

Draft

# BC Hydro Rate Design Workshop

SUMMARY

OCTOBER 22, 2014

9 AM TO 1:30 P.M.

BCUC Hearing Room  
Vancouver

<b>TYPE OF MEETING</b>	RDA Workshop No. 5 – Transmission Service Rate Structures
<b>FACILITATOR</b>	Anne Wilson, BC Hydro
<b>PARTICIPANTS</b>	Clean Energy BC (CEBC), Current Solutions Inc., University of British Columbia (UBC), Canadian Office and Professional Employees Union Local 378 (COPE 378), Vancouver Airport Authority (YVR), Association of Major Power Consumers (AMPC), Progress Energy, Nanaimo Forest Products, Encana, British Columbia Utilities Commission (BCUC Staff), ERCO Worldwide (ERCO), TransLink, West Fraser Mills, Canfor Taylor Pulp (Canfor), Simon Fraser University (SFU), British Columbia Old Age Pensioners Organization (BCOAPO), Clear Result, ATCO Power, Commercial Energy Consumers (CEC), BC Rapid Transit, Canexus, City of New Westminster (New Westminster), Canadian Association of Petroleum Producers (CAPP), British Columbia Sustainable Energy Association & Sierra Club British Columbia (BCSEA), Linda Dong
<b>BC HYDRO ATTENDEES</b>	Janet Fraser, Gordon Doyle, Kathy Lee, Greg Simmons, Bryan Hobkirk, Justin Miedema, Anne Wilson, Craig Godsoe, Jeff Christian (Lawson Lundell)
<b>AGENDA</b>	<ol style="list-style-type: none"> <li>1. Welcome &amp; Introductions including review of draft agenda</li> <li>2. Background and legal context</li> <li>3. Review of RS 1823</li> <li>4. Options for transmission customers to manage their electricity bills</li> <li>5. Other TSR RS</li> <li>6. Closing comments</li> </ol>

## MEETING MINUTES

<b>ABBREVIATIONS</b>	<p>RDA.....Rate Design Application          BCH .....BC Hydro          BCUC.....BC Utilities Commission          CBL.....Customer Baseline          DSM.....Demand Side Management          GWh/year... Gigawatt hours per year          GRI.....General Rate Increases          HLH.....Heavy Load Hours          IEPR.....Industrial Electricity Policy Review          IPP.....Independent Power Producer          IRP .....BC Hydro’s 2013 Integrated Resource Plan</p>	<p>LGS ... Large General Service          LLH...Light Load Hours          LRMC...Long-Run Marginal Cost          MABC....Mining Association of BC          MGS....Medium General Service          MW.....Megawatts          MWh.....Megawatt hour          R/C ratios .... Revenue-to-cost ratios          RR ..... Revenue Requirement          RS..... Rate Schedule          SGS.....Small General Service          SCGT....Simple Cycle Gas Turbine          TOU.....Time of Use          TSR..... Transmission Service Rates          UCA..... B.C. <i>Utilities Commission Act</i>          UCC....Unit Capacity Cost</p>
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### 1. Welcome and Introductions

**Anne Wilson** opened the meeting and emphasized two ways for stakeholders to provide feedback: (1) comments and questions at the workshop itself; and (2) written comments through the feed-back form or otherwise after Workshop No. 5, within a 30-day comment period starting with the posting of Workshop No. 5 notes.

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<b>2. Presentation: Background</b>		
<p><b>Gordon Doyle</b> reviewed the legal context informing the TSR. Gord identified that the BCUC is limited in its jurisdiction concerning some aspects of RS 1823 (the TSR stepped rate) and RS 1827 (Exempt Rate) resulting from subsection 3(1) of Direction No. 7 to the BCUC.</p>		
<b>FEEDBACK</b>		<b>RESPONSE</b>
1.	<p><b>AMPC</b> Indicated it had no opinion as to whether the RS 1827 customers should be exempt but asked whether the RS 1827 customers should be in their own rate class given their characteristics differ from the other transmission service customers</p>	<p>Draft F2013 R/C ratios for the four RS 1827 customers (New Westminster, SFU, UBC and YVR) and FortisBC are provided in Attachment 1.</p> <p>The question is whether the cost of serving the four exempt customers and FortisBC are meaningfully different than other Transmission service customers. Differences in the cost of serving different Transmission service customers will be primarily driven by customer load shapes and usage during peak winter months. BC Hydro compared the winter peaking loads against load factor, and on this basis three customers - UBC, SFU and YVR - are not different from other Transmission service customers. New Westminster and FortisBC are different because they have much lower load factors than other Transmission service customers.</p> <p>More work needs to be done to assess this, such as review of intra-class variations within the General Service Rate classes (SGS, MGS, and LGS) and the criteria for creating different rate classes used in BC Hydro's 2007 RDA and FortisBC's 2009 RDA. BC Hydro will consider whether there is a basis to segment the RS 1827 exempt customers from the remainder of the Transmission service class as part of the consideration memo following stakeholder input.</p>
<b>3. Presentation: Review of RS 1823</b>		
<p><b>Greg Simmons</b> reviewed four aspects of RS 1823 raised in past BCUC decisions, the IEPR and the 2015 RDA engagement process to date: 1) Definition of Revenue Neutrality, which differs from the forecast revenue neutral approach used for the Residential and SGS/MGS/LGS rate classes; 2) Application of GRI to Tier 1/Tier 2 for F2017-F2019, with three Pricing Principle options; 3) Tier 1/Tier 2 90/10 Split which as a result of subsection 3(1) of Direction No. 7 cannot be changed by the BCUC; and 4) Definition of Billing Demand.</p>		
<b>FEEDBACK</b>		<b>RESPONSE</b>
1.	<p><b>Clear Result</b> RS 1827 was not around at the time the customers were exempted from the stepped rate.</p>	<p>RS 1827 was implemented in 2006 in response to the BCUC's 2003 Heritage Contract Report Recommendation #15, and is the same as the closed RS 1821 flat rate previously applicable to the exempt customers.</p>

