BC hydro

2015 Rate Design Application

January 21, 2015/February 11, 2015

Workshop Nos. 8 and 8b

Large General Service (LGS)/Medium General Service (MGS)/Small General Service (SGC) Rate Structures

BC Hydro Summary and Consideration of Participant Feedback

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Attachments

This memo documents customer stakeholder feedback concerning BC Hydro's January 21, 2015 Workshop 8a (outlining the regulatory history of and issues associated with the LGS and MGS rate structures, and discussing the current SGS rate structure) and February 11, 2015 Workshop 8b (setting out potential alternatives to the SGS, MGS and LGS rate structures), and BC Hydro's consideration of this input. Workshops 8a and 8b were held in Vancouver, B.C. with customers also being provided an opportunity to listen into the discussions remotely through a webinar.

Copies of the Workshops 8a/8b presentation slides can be found on the BC Hydro regulatory website at www.bchydro.com/2015RDA. In addition, BC Hydro circulated a copy of the second, most recent evaluation of the LGS and MGS rates as part of Workshop 8a,[1] entitled Evaluation of the Large and Medium General Service Conservation Rates: F2014 dated January 13, 2015 (January 2015 Evaluation).

The first evaluation of the LGS and MGS rates is entitled Evaluation of the Large General Service and Medium General Service Conservation Rates: Calendar Years 2011 and 2012 and is dated December 2013 (December 2013 Evaluation). The December 2013 Evaluation Report is Appendix A to a document entitled LGS and MGS Three Year Report (Three Year Report) submitted to the British Columbia Utilities Commission (**Commission or BCUC**) on December 30, 2013. The Three Year Report summarizes the results of the December 2013 Evaluation and addresses the issues outlined in Paragraph 16 of the 2009 LGS Application Negotiated Settlement Agreement (**NSA**),[2] including whether the control groups are still adding value; whether there is evidence of customers opening new accounts to avoid exposure to the energy Long-Run Marginal Cost (**LRMC**)-based LGS and MGS Part 2 energy rates; whether any changes or alternatives to the Price Limit Bands (**PLBs**) or three-year rolling average Historical Baselines (**HBLs**) are

[1] Copy posted to the 2015 RDA website under Workshop 8a: http://www.bchydro.com/about/planning_regulatory/2015-rate-design/workshops.html.

[2] A copy of the NSA is appended to BCUC Order No. G-110-10; http://www.bcuc.com/Documents/Proceedings/2010/DOC_25757_G-110-10_%20BCH-Large-General-Service-Rate_Reasons-NSA.pdf.

desirable or necessary; and generally, whether any elements of the LGS and MGS energy rate structures require further consideration. The Three Year Evaluation Report and December 2013 Evaluation were referenced at Workshop 8a and are found at the BC Hydro regulatory website under 'Resources'.[3]

Customer input was received during Workshops 8a/8b as well as through feedback forms and written comments submitted during a subsequent 30-day comment period, which began with the posting of draft Workshop 8b summary notes on March 5, 2015. After Workshop 8a/8b, BC Hydro held two sessions focused on MGS and LGS energy charge structure alternatives with the following organizations whose members are comprised of LGS and MGS customers:

1. Session of May 7, 2015 with Building Owners and Managers Association of British Columbia (**BOMA**), and 14 LGS and MGS customer attendees; and
2. Session of May 22, 2015 with BC Food Processors Association (**BCFPA**), Canadian Manufacturers and Exporters (**CME**), BC Hydro key accounts, and 20 LGS and MGS customer attendees.

Comments made by these organizations and participants at these sessions together with the 22 completed feed-back forms received are referenced in sections 1, 3 and 4 of this memo.

As part of both sessions, BC Hydro offered to estimate LGS and MGS customer bills for the Status Quo (**SQ**) rates and alternatives using a simplified forecasting tool (referred to as the '**bill estimator**') so that customers could have an idea of what the various alternatives would mean in terms of bill impacts. The bill estimator is an Excel model that BC Hydro runs and then provides illustrative results to the requesting customer. To date, about 10 customers with mostly LGS accounts and some MGS accounts have made requests to run the bill estimator.

[3] http://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/revenue-requirements/lgs-nsa-resp-g-110-10-c16.PDF.

BC Hydro also met with Commercial Energy Consumers Association of British Columbia (**CEC**) in November 2014 and April 2015 to discuss potential LGS/MGS rate options as outlined in section 6 of this memo.

BC Hydro considered all input it received. Where it conflicts, BC Hydro generally gives more weight to the views of LGS, MGS and SGS customers who take service under the rates.

The memo is structured as follows:

- Section 1 addresses segmentation-related comments concerning the MGS and LGS rate classes. While no participants raised SGS-related segmentation issues, BC Hydro provides its reasons in this memo as to why the current 35 kilowatt (**kW**) remains appropriate for SGS rate class definition;
- Section 2 reviews comments concerning the SGS rate structure;
- Section 3 assesses the MGS energy rate and identifies BC Hydro's preferred alternative for the MGS energy rate, which is to flattening the MGS energy charge with no baseline (referred to as the **MGS Flat Energy Rate**);
- Section 4 reviews the LGS energy rate and identifies four alternatives BC Hydro will be bringing forward for further feedback at the June 25/26, 2015 General Service (**GS**) Rate workshop, which are: Status Quo (**SQ**) LGS energy rate (**SQ LGS Energy Rate**); a modified SQ LGS rate aimed at simplifying the LGS energy rate while retaining the baseline (referred to as **SQ LGS Simplified Energy Rate**); flattening the LGS energy rate with no baseline (referred to as the **LGS Flat Energy Rate**); and Association of Major Power Consumers of British Columbia's (**AMPC**) idea of segmenting the existing LGS rate class to create a new large LGS rate class with the ability to define and adjust baselines annually, similar to Rate Schedule (**RS**) 1823 (referred to as a **LGS TSR-Like Rate**);

- Section 5 analyzes the LGS and MGS demand charge structures and current cost recovery levels, and identifies the three demand charge alternatives BC Hydro will bring forward for further feedback at the June 25/26, 2015 GS Rate workshop, namely: **SQ Demand Charge**; **Flat Demand Charge**; and **Two Step Demand Charge** which retains the current zero Tier 1 and flattens the Tier 2 and Tier 3 into a single Tier 2;
- Section 6 canvasses three potential GS rate options: a voluntary Time of Use (**TOU**) rate which BC Hydro has decided to not proceed with at this time for the reasons set out in section 6.1; interruptible rate options (section 6.2); and an optional efficiency rated energy credit rate design concept raised by CEC (referred to as **Efficiency Rate Credit**) in meetings with BC Hydro (section 6.3). The latter two potential options will be discussed at the June 25/26, 2015 GS Rate workshop but would form part of 2015 Rate Design Application (**RDA**) Module 2 for the reasons set out in section 6 of this memo. In addition, CEC and BC Hydro have begun exploring demand charge options; refer to section 6.4 of this memo.

Attachment 1 includes the Workshop Nos. 8A and 8B summary notes which provide a more detailed description of issues (including questions and answers);

Attachment 2 contains the feedback forms received during the written comment period;

Attachment 3 is a copy of the slide deck presentation used for the May7, 2015 BOMA session outlined above;

Attachment 4 is a copy of a letter submitted by BC Hydro to the Commission dated January 17, 2014 regarding Paragraph 17 of the NSA, which pertains to LGS and MGS demand charges, and the costs and benefits of offering an optional interruptible rate for LGS and MGS accounts; and

Attachment 5 is a copy of BC Hydro's jurisdictional assessment of other Canadian electric utility GS rates.

BC Hydro sets out its energy LRMC range for F2016 to F2019 here as it is referred to in this memo in a number of places:[4]

Lower End of Energy LRMC Range and Fiscal (F) Year cents per kilowatt hour (/kWh)	Upper End of Energy LRMC Range and F Year (cents/kWh)
F2016: 9.36	F2016: 11.01
F2017: 9.54	F2017: 11.23
F2018: 9.73	F2018: 11.45
F2019: 9.93	F2019: 11.68

1 Rate Class Segmentation

The review of issues concerning and alternatives to the SQ MGS and LGS rates raised questions about whether BC Hydro should consider:

- Re-merging the LGS and MGS rate classes back into a single class, much like what existed prior to the implementation of MGS and LGS rates in 2010;
- Segment the LGS rate class so that larger LGS accounts could be considered for a TSR-Like Rate.

1.1 Participant Comments

Commission staff state that it would be useful for BC Hydro to enumerate the benefits with existing LGS/MGS class segmentation in the context of potential new rate structures. Commission staff raise a number of questions that relate to segmentation of the MGS and LGS classes and the heterogeneity of customers within these classes:

[4] Section 9.2.12 of BC Hydro's 2013 Integrated Resource Plan (**IRP**) sets out the energy LRMC range of $85 per megawatt hour (**/MWh**) to $100/MWh ($F2013); copy available at https://www.bchydro.com/energy-in-bc/meeting_demand_growth/irp/document_centre/reports/november-2013-irp.html. For rate making purposes BC Hydro factors in Distribution losses and uses a 2 per cent inflation assumption for F2016-F2019.

- Could the MGS rate class also benefit from the rate structure designed for the LGS rate class?
- Is consumption level the only factor separating MGS and LGS?
- If the LGS and MGS rate classes are each considered diverse in themselves, would re-merging make the re-merged class even more diverse?
- Would a remerged GS class result in more customers being unfairly disadvantaged compared to the average customer or change the overall class Revenue to Cost (**R/C**) ratio?
- Is BC Hydro able to discern any homogeneity among LGS customers above 2,500 MWh in annual consumption and any homogeneity among MGS customers above 400 MWh in annual consumption that could inform the rate design for a step 2 and step 3 threshold, assuming that the baselines were to be removed from the rate structure.

CEC is of the view that BC Hydro should not consider re-merging the LGS and MGS classes until rebalancing occurs, after which it may be appropriate. CEC commented that the MGS and LGS rate structures should be aligned because they are fundamentally similar. British Columbia Old Age Pensioners' Organization *et al* (**BCOAPO**) notes that the question of re-merging the MGS and LGS classes cannot be considered in isolation as it is dependent on whether baselines continue and whether rate structures need to be aligned. BCOAPO highlights that about half of MGS customers are more like SGS in terms of usage levels, which could mitigate against merging MGS and LGS. British Columbia Sustainable Energy Association and Sierra Club B.C. (**BCSEA**) takes no position on merging the LGS and MGS rate classes at this time, but raises a similar point to BCOAPO in noting that merging would have the disadvantage of complicating any transition from baseline-based rates to flat rates with no baseline.

Viterra, a LGS customer, states that a uniform approach to LGS rate design is inappropriate given that a portion of customers operate more like TSR customers. Viterra is of the view that none of the screened-in LGS rate designs are acceptable, and that a TSR-like rate would send a better price signal to larger LGS accounts, while MGS customers would be better served by the MGS Flat Energy Rate. Viterra is of the view that the heart of the problem is the large heterogeneous nature of the LGS class, and proposes to create three new rate classes as follows:

- Enlarge the MGS class with the bottom third of the LGS class (< 1 gigawatt hour (**GWh**) consumption), subject to the MGS Flat Energy Rate and a flat demand charge for demand greater 75 kW;
- Create a class of large LGS users with demand greater than 2 megawatts (**MW**) and consumption greater than 2 GWh, which class would be offered a TSR-Like Rate. Viterra anticipates that this would create approximately 1,400 customers who would have likely both the resources and ability to implement meaningful conservation projects;
- Create annual baselines for the remaining LGS class under the existing rate structure, which Viterra advances would affect about 3,500 customers.

AMPC also suggests that BC Hydro revisit rate class definitions, noting that for such a large heterogeneous group consideration should be given to more numerous smaller segments. AMPC comments that a more appropriate classification could include a separate large LGS segment with the ability to define and adjust baselines annually, similar to RS 1823. AMPC is of the view that at the largest customer sizes the service voltages reflect accidents of geography as much as the characteristics of the load served.

Loblaws Companies Limited (**Loblaws**), with LGS and MGS accounts, comments that re-merging the LGS and MGS rate classes is not necessary at this time. TransLink, with LGS and MGS accounts, states that re-merging the two rate classes

should only be considered if the same rate design is proposed for both. First Nations Energy & Mining Council (**FNEMC**) states that it would be helpful to understand why the MGS and LGS classes were split in the first place.

1.2 BC Hydro Consideration

Introduction

As part of its consideration, BC Hydro:

- Reviewed AMPC's evidence submitted as part of the 2007 RDA review process, which among other things recommended the set-up of a rate based on RS 1823 for a segment of the LGS class (those LGS customers with demand in excess of 3,000 kW or even 1,000 kW). The Commission did not accept the AMPC proposal to segment the then existing LGS rate class at 1,000 kW demand or higher on the grounds that this would leave customers with a demand of 150 kW or greater shouldering the entire transfer that BC Hydro's 2007 RDA LGS rate proposal would entail. The Commission also rejected the proposal of a RS 1823-like rate for these major LGS users for the same reason. However, the Commission stated that the AMPC concepts may have merit in future proposals for the LGS rate class;[5]
- Reviewed the Direct Testimony of Dr. Ren Orans of Energy & Environmental Economics, Inc. (**E3**) which contains segmentation analysis and formed part of BC Hydro's 2009 Large General Service Rate Application (**2009 LGS Application**).[6] Pursuant to BCUC Order No. G-110-10, the Commission approved LGS/MGS segmentation based on a 150 kW breakpoint in 2010 as part of introduction of LGS/MGS rates;

[5] In the Matter of British Columbia Hydro and Power Authority: 2007 Rate Design Application Phase-1, Decision, October 26, 2007 (**2007 RDA Decision**), pages 153, 154, 162 and 163.

[6] Appendix J of the BC Hydro 2009 Hydro Large General Service Rate Application; copy available at http://www.bcuc.com/Documents/Proceedings/2009/DOC_23224_2009_10_16%20APPL_09LGS.pdf.

- Assessed the Canadian jurisdictions listed in Table 1 below for purposes of determining their respective GS class breakpoints; and
- Conducted cost of service (**COS**) analysis.

Among other things, the E3 work is relevant to answering FNEMC's request that BC Hydro explain why it applied to the Commission to split the pre-existing LGS rate class (GS with monthly peak demand of 35 kW and greater) into the two new rate classes (LGS and MGS) as part of its 2009 LGS Application.

E3 recommended that BC Hydro continue to use kW demand intervals (e.g., below 35 kW, above 35 kW) as the basis for GS class segmentation. E3 found that 118 of 123 GS rate schedules it reviewed across Canada and the U.S. use kW demand to determine a GS rate schedule's applicability, while only five of such rate schedules used kWh energy consumption to determine if a rate schedule is applicable to the GS customer. E3 also examined using the physical distribution system as a basis for segmentation, and identified only transformer ownership as a possible basis – E3 stated that transformer ownership may support a 1000 kW segment breakpoint, but noted that BC Hydro already effectively segments on transformer ownership because BC Hydro offers discounts to those customers that own their transformers.

E3 also undertook a segmentation analysis of the then LGS rate class. E3 noted that customer accounts should be segmented using readily observable variables that can be easily understood, together with other factors such as customer understanding and practicality of tariff administration. As a result, E3 concluded that five was the maximum number of GS rate classes BC Hydro could effectively administer, and examined potential groupings defined by the following kW ranges: (1) 36-150 kW; (2) 150-500 kW; (3) 500-1000 kW; (4) 1000-3000 kW; and (5) over 3000 kW. E3 found that statistical clustering of costs data indicated that there were two potential segmentation breakpoints: 100 kW and 150 kW. BC Hydro's LGS Application used the 150 kW breakpoint, with MGS service being for accounts with monthly peak

demand between 35 kW or greater and less than 150kW, and LGS service for accounts with monthly peak demand of 150 kW or greater.[7]

SGS

No participant questioned the existing basis for the SGS rate class, which is a maximum monthly demand of less than 35 kW. The SGS 35 kW breakpoint has existed since at least 1974 and is driven in part by metering practice. SGS customers do not have demand meters and under the SGS service RS 1300/1301/1310/1311 there is no demand charge. Most Canadian utilities surveyed do not have demand charges for their smaller GS customers. In the 2007 RDA review process, BC Hydro opposed increasing the 35 kW breakpoint as it would eliminate the demand price signal for additional customers.[8]

In addition, BC Hydro concludes that the existing breakpoint for SGS is appropriate on the basis of its jurisdictional assessment and segmentation analysis conducted to date. BC Hydro surveyed Canadian electric utilities listed in Table 1 below, which sets out the various utility breakpoints for their GS classes. (For SGS purposes BC Hydro also examined New Brunswick Power, which has a 20 kW small GS breakpoint, and Nova Scotia Power, which has a 32,000 kWh breakpoint for small GS, roughly equivalent to 10 kW). While the SGS threshold varies among Canadian utilities, BC Hydro's 35 kW threshold falls within the range of breakpoints used.

MGS and LGS Segmentation Analysis

In response to stakeholder comments, BC Hydro undertook a jurisdictional assessment and a COS analysis.

[7] The additional energy basis for segmenting between LGS and MGS arose from the 2009 LGS NSA; see sections 3 and 4 of Appendix B to BCUC Order No. G-110-10, *supra*, note 2.

[8] Exhibit B-3 in the 2007 RDA proceeding, BC Hydro's response to BCUC Information Request 1.38.1; http://www.bcuc.com/Documents/Proceedings/2007/DOC_15082_B-3_BCH-IRs-Round-1.pdf.

Jurisdictional Assessment

Table 1 Canadian Jurisdictional Summary

Utility/Number of GS Customers	Small	Medium	Large	Extra Large
BC Hydro ~183,000 customers	<35 kW (160,000 customers) No demand charge	35-150 kW (16,000 customers)	>150 kW (7,000 customers)	
FortisBC	<40 kW No demand charge	40-500 kW	<500 kVA	
FortisAlberta ~59,000 customers	<75 kW (51,000 customers)	75 kW – 2 MW (8,000 customers)	>2 MW (170 customers)	
Enmax ~35,000 customers	<5000 kWh /month (24,000 customers) No demand charge	<150 kVA (9,000 customers)	>150 kVA (2,000 customers + 252 primary)	
Epcor ~34,000 customers	<50 kVA (28,000 customers) No demand charge	50 – 150 kVA (4,000 customers)	150 kVA – 5 MVA (2,000 customers + 110 primary)	>5 MVA (20 customers: site-specific rates)
SaskPower ~60,000 customers	<75 kVA (50 kVA free)	75 – 2 MVA	>2 MVA	
Manitoba Hydro ~69,000 customers	50 kVA No demand charge	<200 kVA	>200 kVA (31 customers)	
Hydro One ~119,000 customers	<50 kW (111,000 customers) No demand charge	>50 kW (8,000 customers)		
Hydro Ottawa ~27,000 customers	<50 kW (24,000 customers) No demand charge	50 – 1500 kW (3,000 customers)	1500 kW – 5 MW (76 customers)	>5 MW (11 customers)
Toronto Hydro ~81,000 customers	<50 kW (69,000 customers) No demand charge	50 – 1000 kW (12,000 customers)	1 – 5 MW (440 customers)	>5 MW (49 customers)
Hydro Quebec ~311,000 customers	<65 kW (50 kW free) (287,000 customers)	>50 kW (24,000 customers)	>5 MW (100 customers)	
Newfoundland Power ~22,000 customers	<10 kW (12,000 customers) No demand charge	<100 kW (9,000 customers)	110 – 1000 kVA (1,000 customers)	>1000 kVA (65 customers)

COS Analysis

BC Hydro's COS consultants (Cuthbert Consulting Inc. and NewGen Strategies and Solutions, LLC) advised BC Hydro that the following could be used to inform a COS-based analysis of the GS rate class as a whole:

- Load characteristics:
  - Maximum or peak demands (possibly for both high load hours and low load hours);
  - Average demands or annual kWh (possibly for both high load hours and low load hours);
  - Load factors – based on non-coincident customer peak (**NCP**) load, customer load at time of class peak, and customer load at time of system peak, high load hours, and low load hours;
  - Non-Coincident Peak Diversity Factor – peak demand of customer/customer demand at time of class peak;
  - Coincident Peak (**CP**) Diversity Factor – peak demand of customer/customer demand at time of system peak.
- Service characteristics:
  - Service voltages;
  - Single vs. three phase;
  - Differences in metering or customer service costs.

In its COS study, BC Hydro identifies the key cost drivers to its electrical system. More than 90 per cent of costs are driven by three load characteristics: total energy use (kWh), peak demand during the four months in which the winter peak occurs (4 CP), and NCP. To analyze the segmentation of the GS class and to align rate class cost recovery (rate design) with rate class cost causation, BC Hydro focused

on these three usage characteristics of its load customers. This analysis attempts to answer the question of whether the proportionate rate class allocators (as listed in column 3 in Table 2) would change dependent on how customers are grouped into rate classes.

Table 2 Costs by Function and Classification

Cost Category	Percent of Costs for General Service Rate Classes (%)	Allocator
Generation Energy	45.5	kWh
Generation & Transmission Demand	30.1	4CP
Distribution Demand	18.2	NCP
Distribution Transformer	3.1	Direct Assigned
Distribution Customer	0.5	# Customers
Distribution Metering	1.8	Weighted # Customers
Customer Care	0.8	# Customers & Revenue

Method 1 – Individual Customer by Sampling

Given these system characteristics, BC Hydro analyzed a random sample of 1,000 customers from each of its SGS, MGS, and LGS rate classes. The total costs attributed to the three rate classes in the F2016 forecast COS study were pooled and re-allocated to the customers in the sample by the individual customers attributes. Using actual F2014 hourly load profiles for all of the sampled customers (3,000 in total), each customer was assigned a pro rata share of the costs based on its total energy consumed, consumption during the winter peak period (4CP method) and its peak annual demand (NCP method).

