquiry into a Heritage Contract for British Columbia Hydro and Power Authority’s Existing Generation Resources and Regarding Stepped Rates and Transmission Access”
Appendix B	Special Direction HC2
Appendix C	BC Hydro. “Transmission Service Rate Three-year Summary Report (F2007-F2009)” Includes Attachment 1: Innovologie. “Summary Report: Industrial Executives Perspectives on BC Hydro’s Transmission Service Stepped Rate”
Appendix D	BC Hydro. “Transmission Service Rate F2009 Annual Report”
Appendix E	BC Hydro Responses to BCUC and Joint Industry Electricity Steering Committee (JIESC) Round 1 Information Requests
Appendix F	BC Hydro Final Submission
Appendix G	JIESC Final Submission
Appendix H	BC Sustainable Energy Association and Sierra Club of British Columbia Final Submission
Appendix I	The BC Energy Plan: A Vision for Clean Energy Leadership “Energy Conservation and Efficiency”, pp. 5-8

British Columbia Utilities Commission Report to Government on the British Columbia Hydro and Power Authority Transmission Service Rate Program

I. Introduction

The BC Government's 2002 Energy Plan required the British Columbia Utilities Commission (the Commission, BCUC) to develop recommendations for a stepped rate for BC Hydro's large industrial customers. The industrial or transmission service customer class represents approximately one third of BC Hydro's domestic electricity load and is comprised mainly of forestry, mining, electrochemical and oil and gas processing facilities. The objective of the stepped rate is to encourage energy conservation by charging a higher price for energy purchases above a certain amount.

In 2003, the Commission completed its report "Inquiry into a Heritage Contract for British Columbia Hydro and Power Authority's Existing Generation Resources and Regarding Stepped Rates and Transmission Access" (the Report) wherein it made nine Recommendations related to stepped rates.¹

The Government responded to the Report with Heritage Special Direction HC2 to the Commission (Appendix B). Section 3 of HC2 directs the Commission to ensure that transmission service rates are designed in accordance with Recommendations 8 through 15 of the Report.

Under Recommendation 9 of the Report, the Commission must provide an evaluation by December 31, 2009, in the form of an *"expansive review of whether the new rates are achieving the objectives of the Energy Plan and Heritage Inquiry Report and Recommendations, including the objective of avoiding cost-shifting between customer classes...The parties expect that the BCUC will make recommendations to the government regarding any necessary or desirable changes to Special Direction HC2."*² BC Hydro suggested a terms of reference of eight questions in its second Transmission Services Rate (TSR) Annual Report in November 2008. In February 2009, the terms of reference were confirmed by Commission Order G-10-09 as:

1. Has the transmission services stepped rate facilitated conservation by BC Hydro's transmission customers?
2. Does the transmission services stepped rate, as currently structured, contain barriers or obstacles to further conservation, load reduction, or preservation and optimization of self generation by BC Hydro's transmission customers?
3. Has the transmission services stepped rate caused costs to shift to other BC Hydro customer classes or to the shareholder?
4. If there is cost shifting taking place, what are the reasons?

¹ Appendix A, pp. 75-76

² Appendix A, p. 75

5. Has the transmission services stepped rate facilitated retail access by BC Hydro's transmission customers?
6. If no retail access has occurred, why not? Are there features of the transmission services stepped rate design that detract from the attractiveness of retail access?
7. Why have no customers used the Time of Use Rate?
8. Are there elements of the rate structure that could lead to less than optimal results in the future? If so, what are those elements, and what are the less than optimal results?

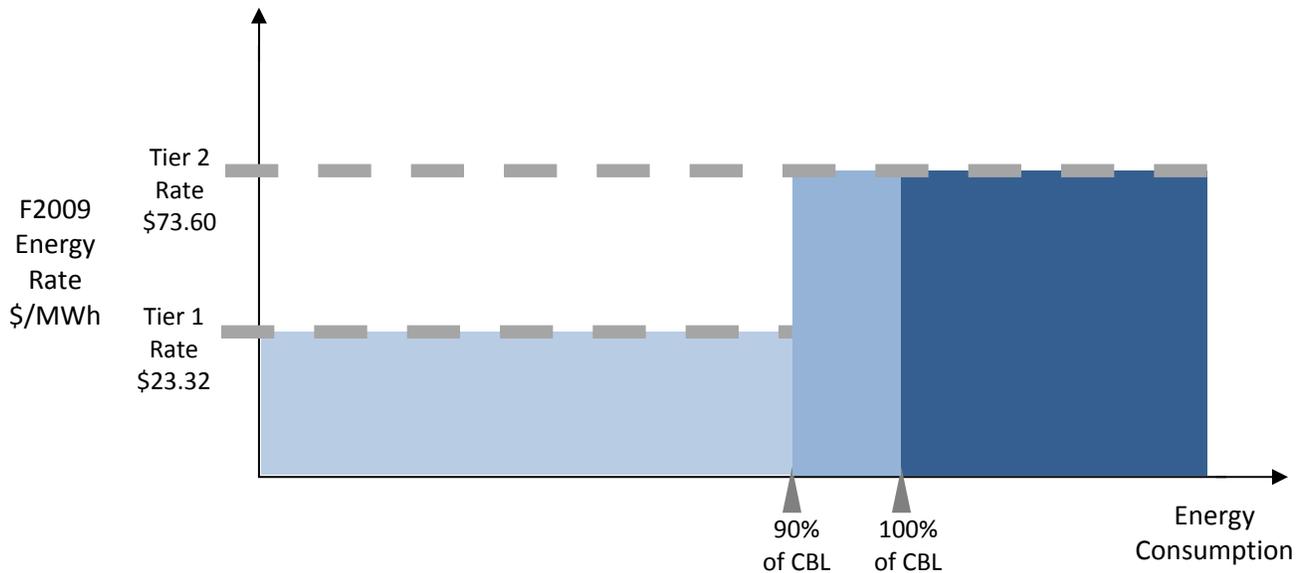
On September 30, 2009 the Commission received BC Hydro's three-year evaluation report which was subsequently amended on October 14 (Attached as Appendix C). In mid-October, the Commission and the Joint Industry Electricity Steering Committee (JIESC) submitted Information Requests which were answered by BC Hydro on November 6. For reasons of commercial sensitivity, BC Hydro declined to answer four of JIESC's Information Requests, a decision which was supported by the Commission. Final Submissions were filed in mid-November by JIESC and the BC Sustainable Energy Association and Sierra Club of British Columbia. BC Hydro's Final Submission was filed November 25, 2009.