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<p>2.</p>	<p><b>BCUC Staff</b></p> <p>The revenue neutrality provision was part of 2005 Negotiated Settlement Agreement that created RS 1823. Can it be changed?</p>	<p>Yes. BC Hydro’s view is that there is no legal prohibition against changing the specific RS 1823 revenue neutrality provision, which is based on bill neutrality and tied to CBLs, after F2016.</p> <p>For clarity, the RS 1823 revenue neutrality provision is reflected in the relationship between the RS 1823 Tier 1 rate, the RS 1823 Tier 2 rate and the RS 1827 energy rate, as follows: <math>(0.1)(T1rate)+(0.9)(T2rate) = 1827</math> energy rate.</p> <p>The RS 1823 revenue neutrality provision is a fundamental element of RS 1823, arising out of the 2002 Energy Plan, and BC Hydro will continue to engage with AMPC, CAPP and MABC on this topic.</p>
<p>3.</p>	<p><b>BCOAPO</b></p> <p>Where are revenue shortfalls captured and who is responsible for them?</p>	<p><i>Revised Response</i></p> <p>BC Hydro understands the question to be about the difference between the RS 1823 revenue forecast under the current pricing principles (GRI applied equally to both Tier 1 rate and Tier 2 rate) applicable to the end of F2016 and alternative pricing principles which could be applicable after F2016. As shown in slide 21 of the October 22 workshop slide deck, alternative pricing principles can yield more or less revenue on a forecast basis compared to the current pricing principles while still being consistent with the RS 1823 revenue neutrality provision. Any revenue shortfall (or excess revenue) would effectively be paid for (or shared by) all customers in the form of a GRI that is slightly higher (or lower) than it would be under the current pricing principles.</p>
<p>4.</p>	<p><b>Clear Result</b></p> <p>How many years have the RS 1823 revenues been below forecast?</p>	<p>The question is about the difference between forecast RS 1823 revenues used for revenue requirement purposes and actual RS 1823 revenues. Actual revenues have been below forecast since implementation of RS 1823 in 2006.</p> <p>BC Hydro notes that even with actual RS 1823 revenues being below forecast the Transmission service class has a R/C ratio above 1.</p>

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5.	<p><b>Canfor</b></p> <p>Does the load forecast used in forecasting revenues include DSM activities? If so the revenue neutrality provision protects Transmission customers from higher rates.</p> <p>Industrial DSM benefits all customers and the benefits of the activities are greater than the costs.</p>	<p>Agreed that industrial DSM benefits all BC Hydro customers; refer to BC Hydro's response to Q9 below.</p> <p><i>Revised Response</i></p> <p>Currently the after-DSM load forecast is used to establish the billing determinants used to calculate the GRI applicable to all rate classes. In this way all customer classes effectively make up the revenue loss associated with the response to conservation rates and other DSM initiatives. In the case of RS 1823, the revenue neutrality provision described above ensures that a specific customer that consumes at its CBL level pays no more or less than what it would pay under RS 1827. By implication an RS 1823 customer will pay an average energy rate less than the RS 1827 energy rate when it consumes less than its CBL. In this way the revenue neutrality provision of RS 1823 allows individual customers to keep the benefit of their conservation. Of course the reverse it also true - an RS 1823 customer will pay an average energy rate higher than the RS 1827 energy rate when it consumes at a level greater than the CBL, and will continue to do so until its consumption exceeds 110 per cent of its CBL.</p>
6.	<p><b>BCSEA</b></p> <p>RS 1823 was intended to promote conservation. With the LRMC declining will there be less of a conservation signal?</p>	<p>The Tier 2 Rate was based on the F2006 Call for Tender. This resulted in a Tier 2 Rate of \$7.36 c/kWh from F2009-F2014. During that period all RR increases were applied solely to Tier 1,<sup>1</sup> thus the differential between Tier 1 and Tier 2 narrowed every year. Following Direction No. 6, the RR increases were applied to both Tier 1 and Tier 2 so the differential is maintained.</p>
7.	<p><b>BCSEA</b></p> <p>Was the 2009 BCUC report the most recent review of RS 1823?</p>	<p>Yes.<sup>2</sup></p>
8.	<p><b>CEC</b></p> <p>Can BC Hydro provide a distribution by load of Transmission service customers with respect how they consume relative to their baseline?</p>	<p>Yes. BC Hydro provides an aggregated distribution as Attachment 2.</p>
9.	<p><b>ERCO</b></p> <p>Can BC Hydro quantify benefits it receives from DSM initiatives taken by transmission customers to reduce their exposure to Tier 2?</p>	<p>Yes. Page 11 of the Consideration Memo concerning the June 19, 2014 Cost of Service Workshop shows that there is over \$1.4 billion in benefits to other ratepayers associated with DSM undertaken by Transmission service customers</p>
10.	<p><b>BCUC Staff</b></p> <p>Isn't Pricing Principle Option 3 a short term solution, given there is little room before Tier 2 reaches the \$100/MWh upper end of the LRMC?</p>	<p>Yes. Under Pricing Principle Option 3 (slide 21 of the October 22, 2014 workshop slide deck), Tier 2 would reach the \$100/MWh upper end of the LRMC in the first year (F2017).</p>