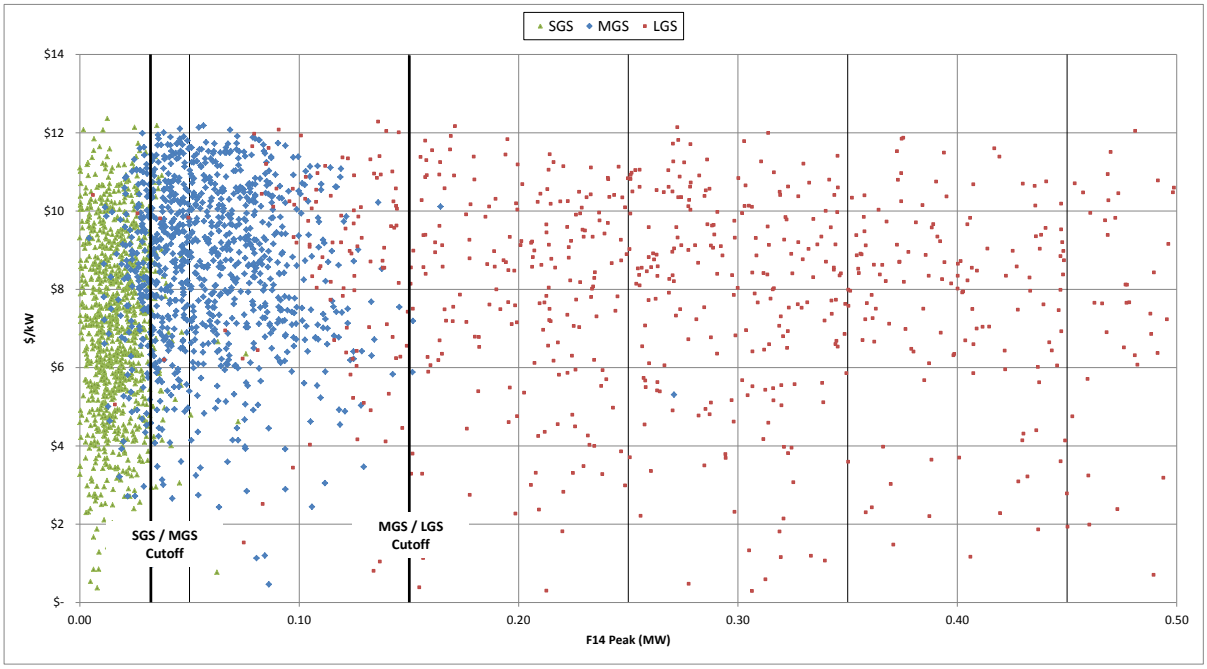
Energy: Generation costs are driven by two specific load characteristics: the total energy required and the time the energy is required. BC Hydro breaks these costs into Generation Energy, determined by kWh, and Generation Demand, determined by peak system usage and 4CP. Given that Generation Demand costs are separately evaluated using 4CP, the $/kWh cost is simply the total energy cost divided by all kWh consumed by the individual load customers. If this was

BC Hydro's only cost driver, there would be a single GS rate class because the $/kWh costs of providing energy are identical for all customers. BC Hydro concludes there is no basis on which to segment rate classes by energy. Energy costs account for around 45 per cent of BC Hydro's total annual costs.

Coincident Peak: Generation costs are also driven by the requirement that BC Hydro provide a greater amount of energy at certain times of the day and certain times of the year. Transmission costs are determined to be similarly incurred. Darker and colder days in the winter increase the lighting and heating load usage during this period. BC Hydro typically observes the greatest demand for electricity during the months of November through February. System costs associated with system peak demand account for around 30 per cent of BC Hydro's total annual costs.

Individual Customer load during the 4 CP winter peak period was compared with total usage for the super-class of all SGS, MGS and LGS customers at the same peak period. This yields a ratio that was multiplied by the total costs attributable to peak period usage for the super-class. The peak costs assigned to the individual customer could then be divided by the customer's size (as represented by their annual peak) to arrive at a $/kW cost. If the size of a customer is a determining factor in peak cost causation, there should be a noticeable trend when the $/kW is graphed against kW peak demand. However, as observed in Figure 1, this trend does not emerge from the analysis and there does not appear to be a natural breakpoint on the basis of 4CP related costs. (For display purposes, customers with an annual peak greater than 0.5 MW are not shown in Figure 1. BC Hydro will provide more information on the costs of serving customers with peak loads greater than 0.5 MW at the upcoming June and July workshops concerning GS rates and rate classes respectively).

Figure 1 Average Cost of Generation and Transmission Demand by Customer Size



Non-Coincident Peak: Distribution system costs are determined to be caused by multiple customer attributes, including maximum load, transformer size, metering and fixed charges. The largest single Distribution cost component is driven by demand-related costs, which are allocated to customer classes in the COS study using NCP and account for around 15 per cent of BC Hydro's total annual costs and around 18 per cent of annual costs assigned to general service customers.

In the COS study NCP costs are assigned to individual rate classes on a pro rata basis using the ratio of the class' NCP to the sum of all rate class NCPs. This method results in a coincidence factor within the rate class, which can vary depending on how rate classes are defined. For example, in F2014 the rate class peak for the MGS class occurred on February 6th and for the LGS class on December 9th. However, when these classes are combined, their class peak occurred on December 5th. In this analysis, there is no class aggregation used to assign the individual customer NCP costs and customer NCP is truly non-coincident

throughout the data set. Since customer NCP is used as the allocator to apportion these costs to each customer, the $/kW cost is the same for all sizes of customers. Thus, using customer size alone under this method is not determinative in identifying cost differences among individual customers.

Transformer Costs: BC Hydro has proposed to directly assign transformer costs in the F2016 COS by assessing each rate class's share of the use of each transformer. On a per kW basis, the cost of transformers tends to decrease after a certain threshold. BC Hydro will be undertaking a more refined analysis to determine whether there is a clear breakpoint for both overhead and underground transformers that may translate into a difference in the cost of service for different sizes of customers. Transformer costs account for about 3 per cent of total costs assigned to general service customers (refer to footnote 21 for more information on transformers in the COS study).

The results of Method 1 were not conclusive. Assigning costs to individual customers to yield an average rate is dependent on how the individual pro rata share is calculated. The pro rata share for energy and 4CP does not change depending on how customers are grouped and these allocators assign more than 75 per cent of costs to general service customers. However, as noted in the discussion of NCP, the calculation can change dependent on how customers are grouped. This allocator assigns around 18 per cent of costs to the GS rate classes and BC Hydro believes it can improve on the analysis completed to date by undertaking a second method of segmentation analysis.

Method 2 – Customer Clustered by Size

BC Hydro will undertake as 'Method 2' analysis of clusters of customers based on the size of their annual peaks. Each customer cluster will be assigned costs based on its total energy consumed, consumption during the winter peak period and peak demand. Consistent with Method 1, Method 2 will pool the total costs attributed to

the three rate classes in the F2016 forecast COS study and re-allocate them to the customer clusters by the clusters' attributes. This method will be similar to that presented in the 2009 LGS Application but with greater refinement due to the availability of data. BC Hydro anticipates discussing the results of the Method 2 analysis at the July 30, 2015 'wrap-up' workshop.

Conclusions

Most Canadian jurisdictions segment GS customers into larger and smaller GS categories, with three GS rate classes appearing to be most common. Cost analysis completed to date does not suggest a natural breakpoint to segment the GS class. There is no difference in $/kWh energy costs between GS customers and there is no pattern in Figure 1 that suggests a breakpoint on the basis of $/kW differences in 4CP related costs. In addition, $/kW distribution NCP related costs are the same for all sizes of GS customers. In BC Hydro's view, as a starting point maintaining existing segmentation allows stability and continuity for customers' ease of understanding. BC Hydro will continue to undertake cost of service analysis for segmenting the LGS class and creating what AMPC refers to as a '**XLGS**' class; as noted above BC Hydro will conduct additional (Method 2) analysis. In addition, E3 as part of the 2009 LGS Application advised that other factors such as customer understanding and practicality of tariff administration can be used as basis for segmentation.

2 SGS Rate Structure

The SGS rate class is served under RS 1300/1301/1310/1311 and is defined under those RS as GS customers whose billing demand is less than 35 kW. BC Hydro reviewed the current SQ rate structure for the SGS class, which consists of an energy charge and a Basic Charge as follows ($F2016):

Energy Charge (cents/kWh)	Basic Charge ($/day)
10.73	0.2257

BC Hydro put forward its position that in its view, there is no apparent strong basis to depart from the current SGS rate structure. BC Hydro noted that the SGS SQ Basic Charge is estimated to recover about 33 per cent of customer-related fixed costs for F2016. In comparison, the Residential Inclining Block (**RIB**) rate Basic Charge recovers about 45 per cent of customer-related fixed costs for F2016. BC Hydro sought feedback on its view that there is no apparent basis to depart from the SQ SGS rate structure, and whether BC Hydro should consider increasing the SGS Basic Charge to recover a greater per cent of customer-related fixed costs.

2.1 Participant Comments

Commission staff are of the view that a strong basis to depart from the current flat energy rate for the SGS rate class will exist only if more than one of the following situations occurs:

- Conservation derived from a flat rate is not considered incremental conservation but natural conservation and the other conservation rate structures are not generating the projected Demand Side Management (**DSM**) savings relied upon by BC Hydro for load resource planning;
- Rate rebalancing is required on account of the SGS rate class having a R/C ratio outside the range of reasonableness; and
- Anticipated F2016 to F2019 rate increases for the SGS rate class (based on the rate increase caps contained in section 9 of Direction No. 7) result in rates much higher than the LRMC.

Commission staff indicate that it would be helpful for BC Hydro to discuss increasing the SGS Basic Charge in the 2015 RDA not only by comparing the percent of fixed cost recovery with the amount of recovery under the RIB Basic Charge of BC Hydro

and other utilities, but also in the context of how general rate increases through Revenue Requirement Applications (**RRAs**) are applied to all three elements of BC Hydro's RIB rate, including the Basic Charge, as determined through the 2008 RIB Decision, the 2011 RIB Re-Pricing Decision and the 2013 RIB Re-Pricing Decision. Commission staff assert that during the period where the LRMC was increasing at a faster rate than inflation or general rate increases, as in the past, the RIB Basic Charge has been adjusted with slower increases than the energy rates to maintain an energy charge that is more reflective of the energy LRMC. Commission staff suggest that in an environment of a stable or declining LRMC, and where relatively low customer-related fixed cost recovery through the Basic Charge presents a risk to revenue stability, then a slight increase in the Basic Charge and a reduction in the energy charge becomes a supportable proposal.

CEC states that there is a strong basis to depart from the SQ SGS design because SGS customers should see the same price signals for the value of conservation and efficiency as other customer classes. CEC indicates that where energy savings come from is irrelevant to the value of the savings to the BC Hydro system, and independent of what a customer pays for energy service. CEC is proposing an Efficiency Rate Credit option concept (which is discussed in section 6.3 of this memo) which would be voluntary and thus is not an alternative to the current SGS rate structure. CEC believes it would be sensible to increase fixed cost recovery through the SGS Basic Charge if the energy charge is not relied upon as an efficient price signal, particularly given that there are no demand charges to the SGS class.

BCOAPO, Translink, AMPC, FNEMC and BCSEA agree that there is no strong basis to depart from the SQ SGS rate structure. BCOAPO comments that the SQ SGS rate structure should be revisited in the future if the flat energy rate materially exceeds BC Hydro's energy LRMC. BCOAPO suggest that the level of the SGS Basic Charge be revisited once the final preferred COS methodology has been determined, including the portion of customer-related fixed cost recovery. AMPC

suggests consideration be given to an increase in the SGS Basic charge to recover a higher portion of customer costs in line with the practice of other utilities. In contrast, BCSEA does not see a basis for increasing the Basic Charge cost recovery.

2.2 BC Hydro Consideration

Current Rate Structure and Alternatives

BC Hydro continues to believe that there is no strong basis to depart from the SQ SGS rate structure. No identified alternative rate structure is viable at this time:

- An inclining block rate is not viable given the overall heterogeneity of the SGS rate class. There are approximately 170,000 accounts on SGS service, with typical consumption in the range of about 5,000 to 35,000 kWh/year. This reflects a high degree of heterogeneity in SGS customer characteristics. It is difficult to conceive of an inclining block rate alternative to the existing flat energy rate under these circumstances. Absent a baseline-based rate structure, there are no means to develop, nor criteria to support, a one-size-fits-all threshold for a SGS inclining block rate that would be a fair reflection of typical SGS customer consumption, such as has been determined for the RIB rate. The most common Canadian electric utility rate structure for this type of customer is a flat or declining energy charge. No Canadian jurisdiction other than Ontario has implemented inclining block for smaller GS customers; Ontario is in the process of phasing-out the inclining block structures. Refer to Attachment 5 to this memo;
- It is not appropriate to consider a baseline-based rate structure for SGS customers at this time given the identified problems with the baseline MGS and LGS rate structures. No other Canadian electric utility has implemented baseline-based rates for GS customers.

Commission staff and BCOAPO comment that one possible condition as a basis to review and possibly move away from the SGS flat energy rate structure is whether anticipated Revenue Requirement Application-related rate increases applied to the flat energy charge yield a flat rate much higher than the upper end of BC Hydro's energy LRMC. This condition does not exist at this time; the current flat SGS energy rate is within BC Hydro's energy LRMC range (F2016: SGS energy rate is 10.73 cents/kWh compared to the upper end of the energy LRMC range of 11.01 cents/kWh). This also responds to CEC's comment that SGS customers "should see the same price signals for the value of conservation and efficiency as other customer classes". SGS customers are seeing an energy rate that is within BC Hydro's energy LRMC range, and BC Hydro's energy LRMC has been a referent for the RIB Step 2 energy rate and the MGS/LGS energy charges.

Regarding BCUC staff and CEC comments, **natural conservation** is conservation induced by general rate increases applied to the customer classes through RRAs, absent any rate structure changes, and is not considered by BC Hydro to be DSM.[9] **Rate structure conservation** is the incremental conservation induced by changing the elements of the rate structure and is considered by BC Hydro to be DSM. These two together comprise **total conservation**. In BC Hydro's view, the SGS flat energy rate is delivering natural conservation through the application of RRA increases. BC Hydro agrees with CEC's observation that both natural conservation and rate structure conservation reduce BC Hydro's load forecast; however, BC Hydro does not agree that total conservation savings are independent of what a customer pays for energy service. BC Hydro's elasticity estimate for commercial customer load forecasting purposes (natural conservation) is -0.05. This elasticity estimate results

[9] Refer to the definition of 'demand-side measures' in section 1 of the *Clean Energy Act*, S.B.C. 2010, c.22; https://www.canlii.org/en/bc/laws/stat/sbc-2010-c-22/latest/sbc-2010-c-22.html. While a rate can be DSM, it must be "undertaken … to conserve energy or promote energy efficiency" and/or "to reduce the energy demand a public utility must serve".

from a 2008 jurisdictional survey conducted by E3. Elasticities are higher for Step 2 of BC Hydro's RIB (-0.1 elasticity).[10]

Increasing the Basic Charge

In response to participant feedback, at the June 25/26, 2015 GS workshop BC Hydro will present the results of increasing the amount of fixed cost recovery of the SGS Basic Charge from 33 per cent to 45 per cent over the period F2017-F2019. Modelling the increase to 45 per cent reflects BCUC staff's suggestion of using the RIB Basic Charge cost recovery as a guide. BC Hydro is attempting to act on AMPC's suggestion of also using "the practice of other utilities" but is having difficulty determining the amount of Basic Charge cost recovery for other utility GS rate class (this same difficulty carries over to other utility GS rate class demand charge cost recovery).

Concerning Commission staff's comment concerning RIB Basic Charge adjustments, as identified in BC Hydro's 2013 RIB Re-Pricing Application, the Residential Basic Charge was introduced in 1977 and has since been generally increased by the amount of RRA-related general rate increases as approved by the BCUC. This was the case when BC Hydro's energy LRMC was increasing as at time of the 2011 RIB Re-Pricing Decision,[11] and when BC Hydro's energy LRMC was stable as at the time of the 2013 RIB Re-Pricing Decision.[12] As stated above BC Hydro will model increasing the SGS Basic Charge cost recovery and present the results at the June 25/26, 2015 workshop.

[10] Refer to Part 1, Q.4 of the RIB-related Workshop 9B Summary Notes; http://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/regulatory-matters/2015-06-03-bch-rda-wksp9b-smr.pdf.

[11] Appendix A to BCUC Order No. G-45-11, page 3 of 19; http://www.bcuc.com/Documents/Proceedings/2011/DOC_27176_G-45-11_BCH-RIB-Re-Pricing-Reasons.pdf.

[12] BCUC Order No. G-13-14; http://www.bcuc.com/Documents/Proceedings/2014/DOC_40513_G-13-14-BCH-RIB-Rate-Re-Pricing-SRP-Reasons.pdf.

3 MGS Energy Rate Structure

The MGS rate class is served under RS 1500/1501/1510/1511 and is defined under those RS as GS customers whose billing demand is equal to or greater than 35 kW but less than 150 kW or whose energy consumption in any 12-month consecutive period is equal to or less than 550,000 kWh. The F2016 MGS energy rates are:

Part 1 Energy Rate – Tier 1 (cents/kWh)	9.89
Part 1 Energy Rate – Tier 2 (cents/kWh)	6.90
Part 2 Energy Rate (cents/kWh)	9.90

In RDA Workshop 8a BC Hydro outlined the regulatory history of the MGS rate. In 2009 BC Hydro applied for a MGS rate structure with a flat energy rate for all energy consumed in a monthly billing period (the **2009 LGS Application**).[13] In the 2009 LGS Application, BC Hydro emphasized the novelty of the two-part baseline-based energy rate it was proposing for the LGS rate class (150 kW breakpoint) and stated the following with respect to extending a baseline rate to the MGS rate class:

> … the specific two-part rate proposed for the new LGS class is quite complex … The novelty and complexity of BC Hydro's proposed two-part rate means it would be much more challenging to manage, and therefore much riskier to both BC Hydro and its customers, if it were to be applied at the outset to all 23,000 … accounts, rather than to the 5,000 [LGS] accounts with demand of 150 kW or greater.[14]

The 2010 NSA resulted in the current MGS two-part baseline-based energy rate. BC Hydro reviewed the January 2015 Evaluation and the December 2013 Evaluation, both of which found no statistically significant conservation is being delivered through the MGS rate. Awareness and understanding of the MGS rate structure is low, which may have led to no statistically significant conservation outcome. BC Hydro highlighted some of the customer issues that stem from the

[13] BC Hydro 2009 LGS Application, page 1-5; http://www.bcuc.com/Documents/Proceedings/2009/DOC_23224_2009_10_16%20APPL_09LGS.pdf.

[14] *Ibid*, page 2-14; refer also to pages 3-9 to 3-10.

complexity of the MGS rate, including difficulty in business forecasting and budgeting. BC Hydro also reviewed the heterogeneous nature of the MGS class and how this is an important consideration in rate design (this is discussed in section 1 of this memo).

In RDA Workshop 8b BC Hydro canvassed the inputs and objectives for developing alternative MGS rate structures, and the key rate structure criteria for assessing whether alternative designs would be 'screened-in' for further in-depth analysis for review with stakeholders, or 'screened-out' from further review. The criteria for this exercise included: high bill impacts, suitability for a heterogeneous group of customers and/or performance against the eight Bonbright rate design criteria. In addition to the SQ MGS rate structure, the categories of screened-in alternatives for further analysis were: flatten the energy charges but retain the baseline; remove the baseline (the MGS Flat Energy Rate); and flatten the demand charges (demand charges are addressed in section 5 of this memo).

BC Hydro sought feedback on customer experience with the MGS rate, and whether the rate provides a clear signal to conserve energy. BC Hydro also sought input concerning the screened-in alternatives, and in particular whether to retain the baseline or refine the existing structure to address known issues. BC Hydro also asked whether there are other MGS energy rate alternatives that BC Hydro should be considering.

3.1 Participant Comments

Stakeholders generally conclude that the SQ MGS rate structure does not send a clear price signal for conservation and is poorly understood. Participants highlight the detrimental impacts of the MGS rate structure on customer business expansion.

Loblaws, with mostly LGS but with some MGS accounts, is the only MGS customer at the Workshops 8a/8b contending that the MGS rate provides a clear price signal to conserve electricity and that the current definition of baselines is appropriate; it

prefers the SQ MGS design. In contrast, TransLink, also with mostly LGS but some MGS accounts, proposes that BC Hydro only carry forward MGS alternatives that do not retain the baseline. TransLink believes incentives for MGS class energy efficiency are best provided through DSM programs. The May 2015 BOMA and BCFPA/CME/key accounts sessions described at the beginning of this memo yielded somewhat similar results: 15 of the 22 feedback forms submitted by attendees favoured the MGS Flat Energy Rate with many emphasizing DSM programs as the better vehicle for conservation, with three preferring the flatten the energy charges but retain the baseline alternative and two favouring the SQ MGS rate.

Commission staff note that the MGS rate applies to a very large number of customers, is administratively complex and has failed to generate conservation savings, with most MGS customers only seeing the Part 1 Tier 1 energy rate. Commission staff conclude that the MGS Flat Energy Rate could be used as the base alternative with other alternatives assessed in comparison in terms of achieving rate design objectives. Commission staff highlight that the MGS Flat Energy Rate is close to or within BC Hydro's energy LRMC range. Commission staff ask BC Hydro whether the two 2007 RDA directive 19 objectives of developing a LGS rate encouraging conservation and which would not unduly harm or benefit any of the customers in that class[15] have proven to be incompatible for the diverse MGS and LGS customer classes.

CEC states that current monthly baseline determinations are complicated and should be more simply defined if retained. CEC notes that design considerations such as the period for setting baselines and the level of PLBs are dependent on the price signal that is intended to be communicated through the rate structure. CEC is of the view that other possible base rate alternatives need to be considered along with options for setting a price signal of conservation and efficiency. BC Hydro's

[15] In the Matter of British Columbia Hydro and Power Authority: 2007 RDA Decision, page 209.

consideration of CEC's proposed Efficiency Rate Credit concept is contained in section 6.3 of this memo.

Viterra, a LGS customer, states that the MGS Flat Energy Rate is appropriate for the MGS class, although as set out in section 1.1 above Viterra proposes a reconfigured, smaller MGS class to which this rate structure would apply. AMPC comments that two-part rates are confusing for all but the most sophisticated GS customers, noting that bill calculations are convoluted relative to the size, type and resources of typical GS customers. AMPC highlights that the inability to annually adjust baselines to reflect changes in use is also a significant problem for a heterogeneous class, and thus a flat energy rate may be more useful in providing a conservation price signal than a tiered energy rate. Despite this general view, AMPC advises that BC Hydro should carry forward both the retain baseline and no baseline alternatives for the MGS class, while considering new options as well.

BCOAPO highlights that the MGS rate structure ranks far lower than the LGS rate structure in terms of simplicity and understanding by customers. BCOAPO supports carrying forward the retain baseline and flat Part 1 energy rate alternative, noting that a flat Part 1 energy rate is simpler and an improvement over the SQ, especially given that about half of MGS customers are not even exposed to the Part 1 Tier 2 rate. BCOAPO makes a general observation for both MGS and LGS rate design that the no baseline alternative is a useful benchmark under which to evaluate the other alternatives, given the trade-offs in simplicity, understanding and economic efficiency.

BCSEA is inclined to support the MGS Flat Energy Rate at this time, but noted that it may be useful for comparison purposes if BC Hydro advanced the SQ MGS rate. BCSEA expresses scepticism that an approach of tweaking the SQ MGS rate will address the problem that the SQ MGS rate is little understood by MGS customers.

Participants generally agree that the criteria BC Hydro used to screen-out alternatives from further consideration are appropriate. By extension, most participants agree that the screened-out alternatives should not be advanced any further. For example, Commission staff note that retaining the baseline for MGS customers requires good justification given the two evaluation report results, noting as well that the 'credit only' option doesn't appear to add benefit and instead appears to provide little improvement to the complexity problems of the existing rates. CEC suggests that some screened out alternatives could have conceptual advantages; for example by considering alternative increases in demand charge cost recovery to offset bill impacts of energy rate alternatives. Similarly, Commission staff note that the current 15 per cent demand cost recovery of the MGS class could be raised, though unlikely to full 100 per cent cost recovery. Demand cost recovery is considered in section 5 of this memo.