The TSR Program

The fundamental premise of the TSR program is a two-tier stepped rate (the TSR). The program also includes an optional Time of Use (TOU) rate and an Exempt Flat Rate. For the TSR, a specific Customer Baseline Load (CBL) is determined for each customer. A customer purchases energy at the Tier 1 rate up to 90% of their CBL and at the Tier 2 rate above 90% of CBL. The rate is designed to be revenue and customer bill neutral at 100% of CBL. Revenue neutrality is lost above 100% of CBL.

The Tier 2 rate is set as a signal of BC Hydro's cost of acquiring energy through long-term contracts. Initially the Tier 2 price was \$54.00/MWh. In F2009 it was raised to \$73.60/MWh to reflect the weighted average levelized price of energy contracts in BC Hydro's 2006 Call for Tender. To ensure revenue neutrality, the Tier 1 rate is determined residually from the Tier 2 rate. Accordingly, the Tier 1 price was \$24.77/MWh in F2007 and F2008 and \$23.32/MWh in F2009.

The following diagram illustrates the TSR structure.



Customer CBLs were originally set as actual 2005 calendar year energy consumption. Since then, individual customer site CBLs are adjusted annually for energy consumption changes according to BC Hydro’s CBL Determination Guidelines in Tariff Supplement No. 74 and BC Hydro’s CBL Adjustment Tariff Practices. In accordance with these guidelines, BC Hydro, with input from customers, identifies energy consumption changes caused by events such as Demand Side Management (DSM) projects, self-generation, plant capacity changes, force majeure, permanent shutdowns and other significant events. CBLs are adjusted if actual energy purchases fall outside 90-110% of the CBL (the 90/110 dead-band). Customers may also send CBL adjustment requests to BC Hydro for technical review and approval. BC Hydro files an aggregated CBL adjustment report with the Commission annually for approval.

Economic Context for the TSR Evaluation

It is essential to premise this evaluation with a discussion of the economic conditions that have occurred since the TSR rate was introduced in April 2006. During the F2007-F2009 period, the international economy experienced a remarkable downturn. This recession caused the TSR customer class to reduce production and energy usage and it is difficult to determine, with accuracy, the degree to which decreased energy usage is caused by the recession versus the stepped rate. The true test of the TSR’s conservation effect will come during a stable economy.

Report Outline

This report provides an answer and analysis for the eight terms of reference questions and concludes with recommendations to Government for amendments to Special Direction HC2 and to BC Hydro for amendments to the TSR Program.

1. Has the transmission services stepped rate facilitated conservation by BC Hydro's transmission customers?

The TSR has facilitated conservation by BC Hydro's industrial customer class. BC Hydro's estimate of total conservation since the rate was implemented in 2006 is:

DSM Category	Conservation Savings F2007-F2009 (GWh)
Customer Reported DSM	1645
Unreported DSM	237-779
Total	1882-2424

BC Hydro estimates the total energy conserved translates into the following capacity savings³:

Year	F2007	F2008	F2009
Capacity Saved (MW)	66-80	76-91	84-120

The TSR promotes conservation by reducing the payback period on DSM investments (generally captured as Customer Reported DSM) and encouraging operational and behavioural changes to save energy (generally captured as Unreported DSM because it is difficult to document and report).

One mechanism through which the TSR promotes conservation is by creating a price signal of BC Hydro's long-run marginal cost of energy near the end of the billing year.

"A firm is billed at the Tier 1 rate until Tier 1 energy is exhausted at which point they are billed at Tier 2 rates. Thus, sometime around the eleventh month there is a bill shock. Several respondents made note of the fact that this sudden increase occurs. One of the respondents noted that, "once people see the power bill jump up at the end of the year for Tier 2, it catches their attention." The implication was two fold: that this was an "attention getter" and that this is an opportune time to promote efficiency." ⁴

While the TSR incents conservation, BC Hydro and industry executives recognize that external factors may be responsible for some of the energy savings. As BC Hydro points out, it is difficult to separate out the conservation effects due to the TSR from the effects due to other factors during F2007-F2009. In addition to the recession, other factors which may be responsible for decreased energy usage are Power Smart enabling activities, the cost of other energy sources and CBL aggregation.