<sup>1</sup> The RS 1823 pricing principles were previously established by BCUC Order G-79-05.

<sup>2</sup> The BCUC reviewed RS 1823 and other TSR in 2009. A copy of the BCUC's report entitled "British Columbia Utilities Commission Report to Government on British Columbia Hydro and Power Authority Transmission Service Rate Program" is available at [http://www.bcuc.com/documents/reports/bcuc-ts-r-evaluation-report-december\\_31\\_2009.pdf](http://www.bcuc.com/documents/reports/bcuc-ts-r-evaluation-report-december_31_2009.pdf).

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<p>11.</p>	<p><b>COPE 378 (Dr. Shaffer)</b></p> <p>What economic analysis has BC Hydro done with respect to redistribution of Heritage benefits to Transmission service customers?</p>	<p><i>Revised Response</i></p> <p>BC Hydro explored alternative ways of distributing the Heritage resource electricity in the context of the 2013 IRP's DSM Options 4 and 5. DSM Options 4 and 5 were designed in collaboration with BC Hydro's Electricity Conservation and Efficiency Advisory Committee and were intended to look at the characteristics of a fundamental shift in BC Hydro's approach to saving electricity. As compared to the current DSM target of 7,800 GWh/year of energy savings and 1,400 MW of associated capacity savings by F2021, DSM Option 4 targets 9,500 GWh/year of energy savings and 1,500 MW of capacity savings by F2021, while DSM Option 5 targets 9,600 GWh/year of energy savings and 1,600 MW of capacity savings by F2021.</p> <p>The conservation rate structure components of DSM Options 4 and 5 raise the issue of the Heritage Contract and in particular the basis for distributing the low embedded cost of service Heritage resource electricity. Both DSM Options 4 and 5 would require that each BC Hydro Transmission service customers meet a government-mandated, certified, plant minimum-efficiency level to take advantage of BC Hydro's Heritage hydroelectric lower priced electricity; otherwise, electricity would be supplied at higher marginal rates. This would differ from the current allocation where each rate class receives a share of the benefits of the Heritage resources based on the class' share of total consumption and peak demand; refer to Attachment 3 to BC Hydro's consideration memo concerning the Residential Rates Workshop held June 25, 2014 (posted to the BC Hydro RDA website).</p> <p>In the case of DSM Option 4, BC Hydro's TSR customers would be exposed to a greater extent to marginal cost price signals because RS 1823 would change from the 90/10 to a 80/20 split between Tier 1 and Tier 2 prices, thereby increasing the amount of energy consumption that is subject to Tier 2. There would also be efficiency-based pricing for commercial customers which would consist of either a connection fee tied to building energy performance or an initial energy baseline rate structure for new buildings. In the case of DSM Option 5, all BC Hydro customers would be exposed to marginal cost prices to a greater extent.<sup>3</sup></p> <p>As part of the 2013 IRP engagement process, Transmission service customers opposed to the conservation rate structure components of DSM Options 4 and 5. BC Hydro rejected DSM Options 4 and 5 on the basis that they are not viable, and the B.C. Government through approval of the 2013 IRP confirmed that the conservation rate structure components of DSM Options 4 and 5 should not be pursued at this time. In addition, as discussed at this</p>
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<sup>3</sup> More information on DSM Options 4 and 5 can be found in sections 3.3.1.4 and 3.7.3 of the 2013 IRP ([https://www.bchydro.com/energy-in-bc/meeting\\_demand\\_growth/irp/document\\_centre/reports/november-2013-irp.html](https://www.bchydro.com/energy-in-bc/meeting_demand_growth/irp/document_centre/reports/november-2013-irp.html)).