3.2 BC Hydro Consideration

BC Hydro's preferred energy rate structure for the MGS rate class is the MGS Flat Energy Rate. BC Hydro developed this preference based on the results of the two evaluation reports, the jurisdictional assessment and feedback received to date. In addition, as part of its consideration, BC Hydro reviewed complaints lodged by MGS customers with BC Hydro. The general theme of the complaints was that the current MGS rate inhibits growth. Most complaints required BC Hydro to explain how the baseline works.

BC Hydro will review the MGS Flat Energy Rate structure in detail at the June GS workshop, including potential transition options. The SQ MGS rate will be advanced solely for comparison purposes. For MGS rate analysis, BC Hydro will focus on the MGS demand charge structure and cost recovery (refer to section 5 of this memo) at the June 25/26, 2015 workshop. BC Hydro will compare the coincident effect of flattening its inclining block demand charges under the MGS Flat Energy Rate, with three demand charge alternatives (SQ, Flat Demand Charge and Two Step Demand

Charge (which retains Tier 1 at a zero charge)). BC Hydro will also examine the impacts of increasing the amount of demand costs recovered through the MGS demand charge.

In contrast to the feedback received on LGS alternatives described in section 4.1 of this memo, there appears to be no major resistance to the MGS Flat Energy Rate, particularly given that the resulting flat energy rate is very close to the lower end of BC Hydro's energy LRMC energy range and therefore could be considered an efficient price signal. The MGS Flat Energy Rate would have an energy charge of 8.98 cents/kWh in F2016 as compared to the lower end of the energy LRMC of 9.36 cents/kWh ($F2016).

In response to the question of Commission staff, BC Hydro concludes that the 2007 RDA directive 19 objective of encouraging conservation without unduly harming or benefiting customers has proven to be incompatible for the diverse MGS customer group. As noted above, BC Hydro did not propose a baseline rate for MGS as part of the 2009 LGS Application, in part based on its assessment that such a rate was unsuited to the MGS class for reasons such as the lack of resources of MGS customers and a generally lower level of sophistication in comparison to LGS customers.

4 LGS Energy Rate Structure

The LGS rate class is served under RS 1600/1601/1610/1611 and is defined under those RS as GS customers whose billing demand is equal to or greater than 150 kW or whose energy consumption in any 12-month period is equal to or greater than 550,000 kWh. The F2016 LGS energy rates are:

Part 1 Energy Rate – Tier 1 (cents/kWh)	10.66
Part 1 Energy Rate – Tier 2 (cents/kWh)	5.13
Part 2 Energy Rate (cents/kWh)	9.90

In RDA Workshop 8a BC Hydro reviewed the LGS regulatory history. BC Hydro applied for a two-part baseline-based energy rate for the new LGS rate class (greater than 150 kW). The proposed LGS energy charge baseline rate structure would be the first for GS customers in North America. BC Hydro's overarching purpose behind the LGS energy rate was to achieve its conservation objectives,[16] and thus BC Hydro prioritized the Bonbright efficiency criterion.

BC Hydro also discussed the January 2015 Evaluation results that found LGS conservation savings were 77 gigawatt hours per year (**GWh/year**) at a lower level of statistical confidence (85 per cent) as compared to the December 2013 Evaluation. That is, under the same statistical basis for measured savings in the December 2013 Evaluation (90 per cent confidence level), the estimated conservation savings in F2014 were zero GWh/year. BC Hydro explained that awareness and understanding of the LGS rate structure is low and that its focus group results confirm that the complexity of the current LGS two-part baseline-based rate structure is a barrier to customer understanding of the price signal and customer ability to act upon it.

BC Hydro reviewed the heterogeneous nature of the LGS class and how this is an important consideration in rate design and the criteria used to screen-in alternatives (refer to section 3 above). BC Hydro sought feedback on customer experience with the LGS rate, and whether the rate provides a clear signal to conserve energy. BC Hydro also sought feedback on the screened-in alternatives, whether to retain the baseline or to refine the existing structure to address known issues, and whether there are other LGS alternatives that BC Hydro should be considering.

4.1 Participant Comments

The views on the current LGS rate and potential alternatives are more mixed than with respect to the MGS rate.

[16] 2009 LGS Application, *supra* note 13, page 2-22.

The May 2015 BOMA and BCFPA/CME/key accounts sessions described at the beginning of this memo yielded the similar results for the LGS rate as the MGS rate: 14 of the 22 feedback forms submitted by attendees favoured the LGS Flat Energy Rate with many emphasizing DSM programs as the better vehicle for conservation, with three preferring the SQ LGS Simplified Energy Rate and three favouring the SQ LGS Energy Rate.

Loblaws is of the view the current LGS rate provides a clear price signal to conserve electricity and that the current definition of baselines is appropriate; it prefers the SQ LGS Energy Rate. Loblaws is the only LGS customer submitting written comments that favoured the SQ LGS Energy Rate.

TransLink states that customer baselines and the PLBs should be reviewed and re-established or re-justified during periods of growth to minimize the inherent penalties being imposed on businesses. TransLink prefers that BC Hydro simply not carry forward LGS alternatives which retain baselines. Similar to TransLink, Panorama Mountain Village Inc. (a mountain resort) and Toby Creek Utility (a micro utility and electrical re-seller) (**Panorama**) has a preference for the LGS Flat Energy Rate with no baseline alternative. Panorama highlights a number of problems with the LGS baseline approach: it is difficult to predict and therefore budget for electricity costs particularly with the three year rolling average; as a result, the SQ LGS Energy Rate does not incent conservation; and in Panorama's view, the SQ LGS Energy Rate is a barrier to economic development. Panorama's demand charge-related comments are set out in section 5.1 of this memo.

The remaining LGS customers submitting written comments identified issue with and suggested modifications to the SQ LGS Energy Rate. Peterson Commercial Property Management (**Peterson**), with two LGS accounts and one MGS account, commented only on the LGS rate. Peterson has concerns with the current baseline approach and suggests that baseline determination on the purchase of a new building should follow the building and not the account holder. In addition, Peterson

states that development of guidelines would add flexibility to review baselines when the number of building occupants changes.

Vancouver Aquarium has LGS accounts, and recommends that BC Hydro retain the baseline approach but modify the LGS rate by dropping the three year calculation of the baseline. Vancouver Aquarium is of the view that the three year baseline calculation likely "masked" actual conservation accomplishments. Vancouver Aquarium gives the example of its new expansion which was built to LEED standards with forecasted energy savings of about 20 per cent but the result was a higher baseline due to the three-year averaging calculation. Vancouver Aquarium recommends creation of a baseline rate for each tier which would be slightly more than the average and BC Hydro encouragement of customers to apply for a lower energy rate by demonstrating energy savings through DSM programs. Vancouver Aquarium states that reducing specific customer baseline energy rates for a specified period of time such as one to five years based on actual performance would encourage conservation.

Ivanhoe Cambridge, a landlord with several LGS accounts, suggests refining the LGS rate by examining: (1) energy charges for customers without HBLs. Ivanhoe Cambridge submits that the current 85/15 rate for the first year prior to establishment of a HBL (85 per cent of consumption billed at Part 1 energy pricing and 15 per cent of consumption billed at the energy marginal cost-based rate) is complicated and "punitive"; (2) Tariff Supplement No. (**TS**) 82, the Rules for LGS Prospective Growth Applications, which Ivanhoe Cambridge states is too restrictive in terms of the necessary increase in energy consumption over too short a time frame; and (3) the unintended consequences of baselines in the context of gradual occupancy rates.

Viterra believes that the SQ LGS Energy Rate is unnecessarily complicated and "penalizes" larger LGS customers. Viterra states that the LGS Flat Energy Rate (no baseline) should not be carried forward because it would remove the incentive for conservation. Viterra strongly favours a TSR-Like Rate targeted to larger LGS

customers. Viterra reasons that an annual model for baselines would be predictable given that the cyclic nature of business tends to average out. Viterra comments that BC Hydro has failed to provide consistent revenue metering that guarantees the necessary consistency that a calendar month in one year is the same calendar month in the next year, stating that this is counterproductive to the baseline design.

AMPC, which represents both Transmission service and LGS service customers, considers that the current baseline approach is not sufficiently flexible for larger LGS customers who tend to experience significant changes in operations and conservation investments. Like Viterra, AMPC suggests that a LGS TSR-Like Rate where baselines can be individually administered would be more appropriate and effective for the largest LGS customers. AMPC requests that BC Hydro consider an "XLGS" class with individual baselines to replace the PLBs and formulaic historical baseline determinations. AMPC notes that under circumstances where the heterogeneity of the class does not allow annual baseline adjustments, a flat energy rate may be more useful in providing a conservation price signal than a tiered energy rate. AMPC comments that BC Hydro should retain both the retain baseline and no baseline alternatives while considering new options as well, including the creation of an XLGS rate class with a TSR-Like Rate.

CEC proposes the optional Efficiency Credit Rate concept to address the known issues with the SQ LGS Energy Rate; refer to section 6.3 of this Memo for BC Hydro's consideration. If baselines are retained, CEC believes that they should be simplified.

BCOAPO states that BC Hydro should carry forward the retain baseline for LGS, commenting that if the Part 1 rate was also flattened the overall rate structure would be simplified and more easily understood (this is the SQ LGS Simplified Energy Rate). BCOAPO points out that the resulting flat energy rate under Part 1 would be materially less than the LRMC rate in Part 2, which should support economic efficiency considerations. BCOAPO is of the view, however, that the LGS Flat

Energy Rate is a useful benchmark under which to evaluate the other alternatives, given the trade-offs in simplicity, understanding and economic efficiency (even while recognizing that a flat Part 1 energy rate is materially below the LRMC range). BCOAPO contends that there are options within each high-level alternative energy rate structure (for example, as may be associated with demand charge increases and offsetting lower energy charges or through changes to the PLB).

BCSEA is inclined to support the LGS Flat Energy Rate at this time, but submitted that BC Hydro should carry forward all three options – the SQ LGS Energy Rate, the SQ LGS Simplified Energy Rate and the LGS Flat Energy Rate.

Commission staff question whether in BC Hydro's view the 2007 RDA Decision direction 19 objectives of encouraging conservation without unduly harming or benefiting customers has proven to be incompatible for the diverse LGS customer groups. Commission staff suggest that the LGS class has a more manageable number of customers and observe that the current rate structure is evaluated to have delivered some conservation savings, while the LGS Flat Energy Rate would provide a price signal much lower than the energy LRMC range. Commission staff remark that it would be useful to have information related to where the estimated LGS conservation savings come from, questioning whether the savings were attributable or at all related to customer site type. To assess rate structure alternatives or possible changes to the PLB, Commission staff comment that it will be informative to review BC Hydro's analysis on how often LGS customers exceed to +/- 20 per cent PLB.

In sum, Commission staff consider that the merits of LGS rate alternatives without a baseline are less clear compared to MGS; baselines are an open question and should be carried forward. Commission staff remark that it is not clear that the LGS Flat Energy Rate could be considered a conservation rate structure. Commission staff contemplate whether a rate structure with a third tier could be a viable alternative.

Participants generally agree with the screening criteria and that that the screened-out LGS alternatives should not be advanced any further. Commission staff agree in principle that the diverse nature of the LGS class makes a standard inclining block structure inappropriate. While AMPC agrees that 'excessive bill impact' is an appropriate screen, it suggests that due to differing interpretations of the 10 per cent bill impact test criteria among BC Hydro and interveners, a 'coarser' screen is required to reject designs based on meeting rate design objectives. AMPC suggests that screening may be premature without consideration of re-segmentation of the GS classes (please refer to BC Hydro's consideration in section 1 of this memo).

4.2 BC Hydro Consideration

BC Hydro does not have a preferred LGS energy rate structure at this time, and will solicit additional stakeholder feedback at the June 25/26, 2015 GS workshop on the four alternatives described at the beginning of this memo as follows (with BC Hydro's commentary):

LGS Energy Rate Alternative	BC Hydro Commentary
SQ LGS Energy Rate (retain baseline)	The LGS SQ Energy Rate has to date delivered little energy conservation with a declining confidence in the persistence of the energy savings. BC Hydro forecasts the SQ LGS Energy Rate to deliver zero additional energy savings for planning purposes. Participant comments are more mixed than with regard to the SQ MGS rate, with some LGS customers preferring modification of the SQ LGS Energy Rate/retaining the baseline while other prefer the LGS Flat Energy Rate no baseline alternative.

LGS Energy Rate Alternative	BC Hydro Commentary
SQ LGS Simplified Energy Rate (retain baseline)	The overall objective of this alternative is to improve the price signal and/or improve customer understanding of the price signal to encourage conservation behaviour. The question is whether this can be accomplished. This alternative would entail flattening the Part 1 energy charges (while retaining the baseline) in an attempt to improve understanding of the price signal. As part of this alternative, BC Hydro examines: the PLBs to potentially improve the price signal; the three year rolling average HBL determination, and monthly vs. annual baselines to potentially improve price signal, customer understanding and acceptance such as the ability to manage businesses; the formulaic growth rule, anomaly rule, and the prospective growth rule (TS 82) applications to potentially address customer concerns relating to growth; and new accounts (85/15 rate). Some of BC Hydro's preliminary findings concerning these aspects are described below.
LGS Flat Energy Rate (no baseline)	This alternative prioritizes the Bonbright customer understanding and acceptance criterion by significantly simplifying the LGS energy rate and aligning it with how other similarly situated jurisdictions structure GS energy charges (predominantly flat energy charges). This alternative was proposed by BC Hydro for the then LGS rate class as part of the 2007 RDA; BC Hydro's proposal was denied by the Commission due to among other things customer concerns with the increased average unit cost of electricity for those members of the LGS class whose demand is greater than 150 kW.[17] The resulting energy rate (5.76 cents/kWh for F2016)[18] is materially below the lower end of the energy LRMC range (which is 9.36 cents/kWh ($F2016)) and therefore could not be considered an efficient price signal.

[17] The Commission found that increases were large in dollar terms to high demand, high load factor customers; 2007 RDA Decision, *supra*, note 5, page 162.

[18] The LGS Flat Energy Rate is below the MGS Flat Energy Rate because most LGS customers have most of their consumption at the Tier 2 energy rate while most MGS customers have the majority of their consumption at the Tier 1 energy rate.

LGS Energy Rate Alternative	BC Hydro Commentary
TSR-Like Rate (customized baselines)	This alternative is proposed by AMPC and Viterra. BC Hydro views the overall objectives of this alternative as to induce conservation, and potentially address customer growth and other alternative bill impacts concerns which are part of the Bonbright customer understanding and acceptance criterion. This alternative requires segmentation of the LGS rate class, with the rate available to a 'XLGS' class. As discussed below, BC Hydro assumes this rate would closely resemble RS 1823, as this is the customized baseline rate BC Hydro has experience with, but based on LGS energy rate pricing. The advantage is that this rate structure would be simpler as compared to the SQ LGS Energy Rate. As with RS 1823, baselines could be adjusted frequently to respond to specific events. TS 74 provides the Customer Baseline Load (CBL) adjustment rules for RS 1823. Adjustments require input by the customer, and agreement by both the customer and BC Hydro. If there is no agreement by customer, BC Hydro files CBL with the Commission which provides final approval. Customers can dispute CBLs, and the Commission may initiate a regulatory process to determine the final CBL. BC Hydro foresees significant time and resource requirements, with are relevant to the Bonbright practical and cost effective to implement criterion. This alternative is discussed further below.

In response to Commission staff's question concerning 2007 RDA Decision Directive 19, it is less clear to BC Hydro that encouraging conservation without unduly harming or benefiting customers has proven to be incompatible for the diverse LGS customer group. BC Hydro acknowledges the trade-offs between economic efficiency and customer understanding and acceptance (bill impacts, simplicity) for all four alternatives listed above.

Commission staff inquire as to whether estimated LGS conservation savings were attributable or at all related to site type, which might inform consideration of alternative rate structures. BC Hydro cannot estimate savings by site type. The estimation of savings for LGS and MGS rates is dependent on the size and

composition of the control groups. The size and composition of the control groups is fixed, and this creates a hard constraint on the savings analysis BC Hydro is able to conduct. To estimate savings by site type for LGS customers, a larger and more diverse control group would be required than the one currently available. BC Hydro does have survey results on the types of energy conservation actions taken by customers, which may partially address the question of where savings come from. An example from Appendix D of the December 2013 Evaluation is reproduced as Table 3 below.

Table 3 December 2013 Evaluation Report: Energy Efficient Equipment Recently Installed

Table D.23. Energy Efficient Equipment Recently Installed

	Percent Installed (%)		
	LGS	MGS1	MGS2/3
Energy efficient lighting	84	49	71
Lighting controls	57	28	26
Computer power bars	55	50	55
Computer power management	36	33	23
Commercial dishwasher	11	12	11
Commercial kitchen	15	8	7
Refrigeration	24	14	12
CO2 sensors for fans	20	25	6
Synchronous belt drive	11	5	5
HVAC	52	38	26
Variable frequency drive	42	27	15

Before expanding on BC Hydro's consideration of the SQ LGS Simplified Energy Rate and TSR-Like Rate alternatives, BC Hydro notes:

- It agrees with Commission staff's comments concerning the screened-out 'credit only' alternative. The 'credit only' alternative removes any conservation signal while leaving the SQ LGS Energy Rate complexity in place. Customers consuming more than the baseline would effectively see declining block energy rates. Finally, the credits given out would be at a cost to all LGS customers given revenue neutrality;
- It has concerns with Vancouver Aquarium's proposal, which would before any (apparent) refund by design recover more than the class share of the revenue requirement; does not require the sum of all refunds to equal the over-collection; and yields a customer bill that is dependent on the nature of the customer activities behind the meter. It is difficult for BC Hydro to see how this proposal meets the legal test contained in sections 59 and 60 of the *Utilities Commission Act*[19] that a rate set by the Commission must fair, just and not unduly discriminatory.

SQ LGS Simplified Energy Rate

The question in respect of the SQ LGS Simplified Energy Rate is whether there are changes to the design or mechanisms to the baseline rate structure that would yield material improvement in customer understanding and acceptance and/or conservation behaviour.

PLBs - Commission staff comment that it would be informative to review BC Hydro's analysis on how often LGS customers exceed the (+/- 20 per cent) PLB to assess possible changes. In F2014, 24 per cent of LGS customer bills exceeded the PLB, while 49 per cent of LGS customer accounts had at least one bill exceeding the PLB. BC Hydro interprets these levels as generally low and reasonable in consideration of the balance intended to be achieved through the PLB of exposing customers to an

[19] R.S.B.C. 1996, c.473; copy available at https://www.canlii.org/en/bc/laws/stat/rsbc-1996-c-473/latest/rsbc-1996-c-473.html.

efficient price signal without undue harm or benefit to customers with large changes in consumption.

Lowering the PLB could mitigate customer concerns that the rate is a barrier to growing customers, but would diminish the conservation signal (to the extent that is a material concern with a rate that is delivering very little conservation). Conversely, due to the relatively low frequency in exceedance of the PLB, increasing the PLB (or removing it altogether while keeping the Part 2 energy rate) would not be expected to materially impact conservation but would further exacerbate customer concerns that the rate is a barrier to business expansion. BC Hydro's initial conclusion is that there are no changes to the PLB that would improve the performance of the SQ LGS Energy Rate in respect of conservation or customer understanding and acceptance. BC Hydro will review this at the June 25/26, 2015 GS workshop.

Annual baselines – BC Hydro considered the possibility of annual versus monthly determination of HBLs . As described in the 2009 LGS Application, the monthly concept was regarded as achieving a balance, conveying an efficient price signal with more frequent reinforcement compared to a stepped rate using an annual CBL. Viterra suggests that an annual model would have a level of predictability because the cyclic nature of the business tends to average out. BC Hydro does not fully understand the annual model that Viterra is proposing and notes that there would still be cyclical variation between each year if a stepped rate with an annual CBL was used. BC Hydro will review a TSR-like rate with an annual CBL at the June 2015 GS workshop.

Formulaic growth rule - TransLink suggests that at a minimum there ought to be a mechanism to more easily re-establish baselines during periods of growth, and once status quo operations are again established, an averaging approach may again be justified. BC Hydro notes that automated formulaic growth rule set out in RS 16xx Special Condition 3.3.2 was approved by the Commission with the baseline rate structure as a mechanism to address such concerns. The intent of the formulaic

growth rule is to minimize exposure of consumption to LRMC through a higher baseline for customers who experience atypical one-time growth in annual consumption. To qualify for this rule the customer has to have experienced "Significant Growth" (at least 30 per cent or 4,000,000 kWh) in energy consumption during the most recent two year period.

BC Hydro reviewed its formulaic growth rule and concludes that it is not entirely functioning as intended. First of all, few customers were able to reach the "Significant Growth" thresholds to trigger this special baseline adjustment as pointed out in many customers' feedback. In F2015, 98 LGS customers qualified for the formulaic growth rule; in F2016, 127 LGS and 69 MGS customers qualified for the formulaic growth rule; and 13 LGS customers qualified in both years.

Second, BC Hydro observed that not all qualified accounts resulted in higher baselines as per the original intent of this provision. Some customers had higher consumption in year one than year two. As the higher year one consumption was removed from baseline calculation when applying the formulaic growth rule, these customers' baselines became lower after the adjustment. Finally, the assumption of higher baselines can minimize growing customers' exposure to LRMC was also proven to be inaccurate. Customers that continued to have significant growth in year four actually paid more under the higher baselines as the 20 per cent PLB was bigger with higher baselines.

After analyzing the bills of the 98 accounts which qualified for the formulaic growth rule in F2015, BC Hydro found that a significant number of customers actually ended up with higher energy charges under this provision. BC Hydro will review this assessment in more detail at the June 2015 GS workshop. There two big challenges with revising the formulaic growth rule: (1) BC Hydro cannot accurately forecast consumption profiles for atypical LGS customers; and (2) finding a rule that benefits most significant growth situations while maintaining balance with the Bonbright efficiency (price signal) objective.

Prospective growth applications - BC Hydro also notes TS 82, the Rules for LGS Prospective Growth Applications, referenced in Ivanhoe Cambridge's feedback. TS 82 governs applications for prospective growth adjustments; customers may apply to BC Hydro to a special pricing structure which prices qualified account's pre-capital investment consumption at Part 1 rates and post-investment growth as a new account on a prospective basis. Section 3.2 of TS 82 provides that a qualifying increase in energy consumption must be of at least 30 per cent or 4,000,000 kWh calculated on the basis of the average annual energy consumption of the account in the three year period immediately prior to the customer application date and the customer's forecasts of average annual energy consumption of the account after the effective date.

New accounts – In addition to Peterson, a number of LGS customers communicated to BC Hydro their concern that the LGS rate requires that with an account name change arising from an asset sale of a business, the new account rule is unfair and onerous. Under that rule 85 per cent of first year consumption is billed at Part 1 energy pricing and 15 per cent of consumption is billed at the energy LRMC-based Part 2 rate. The 85/15 rate resulted from the 2009 LGS Application NSA to prevent existing customers from attempting to 'game' the system by opening new accounts to reset their baselines. The Three Year Report found no evidence of gaming. Should the 85/15 rate be removed with the default position be that the customer engaged in an asset transaction automatically assume the existing baseline? What if there is a change in operations? Should there be a threshold for a change in operations that leads to a different rate? At the June 2015 GS workshop BC Hydro will present for feedback its consideration of the rules that govern baseline determination under new accounts, account transfers and building purchases.