³ Appendix E: BC Hydro Response to BCUC IR 1.2.1

⁴ Appendix C, Attachment 1, p. 33

1.1 Other Factors Which May Be Responsible for Energy Savings

1.1.1 Recession

Many firms in the TSR customer class have decreased production due to the economic recession that began in earnest in 2008. Overall energy sales decreased from 14,853 GWh in F2007 to 13,187 GWh in F2009 for the customer class.⁵ While BC Hydro has factored decreased production into its energy conservation estimates, it is plausible that some of the electricity savings achieved over the past three years are due to decreased production rather than increased conservation. BC Hydro reports that energy conservation in the TSR class has been higher than conservation from other residential and commercial customer classes⁶ but there are very different factors driving industrial versus residential and commercial rate classes. The economic downturn directly affects industrial demand, whereas residential and commercial demand is largely population driven. To gauge the conservation outcomes of the TSR more accurately, the results must be assessed when the economy stabilizes or industrial growth resumes.

1.1.2 Power Smart Enabling Activities

BC Hydro offers financial assistance and personnel support to identify DSM projects and analyze the economics of energy saving investments. BC Hydro acknowledges that it is difficult to separate the energy savings due to this support from those due to the stepped rate structure but given the financial incentive offered by the TSR, the program may well motivate business leaders to seek DSM assistance when they may not otherwise do so. BC Hydro identified possible methods to separate out the sources of energy savings, such as a customer decision making matrix, but believes that the administrative costs of such methods would outweigh the benefit of knowing the motivator(s) behind the energy savings.⁷ The Commission concurs with this opinion.

1.1.3 Cost of Other Energy Sources

At least one industry executive reported increasing electricity self-generation projects in response to high natural gas costs during much of the review period, rather than in response to the TSR rate.⁸

1.1.4 CBL Aggregation

Customers with multiple sites are permitted to aggregate energy use and CBLs. One effect of CBL aggregation is the migration of energy sales from the Tier 2 to the Tier 1 price. BC Hydro, in response to a specific Information Request, estimates that 15% of actual migration is due to customers aggregating Tier 1 capacity between sites as opposed to investing in DSM and self-generation.⁹

⁵ Appendix C, p. 27: Table 8: Actual versus forecast RS 1823 gross margin variance

⁶ Appendix F: p. 3

⁷ Appendix D: BC Hydro Response to BCUC IR 1.3.2

⁸ Appendix C, Attachment 1, p. 24

⁹ Appendix E: BC Hydro Response to BCUC IR 1.41.2

1.2 Other Conservation Considerations

Some industry executives cited the BC Carbon Tax as an incentive for switching from natural gas to electricity and increasing electricity usage.¹⁰ Thus, other factors exist which shape energy choices and may increase electricity use in the future.

The TSR also appears to better incent conservation for customers with stable production levels than for those with variable production linked to fluctuating market demand or external factors such as weather. Variable production can cause a CBL reduction one year, followed by a year of high production necessitating increased Tier 2 purchases. Although the Tier 2 price and resulting energy costs are intended to be a signal for conservation, firms who alter production based on variable demand may not conserve as readily in response to the price signal. This situation invites a change to the CBL determination methodology for customers with variable production.

1.3 Further Conservation Potential

BC Hydro estimates the further conservation to be accrued from the TSR customer class as 5,300 GWh per year by F2021.¹¹

2. Does the transmission services stepped rate, as currently structured, contain barriers or obstacles to further conservation, load reduction, or preservation and optimization of self generation by BC Hydro's transmission customers?

The TSR contains significant barriers to further conservation, load reduction and self generation.

2.1 Barriers to Conservation and Load Reduction

BC Hydro recognizes two elements of the TSR rate structure that limit conservation and load reduction: the “Tier 2 Energy Cap” and “DSM Investment Uncertainty”.

2.1.1 Tier 2 Energy Cap

The Tier 2 price provides financial incentive to reduce energy purchases to 90% of CBL. Below 90%, customers purchase Tier 1 energy at a lower cost and are not financially incented to invest in DSM measures. Some industry executives reported running idle equipment, reducing self-generation or leaving lights on to maintain electricity purchases above 90% of CBL and thus avoiding a CBL reset.¹² A summary report of interviews with industry executives by Innovologie Inc. (The Innovologie Report, attached to Appendix C) comments that “*during the interviews customers repeatedly spoke about ‘preserving’, ‘protecting’, or ‘guarding’ their CBL to [lower the risk] that a*

¹⁰ Appendix C, Attachment 1, pp. 10 and 18

¹¹ Appendix E: BC Hydro Response to JIESC IR 1.5.1

¹² Appendix C, Attachment 1, pp. 4 and 31.

firm may have to pay for larger amounts of Tier 2 power in the future".¹³ This suggests that in some cases, effort to manage the CBL trumps energy conservation.

The 90% CBL price band is required by Special Direction HC2.

Although the Tier 2 rate was increased in F2009, the Commission questioned whether raising the Tier 2 price further would create a stronger signal for conservation. BC Hydro acknowledged that a higher Tier 2 rate would likely promote more conservation but the 90/10 CBL price bands would continue to cap the incentive to conserve at 90% of CBL.¹⁴ As well, the Tier 1 rate is calculated residually from the Tier 2 rate for the TSR to remain revenue neutral for the customer class. Therefore, an increased Tier 2 rate would result in a lower Tier 1 rate, likely resulting in a negative revenue variance for the customer class and causing costs to shift to other customer classes. As an alternative, modification of the 90/10 CBL price bands and the residual calculation of the Tier 1 rate may be desirable in the future to increase conservation.