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		workshop, the Transmission service customer consensus voiced through both the IEPR and the 2015 RDA engagement process to date is that RS 1823 is working well.
12.	<b>BCUC Staff</b> If there were an increase to the percentage of CBL exposed to Tier 2, wouldn't that drive down the price of Tier 1 energy?	Yes. Under the current RS 1823 structure, increasing the percentage exposed to Tier 2 would result in a decrease to the Tier 1 price to maintain revenue neutrality.
13.	<b>AMPC</b> Does the 65 per cent demand cost recovery include both transmission and generation related costs?	Yes. The 65 per cent recovery includes both transmission and generation related demand charges; alternatively, the 65 per cent recovery can be seen as recovering all Transmission demand costs from Transmission service customers.
14.	<b>BCOAPO</b> Has the 65 per cent recovery remained constant over time?	Yes, over the F2011 to F2013 period the RS 1823 demand charge recovered, on average, about 68 per cent of demand-related costs assigned to the class.
15.	<b>Canfor</b> What is the current Power Factor requirement?	In 1991 pursuant to BCUC Order G-4-91, the Power Factor requirement for new Transmission service customers was set to 95 per cent.
16.	<b>BCOAPO</b> How are customer related costs recovered?	The customer related costs for Transmission service customers are recovered through the energy charge. BC Hydro notes that customer related charges for Transmission customers are \$1 million representing a very small portion (<0.2 per cent) of cost assigned to the class.

**4. Presentation: Options for transmission customers to manage their electricity bills**

**Gordon Doyle** outlined the drivers for the option discussion, including relevant IEPR and IRP recommendations. **Kathy Lee** explained BC Hydro's system characteristics and market prices during the Freshet period of May-July. **Justin Miedema** outlined potential attributes of a Freshet rate. Kathy described BC Hydro's system characteristics underpinning the type of load curtailment program BC Hydro is contemplating. Gord reviewed BC Hydro's 2007 Load Curtailment program and BC Hydro's jurisdictional assessment of Manitoba Hydro, Hydro Quebec and SaskPower's load curtailment programs/interruptible rate. Gord also led the discussion on TOU and RS 1825. Justin explained BC Hydro's position on Retail Access and why it believes there are better options to explore at this time.

FEEDBACK		RESPONSE
<b>Freshet Rate</b>		
1.	<b>CEBC</b> The load profile on slide 29 may not be indicative of the IRP forecast as it does not include LNG loads or natural gas production loads.	The addition of a high load factor LNG load (generally flat all year round) would help mitigate the freshet energy oversupply issue. However, BC Hydro believes that there would still be energy surplus in the Freshet period even with LNG and natural gas loads.
2.	<b>CEC</b> Can BC Hydro develop probability bands for inflows? This could inform the development of a longer term offering that would provide customers more certainty.	BC Hydro will include the requested probability bands as part of its consideration memo following stakeholder feedback.

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3.	<b>CEC</b> Does slide 29 include IPPs?	<i>Revised Response</i> The figure in slide 29 illustrates the timing mismatch between inflow and load. It does so by showing inflow into BC Hydro's reservoirs only. BC Hydro will include the annual profile comparing load and system energy including IPPs as part of its consideration memo following stakeholder feedback.
4.	<b>BCOAPO</b> How would a Freshet rate increase the ability to import cheap electricity?	A freshet rate aims to encourage customers to increase electricity consumption by reducing their rate during the Freshet period. During Freshet when minimum must run generation is sometimes at or higher than load, BC Hydro is either forced to spill or export. Increased customer consumption could bring load higher than minimum generation, allowing BC Hydro to serve incremental load directly with imports from the market when prices are generally low or even negative.
5.	<b>CEC</b> There is an inter-class issue here because selling the surplus as a freshet rate would only go to Transmission service customers as opposed to using HLH/LLH arbitrage opportunities which impacts trade income thereby benefiting all customers.	
6.	<b>BCOAPO</b> Is there a under recovery risk of setting a Freshet price too early if the price varies significantly from market prices?	If BC Hydro were to set a fixed price for the Freshet period it would enter into a hedge to protect against volatility in the market prices. Given Transmission service customers adequate advance notice is an important consideration as well.
7.	<b>BCSEA</b> Why does BC Hydro believe that a Freshet rate should not impact the CBL or demand charge?  Is the freshet rate inconsistent with conservation?	If the consumption during the Freshet period impacted a customer's CBL or demand charge there would be a reduced incentive to increase consumption during the Freshet period which would reduce the benefits of the Freshet rate.  The freshet rate is not inconsistent with conservation so long as BC Hydro does not include incremental Freshet energy in its long term planning. BC Hydro's DSM activities are designed to acquire conservation on a year round and year-over-year basis while the Freshet rate is targeted to a specific period of the year where incremental energy purchases can be shown to benefit all ratepayers. In addition, BC Hydro expects the Freshet rate would be mainly attractive to those customers capable of turning down self-generation and/or shifting production and/or maintenance outages i.e., without increasing net electricity consumption over a year.
8.	<b>BCUC Staff</b> BC Hydro needs to give consideration to what is needed in a Freshet rate to make it useful to Transmission service customers.	Agreed. BC Hydro has engaged with AMPC, CAPP and MABC prior to this workshop, and there was agreement that BC Hydro should continue to develop a Freshet rate, with the caution from AMPC that the three month Freshet period may not be enough to incent increased production.