TSR-Like Rate

Viterra and AMPC suggest that a TSR-Like Rate could be appropriate for a segment of high consumption LGS customers ('XLGS'). An example given in the written

feedback of high consumption LGS customers are those with demand greater than 2 MW (2,000 kW) and consumption greater than 2 GWh. BC Hydro understands from AMPC that AMPC agrees administration is an issue that must be considered when setting the threshold for a XLGS rate class.

BC Hydro assumes the proposed rate structure would be RS 1823 but with LGS pricing. The energy rates (illustrative for F2017) based on a 90/10 Step 1/Step 2 split and revenue neutral to the LGS Flat Energy Rate would be:

- 5.48 cents/kWh up and including 90 per cent of the customer's CBL in each billing year;
- 10.10 cents/kWh applied to all kWh above 90 per cent of the customer's CBL in each billing year.

BC Hydro used the written feed-back and AMPC 2007 RDA proposals of 1,000 kW and 3,000 kW potential breakpoints as a starting point to get a sense of the number of accounts[20]:

Breakpoint (kW)	Number of LGS Accounts
1,000	437
1,500	251
2,000	172
2,500	126
3,000	90
4,000	53
5,000	37

BC Hydro has concerns with the practicality of a TSR-Like Rate for a large segment of LGS customers such as 500 accounts; for comparison BC Hydro has 140 Transmission Service customers taking service under RS 1823. A TSR-Like Rate would result in a significant degree of *ad hoc* customization to respond to the

[20] This date is based on LGS accounts' annual peak demand in calendar year 2014.

specific circumstances of customers. Under the terms and conditions of RS 1823, historical consumption can be adjusted frequently to respond to specific defined events such as unscheduled, short-term plant shut-downs; implementation of permanent DSM investments; and plant capacity increases, among others. As described above, such adjustments are governed by TS 74, requiring input by the customer, and agreement by both the customer and BC Hydro before being filed with the Commission for approval. BC Hydro and its Transmission Service customers expend a significant amount of time and resources in a near-continuous process of reviewing, measuring, verifying, and communicating regarding their requests for adjustments.

Nevertheless, BC Hydro is of the view this alternative should be further explored and will bring forward this alternative for stakeholder feedback and further consideration. BC Hydro will also meet with AMPC to further discuss this alternative.

5 LGS and MGS Demand Charges

BC Hydro has an inclining block demand charge for both the MGS and LGS classes. The SQ inclining block demand structure and charges are as follows ($F2016):

First 35 kW of Billing Demand per Billing Period (Tier 1)	$0.00 per kW
Next 115 kW of Billing Demand per Billing Period (Tier 2)	$5.50 per kW
All additional kW of Billing Demand per Billing Period (Tier 3)	$10.55 per kW
"Billing Period" tariff definition: a period of from 27 to 33 consecutive days between regular meter readings, provided that in cases where meter readings are not available or are delayed for any reason BC Hydro may vary the number of days in the Billing Period.	

From a COS point of view, a demand charge is intended to recover the fixed costs of serving a customer's peak demand. BC Hydro's Generation, Transmission and Distribution demand-related costs are discussed in section 1.2 of this memo.

BC Hydro raised the issue that there is no COS basis for the current inclining block structure, and the structure is atypical in Canada. For both MGS and LGS, BC Hydro isolated the customer bill impacts of flattening demand charges and assessed the

coincident and offsetting impacts of flattening both energy rates and demand charges. Additionally BC Hydro considered increasing the amount of fixed costs recovered through demand charges. BC Hydro sought participant feedback on the justification for an inclining block structure, the review of demand charge rate structure alternatives to date and whether there are any other demand structures BC Hydro should be considering.

5.1 Participant Feedback

Loblaws has no objection to BC Hydro seeking to simplify its charges so long as the electricity cost impact is neutral. Loblaws indicates that the modelled flat rates appear reasonable. TransLink sees no justification for an inclining demand charge, which it also regards as an "inherent penalty for growth". TransLink seeks proper justification of the cost difference between MGS and LGS demand charges. Panorama sees the current LGS inclining block demand charge as "penalizing" certain seasonal operations (in Panorama's case, snow-making) which use relatively large amounts of power, and sees no justification for an inclining block demand charge. Panorama supports the Two Step Demand Charge alternative (with $0 charged for Tier 1).

AMPC remarks that a single demand block would better reflect cost causation and the rate design practice of other utilities, although individual customer bill impacts may limit movement away from the current inclining block structure. AMPC notes that it is not clear why there is a large difference in demand cost recovery between MGS and LGS. AMPC is of the view that the question of alternative demand structures cannot be considered without first resolving the questions of cost recovery and the overall impact of changes to all MGS and LGS rate design elements.

CEC suggests that BC Hydro consider other alternatives such as a "demand limit exceedance charge" (with more demand revenue collected in the energy charge) or a seasonal demand charge at regional or system peak times (and no charge off

peak) given that system demand is a peak issue, and demand are regional system constraints. CEC comments that demand charges lead to dysfunctional economic results without adding value. CEC suggests that some screened out demand charge alternatives could have conceptual advantages; for example, through consideration of further increases to demand charge cost recovery to mitigate bill impacts.

Commission staff advise that BC Hydro should provide an assessment of whether existing inclining demand charges have provided real benefits to the system by moderating the demand profile of GS customers. Commission staff remark that BC Hydro should consider what level of demand charge collection would best meet its rate design objectives.

BCOAPO suggests that BC Hydro consider increased level of cost recovery and revenue collection through MGS demand charges. With respect to LGS, BCOAPO notes that the Tier 1 energy rate is higher because there is no demand charge for the first block of demand up to 35 kW. BC Hydro should therefore consider adjusting the cost recovery between demand and energy accordingly, even under the SQ LGS Simplified Energy Rate.

5.2 BC Hydro Consideration

BC Hydro has no preferred demand charge structure at this time, and will bring forward the following three demand charge structure alternatives for the MGS and LGS rate classes at the June 25/26, 2015 workshop:

- SQ Demand Charge (three steps);
- Flat Demand Charge; and
- Two Step Demand Charge (retaining the current zero Tier 1 and flattening the Tier 2 and Tier 3 into a single Tier 2 rate).

BC Hydro will also test increasing the MGS demand charge cost recovery from the current 15 per cent to 35 per cent of demand-related costs.

Demand Charge Structure

As part of its consideration of stakeholder feedback, BC Hydro undertook more jurisdictional assessment to determine in particular if there was a readily identifiable 'utility practice' in terms of demand charge cost recovery. As reported at Workshop 8a, the surveyed Canadian electric utilities of SaskPower, Manitoba Hydro, Hydro Quebec, Nova Scotia Power, New Brunswick Power, ATCO Yukon Electric and FortisBC either have a flat demand charge or an inclining two step demand charge with the first step set to $0. To date, BC Hydro has been unable to get information concerning demand cost recovery and will continue to work at this aspect of its jurisdictional assessment. Refer to Attachment 5 to this memo.

Current Three Tier Demand Charge

A review of historical tariff documents shows that BC Hydro has had an inclining block demand charge since at least 1974. The 1974 rate was a five-step charge, simplified to a four-step rate in 1976 and modified further to the existing three-step structure in 1980. The ratio of charges for demand greater than 150 kW and demand between 35 kW and 150 kW has remained 1.91 since 1980.

Unlike BC Hydro's marginal energy costs, BC Hydro's marginal cost for demand declines for an average customer as more demand is used in the system. The current structure and ratio of charges is likely not justifiable from a distribution perspective where economies of scale are observed with demand-related infrastructure like transformers and should result in a marginally[21] lower $/kW rate as demands increase. Analysis to date suggests that BC Hydro's cost to serve the demand of each of the MGS and LGS classes on a $/kW basis is generally flat and does not vary by customer size and the amount of demand served.

[21] Although economies of scale are observed with transformers, the associated costs are a relatively small proportion of total demand related costs. In the draft F2016 COS study BC Hydro directly assigned transformer costs to rate classes and classified 50 per cent of transformer costs as demand-related. This amounts to about $12 million for MGS and LGS customers, which represents about 2 per cent of total demand-related costs of about $567 million assigned to the MGS and LGS customer classes in the COS study.

The only possible justification for retaining the SQ Demand Charge is on the basis of marginal cost pricing and the goal of sending a price signal to customers. Commission staff question whether the SQ Demand Charge has provided system benefits by moderating the demand profile of GS customers. BC Hydro interprets the question as to whether the SQ Demand Charge has driven system capacity savings through a directional price signal for customers to manage their load. BC Hydro is unable to determine whether the structure of demand charges has provided any system benefits. A control group would be necessary to analyze what would have happened in the absence of the inclining block structure. That said, BC Hydro's qualitative view is that there likely has been no moderation of the demand profile of MGS or LGS customers as associated with the SQ Demand Charge on account of: 1) the SQ Demand Charge is not specifically designed to signal avoided Generation demand, Transmission or Distribution demand costs.[22] For example, the demand charge is applied to the maximum demand in the billing period, which may not be coincident with system demand; and 2) the 150 kW threshold between the Tier 2 and Tier 3 demand charges corresponds to the segmentation breakpoint between MGS and LGS rate classification. Thus most MGS customers are only exposed to the Tier 2 rate with primarily LGS customers being exposed to the Tier 3 rate.

BC Hydro acknowledges that in response to Clause 17 of the 2009 LGS Application NSA it filed with the Commission on January 17, 2014 a letter (Attachment 4 to this memo). In that letter BC Hydro expressed the view that maintaining the SQ Demand Charge would provide a good directional price signal for customers to manage load. BC Hydro noted further in that letter that it would not be proposing to increase the

[22] The SQ Demand Charges have not been set in reference to the marginal cost of capacity, which would be the sum of: (1) the Unit Capacity Cost of Revelstoke Unit 6 ($55 per kilowatt-year (**/kW-year**)) or Simple Cycle Gas Turbines (about $88/kW-year), the next two most cost-effective Generation demand resources; and (2) Transmission and Distribution avoided costs. As part of the Workshop 4 consideration memo (pages 6 and 7), BC Hydro set out what it considered to be the DSM-related benefits found at a Transmission regional transmission and substation level of about $10/kW-year but BC Hydro has not conducted a marginal COS; http://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/regulatory-matters/2015-0-22-bch-rda-wkshp-cos-2.pdf.

inclining demand price signal to obtain potential capacity savings in part because the bill impacts would likely be unacceptable to large customers with higher demand. However, given that the SQ Demand Charge is not expressly targeted to achieving capacity savings for the reasons noted above, BC Hydro identifies that the unknown degree to which the SQ Demand Charge provides a price signal for customers to manage load is a secondary consideration in its current review of MGS and LGS demand charges. Rather, assessing the COS basis for the demand charge structure and the coincident or offsetting bill impacts across both energy rate and demand charge alternatives is of greater import to BC Hydro to assessing the trade-offs between rate designs.

Flat Demand Charge and Two Step Demand Charge

BC Hydro agrees with AMPC's comment that a Flat Demand Charge would better reflect cost causation and the rate design practice of other utilities, which either have flat or two step demand charges. As noted above, the Flat Demand Charge is sensible from a COS perspective due to observed economies of scale. The Flat Demand Charge would also improve consistency with the default Transmission Service rate – RS 1823 – which contains a flat demand charge, albeit one with a High Load Hour (**HLH**) concept described in section 6.4 of this memo as part of potential demand charge options.

AMPC notes that individual customer bill impacts may limit movement away from the SQ Demand Charge. As BC Hydro will demonstrate at the June GS Workshop, the bill impacts of the alternatives under consideration will vary between customers based on level of energy consumption and demand profile.

Demand Charge Cost Recovery

Both Commission staff and AMPC state that BC Hydro should consider what level of demand charge collection would best meet its rate design objectives. Presently, on the basis of the F2016 COS, the MGS demand charges recover about 15 per cent of

demand-related costs assigned to the MGS class, while LGS demand charges recover about 50 per cent of demand-related costs assigned to the LGS class.

No participant commented that the current level of LGS demand charge cost recovery is inappropriate or should otherwise be tested, and accordingly BC Hydro has no plans to do so as part of the June 2015 GS workshop.

It is not clear to BC Hydro what the appropriate level of MGS demand cost recovery should be, either from the jurisdictional assessment or otherwise. Given the multiple and sometimes competing objectives and impacts, there is likely to not be a level of demand cost recovery for the MGS class that should be specifically targeted in isolation to best meet its rate design objectives. BC Hydro will continue to examine the trade-offs between objectives based on different levels of MGS demand cost recovery, coincident with structural changes to both energy and demand charges. BC Hydro will review this analysis and the June GS Workshop. As part of this review, BC Hydro will examine the cost difference between MGS and LGS demand charges, and will test increasing the MGS demand charge cost recovery to 35 per cent.

Other Issues

BCOAPO is concerned about seams between the GS classes; its consideration is to avoid gaming of electricity usage to lower bills through reclassification. BCOAPO suggests that an inclining block demand structure may provide for smoother transition between SGS and MGS rate classification, and that a similar issue exists and requires justification as between MGS and LGS customers, given the disparity in charges (and in relative cost recovery) between these two classes. BC Hydro will present seams analysis in the consideration memo to follow customer feedback on the June GS workshop.

BC Hydro will also be addressing the minimum demand charge (demand ratchet) at the June 2015 GS workshop. BC Hydro's ratchet charge ensures that customers

with high winter consumption and low summer consumption pay an appropriate share of BC Hydro's costs to maintain infrastructure related to the winter peak and found throughout the generation, transmission, and distribution systems. The existing minimum charge is based on 50 per cent of a peak monthly demand registered in the most recent winter period (November to March). The ratchet was reduced from 75 per cent to 50 per cent effective April 1, 1980 and hasn't been changed since.

In response to CEC, BC Hydro plans to address voluntary GS rate options, which would also include review of potential demand charge options, as part of 2015 RDA Module 2. Refer to section 6.4 of this memo.

6 Voluntary Rate Options for General Service Customers

BC Hydro will use 2015 RDA Module 1 to set the default GS rate structures. BC Hydro believes that before it pursues optional rates for GS customers it is imperative that the problems with the default rates for LGS and MGS customers be addressed. Accordingly, BC Hydro plans to address voluntary GS rate options as part of 2015 RDA Module 2 as a Commission decision on the default GS rates is required.

In conjunction with CEC, BC Hydro has:

- Analyzed the pros and cons of a voluntary TOU rate. For the reasons set out in section 6.1 below, BC Hydro decided to not proceed with developing such a rate at this time given the number of concerns summarized at slide 71 of the Workshop 8A slide deck presentation and that GS customers have not indicated a desire for a voluntary TOU rate;
- Begun the process of assessing interruptible rate options for GS customers. Refer to section 6.2 below;

- Exchanged views on CEC's idea of an optional Efficiency Rate Credit for GS customers. CEC raised this idea in its feedback concerning Workshop 8A/8B and in meetings with BC Hydro. BC Hydro's thoughts concerning this concept are described in section 6.3;
- Commenced examining demand charge options, although this work is in its infancy as described in section 6.4 below.

In addition, BC Hydro carried out additional jurisdictional assessment of Canadian Electric utility General Service rate options. Refer to Attachment 5 of this memo.

6.1 Voluntary TOU Rate(s)

6.1.1 Participant Comments

A voluntary TOU rate for the LGS and MGS rate classes could possibly satisfy customer desire for increased choice in rates. However, no stakeholder providing feedback advocated for a voluntary TOU rate for BC Hydro GS customers.

BC Hydro understands CEC is not interested in pursuing a voluntary TOU rate for GS customers at this time. CEC communicated to BC Hydro a desire to analyze a GS voluntary TOU rate option by email dated September 30, 2014. BC Hydro met with CEC on November 10, 2014 to discuss among other things a voluntary TOU rate and sent CEC a document summarizing BC Hydro's concerns with such a rate on November 14, 2014. In a subsequent meeting with CEC on January 28, 2015, CEC indicated that the GS rate options it is interested in are: interruptible rates (refer to section 6.2 below); and an Efficiency Rate Credit (refer to section 6.3 below). In addition, CEC is interested in MGS and LGS demand charge options (refer to section 6.4 of the memo).

6.1.2 BC Hydro Consideration

In addition to stakeholder input, BC Hydro conducted a Canadian jurisdictional assessment. Only two surveyed Canadian electric utilities offer voluntary ToU rates to their GS customers;[23] refer to Table 4 below.

Table 4 Canadian TOU Rate Jurisdictional Assessment

Utility	TOU Rate	Notes
SaskPower	Voluntary	For large commercial or industrial loads with customer owned transformation. Customers must subscribe for one year minimum.
Manitoba Hydro	No[24]	
Hydro Quebec	No	
Nova Scotia Power	No	
Newfoundland Power	No	
New Brunswick Power	No	
Yukon Electric	No	
FortisBC	Voluntary	Commercial customers must have satisfactory load factors as determined by FortisBC.[25] FortisBC advises there is relatively low take-up.

In addition, BC Hydro considered its 2000 to 2001 voluntary TOU LGS pilot.[26] The TOU pilot rate was available on an optional basis and was offered from March 2000 to October 2001. The market-based TOU prices were fixed over the course of the

23 Ontario has mandatory TOU rates. Refer to the Ontario Auditor General's 2014 annual report which among other things concluded that Ontario's mandatory commercial customer TOU rates may not be designed to effectively reduce peak demand as intended because the differential had fallen from three to 1.8 times: *Annual Report of the Office of the Auditor General of Ontario*, Chapter 3, section 3.11; copy available at http://www.auditor.on.ca/en/reports_en/en14/311en14.pdf.

24 As noted at page 23 of the Workshop 5 consideration memo concerning Transmission Service rates (http://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/regulatory-matters/2015-03-13-bch-rda-wksp5-tsr1-pfb.pdf), Manitoba Hydro is considering a TOU rate for its LGS customers (30 to 100 kV and greater than 100 kV sub-classes), however BC Hydro understands that the proposed effective date of April 1, 2016 has been delayed.

25 Refer to Schedules 22A/23A/32/33 of FortisBC's Electric Tariff; http://www.fortisbc.com/About/RegulatoryAffairs/ElecUtility/Documents/FortisBCElectricTariff.pdf.

26 Implemented pursuant to BCUC Order No. G-117-99; http://www.bcuc.com/Documents/Orders/Orders99_2/G4_Orders/G117_99BCH.pdf.

year. Customers did not have to deal with the price volatility of the spot market, which is common in real time pricing products. Other rate features included the absence of a demand charge for incremental consumption and bill assurance was offered so that there would be no loss to a participating customer compared to the default rate option to promote participation. The credit was equal to the difference between the bill based on the TOU pilot and the bill based on the applicable default rate, with both bills calculated using actual consumption.

Approximately 500 customer accounts subscribed to the TOU pilot. Four rate options were offered, which varied by peak and off-peak rate and by whether the scheme was a morning only or a morning and evening peak. Table 5 provides details of the TOU pilot rate options and the number of subscribers for each option.

Table 5 BC Hydro 2000 to 2001 TOU Rate Pilot Design and Subscription

Option	Peak (cents//kWh)	Off-peak (cents/kWh)	Morning Peak Hours	Evening Peak Hours	Number of Accounts
A	7.0	3.5	7 a.m. to 11a.m.	Not applicable	313
B	10.0	3.3	7 a.m. to 11 a.m.	Not applicable	83
C	7.0	3.3	7 a.m. to 11 a.m.	4 p.m. to 8 p.m.	38
D	10.0	3.1	7a.m. to 11a.m.	4 p.m. to 8 p.m.	71
Base	4.3	4.3	Not applicable	Not applicable	Not applicable

On an aggregate basis, there was an estimated small reduction in winter peak usage (1.3 per cent) and an increase in usage in winter non-peak usage (1.5 per cent). The 2000 to 2001 TOU pilot resulted in a net increase in overall consumption in non-winter and off-peak winter periods as compared to on-peak consumption.

BC Hydro reviewed a potential voluntary TOU rate in the context of system-wide capacity (generation) and has the following concerns with a voluntary TOU rate for GS customers:

1. Small peak to off-peak price differential.

In the Workshop 5 consideration memo concerning RS 1825,[27] the current voluntary TOU rate for Transmission Service customers, BC Hydro set out that it understood from its consultant E3 that generally speaking a ratio of three or four of on-peak to off-peak pricing is required to change consumption. The long-term forecast of Mid-Columbia (**Mid C**) monthly price shape for HLH and Light Load Hour (**LLH**) is used to shape the RS 1825 Tier 2 rate for each RS 1825 TOU season. Mid-C HLH/LLH ratios across the past five years have averaged 1.45. Based on the current forward curve, BC Hydro estimates the ratio will average 1.30 for the next year.

2. Participation mainly from natural winners such as those with beneficial load shapes (low on-peak share).

BC Hydro has the same concerns with self-selection bias noted with respect to a voluntary Residential TOU rate in the consideration memo concerning Workshop 3.[28] The result of a voluntary TOU rate would be a cost shift from participating to non-participating GS customers. While a two-part TOU rate may mitigate the effect on non-participating customers, such a rate would require baselines and would therefore be complex. BC Hydro would expect low to no capacity savings as self-selection bias would likely inflate true responsiveness of GS consumers to TOU pricing. In addition, there would be no deferral value of generation capacity resource savings for planning purposes, even under defined terms for entry and exit, given the expectation that only natural winners would participate in a voluntary TOU rate option.

27 Section 2.5 of the Workshop 5 consideration memo; http://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/regulatory-matters/2015-03-13-bch-rda-wksp5-tsr1-pfb.pdf.

28 Refer to section 4.2 of the Workshop 3 consideration memo; http://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/regulatory-matters/2014_10_30_bch_rda_wkshp3_et_rib.pdf.

3. Timing.

Offering a voluntary TOU rate for MGS and LGS customers at this time would be poorly timed in the face of a pressing need to reduce the complexity in the default LGS and MGS rates.

6.2 Potential Interruptible Rate Options

BC Hydro does not have a generally applicable interruptible rate for GS customers. The topic of potential voluntary interruptible rate option(s) for GS customers was not addressed at Workshop 8A/8B. At the April 22, 2015 meeting between BC Hydro and CEC, BC Hydro put forward two high-level voluntary GS interruptible rate options for discussion as follows:

- *GS Interruptible Rate Modelled on Transmission Service RS 1852*. RS 1852 is designed to provide Transmission Service customers who take service under RS 1823 with an incentive to shift load during peak periods to alleviate local transmission constraints. Transmission Service customers are required to make daily load curtailments during the peak HLH; they can then 'recover' from the curtailment by increasing production during mid-day LLH and other LLH periods. A GS voluntary rate based on RS 1852 could be aimed at transmission and/or distribution constraints, and could have a modified (discounted) demand change in return for BC Hydro being able to interrupt due to such constraints;
- *GS Rate Modelled on Transmission Service RS 1880 and TS 76*, the existing non-firm rate for cruise ships docking at Port Metro Vancouver' Canada Place facility. RS 1880 and TS 76 target customers with self-generation and are non-firm service. Service is only provided where BC Hydro has available energy and capacity to do so, and permission/notice is required prior to taking non-firm service. Neither RS 1880 nor TS 76 has a demand charge and the energy charges are based on RS 1823 Tier 2 pricing (8.503 cents/kWh in F2016). BC Hydro would likely require some 'hold other customers harmless' provisions.