2.1.2 DSM Investment Uncertainty

Firms analyze DSM investment costs against savings from reduced Tier 2 energy purchases. Tier 2 energy purchases can be reduced, in part, by outside market conditions. BC Hydro submits that the uncertainty in Tier 2 usage due to market demand could diminish the forecasted savings and thus prejudice a cost-benefit analysis against investment in DSM measures.

As well, BC Hydro acknowledges that it is difficult to quantify energy efficiency measures under the CBL Determination Guidelines.¹⁵ Firms are uncertain whether investment in DSM measures to increase efficiency rather than decrease electricity use will be accepted in the annual CBL adjustment process. This uncertainty can bias a cost-benefit analysis against investment in efficiency measures.

2.2. Barriers to Preservation or Optimization of Self-generation

BC Hydro recognizes two elements of the TSR rate structure which limit preservation or optimization of self-generation: the "Tier 2 Energy Cap"; and the market price for biomass power. Industry executives acknowledge the CBL reset mechanism as an element of the rate which can limit self-generation.

2.2.1 Tier 2 Energy Cap

The CBL 90/10 price band limits the incentive for customers to generate their own power to 10% of CBL because increased self-generation resulting in reduced electricity purchase from BC Hydro is only fiscally incented at the Tier 2 rate.

¹³ Appendix C, Attachment 1, p. 30

¹⁴ Appendix E: BC Hydro Response to BCUC IR 1.7.1

¹⁵ Appendix C, p. 37

2.2.2 Market Price for Biomass Power

BC Hydro reports four firms in the TSR customer class were awarded Bioenergy Call (Phase 1) supply contracts in 2008. The contracts allow customers to sell their self-generated energy at an average levelized plant-gate price of \$101/MWh. As Tier 2 energy from BC Hydro costs \$73.60/MWh, customers can earn a better financial return by selling the additional electricity they generate to BC Hydro rather than displacing Tier 2 purchases. This situation suggests a need for BC Hydro to implement a comprehensive electricity sale and purchase policy.

2.2.3 Avoidance of CBL Reset

Some customers report a willingness to reduce self-generation to maintain energy purchases above 90% of CBL and avoid a downward CBL reset.¹⁶

3. Has the transmission services stepped rate caused costs to shift to other BC Hydro customer classes or to the shareholder?

4. If there is cost shifting taking place, what are the reasons?

Costs have shifted from the TSR customer class to other customer classes and the shareholder. The cost shifts occur on a forecast basis and are due to uncontrollable outside market events or on an actual after-the-fact basis and are inevitable and immaterial to the overall revenue generated by the class.

3-4.1 Forecast Variances

On a forecast basis, revenue variances arise from a difference in the TSR energy rate and a reference flat rate. When forecast energy sales are lower than forecast CBLs, a negative revenue variance occurs. This calculation gives an upper bound to the cost shift because energy sales reductions in other rate classes would have also shifted costs back to the TSR customers. In F2007 and F2008, the variances were minimal but in F2009, energy sales were much lower than forecast CBLs causing a -\$44 million revenue variance. This negative variance was incorporated into BC Hydro's recent rate increase request for all customer classes.

The forecast revenue variance that occurred in F2009 is due, in large part, to the recession which neither BC Hydro nor TSR customers could control. While recognizing that cost shifts have occurred, BC Hydro recommends taking a longer-term view of cost-shifting impacts.¹⁷ The recession has provided examples where Tier 2 energy sales decrease, CBLs have been reset and overall revenue from the TSR customer class is reduced. When market conditions improve, Tier 2 sales and revenue will increase. In effect, the CBL lags current energy usage but the reset mechanism should eventually balance revenues. The Commission agrees that a longer-term view of cost shifting for the TSR is appropriate.

¹⁶ Appendix C, Attachment 1, p. 4

¹⁷ Appendix C, p. 32

3-4.2 Actual Variances

On an actual after-the-fact basis, a gross revenue variance occurs when forecast energy sales are different from actual energy sales. These variances are inevitable and arise irrespective of rate structure. BC Hydro's estimate of cost shifting based on gross margin variance in the TSR customer class is:

	\$ millions		
	F2007	F2008	F2009
Actual Energy Revenue	391.2	358.2	314.5
Gross Margin	(16.9)	26.8	(4.7)
Gross Margin as a % of Actual Energy Revenue	(4.3)	7.5	(1.5)

Source: Appendix C, p. 27, Table 8: Actual versus forecast RS 1823 gross margin variance

In F2007 and F2008 the gross margin variance was borne by BC Hydro and its shareholder. In F2009 the load forecast variance was captured in the Non-Heritage Deferral Account and as a result, the F2009 gross margin will ultimately be borne by all customers when amortized through the deferral account rate rider. Nonetheless, it is the Commission's position that the gross margin variances over the three year review period are immaterial to the actual energy revenue generated by the TSR customer class.

While BC Hydro reports that costs have shifted¹⁸, JIESC submits that no cost shifting has taken place.¹⁹ JIESC submits that the gross margin variance should be calculated using a long term energy price at least equal to the Tier 2 price (\$73.60/MWh). BC Hydro calculated gross margins using the short-run marginal cost (SRMC) of \$55.44/MWh in F2009 (the weighted average of its purchases from the Mid-Columbia Electricity Price Index). The SRMC is generally considered to be the average cost of market electricity purchases in a period. The Commission's view is that BC Hydro's use of SRMC in this case is justified because the SRMC, not the long term energy price, is used in the energy cost forecast in the revenue requirements rate setting process. As costs are potentially shifted between classes through the revenue requirement application process, congruency in prices and calculations between the revenue requirement and any cost shifting analysis is desired.