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9.	<p><b>ERCO</b></p> <p>A Freshet rate that replaces Tier 2 with a market price for the Freshet period would be attractive.</p>	<p>Noted. Shifting load from non-freshet periods to the Freshet period could potentially reduce Tier 2 purchases but still benefit other ratepayers.</p>
10.	<p><b>Nanaimo Forest Products</b></p> <p>Some plants will require capital investments if they wish to participate in the Freshet rate as they do not have excess capacity to ramp up. Other plants may have excess capacity that could take advantage of the Freshet rate.</p>	<p>Agreed. BC Hydro has engaged with its Transmission service customers prior to this workshop through meetings with AMPC, CAPP and MABC, and understands that not all customers would have the ability to participate in a Freshet rate without making investments. However, BC Hydro has heard that some customers do have excess capacity or the ability to shift production from other plants outside B.C. to B.C. during the Freshet period.</p> <p>BC Hydro will continue to engage with its customers as it continues to develop the rate, and will present its findings and if workable, a detailed proposal at the next TSR workshop scheduled for March 2015.</p>
11.	<p><b>West Fraser</b></p> <p>If a plant increased capacity it will want to operate all year long to recover the costs.</p>	
12.	<p><b>COPE 378 (Dr. Shaffer)</b></p> <p>BC Hydro should look at market access beyond the Freshet period for customers where BC Hydro does not take on market risk; in addition, BC Hydro could provide some form of capacity-based back-stop for Transmission service customers.</p>	<p>BC Hydro believes this question suggests a form of retail access. BC Hydro questions how this type of arrangement would benefit both industrial customers and existing ratepayers.</p> <p><i>Revised Response</i></p> <p>Currently a capacity-based product is not likely available from the market for longer term commitments. In reality we are talking about BC Hydro's storage. Use of BC Hydro's storage in this way for a Retail Access program would reduce Powerex trade income. In the short to medium term BC Hydro sees only negative impacts on non-participating (such as residential) customers due to stranded asset risk and the impact to Powerex trade income. Potential longer-term benefits of generation infrastructure deferral are uncertain, and at a minimum exit fees, re-entry fees and a long-term (five years and over) Transmission service customer commitment to the Retail Access program would be required. The five-year plus commitment would be to discourage Transmission service customers from moving in and out of the Retail Access program as the market fluctuates and to ensure that BC Hydro can advance the necessary generation infrastructure if Transmission service customers decide to again take service from BC Hydro.</p> <p>The impacts of a Retail Access program are described in detail in BC Hydro's December 23, 2011 application to the BCUC to suspend its industrial Retail Access Program. BC Hydro posted a copy of BC Hydro's 2011 suspension application on the 2015 RDA website for information.</p>

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13.	<p><b>CEBC</b></p> <p>BC Hydro should be very careful in structuring the rate as there is considerable uncertainty in snow pack melt.</p>	<p>One of the attributes BC Hydro identified for a Freshet rate is waiting until end of February to announce availability and pricing when more is known about snowpack levels. However other risks such as those associated with snow melt timing and prices still remain.</p>
14.	<p><b>Clear Result</b></p> <p>Do adding Mica Units 5 and 6 and Revelstoke Unit 6 increase must run generation?</p>	<p>No.</p>
<b>Load Curtailment</b>		
15.	<p><b>AMPC (Patrick Bowman, InterGroup Consultants Limited)</b></p> <p>How is the planning reserve determined?</p>	<p>The planning reserve is there to meet the capacity planning criteria of 1 day in 10 year loss of load expectation. The outcome is a 14 per cent planning reserve requirement.</p> <p>Daily peaks inform the planning reserve calculation, with the assumption that if a utility has enough peak reserves for one hour, there is enough capacity for the day. This has been an adequate assumption to date. However, as more resources with limited availability are being considered, BC Hydro is also examining the load resource balance within the day that is not captured in the previous analysis. BC Hydro is enhancing its reliability model and analysis to look at hourly data. This is a long term project but results, as they become available, will inform the on-going load curtailment discussions with AMPC.</p>
16.	<p><b>AMPC (Patrick Bowman)</b></p> <p>Can load curtailment be counted on as part of the planning reserve?</p>	<p>Clear Result noted a Federal Energy Regulatory Commission ruling that appears to hold that demand response initiatives such as load curtailment cannot be counted on as a part of the planning reserve. BC Hydro will examine this issue in greater detail.</p>
17.	<p><b>Canfor</b></p> <p>Please confirm that the Revelstoke Unit 6 UCC is for the year.</p>	<p>Confirmed. The \$50 to \$55/kW-year UCC is an annual cost figure based on Revelstoke Unit 6's estimated capital cost. Revelstoke Unit 6 is available all year but there are months when BC Hydro has a surplus of capacity.</p>
18.	<p><b>BCSEA</b></p> <p>Under what section would BC Hydro expect to file a load curtailment contract under?</p>	<p>BC Hydro is of the view that load curtailment is a "demand-side measure" program as defined by section 1 of the <i>Clean Energy Act</i>, and therefore the expenditures associated with a load curtailment program would be included in a BC Hydro DSM expenditure determination request submitted under subsection 44.2(1)(a) of the UCA.</p> <p>BC Hydro does not believe that load curtailment is a "rate" as defined by section 1 of the UCA because the essential element of a rate is "compensation of a public utility", and under load curtailment there is no compensation of BC Hydro; rather, BC Hydro pays participating customers to be on stand-by for curtailable events. Nor is a load curtailment a "service" as defined by section 1 of the UCA.</p> <p>Finally, BC Hydro does not believe a load curtailment program or contract is an "energy supply contract" as</p>