For example, given that BC Hydro has already planned for and incurred costs in relation to infrastructure to serve GS load, exit fees would likely be required to address sunk costs. BC Hydro would also consider some combination of a minimum period for service under the GS non-firm rate (e.g., at least five years after notice received that GS customer wants to return to firm service as this is the period of time required to acquire resources to serve the firm request) and re-entry fees.

In addition, BC Hydro conducted a preliminary jurisdictional assessment of voluntary GS rate options offered by other Canadian electric utilities (refer to Attachment 5) and notes that Hydro Quebec and Newfoundland Power offer interruptible/curtailable rate options. These utilities adopted a third approach, which is to offer credits in exchange for curtailment of electricity consumption upon request. This approach requires customers to contract to reduce demand by a specific amount during curtailment periods or to contract to reduce demand to a 'firm demand level' which cannot exceed maximum demand during a curtailment period.

BC Hydro is in the process of exchanging information and ideas with CEC, and will set out its preliminary views on voluntary interruptible rate option(s) for GS customers at the upcoming June 2015 GS Rate Workshop. CEC communicated its view that a more logical comparison for non-firm (interruptible) energy rates may be to the spot market. CEC contends that the RS 1823 Tier 2 and other similar firm rate LRMC-based price is too high because it reflects the cost of adding new energy and capacity resources which are not required for non-firm service. BC Hydro is willing to explore GS non-firm rate energy charges not tied to firm rate LRMC-based prices. BC Hydro notes that the Mid-Columbia spot market price is used for FortisBC Inc.'s proposed Stand-by Rate for Transmission Voltage Customers.[29]

[29] FortisBC Inc. Application for Stepped and Stand-By Rates for Transmission Customers, page 36; http://www.bcuc.com/Documents/Proceedings/2013/DOC_34206_B-1_FBC_Application-Stepped-Stand-By-Rates.pdf.

6.3 Efficiency Rate Credit

6.3.1 Participant Comments

In its feedback concerning Workshop 8A/8B, CEC states that the LGS/MGS default rate "price signal is poor and poorly understood" and that "[t]his can substantially be improved with the CEC's efficiency rated energy credit design approach". CEC comments that the Efficiency Rate Credit "will enable delivery of appropriate price signals for conservation and efficiency and can be applied to any base rate structure ….". BC Hydro understands the CEC's Efficiency Rate Credit is intended to deliver rate savings to GS customers who undertake measures to be energy efficient. In meetings on January 28, 2015 and April 22, 2015, CEC enumerated a number of principles with respect to the Efficiency Rate Credit idea. Key among these principles is that the credit would be based on BC Hydro's value of energy savings, and that the credit would be determined by an eligible verifier with reference to a base of what CEC refers to as appropriate Demand Side Management (**DSM**) established by an independent organization.

6.3.2 BC Hydro Consideration

In BC Hydro's view, there are a number of building blocks to be established before developing an Efficiency Rate Credit potentially linked to efficiency ratings or measures. Consistent with 2013 IRP Recommendation 3,[30] BC Hydro is in the process of moving forward items related to some of these potential areas. This work is being informed by BC Hydro's Electricity Conservation and Efficiency Advisory

30 Recommended Action 3 reads: "Explore additional opportunities to leverage more codes and standards to achieve conservation savings at a lower cost beyond the current [DSM] target and to gain knowledge and confidence about their potential to address future or unexpected load growth". An example is the Pacific Coast Collaborative's "2012 West Coast Action Plan and Jobs" that among other things seeks to jointly develop energy efficiency standards for appliances such as television set-top boxes, lighting, television, battery charges, computers/servers and standby losses for a broad range of electronics. Refer to pages 9-23 to 9-24 of BC Hydro's 2013 IRP; https://www.bchydro.com/energy-in-bc/meeting_demand_growth/irp/document_centre/reports/november-2013-irp.html.

Committee (**EC&E**),[31] most recently at the EC&E meeting of May 14, 2014. Work in this area will help establish the efficacy and level of credibility in efficiency ratings and standards as well as the potential infrastructure required to implement them in practice. In BC Hydro's view, these are steps that are important to overcome before considering whether an Efficiency Rate Credit can be designed in concept to potentially link to these efficiency ratings in the future.

BC Hydro will continue to pursue the topic of efficiency ratings and standards with EC&E and CEC. BC Hydro will provide an update at the upcoming June 25/26, 2015 GS Rate Workshop.

6.4 Demand Charge Options

As summarized in Part 2 and Part 5 of this memo:

- Currently there is no demand charge for SGS and BC Hydro will not be pursuing a demand charge for the default SGS rate. As a result, BC Hydro will not be pursuing demand options for SGS;
- The demand charges for MGS and LGS are inclining block. BC Hydro has not identified preferred demand charge structures for either the LGS or the MGS default rate, and will be soliciting additional stakeholder feedback at the June 25/26, 2015 workshop. The default LGS and/or MGS demand charges may change as a result of pre-Module 1 stakeholder engagement and/or a BCUC decision on Module 1. This necessitates regulatory review of potential demand charge options as part of Module 2.

CEC advised BC Hydro it was interested in either modifying the default LGS/MGS demand charges or having BC Hydro offer demand charge options. Three potential options are discussed below.

31 BC Hydro established EC&E in 2006 to provide ideas, input and advice on how to meet BC Hydro's long-term conservation goals. EC&E includes stakeholders and First Nations from across BC Hydro's service area, including CEC.

Charge Customers Peak HLH Only

BC Hydro asked CEC whether it is thinking of a RS 1823/RS 1852 type demand charge with HLH concept which some have described as a Time of Use-like effect. There is likely to be some revenue loss for BC Hydro which would need to be recovered from other LGS/MGS customers by raising their respective demand charges.

Manitoba Hydro Limited Use of Billing Demand

Through its jurisdictional assessment BC Hydro identified that Manitoba Hydro has a Limited Use of Billing Demand (**LUBD**) rate option offered to address concerns of Manitoba Hydro's low load factor customers. Customers opting for the LUBD rate receive a lower demand charge in exchange for a higher energy charge. Manitoba Hydro advises that a total of 18 customers were billed at the LUBD option in F2013/F2014, and that while all GS customers are eligible for the LUBD option only those customers with low energy use relative to their billing demand will benefit from selecting this option. LUBD customers electing to convert back to the applicable default GS rate are not eligible to participate in the LUBD option for the next 12 months.

Manitoba Hydro states in its 2015/2016 and 2016/2017 General Rate Application[32] currently before the Manitoba Public Utilities Board that these customers, if billed on standard GS demand rates, are affected by high demand charges in comparison to relatively low energy use, resulting in a high cost of energy per kWh. Manitoba Hydro notes that customers on the LUBD option have a lower impact on the system peak compared to the overall GS rate class, as evidenced by their low winter coincident factor of 31 per cent. The LUBD option is designed such that GS customers would be indifferent between the LUBD option and the default GS rate, for which they would otherwise qualify, at a billing load factor of about 18 per cent.

[32] http://www.hydro.mb.ca/regulatory_affairs/electric/gra_2014_2015/pdf/appendix_6_12.pdf.

BC Hydro will seek feedback at the June 25/26, 2015 workshop as to whether there are MGS and/or LGS customers with low load factors that have concerns with the current default MGS and/or LGS demand charges, and whether pursuit of a LUBD-type option is something BC Hydro should undertake as part of 2015 RDA Module 2.

Subscription Rates

Under a subscription demand charge rate, a customer would sign up for a certain demand level based on a specific $/kW charge. If the customer exceeds its subscription level, it is billed at a high priced excess demand charge. One potential pro of this option may be to assist with mitigating risk of unexpected load growth by having customers ‘sign up’ to specific demand levels. However, BC Hydro would need to develop a rationale and justification for the excess demand charge.

BC hydro

2015 Rate Design Application

January 21, 2015/February 11, 2015
Workshop Nos. 8a and 8b
LGS/MGS/SGS Rate Structures
BC Hydro Summary and Consideration of Participant Feedback

Attachment 1
Workshop Nos. 8a and 8b Summary Notes

BC Hydro Rate Design Workshop

SUMMARY 21 JANUARY 2015 9 A.M. TO 12.15 P.M. BCUC Hearing Room Vancouver

TYPE OF MEETING	RDA Workshop 8a – Existing Large General Service (LGS), Medium General Service (MGS) and Small General Service (SGS) Rate Structures and Issues
FACILITATOR	Anne Wilson, BCH
PARTICIPANTS	Association of Major Power Consumers of British Columbia (AMPC), British Columbia Institute of Technology (BCIT), B.C. Ministry of Energy and Mines, British Columbia Old Age Pensioners Organization (BCOAPO), British Columbia Sustainable Energy Association and B.C. Sierra Club (BCSEA), BCUC staff, Building Owners and Managers Association (BOMA), Canadian Office and Professional Employees Union Local 378 (COPE 378), City of Vancouver (Vancouver), CLEAResult, Commercial Energy Consumers Association of British Columbia (CEC), Encana Corporation, ERCO Worldwide (ERCO), FortisBC Inc. (FortisBC), Loblaw Companies Limited (Loblaw), Shape Properties Corp. (Shape Properties), Thrifty Foods, Vancouver Aquarium, Viterra Inc. (Viterra), Whistler Blackcomb Ski Resort (Whistler Blackcomb)
BC HYDRO ATTENDEES	Gordon Doyle, Paulus Mau, Allan Chung, Anthea Jubb, Daren Sanders, Rob Gorter, Shiau-Ching Chou, Janet Fraser, Craig Godsoe, Brian Hobkirk
AGENDA	1. Introduction including review of the agenda 2. Overview of LGS, MGS and SGS rate structures 3. LGS and MGS customer characteristics 4. Issues with existing LGS and MGS rate structures 5. SGS 6. Voluntary TOU for commercial customers 7. Next steps

MEETING MINUTES

ABBREVIATIONS

BCH....BC Hydro	kW .....Kilowatt
BCUC..BC Utilities Commission	kWh ...Kilowatt hour
DSM ...Demand Side Management	NSA....Negotiated Settlement Agreement
GS.....General Service	PLB ....Price limit band
GWh... Gigawatt hour	RDA....Rate Design Application
HBL ....Historic baseline	RIB.....Residential Inclining Block rate
IEPR ...Industrial Electricity Policy Review	RRA....Revenue Requirement Application
	TOU ...Time of Use rate
	TSR ....Transmission Service

1. Introduction

Anne Wilson opened the meeting by reviewing the workshop outline set out in slide 3 of the Workshop 8a presentation slide deck. Anne pointed out that Workshop 8 has been broken into two sessions – today is session 1 (Workshop 8a) focusing on the existing LGS, MGS and SGS rate structures, while session 2 (Workshop 8b) will be held on 11 February 2015 and will canvass alternatives to the existing LGS and MGS rate structures. The 30 day written comment period will commence after the posting of Workshop 8b summary notes in February 2015.

2. Presentation: Overview of MGS, LGS and SGS Rate Structures

Gordon Doyle reviewed the regulatory history of the LGS, MGS and SGS rate structures, describing BCH's 2009 LGS Application (two part energy baseline rate for LGS, flat energy rate for MGS) and the 2010 NSA which extended the energy baseline concept to the MGS rate class.

Gord also discussed the existing segmentation of the BCH GS rate classes into LGS, MGS and SGS. The BCUC approved the segmentation of LGS and MGS in 2010 as part of approving the LGS Application NSA. SGS has been segmented since at least 1974. Most utilities surveyed have a smaller GS rate class and a larger GS rate class.

Gord concluded with an overview of the LGS and MGS energy baseline rates, and the inclining block demand charge.

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	FEEDBACK	RESPONSE
1.	**BCUC staff** What was the reason for the inclining block demand charge, which has been in place well before conservation has been used as a rationale for rate structures?	The existing 2-tier[1] inclining block demand charge was put in place in 1980; prior to this BCH had a 3-tier inclining block demand charge between 1976 and 1980, and a 4-tier inclining block demand charge between 1974 and 1976. While we are unaware as to the reason for the tiered demand charge when it was introduced, we speculate that part of the rationale for the inclining block demand charge was to act somewhat as a proxy for segmentation.
2.	**Loblaw** What is the annual energy consumption of LGS, MGS and SGS as compared to TSR customers?	***Revised response*** Slide 20 sets out the LGS total class consumption for F2014 at 10,746 GWh; slide 24 sets out the MGS total class consumption for F2014 at 3,300 GWh; and slide 68 sets out the SGS total class consumption for F2014 at about 4,000 GWh. For comparison, the corresponding total class consumption for F2014 for TSR was 14,943 GWh.
3.	**FortisBC** Would BCH consider segmenting the GS rate classes on the basis of load factor?	No. Load factor is not a readily observable variable on which to segment the GS rate classes; among other things, it is not readily understood by customers. BCH uses peak demand (kW), which is the variable most utilities surveyed use to segment GS rate classes.[2] BCH is not aware of any jurisdiction that uses load factor to define customer segments or what rates apply.
4.	**COPE 378** (by webcast) COPE 378 would be interested in knowing what happens to customer bills when they migrate from MGs to LGS and vice versa. How different is the total bill just above or below the threshold between these two rate structures?	The total bills of LGS and MGS customers depend on a number of factors, including demand, energy, difference between baseline and consumption, and other tariff provisions. Hence, the difference in bill due to an account's migration is difficult to generalize. Below are two customer examples for illustration purposes. - Using an illustrative example of a customer with consumption of 550,000 kWh/year with a demand of 150 kW, where the baseline is equal to consumption, the annual bill difference in migrating from MGS to LGS is a reduction of about 10% in F2016. This is primarily due to the reduction in the Part 1 Tier 2 energy rate on the baseline; - Using an illustrative example of a customer with consumption of 550,000 kWh/year and a demand of 100kW, where the baseline is equal to consumption, the difference in migrating from LGS to MGS is an increase of about 12% in F2016. This is primarily due to the increase in the Part 1 Tier 2 rate on the baseline.

[1] This accounting of the number of tiers does not count the zero charge for the first small block of demand as a tier.

[2] Appendix H to BCH's LGS Application contains Energy & Environmental Economics, Inc.'s (E3) August 2009 jurisdictional analysis, page 4 of 21, found that a "large majority of [GS] rate schedules use kW demand size to determine a GS rate schedule's applicability. Only 5 of the 123 [GS] rate schedules surveyed used a customer's kWh energy consumption to determine if a rate schedule is applicable to the customer"; copy available at http://www.bcuc.com/Documents/Proceedings/2009/DOC_23224_2009_10_16%20APPL_09LGS.pdf.

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3. Presentation: LGS and MGS Customer Characteristics

Paulus Mau explained the heterogeneous nature of the LGS and MGS rate classes as compared to the Residential rate class, and how this is an important consideration for LGS/MGS rate structure designs. (For example, there are no criteria or means to develop a one-size fits all threshold for an inclining block energy charge without a baseline – this will be explored in Workshop 8b).

	FEEDBACK	RESPONSE
1.	**AMPC** High load factor means a more efficient use of utility and customer facilities. However, if a utility were to design rates to encourage high load factor it may lead to conflicting Bonbright criteria; e.g., a higher demand charge may provide an incentive for high load factor uses, but there would be a reduction in the energy charge due to revenue neutrality, and this could have efficiency (energy conservation) impacts. Some customers cannot vary demand.	
2.	**CEC** The diversity of the BCH LGS and MGS rate classes is not atypical.	While BCH has not investigated the specific industry mixes of the GS rate classes of utilities surveyed GS, generally speaking GS rate classes are more heterogeneous than Residential rate classes. The BCH LGS and MGS rate structures are atypical, which are the only default baseline rates for GS classes in North America.

4. Presentation: Existing LGS and MGS Rate Structure Issues

Allan Chung provided details as to how the LGS and MGS two part rates work, including the concepts of a rolling three year average HBL; and the PLB which is 80% and 120% of HBL, such that monthly consumption above the upper PLB is priced at the equivalent Part 1 energy rates and consumption below the lower PLB is subject to a credit at Part 1 energy rates.

Anthea Jubb reviewed the results of the 2011-2012 LGS/MGS evaluation (found under the 'Resources' section of BCH's 2015 RDA website) and the F2014 LGS/MGS evaluation (circulated to workshop participants on 16 January 2015 and found under the Workshop 8a part of the BCH RDA website). The F2014 evaluation report found no statistically significant conservation from MGS versus a forecast of about 100 GWh/year; and LGS evaluated savings were 77 GWh/year at 85% confidence level and 0 GWh/year at 90% confidence level, versus a forecast of about 800 GWh/year. Anthea stated that the confidence level of the LGS savings declined in F2014 relative to 2011 and 2012, which means that F2014 savings are less certain than savings in earlier years. Anthea also explained the terms awareness and understanding as used in the evaluation, and described one common theory behind LRMC-priced rate structures, which is that awareness leads to understanding and understanding results in a conservation response. If awareness is low, as was found for the LGS and MGS rates, then understanding and conservation actions are also expected to be low.

Daren Sanders discussed some customer understanding and acceptance issues, including difficulty in forecasting and budgeting due to the complexity of the LGS and MGS rate structures.

Rob Gorter concluded with a Bonbright criteria assessment of the LGS and MGS rate structures and a jurisdictional assessment which demonstrated that the LGS and MGS rate structures are atypical from energy and demand charge perspectives.

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	FEEDBACK	RESPONSE
1.	**AMPC** Does BCH believe that the LGS and MGS rate structures violate the Bonbright criteria of freedom from controversies as to proper interpretation; practical and cost-effective to implement; and customer understanding and acceptance criteria?	BCH's 2009 LGS Application gave significant weight to the Bonbright efficiency criterion. However, the LGS and MGS rate structures are not delivering substantial energy conservation. Slide 65 shows that BCH is of the view that the complexity of the rate structures is leading to issues with customer understanding and acceptance, BCH administration and electricity demand response.
2.	**BCUC staff** Why is the LGS Part 1 10.10 cents per kWh higher than BCH's energy LRMC-based Part 2 at 9.71 cents per kWh on slide 30?	Revenue requirement rate increases are one factor (these have increased by more than inflation.
3.	**ERCO** Does the Part 1 energy charge include some demand-related costs?	The Part 1 energy charge recovers some demand-related costs.
4.	**Vancouver Aquarium** We perceive the LGS rate structure, which we are served on, as a penalty for growing due to among other things the rolling three year HBL average.	BCH has heard from a number of customers that the LGS and MGS rate structures are perceived to be barriers to expansion plans.
5.	**BCUC staff** The two evaluation reports and experience could lead to different solutions for LGS and MGS rate structures. LGS is comprised of bigger customers who appear to be more aware of the rate, and the LGS rate structure is delivering some energy conservation.	BCH agrees that there may be different solutions for the LGS and MGS rate structures, and this will be discussed at Workshop 8b. The F2014 evaluation report did not find a large spread in terms of understanding between LGS and MGS.[3]
6.	**BCUC staff** There is nothing in the presentation concerning the evaluation report-related focus group's preferred alternative rate structures.	The focus group alternative rate structure preference was not one of the research questions or objectives of the F2014 evaluation. The topic of alternative rate structures, including inclining block energy rates with no baseline and flat energy charges, which were referenced by the focus group, will be discussed at Workshop 8b.
7.	**FortisBC** What does the forecast of conservation from LGS and MGS consist of?	It is a forecast of the rate structure conservation, and does not include conservation savings from DSM programs/codes and standards for the GS rate classes, or natural conservation resulting from general rate increases applied to the GS classes through RRAs.

[3] Refer to the *Evaluation of the Large and Medium General Service Conservation Rates: F2014* (F2014 Evaluation Report), page 27 regarding the survey results for ease of understanding. After reading a description and viewing a schematic of their rate, 77% of LGS customers reported that the rate was somewhat or very easy to understand, compared to 75% for MGS1 and 68% for MGS/2; and to page 8 of Appendix F of the F2014 Evaluation Report, which states: "Across all groups, LGS and MGS customers were similar in their awareness, understanding, and opinions expressed. This might have been partially due to the recruitment and the mixed composition of the groups such that it might have been difficult to sense any differences between these 2 customer groups. But moreover, even if we had conducted LGS-only and MGS-only groups, we still may not have heard anything different between them. Therefore, it was not necessary to segment these groups in the research findings."

8.	**Viterra** The evaluation reports lead to the conclusion that the LGS/MGS rate structures are a disappointment in terms of conservation. Has the RIB and TSR stepped rate been evaluated?	Yes. The RIB was evaluated for the years F2009-F2012, and a copy of the RIB evaluation report is found under the 'Resources' section of the BCH 2015 RDA website. The evaluation report conclusion is that the RIB rate appears to be achieving its overall objective of encouraging conservation through customer response to higher marginal prices – particularly among customers with the highest consumption. The most recent BCH evaluation of the TSR stepped rate (Rate Schedule 1823) is summarized in section 5 of BC Hydro's F2012 Demand Side Management Milestone Evaluation Summary Report to the BCUC.[4] The evaluation found that 83% of TSR customers were aware of their rate structure, 60% of customers somewhat or strongly supported it, and that the TSR stepped rate had achieved conservation. The TSR stepped rate was reviewed in 2009 by the BCUC and in 2013 by the IEPR. The October 2013 IEPR task force report is found under the 'Resources' section of the BCH 2015 RDA website. The IEPR final report found that overall, BCH's TSR customers have responded to the conservation price signals in the TSR stepped rate.
9.	**AMPC** The big difference between the TSR and LGS rate classes is that due to much smaller customer numbers, BCH and TSR customers have the ability to individually tailor customer baselines with the result that the TSR stepped rate delivers conservation. AMPC supports dropping the term 'conservation rate structure'. AMPC is not aware of a definition of this term or of other jurisdictions that use this term. The BCUC has held that maximizing conservation is not a rate design objective; the Bonbright criterion is efficiency.	Agreed. Section 1 of the *Clean Energy Act* provides that rates can be demand-side measures. BCH uses the term 'conservation rate structure' to differentiate incremental conservation induced by changing elements of the rate structure from natural conservation induced by general rate increases applied through the RRA. Agreed on the observations concerning BCUC decisions and the Bonbright criteria. A rate can be an economically efficient price signal without being a 'conservation rate structure'; and example is a flat energy charge is that is within BCH's energy LRMC of 8.5 cents per kWh to 10 cents per kWh.
10.	**BCUC staff** Regarding the evaluation reports, which took place during an economic slowdown and a subsequent recovery, was BCH able to isolate conservation from the LGS/MGS rate structures from reactions to economic conditions?	Yes. The evaluation reports report on the net energy savings due only to the rate structures; by 'net' I mean net of economic impacts and other impacts such as weather. A BCUC approved control groups set up in 2010 prior to implementation of the LGS/MGS rate structures, and related Randomized Control Trial method, meant BCH had a control group not on the LGS/MGS rate structures that was comparable to the general LGS/MGS rate class population and which would have experienced the same economic conditions.