¹⁸ Appendix C, p. 25

¹⁹ Appendix G, p. 3

5. Has the transmission services stepped rate facilitated retail access by BC Hydro's transmission customers?

6. If no retail access has occurred, why not? Are there features of the transmission services stepped rate design that detract from the attractiveness of retail access?

The TSR has not facilitated retail access by the industrial customer class because there are costs and risks associated with third-party suppliers which are not associated with BC Hydro. The TSR itself (perhaps with the exception of current Tier 2 pricing) does not detract from the attractiveness of retail access.

5-6.1 BC Hydro is the Least-Cost Supplier

Retail access refers to the purchase of power from a supplier other than BC Hydro. Retail access is intended to permit customers to secure energy needs, which would otherwise be supplied by BC Hydro at Tier 2 rates, from alternative suppliers. BC Hydro notes that the TSR itself is not specifically designed to promote retail access²⁰ and that since the rate was implemented in 2006, no industrial customers have opted for retail access.²¹

Of the industry executives interviewed for the Innovologie Report, none expressed interest in obtaining electricity through contracts with Independent Power Producers (IPPs) or via the open market.

Generally, IPP-supplied energy is not competitively priced with the BC Hydro TSR Tier 2 rate^{22,23} and most IPP power is already committed via contract to other customers.²⁴ As well, if IPP's have surplus energy available to sell, it is likely on a short-term, non-firm basis, and may be limited to small portions of the year. Energy with these characteristics is not suitable for TSR customers.

In F2009, the open market Mid-Columbia (Mid-C) hub prices (\$60.81/MWh, including delivery charges) was lower than the Tier 2 rate (\$73.60/MWh).^{25,26} Actual Mid-C rates vary and reached an hourly maximum of \$126.66/MWh during 2009. Without a fixed supply price, customers expose themselves to price risk. BC Hydro estimates that a fixed supply contract price would cost customers \$64.40/MWh.²⁷ In contrast, BC Hydro supplied TSR energy at an average rate of \$23.85/MWh in F2009.²⁸ Only customers expecting firm energy needs beyond the calculated

²⁰ Appendix E: BC Hydro Response to BCUC IR 30.2

²¹ Appendix F, p. 5

²² Appendix E: BC Hydro Response to BCUC IR 30.1

²³ Appendix C, Attachment 1, p. 24

²⁴ Appendix C, p. 20

²⁵ Appendix E: BC Hydro Response to BCUC IRs 8.1-8.3

²⁶ Appendix C, p. 20

²⁷ Appendix C, p. 23

²⁸ Appendix D, p. 19

CBL load (hence customers with increasing needs priced at the Tier 2 price of \$73.60/MWh) might consider committing to retail access.

BC Hydro Tariff Supplement No. 71 requires customers to enter into a 36 month contract with supplier(s)²⁹ so customers would need confidence that their estimated future needs for what otherwise would be Tier 2 priced energy, would justify commitment to a three year contract. Especially during present economic uncertainties, no customers were willing to take such risk.

5-6.2 Financial Risks and Transaction Costs to Access Third-party Electricity

Even if the Mid-C or IPP price were competitive with the TSR, there remain risks associated with retail access that are avoided by sourcing from BC Hydro. Retail access requires customers to choose a supplier from amongst many, ensure that the supplier will have sufficient energy when needed, and arrange and pay for transmission. These requirements increase cost and uncertainty, and decrease the convenience for customers to use retail suppliers. The three year contract requirement also poses a considerable risk. Despite other barriers to retail access, the Commission is of the opinion that the three year retail access commitment requirement should be reviewed.

The combination of low supply and transaction costs from BC Hydro and price risks from market or IPP power make sourcing from BC Hydro the most appealing choice for industrial customers. It is not anticipated that under current conditions, industrial customers will opt for retail access in the foreseeable future.³⁰

7. Why have no customers used the Time of Use Rate?

No customers have opted for the TOU rate because it adds complexity to the rate structure, offers low margins and presents cost risks. As well, customers must have certain operational characteristics to consider TOU rates including: sufficient flexibility in their production process to shift load from High Load Hours (HLH) to Low Load Hours (LLH), or from winter to other months; sophisticated load control systems; and product storage ability to cover intermittent production. The necessity of having certain operational characteristics and the complexity and risks presented by the TOU rate have resulted in no customers choosing the TOU since it was introduced in April 2006.

7.1 TOU Adds Complexity to an Already Complex Rate

The TOU rate creates four pricing periods, each with its own CBL. While conceptually a desirable structure to incent a decrease in energy consumption in the winter when demand for electricity peaks, the TOU adds complexity to the CBL structure. Some industry executives comment that the TSR rate, without the TOU overlay, is already complex, so it can be assumed that additional complexity is a deterrent for customers to choose the TOU rate.

²⁹ BC Hydro Electric Tariff Supplement No. 71, Term 2.1 (a), p. 3 of 8

³⁰ Appendix E: BC Hydro Response to BCUC IR 8.2

7.2 TOU Offers Low Margins

Customers only have a financial incentive to choose the TOU if the minimum TOU rate is less than the default TSR rate. However, the default TSR price already incorporates a time of use adjustment, allowing customers to reduce demand charges by shifting consumption to LLHs. As a result, the differential between the minimum TOU rate and the default TSR rate is too small to motivate firms to overcome the complexity and opt for the TOU rate.