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		<p>defined by section 68 of the UCA as energy is not sold by participating customers to BC Hydro or another buyer.</p> <p>BC Hydro will include information on any load curtailment program as context for its 2015 RDA, and will continue to engage with participants on load curtailment through the RAD engagement process, even if load curtailment is not a rate and no request is made for approval of load curtailment as part of the 2015 RDA.</p>
19.	<p><b>COPE 378</b></p> <p>Concerned that load curtailment could lead to layoffs during times of curtailment.</p>	Noted.
20.	<p><b>CEBC</b></p> <p>Would energy savings related to load curtailment be claimed as DSM savings?</p>	Yes. Given the load curtailment program would be a DSM initiative, capacity savings that occur as a result of load curtailment would be incorporated into the DSM target savings if load curtailment can be counted on as a long-term planning resource.
21.	<p><b>ERCO</b></p> <p>Building Revelstoke Unit 6 requires a large capital commitment upfront, whereas load curtailment can be shorter commitments that provide flexibility if the resource is no longer required.</p>	Agreed. However, it is unclear if load curtailment can be counted on as a long-term planning resource capable of deferring capacity generation resources.
22.	<p><b>AMPC</b></p> <p>Would a load curtailment program based on the deferral of long term capacity also bring contingency benefits?</p>	Yes. However, the main benefit to BC Hydro is the ability to defer capacity generation resources. There would likely be different notice periods for contingency events (short notice period) vs. curtailments with respect to cold snaps (1 day, possibly longer as these events can be forecasted).
23.	<p><b>BCUC Staff</b></p> <p>Can BC Hydro provide the pricing for Hydro Quebec and SaskPower's load curtailment programs?</p>	Please refer to Attachment 3.
<b>TOU</b>		
24.	<p><b>AMPC</b></p> <p>Agree that TOU will always be complicated given the need to manage multiple CBLs. Also a very large price differential would be required; something in the order of a 3:1. AMPC strongly recommends the pursuit of Load Curtailment rather than TOU.</p>	<p>Lack of a differential between on-peak and off-peak electric rates was one of the problems identified in the 2009 BCUC report referred to above in Q7 concerning the existing optional TSR TOU (RS 1825) and the IEPR Task Force background paper on TOU.<sup>4</sup> If there is not enough of a differential there is not likely to be meaningful savings on participants' electricity bills.</p> <p>BC Hydro has and will continue to prioritize load curtailment over a possible re-structuring RS 1825.</p>

<sup>4</sup> Available at <http://www.empr.gov.bc.ca/EPD/Documents/Task%20Force%20Issue%20Paper%20-%20Time%20of%20Use%20Rates%20FINAL.pdf>.

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<b>Retail Access</b>		
25.	<b>CEC</b> BC Hydro should take a long term view and look at whether Retail Access can defer investment in generation.	The implementation of a Retail Access program could have significant short to medium term impacts while BC Hydro is in an energy surplus. These include trade income impacts as described in response to Q12 above.  BC Hydro has posted the 2011 Retail Access suspension application on the RDA website which explains the negative impacts of Retail Access.
<b>5. Presentation: Other TSR Rate Schedules</b>		
<b>Greg Simmons</b> described the other TSR Rate Schedules, all of which are listed on slide 6. The presentation focused on four TSR RS: RS 1827 (Exempt Rate); RS 1880 (Maintenance and Standby Rate); RS 1853 (IPP Station Service); and RS 1852 (Modified Transmission Demand).		
26.	<b>Clear Result</b> The RS 1827 customers do differ from other Transmission service customers in that they are constantly growing. This should be considered in the consideration as to whether they should be a separate class.	Please refer to answer to Q1 above.
27.	<b>BCUC Staff</b> Please confirm that RS 1823 customers' conservation initiatives avoid the higher Tier 2 energy price while RS 1827 customers undertaking conservation initiatives avoid the lower blended rate.	Confirmed.
28.	<b>BCOAPO</b> Given RS 1880 is an interruptible rate, are any transmission investments made to provide service?	No.
29.	<b>BCSEA</b> How many customers are on RS 1852?	One customer is on RS 1852.
<b>6. Closing Comments</b>		
<b>Anne Wilson</b> thanked everyone for making the time to participate in the workshop and reviewed the ways that feedback can be submitted to BC Hydro. Meeting adjourned at 1:30 p.m.		