[4] Available at http://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/revenue-requirements/directive-66-f2012-demand-side-management-milestone-evaluation-summary-report.pdf.

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11.	**CLEAResult** Do the survey results for "effort made to minimize energy charges" include responses from control group accounts?	No. Survey results for "effort to minimize energy charges" are from a representative sample of customers on the LGS or MGS rate structures. ***Note to readers***: The control group is serviced through RS 1200, 1201, 1210 or 1211 with a declining energy charge, which are the RS that the LGS/MGS rate class (then only referred to as LGS) were served on prior to implementation of the LGS/MGS two part baseline rates.
12.	**BOMA** Does the evaluation report-related survey include customers with energy managers? Did the evaluation report investigate whether energy managers are important support for LGS/MGS customers?	Yes; the evaluation report surveyed customers that are representative of the LGS/MGS rate class populations, including those with energy managers. The evaluation reports did not specifically ask about the role of energy managers. The survey results indicate that the two most commonly cited major drivers of managing electricity consumption were: wanting operating costs to be as low as possible; and the overall level of electricity prices. The incentive to save electricity built into the rate was the sixth most commonly cited driver (10 possible drivers were put forward together with open-ended questions).
13.	**Loblaw** Loblaw supports the LGS and MGS rate structures; we have accounts on both. Loblaw tracks store consumption and responds to the part 2 pricing and not just the overall electricity bill. Does the F2014 evaluation report provide an explanation for the variance between forecasted and evaluated savings?	As set out on slide 48, KAM interviews revealed that some Key Account LGS customers are responding to Part 2 of the LGS rate structure. The F2014 evaluation report provides the net savings results, and not the how or the why. BCH did not go through a customer-specific review. The evaluation report survey/focus groups materials and general customer experience suggests that rate structure complexity is a significant factor for why the LGS/MGS rate structures are not performing as expected.
14.	**COPE 378** (by webcast) Has the inability to deliver the conservation forecasted for the LGS and MGs rate structures caused BCH to re-examine forecasting methods because issues like rate structure complexity are not likely to diminish going forward?	BCH is re-examining its forecasting methodology. Underpinning the forecast methodology is an elasticity of -0.1 for the LGS/MGS rate classes.[5] Rate alternatives that would simplify the complexity of the LGS and/or MGS rate structures will be discussed at Workshop 8b on 11 February 2015.

[5] The -0.1 elasticity for the GS classes is derived from E3's 2008 jurisdictional survey which was examined in the BCH 2008 Long-Term Acquisition Plan (LTAP) proceeding. E3 viewed four commercial customer studies as the most comparable to BCH (for winter peaking, relatively low rate jurisdictions: Ontario, Wisconsin, Illinois and New York) with elasticities of between 0 and -0.142. Three of the four studies report elasticity estimated below -0.1. Refer to Appendix E to the 2008 LTAP, Exhibit B-1-1 in that proceeding; http://www.bcuc.com/ApplicationView.aspx?ApplicationId=192.

15.	**BCSEA** Are LGS and MGS customers able to access information specific to their own account to see the impact of the rate structures/changes on their bills?	BCH built two online tools specifically for LGS and MGS. Because baselines are unique to each account, customers need to log on to see these tools: 1. Baselines Customers can log in and see all of their monthly baselines and how these baselines were calculated (what months were used to average each baseline). If the anomaly rule or formulaic growth rule was triggered, it is highlighted in this tool as well. 2. Forecaster Difficult to do budgeting was identified early on in the LGS implementation project by customers. BCH developed this tool to help customers estimate their upcoming electricity costs. This tool pulls actual baselines and consumption info for each account from the billing system. Customers can enter the expected increase or decrease of their consumption yearly or by individual month, the Forecaster will calculate their estimated electricity cost for the upcoming year. The results can be exported to an Excel file that has the detailed breakdown of all the energy charge line items to help them do further analysis. ***Note to reader***: BCH provides additional details concerning its communications between 2010-2014 regarding the LGS and MGS rate structures (most of the communication listed below included promotion of the online tools): - 12 Letters - 13 Emails - 22 eNewsletter stories - 6 LGS SMB council sessions and 7 MGS SMB council sessions - 2 MGS webinars - 2 Power Smart Forum sessions - 4 Energy Manager/Business Energy Advisor training sessions; and - Many industry association meetings.
16.	**BOMA** I am an energy manager and was not aware of the on-line tool described.	
17.	**COPE 378** (by webcast) Is BCH contemplating more portable tools to help LGS and MGS customers with understanding of issues like their baselines?	In addition to the two online tools and customer communications activities mentioned in response to Q15 above, BCH also revamped all Business Rates webpages based on customer engagement feedback, developed various videos that explain how the LGS rate, MGS rate, and online Forecaster tool work, as well as videos explaining the energy charge, demand charge and power factor surcharge for LGS and MGS customers to help customers understand these two new rate structures. Detailed LGS and MGS Guides that include how these two rates and their special provisions work were also developed and posted on BCH's website. BCH does not have plans to develop more new tools for the LGS and MGS rates at this time.

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18.	**Whistler Blackcomb** I am the energy manager for Whistler Blackcomb and our account is on LGS. I have presented the LGS rate structure to management on a number of occasions and they do not understand it. Management looks at rate increases, and the common view is that rate increases of 25% over 5 years (F2015-F2019) are enough to drive some conservation. I echo the comments regarding the difficulty of using the LGS rate structure for forecasting/budgeting purposes.	
19.	**BCIT** I am the energy manager for BCIT with a LGS account. There are two levels of customer understanding – you can understand the structure, but once you come to using LGS for forecasting and budgeting, you realize that you don't really understand how to act on the LGS rate to achieve savings. This cannot be corrected by more communications.	
20.	**Viterra** We are served on both the TSR stepped rate and LGS and so we see the advantages/disadvantages of both. LGS is too complex to understand; we tend to look at the overall electricity bill with the LGS rate structure being secondary. Will BCH investigate an alternative to LGS that simplifies the rate structure, may be along the lines of the TSR stepped rate?	Yes, BCH is investigating alternatives to LGS that retain the baseline but simplify the rate structure. BCH is also investigating LGS alternatives that do not retain the baseline. These alternatives will be presented at the session 2 LGS/MGS Workshop on 11 February 2015.
21.	**Thrifty Foods** I am the energy manager for Thrifty Foods which has both LGS and MGS accounts. While we have benefitted overall form the LGS rate structure, there are aspects that are unfair; in particular the new account treatment summarized at slide 60 where there are no operational changes.	

22.	**Vancouver** We have LGS and MGS accounts. We have had problems on the LGS side with phased development which is referenced on slide 60. City of Vancouver's Neighbourhood Energy Utility (NEU) is a district heating system that supplies space heating and domestic hot water to the Southeast False Creek area of Vancouver. Zoning for the area includes a requirement to connect buildings to the utility. The NEU pre-heats the heating fluid with sewer/waste water, and then tops up the temperature using natural gas. Most of the electrical load is used for pumping the fluid through the buildings. Pumping/electrical load increases as buildings are added – this will take place gradually over the next decade. The NEU system significantly reduces the greenhouse gas emissions and the demand for BCH electricity in the area. However, due to the gradual expansion, the NEU's increased load is being charged at the higher LRMC rate and is not qualified for any baseline adjustment.	
23.	**Shape Properties** We echo Vancouver's concerns about LGS impacting phased development.	
24.	**Vancouver Aquarium** Demand charges must be reviewed as well, as they have impacts in addition to the energy charges we have been discussing. Does BCH have a comparison of its 2-tier demand charge set out on slides 12/13 to other jurisdictions?	BCH is currently under-recovering demand-related costs through the 2-tier demand charge: the LGS demand charge recovers about 45% of these costs and the MGS demand charge recovers about 15% of these costs. BCH has compared the structure of its LGS/MGS demand charges to other jurisdictions and the next phase of the jurisdictional assessment is to compare the amounts and % of cost recovery.
25.	**Whistler Blackcomb** Will BCH be examining what other utilities do with respect to demand charge-related ratchets?[6]	Yes, we will undertake this work.
26.	**BCSEA** To confirm, BCH is looking at both energy and demand charges in its assessment of alternatives to LGS and MGS? Will BCH be providing its views on the appropriate split between energy and demand charges?	Yes. BCH will be looking at the effect of changing the LGS and MGS energy charges in isolation, the LGS and MGS demand charges in isolation and the impact of making changes to both energy and demand charges. Due to revenue neutrality an increase in the demand charge would lead to a decrease in the energy charge and vice versa.

[6] Demand ratchets are generally included in electric utility rates to reduce the fixed-cost recovery risks of serving certain types of customers who have potentially large swings in demand during the year.

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27.	**BCIT** With regard to the Bonbright assessment on slide 65, for some customers the issue is not so much understanding the LGS rate as it is administrative – how to act on it.	
28.	**AMPC** Will BCH be providing bill impact analysis for the LGS and MGS alternatives at Workshop 8b?	Yes.
29.	**BCSEA** Will BCH show the energy charges for a complete flattening of MGS and LGS in comparison to the BCH energy LRMC at Workshop 8b?	Yes.

5. SGS Rate Structure

Rob Gorter outlined the SGS rate class customer characteristics, which like LGS and MGS are heterogeneous, and the two SGS charges – the basic charge and the flat energy charge, which currently slightly exceeds the upper end of BCH's energy LRMC. Given the current energy charge pricing, and because of the heterogeneous nature of the SGS class, BCH sees no compelling reasons to depart from the current SGS rate design and attempt to implement an inclining block energy rate, for example. Like most electric utilities surveyed, BCH does not have a demand charge for SGS.

	FEEDBACK	RESPONSE
1.	**ERCO** Does the typical SGS customer consume about 25,000 kWh per year?	As shown on slide 69, the typical SGS customer consumes between 5,000 kWh to 35,000 kWh per year.

6. Voluntary TOU for Commercial Customers

Rob Gorter put forward BCH's position that now is not the time to examine a voluntary TOU for commercial customers given the default LGS and MGS rate structure issues. Rob also outlined BCH's view that such a voluntary TOU would be unlikely to deliver any energy savings and low to no capacity savings due to among other things an expected low peak to off-peak pricing differential.

7. Next Steps

Anne Wilson thanked everyone for making the time to participate in the workshop and reviewed the ways that feedback can be submitted to BC Hydro. The formal 30 day written comment period will not start until after Workshop 8b and the posting of Workshop 8b summary notes sometime in February 2015.

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TYPE OF MEETING	RDA Workshop 8b – Large General Service (LGS) & Medium General Service (MGS) – Alternative Rate Structures
FACILITATOR	Anne Wilson, BC Hydro
PARTICIPANTS	Association of Major Power Consumers (AMPC), British Columbia Institute of Technology (BCIT), British Columbia Non-Profit Housing Association, BC Rapid Transit, British Columbia Old Age Pensioners Organization (BCOAPO), British Columbia Sustainable Energy Association and Sierra Club of B.C (BCSEA), British Columbia Utilities Commission (BCUC staff), Building Owners & Managers Association, Cadillac Fairview, City of New Westminster, Clean Energy Association of British Columbia, Commercial Energy Consumers Association (CEC), Canadian Office & Professional Employees Union 378 (COPE 378), FortisBC, First Nations Energy & Mining Council, Onni Group, Port Metro Vancouver, School District 37, Shape Properties, Spectra Energy, Translink, Vancouver Aquarium, Viterra.
BC HYDRO ATTENDEES	Gordon Doyle, Janet Fraser, Craig Godsoe, Rob Gorter, Paulus Mau, Daren Sanders, Mark Seong, Anne Wilson
AGENDA	1. Introductions, including review of draft agenda 2. Screened-In Alternatives 3. Bill Impact Modelling Assumptions 4. Bill Impacts and Assessment of Screened-In Alternatives 5. Screened-out Alternatives 6. Next steps

MEETING MINUTES

ABBREVIATIONS

BCH	BC Hydro	LGS	Large General Service
BCUC	BC Utilities Commission	LRMC	Long Run Marginal Cost
CARC	Class Average Rate Change	MGS	Medium General Service
COS	Cost of Service	R/C	Revenue/Cost
DSM	Demand Side Management	RDA	Rate Design Application
GS	General Service	RIB	Residential Inclining Block
GWh	Gigawatt hour	RRA	Revenue Requirement Application
IRP	BCH's 2013 Integrated Resource Plan	SGS	Small General Service
kW	Kilowatt	SQ	Status Quo
kWh	Kilowatt hour	TSR	Transmission Service Rate

1. *Welcome*

Anne Wilson opened the meeting by reviewing the workshop outline set out at slide 2 of the Workshop 8b slide deck.

2. *Presentation: Introduction*

Gordon Doyle reminded attendees that Workshop 8 concerning GS rates is divided into two parts (referred to as Workshop 8a and Workshop 8b). Workshop 8a (January 21, 2015) reviewed the regulatory history of the current GS rates, as well as the current SQ rate structures including a discussion on conservation attributable to the rates and customer issues with the rates. The purpose of Workshop 8b is to review alternatives to the existing MGS and LGS rate structures.

Paulus Mau reviewed the SQ LGS and MGS rate structures including billing distributions for MGS and LGS customers.

Rob Gorter provided a Bonbright assessment of the SQ LGS and MGS rate structures.

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FEEDBACK		RESPONSE
1.	**CEC** Is the 14,800 kWh threshold a monthly threshold and is it the same for LGS and MGS?	Yes, the 14,800 kWh threshold is a monthly threshold, and yes it is the same for LGS and MGS[1].
2.	**BCUC Staff** Is the fact that Tier 1 price ($0.0989/kWh) makes up a larger portion of MGS consumption and as a result a larger influence on average price, as opposed to LGS, a reason that there was no conservation attributable to the MGS class?	While the F2014 LGS/MGS Evaluation Report did not provide an in-depth study as to why conservation from the MGS class was not being achieved, the report, together with customer comments that complexity makes acting on the rate difficult, identify the complexity of the MGS rate as a key reason why there has been no statistically significant conservation from the MGS rate for all years evaluated.
3.	**BCUC staff** Regarding slide 10, despite the complexity of the rate, most MGS customers are seeing a flat rate.	The proportion of MGS customers is about evenly split between those that see only the Part-1 Tier 1 energy rate, for consumption below 14,800 kWh/month, and those that see Part-1 Tier 1 and Tier 2 energy rates, and the Part-2 LRMC-based energy rate. For customers that see only Part-1 Tier 1, the energy rate could be regarded as flat. . The comment of BCUC staff may have been reflecting an observation that the MGS Part 1 Tier 1 rate is close in absolute level to the Part-2 LRMC-based energy rate.

3. Presentation: Screened-In-Alternatives

Rob Gorter provided an overview of what informed the development of alternatives, including previous regulatory proceedings, a jurisdictional assessment, stakeholder input and the two evaluation reports on the MGS and LGS rates, which were discussed at Workshop 8a. Rob also identified the key rate structure objectives used to evaluate and compare alternatives (fairness, economic efficiency, customer understanding and acceptance, and practicality of administration).

Paulus Mau provided an overview of screened-in alternatives and walked through the modelling analysis of the screened – in alternatives.

FEEDBACK		RESPONSE
1.	**BCUC staff** Flattening of the demand charges for MGS and LGS results in a demand charge of $2.15/kW for MGS and $8.07/kW for LGS. Why is MGS one quarter of LGS and has BC Hydro considered a common demand charge for the classes?	BC Hydro will be performing further modeling for Workshop 11 (scheduled for June 11, 2015) including looking at changes to the LGS and MGS demand charge cost recovery. BCH notes that because the rates must remain revenue neutral any increase in revenue from the demand charges will require a decrease in the energy prices.
2.	**BCUC staff** MGS and LGS were split into their respective classes in 2010. Has BCH considered re-merging the two rate classes?	Yes. BCH has considered merging the two rate classes back into a single rate class. However, it is premature to consider this while alternatives are being evaluated as it may become apparent that there are different solutions for the two classes.

[1] The 14,800 kWh threshold is inverted for the MGS class; that is, for the last 14,800 kWh of Part 1 consumption.

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FEEDBACK		RESPONSE
3.	**FortisBC** Has BCH prepared a marginal COS?	No. As described in the COS workshops (2 & 4) and the respective consideration memos posted to BCH's 2015 RDA website, BCH will not be preparing a marginal COS study for transmission, distribution and/or Customer Care, and BCH does not believe a marginal COS is required for rate design purposes. There is an energy LRMC and a generation capacity LRMC set out in section 9.2.12 of BCH's 2013 IRP.[2]
4.	**BCSEA** BCH's comment that there is no COS basis for an inclining demand charge seems counter intuitive.	From an embedded cost perspective, there is no COS basis for an inclining demand charge. Using load profiles BC Hydro calculated generation, transmission, and distribution demand related costs of serving different sizes of customers within SGS, MGS and LGS classes. The preliminary analysis shows that demand related costs are reasonably flat on a $/kW basis. However, BC Hydro notes that some distribution costs, such as transformers, decline on a $/kW basis as loads get larger and economies of scale are realized.
5.	**COPE 378** Has BC Hydro considered an approach where all customers would be charged at the LRMC of both capacity and energy and then make adjustments to distribute the heritage resources?	*Revised response* BCH understands that COPE 378's consultant, Dr. Shaffer, is raising a concept for LGS and MGS rate structures as follows: LGS and MGS customers would be billed at marginal COS for the energy and demand charges, and then would somehow obtain a rebate or bill credit based on BC Hydro's embedded COS (the rebate would close the gap between marginal COS and embedded COS, which must be closed to preserve revenue neutrality; otherwise BC Hydro would over-collect revenue from these two rate classes). Subsequent to Workshop 8b, BC Hydro discussed the concept with COPE 378. The mechanism by which the gap between marginal COS and embedded COS would be closed should be specified by COPE 378 if it wishes BCH to further review the concept. BC Hydro suggested to COPE 378 that it would be helpful if Dr. Shaffer could do so through the LGS/MGS Workshop 8b written comment period. In the interim, BC Hydro notes the following: First, the concept appears to rest on undertaking a marginal COS. Refer to BCH's response to FortisBC's question above. Second, the concept has the potential to change the basis for the distribution of the benefits of the Heritage hydroelectric generation among BC Hydro's existing and future customers. This in turn raises the issue of the Heritage Contract at both a political and regulatory level. This would require discussion with the B.C. Government and extensive stakeholder engagement because the concept has the potentially to affect all rate classes. As set out in Attachment 3 to BC Hydro's consideration memo concerning Workshop 3 (June 25, 2014), in BC Hydro's embedded COS study the costs of both Heritage hydroelectric generation energy and non-Heritage resource energy are allocated to the customer classes based on the energy consumption and peak demand of each customer class. As a result, each class receives a share of the benefits of the Heritage resources based on the class' share of total consumption and peak demand. As noted in the Workshop 5 (October 22, 2014) summary notes posted to the 2015 RDA website, in response to a question by

[2] A copy of BCH's approved November 2013 IRP can be found at https://www.bchydro.com/energy-in-bc/meeting_demand_growth/irp/document_centre/reports/november-2013-irp.html.

		Dr. Shaffer BC Hydro noted that it explored alternative ways of distributing the Heritage resource electricity in the context of the 2013 IRP's DSM Options 4 and 5 – namely, through undefined efficiency-rating(s). Both DSM Options 4 and 5 would require that each BC Hydro Transmission service customer 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. 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 rate structure components of DSM Options 4 and 5 should not be pursued at this time. If Dr. Shaffer wishes to flesh out the concept, after receiving it through the written comment period BCH could discuss it at LGS/MGS Workshop 11 scheduled for 11 June 2015 to obtain LGS and MGS customer feedback.
6.	**CLEAResult** Efficiency should increase if the rate is simpler to understand and therefore there should be increased conservation.	Rate complexity has been identified as the major reason why the LGS and MGS rates have not achieved any significant rate structure conservation. However, moving to a flat energy rate (i.e., eliminate the baseline and Part-2) would not result in greater rate structure conservation. There would be natural conservation in response to general revenue requirement increases. A key issue is whether the resulting flat energy charges are within the energy LRMC range and thus can be considered to be an efficient rate.
7.	**Viterra** Simplicity is an important consideration for customers and their ability to respond to conservation signals.	Agreed.
8.	**Viterra** Viterra takes service from BCH under the LGS rate. Allocation of Heritage benefits is an issue for all customer classes; Viterra rejects the marginal COS approach suggested by COPE 378 on the basis of among other things it will be complicated and it will re-distribute Heritage resource benefits.	

4. Bill Impact Modelling Assumptions

Paulus Mau walked through the assumptions BCH has used in its bill impact modelling, including that rates are modelled using F2016 rates, are revenue neutral and are designed to collect the most recent revenue requirement. Demand and energy revenues are kept constant in the alternatives.

FEEDBACK		RESPONSE
1.	**CEC** Is the % increase illustrated in the table on slide 30 the total bill impact?	Yes, it is the CARC, which for F2016 equals the RRA of 6%. CARC is the rate change from one year to the next, including the RRA and Rate Rider.

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2.	**BCSEA** Slide 27 illustrates that there are LGS customers with consumption below the 550,000 kW/h threshold. Would they be migrating to MGS?	Not necessarily, as customers can qualify for the LGS class if their annual consumption is above 550,000 kWh/year or if their demand is above 150 kW (for migration from MGS to LGS). For existing LGS customers, they can maintain their LGS status if their demand does not fall below 100 kW regardless of consumption.
3.	**Translink** Is there a load factor calculation tool available to customers on BCH's website?	No. BCH does not have a load factor calculation tool online. However, load factor can be derived from the consumption and demand information available on a customer's invoice. Load factor is the average load divided by the peak load in the time period. For example, if a customer used 1,200,000 kWh in a month and had a peak demand of 2,500 kW then its load factor would be (assume 31-day billing period): [1,200,000 kWh / (31 days * 24 hours per day)]/2,500 kW x 100% = 64.5%]

5. Bill Impacts and Assessment of Screened-In Alternatives

Paulus Mau walked through the bill impact analysis for the Screened-In Alternatives. The modelling illustrated bill impacts to customers at different energy consumption and load factor levels as well as identifying the bill impacts to various sectors.

FEEDBACK		RESPONSE
1.	**BCSEA** Slides 37 and 41 indicate that there are higher bill impacts for customers with high load factors. Is this a perverse outcome of flattening the rates in that it impacts the customers that have high utilization?	In the 2003 Heritage Contract Inquiry Report and recommendations, the BCUC noted that basing the demand charge on actual demand provides the incentive for customers to invest in load factor improvements and that it is in the interest of all customers to improve the efficient use of transmission capacity.[3] BCH also notes that AMPC at Workshop 8a observed that utilities favour high load factor customers.
2.	**BCUC staff** Slide 44 – Do other utilities typically have no demand charge for a first block of demand and then flat rate for remaining demand? Can BCH model the demand charges with a free first block and flat thereafter?	Yes, generally this is the case. However, some utilities also have a flat demand for all kW. Please see refer to slide 64 of the Workshop 8a presentation. Yes. BCH will bring this forward for Workshop 11.
3.	**BCSEA** Is it possible to characterize the high bill impact customers?	The high bill impacts from each alternative are driven by a combination of demand and energy consumption, unique to that alternative, as illustrated in the analysis slides. The high bill impact customers are not characterized by any particular industry type.