7.3 Production Timing Risk

TOU rates are divided into four periods, with differential Tier 2 rates/MWh in each period: Winter HLH (\$82.13), Winter LLH (\$74.43), Spring (\$66.29), and Other (\$72.69). Firms have varying abilities to adjust their production activities and use the TOU rate advantageously. While energy consumption is a factor in business operations planning, the Commission believes other considerations, such as human resource scheduling, may be as important a factor. If production unavoidably occurred during Winter HLH, a customer's average energy cost would increase even if overall energy use decreased during the year. Combine the recent economic conditions, the complexity of managing four CBLs and the ability to shift production and it is understandable why no customer has opted for the TOU rate.³¹

8. Are there elements of the rate structure that could lead to less than optimal results in the future? If so, what are those elements, and what are the less than optimal results?

The TSR structure contains a number of elements that lead to less than optimal results.

8.1 Revenue and Customer Bill Neutrality

The TSR is designed to be revenue neutral for the customer class and customer bill neutral for individual firms. Customer class revenue neutrality is premised on a fixed Tier 2 rate and a residually-priced Tier 1 rate. Customer bill neutrality is premised on the 90/10 CBL price band structure with static energy costs occurring at 100% of CBL. The revenue and customer bill neutrality aspects of the TSR program undermine conservation objectives because firms that continue to use the same amount of power annually under the stepped rate as they did under the flat rate do not incur higher energy costs. In other words, not conserving does not cost firms more under the stepped rate. It should be noted that industry opposes alteration to the revenue neutrality principle without full stakeholder involvement.³²

8.2 CBL Effect on Conservation

As discussed previously, the TSR conservation incentive is capped at 90% of CBL and although the CBLs solve the problem of variation in energy requirements, they may create counter-productive behaviours. As an example, companies considered running idle equipment and leaving lights on to reach 90% of their previous energy consumption and thus avoid a CBL reset.³³ There also remains customer confusion surrounding CBLs and unless customers fully

³¹ Appendix C, pp. 33-35

³² Appendix G, p. 6

³³ Appendix C, Attachment 1, pp.4 and31

appreciate how the CBL works, it is unlikely that they will be able to manage energy use effectively. While some firms have completely adapted to CBLs, others have been slower to adjust. Industry welcomes further interaction and advice from BC Hydro advisory personnel regarding understanding and working with CBLs.

8.3 Lack of Incentive for Energy Efficiency Measures

As currently structured the TSR does not directly reward efficiency gains (reduction in energy use per unit of industrial output or reduction in energy intensity). Some customers believe that the TSR program should allow firms to avoid the Tier 2 rate when efficiency gains are realised.³⁴ Customers recognise that measuring efficiency gains is challenging because there is no standard on which to compare energy use per-unit between firms in different industries or between different products within one firm. For optimal results, the TSR should motivate both energy conservation and efficiency gains but the current TSR structure directly incents conservation while only indirectly incenting efficiency. Amending the TSR program to reward energy intensity improvements would advance the energy efficiency objectives of the BC Energy Plan (Appendix I).

8.4 CBL Constraint on Large Project Opportunities

Customers remarked that the rate structure constrains large project opportunities because the investment benefits of any project that may take the customer below the 90% CBL threshold are marginalized by the Tier 1 price. To quote one customer:

“So if you have already made investments, say, to get you to 92 percent of CBL, and you have another great project to get you to 85 percent of CBL, you only get two percent of that at the Tier 2 price; the balance of the project at the Tier 1 price kills the economics. In the same way, the rate structure also makes it easier to get the low hanging fruit and harder to get the more difficult stuff.”³⁵

One customer suggested there should be several pricing tiers or no distinct cut-off line.³⁶