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# BC Hydro Rate Design Workshop

SUMMARY

OCTOBER 22, 2014

9 AM TO 1:30 P.M.

BCUC Hearing Room  
Vancouver

**ATTACHMENT 1**

<b>Revenue-to-Cost Ratios Based on F2013</b>	
<b>TSR Customers</b>	<b>(%)</b>
SFU, UBC, YVR	104.9
New Westminster	94.3
Fortis BC	95.8
Other	105.1

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## ATTACHMENT 2

<b>Distribution of RS 1823 Energy Sales Relative to the CBL</b>	
<b>Sales Relative to the CBL (F2015) (%)</b>	<b>Energy Sales (F2015) (%)</b>
<= 49	0.1
50 - 59	0.0
60 - 69	0.1
70 - 79	29.4
80 - 89	30.9
90 - 99	11.4
100 - 109	24.5
110 - 119	1.1
>= 120	2.5
Median	95.7

**ATTACHMENT 3 - Load Curtailment Programs****Manitoba Hydro**

A load curtailment program for operational contingency used for maintaining operating and contingency reserves.

**Program Description:**

- Manitoba Hydro offers four base program options which vary by notice period, maximum duration, maximum number of curtailment periods per year and maximum annual hours of curtailment.
- The programs are intended to allow Manitoba Hydro to maintain generation reserves and not have to shed firm load in the event of a generation or transmission loss.
- Manitoba Hydro does not include load curtailment as a planning resource.
- 3 of 4 options contain only a fixed payment the fourth has both a fixed and variable component.
- The price basis for the fixed payment is 42% of the annual carrying cost of a SCGT (2012 assumed \$78/kW- year for SCGT).

**Other information:**

- Manitoba Hydro has stated in regulatory filings that curtailable load is less valuable than a generation resource such as a SCGT because:
  - Load Curtailment has limited dispatchability
  - Load Curtailment is not guaranteed in the long term.

**Hydro Quebec**

Hydro Quebec made changes to its load curtailment program and these were approved by its regulator the Regie in September 2014 ([http://publicsde.regie-energie.qc.ca/\\_layouts/publicsite/ProjectPhaseDetail.aspx?ProjectID=266&phase=1&Provenance=B](http://publicsde.regie-energie.qc.ca/_layouts/publicsite/ProjectPhaseDetail.aspx?ProjectID=266&phase=1&Provenance=B)).

**Program Description:**

- The new program continues to have options for medium and large power customers and runs from December to March.
- 2 Customers are on the Medium power option while 20-27 customers take the Large Power option. Last year the program acquired 800-1000 MW of capacity with 500-600 MW from pulp and paper customers.
- The new program has larger credits for customers. The fixed credit was increased from \$8500/MW-year to \$13000/MW-yr for Option I.
- The new program also includes a second option (Option II) which limits curtailments to one per day. This option was developed to meet the needs of the pulp & paper customers who found it too disruptive to their operations to curtail more than once per day. The fixed charge for Option II is \$6500/MW-yr (50% of the Option I fixed credit) and reflects the fact Hydro Quebec may need to aggregate Option II contracts as two curtailments may be required in the same day.
- Fixed and variable pricing is based on avoided costs from acquiring capacity in external power markets. Hydro Quebec has a relatively peaky system and often buys from external markets to serve the winter peak.
- Last year the program curtailed customers for 60 hours as the winter was very cold in the US northeast. The previous year customers were curtailed for 35 hours.

**Process:**

- Each winter the program acquires new capacity. There are no "multi-year" contracts.
- Customers offer capacity in October.
- By the end of October Hydro Quebec decides if it accepts an offer.
- Winter period starts December 1<sup>st</sup>.

**Other info:**

- Penalties were recently increased as the program's capacity is included in HQ's planning for reliability purposes.
- Hydro Quebec includes load curtailment in its resource planning.
- An annual report is submitted to the Regie which can be found at <http://www.regie-energie.qc.ca/audiences/RappHQD2013/HQD-03-2.1-Optionelectriciteinterruptible.pdf>.

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- Large power customers are given a bill credit each month. Medium power customers receive a credit at the end of the winter period.
- Hydro Quebec is exploring other options to increase domestic winter capacity to reduce market reliance.

### SaskPower

The load curtailment program has been in place since 2010 with a mandate to run until 2017 at which time it will be evaluated.

#### Program Description:

The program provides two options: DR1 and DR2. DR1 currently has 2 customers while DR2 has 1 customer who is "non-functional".

- DR1 has an 85 MW capacity cap while DR 2 has a 40 MW cap.
- DR1 has only a fixed rate component (\$52,000 per MW-yr).
- DR2 has a fixed and variable component (Fixed - \$20,000 per MW-Yr, Variable - \$150/MWh interrupted).

The program's pricing was based on three factors:

1. Spinning Reserve value
2. Deferral Value
3. Opportunity Cost or Market value.

DR1 is priced off 1, 2, and 3 with Spinning Reserve being the primary value driver. DR2 is priced off 2&3.

The total value of 1, 2, and 3 for DR1 was determined and considered the break-even point. It was decided to share the financial benefit with the customer at between 50 and 75% of the breakeven point resulting in the customer receiving \$52,000/MW-year.

#### Other Info:

- SaskPower customers have been called for 2-3 events per year on average.