[3] *In the Matter of British Columbia Hydro and Power Authority: An Inquiry into a Heritage Contract for British Columbia Hydro and Power Authority's Existing Generation Resources and Regarding Stepped Rates and Transmission Access*, Report and Recommendations, October 17, 2013, page 61; copy available at http://www.bcuc.com/Documents/Decisions/2003Dec/Heritage%20LGIC%20Rpt-Recommend.pdf.

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4.	**CLEAResult** Is it possible to back-cast to F2014?	The F2016 results should provide a good idea of the patterns of impacts to expect from F2016 going forward. At Workshop 11 BCH will present forecasted impacts from F2017 to F2019. The current models, inputs and assumptions are not designed to back-cast to F2014. Building such models are not possible given the current timeframe, data, and models; even if such models are built, it will have to make use of a number of untested assumptions and the outcomes are likely unrealistic and won't reconcile with history. It is also not possible to back-cast just for particular accounts. The pricing will require class-revenue neutral rates for each year, which cannot be computed independently by account.
5.	**Cadillac-Fairview** We have eight accounts downtown with BCH. We would like to see examples of bill impacts for our accounts.	BCH will work with Cadillac-Fairview to determine what kind of analysis Cadillac-Fairview is looking for. Prior to the next workshop, BCH will analyze bill impacts for all customers. The analysis will use F2014 consumption and HBL data, and then apply F2016 rates. The analysis will be done for both flat and two-part rate designs, and consider scenarios such as: • Same consumption • 5% and 10% increase • 5% and 10% decrease.
6.	**CEC** On slide 54, it appears for the LGS flattening of Part 1 energy and demand as if higher load factor customers are seeing higher bill impacts	Bill impacts depend on consumption as well as load factor, but yes, higher load factor customers would see bill impacts relative to SQ, and this is a concern for BCH.
7.	**CEC** We are not critiquing the bill impact analysis, but the question is what should we be looking at in terms of cost causation?	Refer to BCH's answer to Q8 below.
8.	**BCUC staff** The complicating factor of LGS and MGS is the demand charge component. BCUC staff agree with CEC regarding the overall question, which is what demand charges do LGS and MGS customers deserve? A major aspect of answering this question is: what is the appropriate cost recovery for the LGS and MGS demand charge?	In BCH's view, there is no correct answer to what the appropriate cost recovery for demand-related costs should be. Agreed that one consideration in varying the demand charges is the amount of demand-related cost recovery that results (the Bonbright fairness criterion). For F2012, the demand-related cost recovery from the LGS demand charge is 53% [this is a correction from the 56% figure reported in Workshop 8b, Slide 75], while the corresponding figure for MGS is 15%. Therefore, there appears to be a case for increasing demand cost recovery from MGS or perhaps decreasing demand cost recovery from LGS. BC Hydro will model both for purposes of Workshop 11. However, there are other considerations such as the resulting impact on the energy charges given revenue neutrality, and the impact on high load factor and other customers. BCH plans to survey other Canadian jurisdictions to determine if the SQ LGS and MGS rates, and proposed alternatives, are in the low, mid or high range. This work will be presented at Workshop 11.

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9.	**FortisBC** Would BC Hydro consider a rate structure that balances bill impacts so there are no outliers with respect to bill impacts?	BCH has not designed a rate alternative that is solely focused on symmetrical bill impacts and excluding outliers as that would essentially limit the rate alternative to SQ. Bills are simulated from the billing data to illustrate impact distributions outcomes. The heterogeneous nature of the customers and their differing energy consumption and load factor profiles lead to outliers for each of the alternatives presented. Once a rate design alternative has been proposed, provisions can be considered to address outlier concerns.
10.	**FortisBC** Does BC Hydro produce intra-class R/C ratios?	No. Consistent with good utility practice, including FortisBC, BCH develops R/C ratios for each class of customers but does not develop them within the class. This would require subjective determinations of how customers within a group should be broken into sub-classes.
11.	**BCUC staff** Customer baselines appear to be problematic for MGS in particular. With little or no MGS rate structure conservation, is there any benefit to having a customer baseline? Given that the LGS rate is delivering conservation, it may be worth the complexity associated with the baseline.	The overall purpose of the LGS/MGS customer baseline concept is to send a marginal price signal for consumption above and below the baseline while addressing the BCUC's 2007 RDA Direction 19 with respect to bill impacts. BCH did not propose a customer baseline approach for MGS as part of its 2009 LGS Rate Application for a variety of reasons. BCH reasoned that it was prudent to propose a baseline rate for LGS customers first because these customers spend more on electricity and thus are more likely to have energy expertise and resources. BCH notes that it has declining confidence in the persistence of the LGS conservation savings of 77 GWh/year (85% confidence level) reported for F2014.
12.	**BCSEA** More analysis as to the why the MGS and LGS rates are not achieving conservation could be helpful. It appears that the elasticity is less than the -0.1.	The evaluation data from focus groups and the survey found that one reason for the variance between evaluated and reported savings was low levels of customer awareness and understanding of the rates, due at least in part to their complexity. The focus groups also indicated that some customers focus on their total bill amount rather than the Part 2 energy charge or credit, which may mean they did not differentiate and respond to the marginal energy price independently of other components. This is a deviation from the forecast assumptions, resulting in a weaker than intended price signal and customer response. The F2014 Evaluation Report did not evaluate elasticity because the Evaluation Report had a better evaluation tool – the control group. In any event, the design of the LGS and MGS rates makes it difficult to empirically estimate these customer classes' elasticity using econometric analysis.
13.	**Viterra** The monthly baseline is almost impossible to manage and therefore not helpful in supporting conservation. Weather changes, timing of orders and other factors can shift consumption from month to month.	BCH will explore whether an annual baseline is feasible for the MGS and LGS class of customers. For reference, BCH has included 2009 LGS Application-related materials that address the monthly baseline vs. annual baseline approaches at Attachment 1 to these notes.
14.	**COPE 378** It is difficult to draw any conclusions from the LGS and MGS rates given their overly complex design.	

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15.	**BCIT** If BCH proposes to get rid of the baseline concept for LGS and MGS, would BCH augment DSM programs for these two classes?	At this time, BCH has made no decision on whether to propose getting rid of the baseline concept for LGS and/or MGS. It is not clear if additional DSM programs for commercial customers would be cost-effective – rate structures and codes and standards tend to be lower cost than DSM programs. The 2015 RDA will not be addressing what the right level of DSM programs for the LGS and MGS classes should be, although as context BCH can describe the existing commercial customer DSM programs at Workshop 11. The first process where DSM programs are examined is the 2013 IRP, which sets the overall DSM target and a high level allocation of programs between the residential, commercial and Transmission Service classes. The second process is the next RRA to be submitted to the BCUC in early 2016, and in particular a request to the BCUC for a DSM expenditure determination under section 44.2 of the UCA. The BCUC decides if the DSM expenditures are in the public interest.
16.	**BCUC staff** For the 2015 RDA itself, it would be helpful if BCH identified the implementation and on-going costs associated with the SQ LGS and MGS rates.	Agreed.

4. Screened-Out Alternatives

Rob Gorter explained the criteria used by BCH to screen-out alternatives including: high bill impacts, suitability for a heterogeneous group of customers, and performance against rate design objectives. Included in the screened-out alternatives were a fixed threshold inclining block rate with no baseline.

FEEDBACK		RESPONSE
1.	**CEC** CEC agrees that an inclining block rate structure for the MGS and LGS class of customers is not a viable alternative. It will create winners and losers within the segments and there will be controversy over thresholds. This is why baseline was used to mitigate bill impacts.	
2.	**BCUC staff** What is the appropriate demand cost recovery for the LGS and MGS rates?	Refer to BCH's response to Q8 above under 'Presentation: Bill Impacts and Assessment of Screened-In Alternatives'.
3.	**CEC** Can BC Hydro provide a summary of all the alternatives that were considered?	Yes; refer to Attachment 2 to these notes, which is a summary of alternatives modelled by BCH to date. BC Hydro has color coded the alternatives by subject matter.

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4.	**BCOAPO** What type of BCUC process does BCH envision for the 2015 RDA?	***Revised Response*** BCH is planning to file what has been called 'Module 1' of the 2015 RDA in mid-September 2015. Module 1 will include COS and the default rate structures for the Residential, SGS, MGS, LGS, Transmission Service and Street-Lighting classes. Transmission Service rate options will also be included. For Module 1, BCH will likely suggest one round of information requests followed by a procedural conference at which further processes for the review of various parts of Module 1 can be discussed. Module 2 of the 2015 RDA would include the Transmission and Distribution extension proposals, together with miscellaneous rate structure issues. Module 2 would be filed following the evidentiary phase of Module 1 is complete, so sometime in 2016.
7.Next Steps		
Anne Wilson thanked everyone for making the time to participate in the workshop and reviewed the ways that feedback can be submitted to BCH. The formal 30-day written comment period will start on March 5, 2015 with the posting of these summary notes.		

BC Hydro Rate Design Workshop

SUMMARY
Attachment 1

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Vancouver

ATTACHMENT 1 2009 LGS Application Excerpts: Monthly Baseline vs. Annual Baseline Approaches

This is in contrast to the transmission stepped rate, which is a rate structure that expressly allows for customers and BC Hydro to make numerous and near-continuous baseline adjustments to account for particular customer circumstances. However, there are only about 100 transmission customers, and thus the administrative and tariff issues that arise from a rate structure that is so highly customized are manageable and in the aggregate not too costly. An LGS rate structure that provided anywhere near the degree of customization that the transmission stepped rate provides for would be difficult and time-consuming to implement, and challenging to administer.

Q22. Why has BC Hydro not proposed a rate like the transmission stepped rate to some or all of its ELGS customers?

A22. As noted, the transmission stepped rate is a rate structure that provides a very significant degree of *ad hoc* customization to respond to the specific circumstances of customers. Under the terms and conditions of the transmission stepped rate historical consumption can be adjusted frequently to respond to specific defined events such as unscheduled, short-term plant shut-downs; implementation of permanent demand side management investments; and plant capacity increases, among others. Such adjustments are effectively negotiated between BC Hydro and its customers on the rate in accordance with its terms and conditions, before being filed with the BCUC for approval. BC Hydro and its transmission customers expend a significant amount of time and resources in a near-continuous process of reviewing, measuring, verifying, and communicating regarding their requests for adjustments, which makes it impossible to extend that stepped rate structure to any significant portion of the ELGS class.

In any event, BC Hydro believes its LGS proposal is a better solution to the objective of pricing marginal consumption at an LRMC rate without unduly impacting any customer, and is more responsive overall to the feedback we received during customer consultation.

rationale for the selecting a three-year rolling average formula for baseline determination; and (f) customers' concerns related to the effect of the current recession on baseline determination and comparable treatment of new and existing accounts.

Q12. What are your thoughts and recommendations regarding the different ways in which the historical consumption of individual accounts may be calculated for the purpose of a CBL-based rate?

A12. My recommendations are based on the following findings in Appendix K (Baseline Determination):

- An account's baseline will likely require adjustments over time. These adjustments can be made on a case-by-case basis or can be entirely formulaic. Formulaic approaches may use either an annual, seasonal or monthly baseline definition. Formulaic baselines can also be based on a single year or an average of multiple years of billing data. A formulaic baseline definition can use a rolling average of historical billing data to capture trend consumption changes over time;

- When compared to a baseline with an annual kWh, a monthly baseline that reflects an account's monthly consumption will better convey marginal-cost based pricing and have lower month-to-month bill volatility;

- Using a three-year rolling average of historic consumption to determine an account's baseline smoothes out year-to-year usage fluctuations and can better reflect an account's long-term consumption trend than a baseline based on a single year of billing data. The three-year average method also has regulatory precedent in British Columbia; and

- There are comparable ways to set a baseline for new accounts that are roughly equivalent to the baseline treatment of existing accounts.

In light of the above findings, my recommendations with regard to baseline determination are as follows:

- BC Hydro should propose a monthly baseline definition that is reflective of the account's monthly usage pattern, thereby mitigating month-to-month bill volatility and improving the economic efficiency of the design;

- BC Hydro should propose a baseline based on a three-year average of historical data. This proposal has the following merits:

  - It strikes a reasonable balance between growing and conserving accounts. Growing accounts will not have to pay for all new load at incremental costs. Conserving accounts can see multi-year bill savings based on higher marginal cost based rates.[31]

  - The three-year average yields a more stable baseline than using a single year of billing data. Stable baselines likely translate into more stable bills under a two-part rate design.

  - The three-year average method may also be used to adjust the account's baseline in subsequent years following the initial baseline determination at the time of a two-part rate's first implementation.

- BC Hydro should propose billing new accounts without consumption history at the LRMC-based rate for 10 per cent, and at the existing embedded cost based rate for 90 per cent, of their actual usage in the first year of service. This recommendation reflects the fact that existing accounts will have between 0 and 20 per cent of their total usage exposed to the LRMC-based rate. A comparable treatment is to make a new accounts' CBL equal to 90 per cent of its actual consumption, and expose 10 per cent (mid-point of 0-20 per cent) of its usage to the LRMC-based rate.

[31] Year 1 = 100 per cent load decrease, year 2 = 2/3 of load decrease, year 3 = 1/3 of load decrease which ignoring discounting is equivalent to a total = 200 per cent, or two years of payback benefits that would occur over a three year period.

determined using twelve consecutive months of the customer's historic billing determinants."

6. Analysis

6.1. CBL Methods Used in BC

Table K-1 is a qualitative assessment of the CBL determination under RS 1848 and RS 1823. RS 1848 was BC Hydro's original two-part RTP rate used as an industrial service option and approved by the BCUC in 1996. RS 1823 is the TSR stepped rate approved in 2005. These two schedules are chosen to compare and contrast the choices that have already been used in determining baseline determinations in BC. From this table, the following observations emerge:

- Since customers volunteer for a rate option only when expecting bill savings, the bill impacts are likely to be higher under a mandatory rate than one that is optional, and a baseline determination methodology that creates larger bill impacts will have its effects magnified by a mandatory rate.

- RS 1848 uses 12 monthly CBL kW profiles based on the 3-year average of historic data to define the customer baseline. Averaging the 3-year kW history under RS 1848 helped to smooth load fluctuations resulting from business cycles, lessening the extent to which a single non-typical year affected a CBL. In contrast, RS 1823 determined a customer's CBL using the annual kWh value from a single year, implying that absent

adjustments, a non-typical year can greatly affect a customer's CBL for the next billing year.

- Both schedules have CBL adjustments that help remove non-typical events (e.g., major DSM investments or capacity expansion). However, adjustments under RS 1848 only occur at the time of a customer first taking the RTP rate option. In contrast, RS 1823 allows for continuous adjustments to reflect a customer's changing consumption circumstances.

- Monthly CBL determination per RS 1848 can better provide marginal-cost based price signals than annual energy CBL determination per RS 1823. This better marginal cost signal necessitates a higher data requirement, as noted above.

- When each customer's monthly CBL kW equals the customer's billing kW, RS 1848 is revenue-neutral at the customer-level. Similarly, when each customer's annual CBL kWh equals annual billing kWh, RS 1823 is revenue-neutral at the customer-level.

BC Hydro Rate Design Workshop

SUMMARY
Attachment 1

11 FEBRUARY 2015 9 AM TO 12.30 P.M.

BCUC Hearing Room
Vancouver

Table K-1: CBL determination: RS 1848 vs. RS 1823

Attribute	RS 1848	RS 1823	Remarks
1. Applicability	Voluntary participants who take the option in anticipation of bill savings	Mandatory for all customers	How the CBL is determined can affect customer bills more for a mandatory tariff (RS 1823) than a rate option (RS 1848), since customers that would be adversely affected by the CBL determination will not opt-in to a voluntary rate option.
2. CBL measurement	12 monthly kW profiles by TOU period	Single annual energy value	Monthly CBL estimation requires month-specific data that may not exist for some customers with re-bills or missing meter read dates
3. Computation	Average of 3 years of historic loads	Single calendar year total kWh consumption	Averaging helps smooth load fluctuations due to business cycle; however, it adds data requirements and can present challenges for customers with less than 3 years of billing history
4. Adjustment to reflect DSM investment and plant expansion	Only in setting the initial CBL when a customer first taking the option	Continuous to reflect a customer's changing consumption circumstances	CBL adjustments may be less necessary under the 3-year averaging than the single-year method.
5. Marginal-cost based price signal	Sent through daily RTP rates in each month based on daily wholesale prices	Sent through the tier 2 rate for consumption above 90% of a customer's annual energy CBL	Under RS 1848, the signal is daily in each month. Under RS 1823, it is only for a customer's consumption above 90% of the customer's annual CBL.
6. Revenue neutrality	Customer-specific if the monthly CBL accurately represents the customer's loads that would have occurred under RS 1821	The stepped rate aims to achieve a weighted average rate that matches the flat energy rate under RS 1821.	Both schedules are revenue neutral at the customer level when a customer's billing consumption matches the customer's own CBL.

A customer's consumption depends on many factors besides electricity rates, such as macroeconomic conditions, facilities changes, or DSM investments. To

account for these factors, BC Hydro's RS 1848 and RS 1823 allow for custom revisions of the CBL, as do many North American two-part RTP optional rates.

Custom revisions, however, can be time-consuming and costly. A case in point is RS 1823. "The CBL annual review and CBL adjustment/determination process continues to be complex in F2008. … The process takes time and demands diligence, given the billing impacts that arise."[5] In contrast, a formulaic determination, such as one solely based on a rolling average of multi-year billing data, provides the benefit of adjusting for changing customer conditions without significant administrative costs.

6.2. *Baseline Formula*

When the billing kWh and the baseline kWh deviate, significant bill volatility can occur, as shown in Appendix L, *LGS Bill Volatility*. Hence, if one were to choose a formulaic determination, an important consideration would be how well the formula produced baseline kWh tracks billing kWh.

Using the billing data for FY2004-FY2008, this section assesses whether a 1-, 2-, or 3-year average, when used as a customer's baseline, can better represent or track a customer's consumption in a forecast fiscal year. The assessment has the following steps:

- Step 1: Compute a customer's 12 monthly kWh baselines, using 1, 2 or 3 years of the most recent billing history. For example, the January 3-year

[5] BC Hydro's Transmission Service Rate F2008 Annual Report filed with the BCUC on November 21, 2008, p.18.

BC Hydro Rate Design Workshop

SUMMARY
Attachment 1

11 FEBRUARY 2015 9 AM TO 12.30 P.M.

BCUC Hearing Room
Vancouver

British Columbia Utilities Commission Information Request No. **1.20.1** Dated: **November 12, 2009** British Columbia Hydro & Power Authority Response issued **December 7, 2009**	Page 1 of 1
British Columbia Hydro & Power Authority **Large General Service Rate Application**	**Exhibit: B-5**

20.0 Reference: Customer Support and Consultation
Exhibit B-1, Chapter 3 Direct Testimony of Sylvia von Minden, pp. 3-13, 3-14
Baseline Administration and Adjustment Process

BC Hydro states that from the implementation of the TSR, it has learned that customers also dedicate significant resources to the baseline administration and adjustment process. A complex rate requires sophisticated, engaged, and educated customers with dedicated resources to fully leverage the opportunities provided by the rate.

1.20.1 Does BC Hydro believe that the customers from the ELGS accounts have the resources to leverage the opportunities provided by the proposed MGS and LGS rate restructuring? If not, in BC Hydro's view, how long will it take to develop the resources?

RESPONSE:

At present, BC Hydro does not believe that all ELGS accounts have such resources. Ultimately, BC Hydro believes that ELGS accounts will develop the appropriate staff/consulting resources and expertise to leverage the opportunities that arise for their businesses as a result of the conservation price signals provided via new rate structures.

This is one reason why BC Hydro is proposing the LGS rate structure only for larger ELGS accounts at this time, as these accounts spend more on electricity and thus are more likely to have energy management expertise and resources. Because all ELGS accounts may not have such resources, BC Hydro is proposing to phase-in both the MGS and LGS rate structures to provide customers with time to learn about their new rates, and take energy management and conservation actions. In any event, customers on the proposed LGS rate structure will require fewer resources than they would require were a rate structure similar to the transmission voltage CBL-based rate to be implemented (where significant customer resources are required to interact proactively with BC Hydro and regarding baseline administration and ad hoc baseline adjustment requests).

B.C. Sustainable Energy Association and Sierra Club British Columbia Information Request No. **1.3.6** Dated: **November 16, 2009** British Columbia Hydro & Power Authority Response issued **December 7, 2009**	Page 1 of 1
British Columbia Hydro & Power Authority **Large General Service Rate Application**	**Exhibit: B-5**

3.0 Reference: Exhibit B-1, p.3-22, LGS Price Limit Bands to mitigate bill volatility; Chapter 4 – Direct Testimony of Dr. Ren Orans; Appendix I, Evaluation of Alternative (Generic Rate Structures; Appendix L, LGS Bill Volatility

Dr. Orans states:

"Appendix I (Evaluation of Alternative (Generic) Rate Structures) concludes that tying an account's bill to the account's historic consumption via a two-part rate structure can uniquely convey a full marginal cost-based price signal to induce conservation, with minimal bill impacts, and minimal cost-shifting to other customer classes." [B1, p.4-9, underline added]

Bob Steele states:

"3.2 LGS Conservation

Under the LGS proposal, energy subject to the LRMC-based marginal price signal is calculated as follows:

- **the total energy estimated for the new LGS class;**
- **less the estimated total energy for monthly bills when the bill exceeds the Price Limit Bands. [Appendix O, p.3 of 4, underline added]**

1.3.6 Did BC Hydro explore alternatives to a simple formulaic HBL determination procedure? For example, did Hydro consider a different HBL determination procedure for customers whose test period load is expected to be different from their load in the previous period (or rolling average of three previous periods)? At Appendix K, p 6 of 24, "Non-formulaic determination" of baseline is described, with the conclusion that it is "complicated, and potentially burdensome to implement." Was that the extent of BC Hydro's exploration of "Non-formulaic determination" options for the LGS class?

RESPONSE:

As described in Ms. Coltart's Direct Testimony (please see A21 and A22 in Chapter 2), BC Hydro cannot implement a non-formulaic rate structure similar to the TSR (1823) rate, with *ad hoc* customization and baseline adjustments for any significant portion of ELGS accounts. As a result, BC Hydro did not focus on non-formulaic rate designs in restructuring rates for the ELGS class.