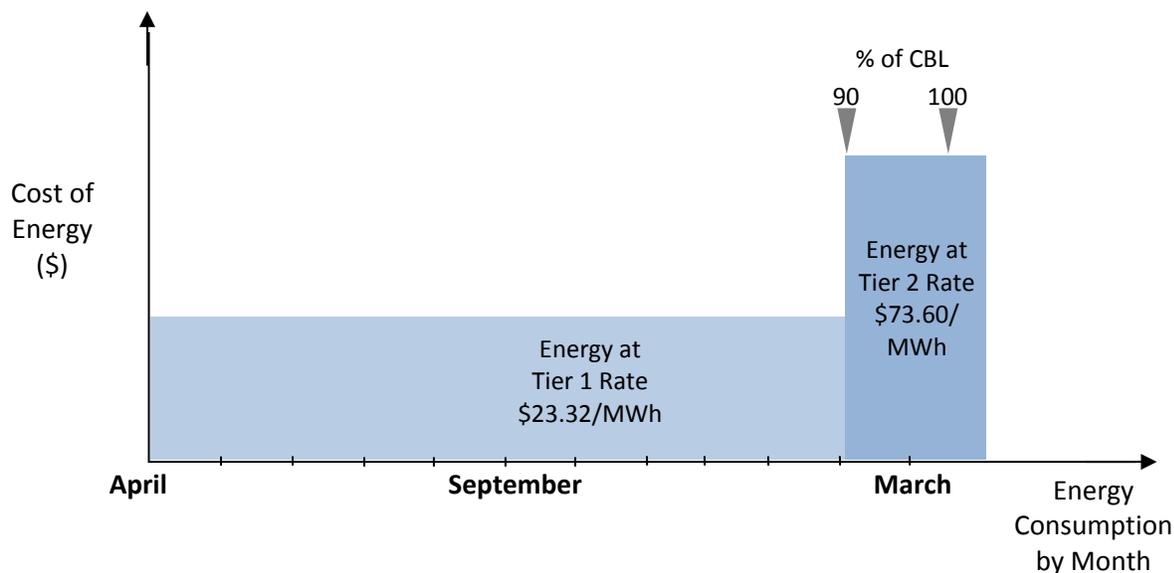
³⁴ Appendix C, Attachment 1, p. 35

³⁵ Appendix C, Attachment 1, p. 29

³⁶ Appendix C, Attachment 1, p. 30

8.5 Customer Bill Variability

Since the Tier 2 rate applies to consumption over the 90% threshold, the latter portion of the BC Hydro billing year is associated with higher energy rates. Many customers find this problematic for cash flow reasons³⁷ although it creates a price signal that motivates some customers to conserve. The diagram below shows an example of the billing pattern a sample customer would experience over the BC Hydro fiscal year.



Often, the BC Hydro billing year does not match customer revenue patterns or customer fiscal years. Allowing customers to select energy-years may improve this issue. The Commission encourages this change be explored as part of future program development.

Variable production from year to year can cause a CBL reduction one year, followed by a year of high production requiring increased Tier 2 purchases due to the lowered CBL. Load variation is particularly problematic during times of economic volatility and/or transformation. Recent economic conditions have caused many, if not most firms to deviate from historical energy consumption. Roughly 60% of TSR energy is consumed by firms in the forest industry,³⁸ which has been particularly affected by international economic conditions. Customers commend BC Hydro for cooperative efforts to address reset issues in cases of plant shutdowns and restarts.³⁹ Concern was expressed that year-over-year electricity bill variation could be problematic for firms. Industry proposals for adjusting to changing economic conditions include averaging CBLs over a number of years. Industrial customers strongly wish to participate in any revision of the TSR program aimed at better accounting for external economic conditions. Using a multi-year average of energy use to set the CBL, rather than the current adjustment process, would mean that the impact of acute external economic conditions would be smoothed out. The Commission encourages BC Hydro to consider using multi-year historical energy use, rather than the current adjustment process, to determine customer CBLs.

³⁷ Appendix C, Attachment 1, p. 29

³⁸ Appendix E: BC Hydro Response to BCUC IR 1.35.1

³⁹ Appendix G, p.6

8.6 Three Year Regulatory Review Window

Customers have pointed out that the three year regulatory review window creates a risk by limiting the amount of time firms can count on the established rates. Thus, it is viewed by some customers that the payback period on DSM investment is limited to the time remaining in the regulatory review window at the current rate.⁴⁰

II. Administration of the Rate

The TSR rate requires resources, including funds and key account managers, to be administered and to achieve its objectives.

Administrative Costs

BC Hydro estimates the total administrative costs associated with the TSR for F2006 to F2009 to be:

Year	F2006	F2007	F2008	F2009	Total
Costs (\$ thousands)	856	813	486	272	2,427

These costs include salaries, wages, consulting, advertising and travel expenses but not costs associated with regulatory filings and applications. BC Hydro notes that the higher costs in F2006 and F2007 were due to the design and implementation phases of the TSR.⁴¹

Key Account Manager Support

Industry executives report that the Key Account Managers (KAMs) are a significant factor in helping customers understand and implement the stepped rate. Their support is recognized as an ongoing need for the success of the TSR.

“Without the KAMs, who help to explain the rate, help collect data for CBL determination, and offer suggestions and advice about things that owners could do to reduce consumption, the stepped rate would probably not work well and therefore would probably not be widely supported.”⁴²

The Commission believes that KAM activities in these areas should continue to be supported.

⁴⁰ Appendix C, Attachment 1, p. 21

⁴¹ Appendix E: BC Hydro Response to BCUC IR 1.31.1

⁴² Appendix C, Attachment 1, p. 15

Performance Measurement

BC Hydro provided two separate statistical analyses of TSR impacts. Each analysis incorporates different data sets and logic into a unique estimation model.⁴³ As BC Hydro points out, it is difficult to separate out the conservation effects of the rate from other factors over the three years since the rate was implemented. Further development of cost-effective analytical approaches would be beneficial to evaluate TSR performance and the Commission endorses BC Hydro's intention to refine the performance measurement of the TSR.

⁴³ Appendix E: BC Hydro Response to BCUC IR 1.29.3

III. Recommendations for Special Direction HC2

Discussion of Proposed Changes

BC Hydro recommends four changes to Special Direction HC2. The following table outlines the recommendations, the positions of the intervening stakeholders and the Commission’s comments.

BC Hydro Recommended Changes ⁴⁴	Stakeholder Positions		BC Utilities Commission Comments
	JIESC ⁴⁵	BC Sustainable Energy Association and Sierra Club of British Columbia (BCSEA, et al) ⁴⁶	
Change to Recommendation 8: Remove the rate design principle that the Tier 1 Rate is to be derived to achieve revenue neutrality. This change would allow greater flexibility to adjust the Tier 1 Rate.	Opposed to change without having a specific proposal on how a lack of revenue neutrality would work. JIESC states that revenue neutrality is a fundamental principle of the stepped rate and must not be changed without stakeholder involvement.	Supports recommended change.	The revenue neutrality principle limits conservation. Altering the calculation of the Tier1/Tier 2 rates, in consultation with stakeholders, is desirable in the future.
Change to Recommendation 8: Remove the principle that the Tier 1/Tier 2 split should be initially set at 90/10. This change would make clear the Commission's jurisdiction to approve a change to the 90/10 split in the future.	Opposed to change. JIESC states that the 90/10 split is a fundamental part of the rate. Removal should not be considered until there is a specific proposal, and consensus, on changes.	Supports recommended change.	The 90/10 Tier 1/Tier 2 split creates significant barriers to conservation. Altering this split, in consultation with stakeholders, is desirable in the future.