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## Interruptible Load Programs Comparison Chart

Entity	Manitoba Hydro				SaskPower		Hydro Quebec	
Program Name	Curtailable Rate Program For Individual Customer Loads				Demand Response Program		Interruptible Electricity Option – Large Power	
Website	<a href="http://hydro.mb.ca/regulatory_affairs/electric/gra_2012_2013/appendix_10_4.pdf">http://hydro.mb.ca/regulatory_affairs/electric/gra_2012_2013/appendix_10_4.pdf</a>				<a href="http://www.saskpower.com/efficiency-programs-and-tips/business-programs-and-offers/demand-response-program/demand-response-program-offers/">http://www.saskpower.com/efficiency-programs-and-tips/business-programs-and-offers/demand-response-program/demand-response-program-offers/</a>		<a href="http://www.hydroquebec.com/publications/en/rates/pdf/addendum-sept-2014.pdf">http://www.hydroquebec.com/publications/en/rates/pdf/addendum-sept-2014.pdf</a>	
Description	To minimize disruption to Firm Load in the event of a Contingency or Disturbance; or to maintain a sufficient level of Planning Reserves and Operating Reserves to maintain reliable operation of the Bulk Electric System and compliance to North American Electric Reliability Corporation reliability standards.				SaskPower uses its Demand Response Program to pay its largest industrial customers to reduce or shift their electricity use.		Available to Rate Classes L (Large Power – Industrial) and LG (Large Power – non-Industrial). Customers with minimum billing demand of 5 MW or more.	
Program Target	150-180 MW for Options A/C 50 MW for Option R No Limit for Option E				85 MW		None stated	
Minimum Contribution	5 MW – In Option R, the minimum MBH can request is 5 MW				5 MW		Greater of 3 MW or 20% of the maximum contract power of the previous 12 consumption periods	
How Implemented	Contract. Options A, C or R cannot be combined with each other but may be combined with Option E to increase the discount. Distinct loads can use different options. In Option R, Manitoba Hydro may request curtailment of less than the amount designated.				1 year contract		Agreement	
Options	Option A	Option C	Option R	Option E	Program Offer 1	Program Offer 2	Option I	Option II
Option Description	Curtail to meet reliability requirements	Curtail to meet reliability requirements	Curtail for non-spinning reserves	Curtail to meet firm energy supply required	Fixed Payment Option	Fixed + Variable Payment Option Longer notice period	Two Interruptions per day	One Interruption per day
Fixed Rate Paid	70% of Reference Discount (\$3.21 per kW/month April 1, 2012)	40% of Reference Discount (\$3.21 per kW/month April 1, 2012)	70% of Reference Discount (\$3.21 per kW/month April 1, 2012)+ Reserve Discount (\$0.04 per kWh)	35% of Reference Discount (\$3.21 per kW/month April 1, 2012)	\$52,000/MW-year	\$20,000/MW-year	\$13,000/MW for December to March period	\$6,500/MW for December to March period
Variable Rate Paid	N/A	N/A	N/A	N/A	N/A	\$150/MWh curtailed	\$200/MWh Interrupted for the first 20 interruption hours \$250/MWh Interrupted for the 21 <sup>st</sup> to 40 <sup>th</sup> interruption hours \$300/MWh Interrupted for each of the 60 subsequent interruption hours	\$200/MWh Interrupted for each interruption hour
Event Notice Given	5 minutes	1 hour	5 minutes	48 hours	12 minutes	2 hours	2 hours	2 hours
Event Duration	Max. 4:15	Max 4 h	Max. 4:15	Max 10 days	4 hours	4 hours	4 – 5 hours	4-5 hours
Limitations	Winter 6 h/d Summer 10 h/d 15 events/ yr 63.75 h/yr	8 h/d 15 events/ yr 60 h/yr	Summer 10 h/d 25 events/ yr 106.25 h/yr	24 h/d 3 events/ yr 720 h/yr	Maximum 15 events per year Maximum 60 hours per year	Maximum 15 events per year Maximum 60 hours per year	Maximum 2 interruptions per day Minimum 4 hours between interruptions Maximum 20 interruptions per winter Maximum 100 hours total interruptions per winter	Maximum 1 interruption per day Minimum 16 hours between interruptions Maximum 100 interruptions per winter Maximum 50 hours total interruptions per winter
Mandatory	No	No	Must be Guaranteed 95% of the time for reserve purposes	Yes at MB Hydro discretion	Yes	Yes	Yes	Yes
Direct Load Control	No	No	No	Yes	No	No	No	No
Penalty Provisions	Discount + 1 <sup>st</sup> – none 2 <sup>nd</sup> - 1x discount 3 <sup>rd</sup> - 3x discount	Discount + 1 <sup>st</sup> – none 2 <sup>nd</sup> - 1x discount 3 <sup>rd</sup> - 3x discount	Discount + 1 <sup>st</sup> – none 2 <sup>nd</sup> - 1x discount 3 <sup>rd</sup> - 3x discount	Manitoba Hydro can shed load.	Yes (no information)	Yes (no information)	Yes Fixed Credit: \$1250/MW	Yes Fixed Credit: \$600/MW