⁴⁴ Appendix E: BC Hydro Response to JIESC IR 1.1.2

⁴⁵ Appendix G, p. 6

⁴⁶ Appendix H, p. 5

BC Hydro Recommended Changes ⁴⁷	Stakeholder Positions		BC Utilities Commission Comments
	JIESC ⁴⁸	BC Sustainable Energy Association and Sierra Club of British Columbia (BCSEA, et al) ⁴⁹	
Change to Recommendation 15: Remove the requirement that FortisBC, New Westminster and UBC be exempted from the stepped rate. This change would not have any effect on the current rates for those customers, but would allow greater flexibility to design rate structures for those customers in future.	No comment made.	Supports recommended change.	The Commission did not hear from the exempt parties. The Commission does not see this as an opportune time to remove the exemptions from the TSR rate. BC Hydro should consult with the exempt parties to seek their input.
Change to Paragraph 3(2)(a): Remove paragraph to allow greater flexibility to change Tariff Supplements 5 and 6 in the future. Tariff Supplements 5 and 6 have not been changed since 1991 and they predate several major changes to BC's electricity industry.	Opposed to changing one element of the TSR policy/regulation/tariff package for the purpose of future flexibility. JIESC submits that if a change is considered, a specific proposal should be put together, discussed and only brought forward if accepted in discussions.	No position.	The Commission is not persuaded by the need to change the Tariff Supplements. BC Hydro should engage in dialogue with stakeholders explaining the need, purpose, and expected results. The Commission does not support BC Hydro's recommendation.

⁴⁷ Appendix E: BC Hydro Response to JIESC IR 1.1.2

⁴⁸ Appendix G, p. 6

⁴⁹ Appendix H, p. 5

BC Hydro Recommended Changes ⁵⁰	Stakeholder Positions		BC Utilities Commission Comments
	JIESC ⁵¹	BC Sustainable Energy Association and Sierra Club of British Columbia (BCSEA, et al) ⁵²	
Change to Recommendations 9, 10, 12 and 13: Remove Recommendations as they have become redundant with the passage of time.	<ul style="list-style-type: none"> • Supports removal of Recommendations 9 and 10. • Submits that Recommendation 12 should not be removed. • Takes no position with respect to Recommendation 13. 	No comment made.	<ul style="list-style-type: none"> • The Commission supports removal of Recommendations 9, 10 and 13 as they have become redundant. • The Commission does not believe Recommendation 12: “That the Customer Baseline Load (“CBL”) used for applying stepped rates to industrial customers should be based on past experience adjusted for anomalies and reviewed annually. Further, that the Commission will continue to approve CBLs and to resolve disputes as necessary” has become redundant and therefore does not support its removal.

⁵⁰ Appendix E: BC Hydro Response to JIESC IR 1.1.2

⁵¹ Appendix G, p. 6

⁵² Appendix H, p. 5

Commission Recommendations for Special Direction HC2

Customers resoundingly reported a preference that the TSR program not be changed. Consistent with this position, the Commission does not support revising the TSR program at this time. The Commission believes that the current TSR structure should not be revisited until either economic conditions stabilize or general TOU rates are put forward for implementation by BC Hydro. The Commission does support adding flexibility to the TSR structure, to create a foundation for future program redesign and after analysis of the results of the TSR and submissions from BC Hydro and stakeholders, the Commission recommends the following changes to Special Direction HC2:

1. Heritage Contract Recommendation 8: Remove the principles that the Tier 1/Tier 2 split should be set at 90/10 and that the Tier 1 rate should be derived from the Tier 2 rate to achieve revenue neutrality; and
2. Heritage Contract Recommendations 9, 10 and 13: Removal of these three Recommendations as they are now outdated.

IV. Summary of Recommendations for BC Hydro

As highlighted in this evaluation report, the Commission has noted some aspects of the TSR and related policies which should be considered, in consultation with stakeholders, to improve the TSR program:

1. Removal of the requirement for customers to enter into three year contracts for retail access;
2. Implementation of a comprehensive sales and purchase policy to address the situation where customers are awarded contracts to supply energy to BC Hydro at a higher rate than the Tier 2 price; and
3. Development of cost-effective performance measurements for the TSR program.

If the TSR is revised at a future time, the Commission recommends BC Hydro consider the following:

4. Changes to the CBL determination methodology to:
 - v. account for firms with variable production;
 - vi. reward energy intensity (efficiency) savings;
 - vii. allow customers to select energy years; and
 - viii. supplement the current CBL adjustment process with the use of customer's average multi-year historical energy use.

If the above noted changes to Special Direction HC2 are accepted, the Commission recommends BC Hydro consider the following changes at a future time:

5. Modification of the Tier 2/Tier 1 split from 90/10 to a level that increases the conservation incentive; and
6. Modification of the calculation of the Tier 1 and 2 rates so conservation is not limited and costs are not shifted to other classes.