BC Hydro Rate Design Workshop

SUMMARY
Attachment 2

11 FEBRUARY 2015 | 9 AM TO 12.30 P.M. | BCUC Hearing Room, Vancouver

ATTACHMENT 2 LGS and MGS Alternatives Modelled for RDA Workshop No. 8b

	Baseline (Keep Part 2)				**No Baseline (No Part-2)**			**Flatten Demand (Keep Part 2)**				**Varying Demand Cost Recovery (Keep Part 2)**		**100% Demand Cost Recovery (Keep Part 2)**				
LGS	Status Quo	Flatten Energy	Credits Only + SQ	Credits Only + Flatten Energy	+SQ	Flatten Energy	Flatten Demand (all tiers) + Flatten Energy	Flatten T2= T3 only (T1=0)	Flatten All Tiers (T1=T2=T3)	Flatten T2=T3 only + Flatten Energy	Flatten All Tiers + Flatten Energy	Flatten Demand T3 to T2 level + Flatten Energy	Higher Cost Recovery Flatten Demand (T2=T3) + Flatten Energy	+ SQ	Flatten Energy	Flatten Demand, T2=T3 only	Flatten Demand, All Tiers	Flatten Demand All Tiers + Flatten Energy
Basic $/day	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257
Demand $/kW																		
T1	0.00	0.00	0.00	0.00	0.00	0.00	8.07	0.00	8.07	0.00	8.07	0.00	0.00	0.00	0.00	0.00	17.03	17.03
T2	5.50	5.50	5.50	5.50	5.50	5.50		8.95		8.95		5.50	10.55	11.61	11.61	18.87		
T3	10.55	10.55	10.55	10.55	10.55	10.55								22.25	22.25			
Energy c/kwh																		
T1	10.66	5.70	11.06	5.85	10.85	5.79	5.76	10.66	10.65	5.70	5.70	6.48	5.33	5.97	3.27	5.96	5.95	3.26
T2	5.13		5.32		5.22			5.13	5.13					2.87		2.87	2.86	
Part 2	9.90	9.90	9.90	9.90	n/a	n/a	n/a	9.90	9.90	9.90	9.90	9.90	9.90	9.90	9.90	9.90	9.90	9.90
Minimum	3.30	3.30	3.30	3.30	n/a	n/a	n/a	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30

	Baseline (Part 2)				**No Baseline (No Part-2)**			**Flatten Demand (Keep Part 2)**				**Varying Demand Cost Recovery (Keep Part 2)**		**100% Demand Cost Recovery (Keep Part 2)**				
MGS	Status Quo	Flatten Energy	Credits Only + SQ	Credits Only + Flatten Energy	+SQ	Flatten Energy	Flatten Demand (all tiers) + Flatten Energy	Flatten T2= T3 only (T1=0)	Flatten All Tiers (T1=T2=T3)	Flatten T2=T3 only + Flatten Energy	Flatten All Tiers + Flatten Energy	Flatten Demand T3 to T2 level + Flatten Energy	Higher Cost Recovery Flatten Demand (T2=T3) + Flatten Energy	+ SQ	Flatten Energy	Flatten Demand, T2=T3 only	Flatten Demand, All Tiers	Flatten Demand All Tiers + Flatten Energy
Basic $/day	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257	n/a	0.2257	0.2257	0.2257	0.2257	0.2257	0.2257
Demand $/kW																		
T1	0.00	0.00	0.00	0.00	0.00	0.00	2.15	0.00	2.15	0.00	2.15	n/a	0.00	0.00	0.00	0.00	14.91	14.91
T2	5.50	5.50	5.50	5.50	5.50	5.50		5.52		5.52		n/a	5.52	38.2	38.2	38.3		
T3	10.55	10.55	10.55	10.55	10.55	10.55						n/a		73.24	73.24			
Energy c/kwh																		
T1	9.89	8.97	9.96	9.00	9.91	8.98	8.98	9.89	9.89	8.97	8.97	n/a	8.97	5.46	4.95	5.46	5.46	4.95
T2	6.90		6.94		6.91			6.90	6.90			n/a		3.80		3.80	3.80	
Part 2	9.90	9.90	9.90	9.90	n/a	n/a	n/a	9.90	9.90	9.90	9.90	n/a	9.90	9.90	9.90	9.90	9.90	9.90
Minimum	3.30	3.30	3.30	3.30	n/a	n/a	n/a	3.30	3.30	3.30	3.30	n/a	3.30	3.30	3.30	3.30	3.30	3.30

Categories of screened-in alternatives presented at Workshop 8b	x	x					x		x		x							
Alternatives or variations to be carried forward to Workshop 11 (June 9,2015)	x						x			x	x	x						
										To include also No Baseline – Flatten Energy								

BC hydro

2015 Rate Design Application

January 21, 2015/February 11, 2015
Workshop Nos. 8a and 8b
LGS/MGS/SGS Rate Structures
BC Hydro Summary and Consideration of Participant Feedback

Attachment 2
Workshop Nos. 8a and 8b
Feedback Forms and Written Comments

2015 Rate Design Application (RDA) –
Small General Service (SGS), Medium General Service (MGS) and Large General Service (LGS) Rates
Workshop # 1 – Sessions 1 and 2
Feedback Form

Name/Organization: Association of Major Power Customers (AMPC)

Presentation Topics	
	Comments **(Please do not identify third-party individuals in your comments. Comments bearing references to identifiable individuals will be discarded due to privacy concerns).**
1. SGS A. Is there a strong basis to depart from the current SGS flat energy charge given that the SGS energy charge is slightly above the upper end of BC Hydro's energy Long Run Marginal Cost of energy (LRMC)?	No.
B. The SGS Basic Charge is estimated to recover 33% of Customer related cost for F2016. (This is comparable to the Residential Inclining Block (RIB) rate Basic Charge cost recovery figure of about 30% - for reference BC Hydro found that most utilities are in the 35% to 65% range for residential customer-related fixed cost recovery – refer to Workshop No.3 slide deck presentation, slide #67). Given revenue neutrality, an increase in the Basic Charge must be offset by a reduction in the energy charge. Should BC Hydro consider increasing the Basic Charge to increase the recovery of Customer related costs?	This begs the question of revenue neutrality which is not a given, as this RDA includes a complete reappraisal of fully allocated costs of service and revenue to cost ratios.This includes an analysis of rate classes as groups of customers with homgeneuos characteristics open to the distinct possibility that new or changed rate class definitions may be more appropriate than the existing rate classes and definitions. BC Hydro should consider an increase the basic charge in general service classes to recover a higher portion of customers costs in line the practice of most other utilities. As a general rule, only the residential rate class escapes demand or basic customer charges that will recover a significant portion of demand related, or customer related costs. The design flexibility of tiered energy rates remains an option to better reflect LRMC if desired – though there are problems with use of this approach in a class lacking sufficient homogeneity if more frequent individual adjustments to baselines are not also considered.

2. LGS and MGS: Customer Experience BC Hydro is interested in hearing from customers who take service under LGS or MGS rates regarding their experiences with the rate and in particular, whether the rates provide clear signals to conserve energy that can be acted upon, and if not why not. In responding, please identify which rate you take service from BC Hydro under.	The present rate structure of LGS and MGS is confusing for all but the most sophisticated of general service customers who are able to aggregate a large number of relatively modular services. It is no surprise to hear that a conservation response is not apparent where the "price signal" is so confusing. The LGS/MGS bill calculations are overly convoluted relative to the size, type and resources of typical general service customers (such as the use of multiple inclining and declining energy blocks and "bandwidths"). The inability to annually adjust individual baselines to reflect changes in use is also a significant problem for widely heterogeneous rate classes. In such circumstances, a simple flat energy rate may be more useful in providing a conservative price signal than a tiered energy rate.
3. LGS and MGS: Screened-in Alternatives BC Hydro presented three categories of screened-in alternatives in Workshop No. 8b for each of LGS and MGS rate together with a high level analysis of their benefits and drawbacks The three categories screened-in alternatives are: • Status Quo • Retain Baseline, Flat part 1 energy, and flat demand • No Baseline, flat part 1 energy and flat demand Are there other rate designs that BC Hydro should be considering for Workshop No. 11 scheduled for 11 June 2015?	Yes. As a preliminary rate design step, BC Hydro should revisit the rate class definitions of SGS/MGS/LGS. These classes cover a very wide range of different characteristics and lack the homogeneity expected of a rate class – especially one subject to a tiered rate design with no possibility of frequent baseline adjustments. Analysis of general service groupings suggests that a more appropriate classification could include the ability to define and adjust CBLs for the largest group using similar approaches to the TSR. The largest general service customers may be considered transitional and to have more in common with TSR customers. At the largest sizes, the service voltages reflect accidents of geography as much as the characteristics of the load served and a new rate class may be appropriate.

4. LGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo LGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	Please see the comments above on the definitions of rate class and baseline adjustments. The current baseline approach is not sufficiently flexible for larger LGS customers who tend to experience significant changes in operations and conservation investments. A TSR style CBL that can be individually administered would be more appropriate and more effective for the largest customers in the current definition of LGS. Consider an XLGS class with annual individual CBL adjustments to replace the price limit band and historical baseline procedures with the sound mechanics developed over many years for TSR CBL and energy adjustments.

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the LGS class? Please provide comments and rationale for any recommendations.	Please see comments above. BCHydro needs to re-evaluate the definitions of the various general service classes to improve the homogeneity of the groupings. At this stage all options including an XLGS rate should be carried forward so that the different rate impacts and characteristics can be fully understood.
C. Should BC Hydro carry forward the No Baseline alternative for the LGS class? Please provide comments and rationale for any recommendations.	Please see comments above.
5. MGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo MGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	Please see comments above. All “screened-in “ alternatives should be retained at this stage and new options considered.

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the MGS class? Please provide comments and rationale for any recommendations.	Please see comments above
C. Should BC Hydro carry forward the No Baseline alternative for the MGS class? Please provide comments and rationale for any recommendations.	Please see comments above
6. LGS and MGS: Screened-out alternatives A. BC Hydro used the following criteria to screen-out alternatives: • Unsuited for large heterogeneous group of customers • Incurred large bill impacts (well above the 10% yellow light bill impact test) • Performed poorly on rate design objectives. Are the criteria used by BC Hydro the appropriate criteria for screening-out alternatives? If not, please provide reasons.	It is appropriate to use excessive bill impact as a screening tool. Given the differing interpretations of rate design criteria between BC Hydro and various intervenors, a coarser screen is required to reject designs based on meeting rate design objectives. The screening may be premature given the lack of reconsideration of the general service rate classes and the possibility of developing different classes. For a group as heterogeneous as General Service, it is necessary to consider a larger number of smaller but more heterogeneous groups of customers, and to allow more frequent individual baseline adjustments for the largest customers
B. Do you agree that the screened-out alternatives should not be advanced for further consideration by BC Hydro? If not, which screened-out alternative do you think should be advanced, and why?	With different rate classifications as suggested above, and different approaches to baseline adjustments, some of the screened out alternatives may still be appropriate.

7. Demand Charges A. Currently BC Hydro has an inclining demand charge for both the LGS and MGS classes. There is not a cost of service basis for the inclining demand charge and BC Hydro's jurisdictional assessment indicates that this is an atypical structure for demand charges. Please provide comments as to whether there are other justifications for an inclining demand charge.	A single demand block would better reflect cost causation and the rate design practices of other utilities. The individual bill impacts on individual customers must always be taken into account with any change to rate design however – and this may limit the possible movement away from the present inclined block structure.
B. BC Hydro modelled the impacts of flattening the demand for LGS and MGS while retaining the revenue collected from the demand charge at the same level as is currently being recovered. The results of flattening all tiers were a demand charge is $8.07/kW for the LGS rate and $2.15/kW for the MGS rate. BC Hydro will also model demand charges where there is no charge for the first 35kW and a flat charge for all demand beyond 35kW. Are there any other demand structures BC Hydro should be considering? Please provide the rationale for your suggestion(s).	This question cannot be answered without understanding what percentage of demand related charges would be recovered by the new demand charge for each of LGS and MGS and what the overall rate impact of changes to all rate design elements would be. It is not otherwise clear why there should be such a large difference in the size of the demand charge between the LGS and MGS classes.
8. Separation of LGS and MGS rate classes A. LGS and MGS customers were split into separate rate classes in 2010. Should BC Hydro consider merging the two rate classes? If so, why?	On the contrary, BC Hydro should consider different splits of the GS group to better achieve homogeneous rate classes and the possibility of more frequent baseline adjustments for larger customers as discussed above. This might involve a new XLGS class, or a redefinition of the boundary to create a smaller LGS class with CBL style adjustments and larger MGS class without.
B. Could the LGS and MGS rate structures differ from one another or should they continue to be aligned?	As separate rate classes there is no particular reason to align structures beyond consideration of transitioning customers between classes (boundary issues). In any case it may make more sense to create further classes and further differences in structure to reflect the lack of homogeneity within the current classes.

Additional Comments, Items you think should be in-scope, not currently identified:

CONSENT TO USE PERSONAL INFORMATION

I consent to the use of my personal information by BC Hydro for the purposes of keeping me updated about the 2015 RDA. For purposes of the above, my personal information includes opinions, name, mailing address, phone number and email address as per the information I provide.

Signature:___Richard Stout_____Date: __2015-03-31_____

Thank you for your comments.

Comments submitted will be used to inform the RDA Scope and Engagement process, including discussions with Government, and will form part of the official record of the RDA.

You can return completed feedback forms by:

Mail: BC Hydro, BC Hydro Regulatory Group – "Attention 2015 RDA", 16th Floor, 333 Dunsmuir St. Van. B.C. V6B-5R3

Fax number: 604-623-4407 – "Attention 2015 RDA"

Email: bchydroregulatorygroup@bchydro.com

Form available on Web: http://www.bchydro.com/about/planning_regulatory/regulatory.html

Any personal information you provide to BC Hydro on this form is collected and protected in accordance with the ***Freedom of Information and Protection of Privacy Act***. BC Hydro is collecting information with this for the purpose of the 2015 RDA in accordance with BC Hydro's mandate under the ***Hydro and Power Authority Act***, the BC Hydro Tariff, the ***Utilities Commission Act*** and related Regulations and Directions. If you have any questions about the collection or use of the personal information collected on this form please contact the BC Hydro Regulatory Group via email at: bchydroregulatorygroup@bchydro.com

2015 Rate Design Application (RDA) – Small General Service (SGS), Medium General Service (MGS) and Large General Service (LGS) Rates

Workshop # 1 – Sessions 1 and 2

Feedback Form

Name/Organization:
Sarah Khan, representing BCOAPO et. al.

Presentation Topics	
	Comments **(Please do not identify third-party individuals in your comments. Comments bearing references to identifiable individuals will be discarded due to privacy concerns).**
1. SGS A. Is there a strong basis to depart from the current SGS flat energy charge given that the SGS energy charge is slightly above the upper end of BC Hydro's energy Long Run Marginal Cost of energy (LRMC)?	• Given that BCH's rates are expected to increase at more than inflation over the next years it is likely that the SGS energy rate will increase relative to BCH's LRMC of energy. • However, at the same time, the LRMC benchmark used is just for energy and does not take into account long run marginal costs associated with transmission and distribution required to supply an SGS customer. • Taking these two factors into account there does not currently appear to be a "strong" basis for departing from the current SGS flat energy charge from an "economic efficiency" perspective. However, the issue should be revisited in future if the value for the flat energy rate materially exceeds LRMC of energy. In such an event, it would be useful to also look at the transmission and distribution LRMC for SGS customers before drawing any conclusions about the appropriateness of the current rate design.
B. The SGS Basic Charge is estimated to recover 33% of Customer related cost for F2016. (This is comparable to the Residential Inclining Block (RIB) rate Basic Charge cost recovery figure of about 30% - for reference BC Hydro found that most utilities are in the 35% to 65% range for residential customer-related fixed cost recovery – refer to Workshop No.3 slide deck presentation, slide #67). Given revenue neutrality, an increase in the Basic Charge must be offset by a reduction in the energy charge. Should BC Hydro consider increasing the Basic Charge to increase the recovery of Customer related costs?	• Given the inter-relationship between basic charges and energy charges (i.e. revenue neutrality means that increasing one leads to decreasing the other), the preceding comments and the comparability with Residential cost recovery there appears to be no compelling reason to increase the SGS basic charge at this time. • However, this issue should be revisited once a final determination on the preferred COS methodology has been made. In the June 2014 Workshop on Residential rates, it was noted that Customer-related costs typically include both customer care costs (e.g. metering, billing, customer support, etc.) as well as a portion of the fixed distribution costs (as identified using a minimum system analsysis or some similar approach). It would be useful to understand the extent to which the current Basic Charge covers the customer care portion of these costs.

2. LGS and MGS: Customer Experience BC Hydro is interested in hearing from customers who take service under LGS or MGS rates regarding their experiences with the rate and in particular, whether the rates provide clear signals to conserve energy that can be acted upon, and if not why not. In responding, please identify which rate you take service from BC Hydro under.	• Not Applicable
3. LGS and MGS: Screened-in Alternatives BC Hydro presented three categories of screened-in alternatives in Workshop No. 8b for each of LGS and MGS rate together with a high level analysis of their benefits and drawbacks The three categories screened-in alternatives are: • Status Quo • Retain Baseline, Flat part 1 energy, and flat demand • No Baseline, flat part 1 energy and flat demand Are there other rate designs that BC Hydro should be considering for Workshop No. 11 scheduled for 11 June 2015?	• The three categories of "screened-in" alternatives cover the range of reasonable designs for purposes of the June Workshop. Having said this, there are clearly options/alternatives within each of these high-level rate designs, as illustrated by Questions #4 and #7 B. As well as issues regarding determination of the baseline and the use of the price limit band in the current rate design and the use of tiered demand charges, BC Hydro could also consider the merits of increasing the overall level of demand-related costs recovered through demand charges. This may be particularly applicable to the MGS class where the demand charge is significantly under-recovering such costs and increasing the cost recovery associated with demand charges would allow a reduction the Part 1 Energy Rate – thereby increasing the difference between it and the Part 2 (LRMC-based) energy rate.

4. LGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo LGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	• No comments at this time.

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the LGS class? Please provide comments and rationale for any recommendations.	• Yes. While not resolving any of the issues associated with the determination of Baselines, this is a simpler and more easily understood rate design than the status quo. It also results in a Part 2 energy rate that is materially less than the current LRMC value used for the Part 2 energy rate such the the difference clearly supports the "economic efficiency" considerations. • As a variation of this form, BC Hydro may wish to consider that the currnet Tier 1 portiono of the Part 1 energy rate is higher, in part, due to the fact there is no demand charge for the first 35 kW and, in moving to flat demand and energy rates, adjust the cost recovery through demand vs. energy charges accordingly.
C. Should BC Hydro carry forward the No Baseline alternative for the LGS class? Please provide comments and rationale for any recommendations.	• It is noted that the resulting energy rate is materially below the 8.5 to 10 cents/kWh range for BC Hydro's LRMC of energy. • However, given the ongoing concerns regarding the determination and use of baselines in the both of the other alternatives, this design does provide a useful benchmark against which to evaluate these other alternatives as is reflects the trade-offs that are required between i) rate designs that are simple to understand and ii) those that promote economic efficiency.
5. MGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo MGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	• No comments at this time

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the MGS class? Please provide comments and rationale for any recommendations.	• Yes. The rationale is similar to that given above for the comparable LGS rate but far more compelling in the case of the MGS class. • The current MGS rate appears to rank far lower than the LGS rate in terms of simplicity and, more importantly, customer understanding. A rate may be "fair" in terms of more equitably assigning costs but customers can hardly be expected to see it as such if they do not understand it and how it will affect their bills if they change their electricity usage. Also, feedback seems to suggest that lack of customer understanding was one of the contributors to the lack of conservation results. • Another reason for carrying forward this alternative is that roughly ½ of the MGS customers do not have sufficient consumption to actually be exposed to the Part 1 Tier 2 energy rate
C. Should BC Hydro carry forward the No Baseline alternative for the MGS class? Please provide comments and rationale for any recommendations.	• Yes. For the MGS class the rationale for carrying forward this alternative is again similar to that for the LGS class and again more compelling. The reason this time is that the resulting energy is within the the 8.5 to 10 cents/kWh range for BC Hydro's LRMC. While the resulting rate applicable to marginal changes in use is not as high as with the alternative MGS rate designs, its simplicity could well generate similar or even higher conservation effects.
6. LGS and MGS: Screened-out alternatives A. BC Hydro used the following criteria to screen-out alternatives: • Unsuited for large heterogeneous group of customers • Incurred large bill impacts (well above the 10% yellow light bill impact test) • Performed poorly on rate design objectives. Are the criteria used by BC Hydro the appropriate criteria for screening-out alternatives? If not, please provide reasons.	• Yes – these are the appropriate criteria – recognizing that to some extent the first two criteria can be considered as already captured by the rate design objectives.

B. Do you agree that the screened-out alternatives should not be advanced for further consideration by BC Hydro? If not, which screened-out alternative do you think should be advanced, and why?	• Yes
7. Demand Charges A. Currently BC Hydro has an inclining demand charge for both the LGS and MGS classes. There is not a cost of service basis for the inclining demand charge and BC Hydro's jurisdictional assessment indicates that this is an atypical structure for demand charges. Please provide comments as to whether there are other justifications for an inclining demand charge.	• Another justification could be the need to provide for a smooth transition for customers being reclassified from one class to another and to avoid sending signals that could encourage customers to "game" their electricity usage in order to be reclassified into a different GS customer class solely to lower their bill due to a difference in the rate design. • For example - SGS customers are those with an annual peak demand less than 35 kW as compared to MGS customers whose annual peak demands are between 35 and 150 kW. Since SGS customers are not demand billed but MGS customers are, having an inclining demand charge at the 35 kW demand level would provide for a smoother transition (i.e. less change in total bill) if a customer moves from one class to another. This not only reduces the impact on customers who reclassified from SGS to MGS (or vice versa) but also avoids customers attempting to "game" the system – which would be particularly problematic if differences in the two rate schedules were such that a customer could actually reduce its total bill by increasing demand and moving from SGS to MGS. • A similar issue and justification exists for LGS customers having inclining demand charges at the 150 kW break point between the MGS and the LGS class. This issue is aggravated by the fact that MGS demand charges only recover 15% of the class' demand-related costs whereas in the case of LGS customers the percentage is 45%.

B. BC Hydro modelled the impacts of flattening the demand for LGS and MGS while retaining the revenue collected from the demand charge at the same level as is currently being recovered. The results of flattening all tiers were a demand charge is $8.07/kW for the LGS rate and $2.15/kW for the MGS rate. BC Hydro will also model demand charges where there is no charge for the first 35kW and a flat charge for all demand beyond 35kW. Are there any other demand structures BC Hydro should be considering? Please provide the rationale for your suggestion(s).	• It is noted that all of the modelling undertaken by BC Hydro has been based on maintaining the level of revenue attributable to demand charges under the current rates. Given the significant level of under recovery of demand-related costs through demand charges, particulary for the MGS class, BC Hydro should consider also modelling the proposed demand structures but with an increased level of overall revenue recovery.
8. Separation of LGS and MGS rate classes A. LGS and MGS customers were split into separate rate classes in 2010. Should BC Hydro consider merging the two rate classes? If so, why?	• This question cannot be answered independently of the other issues under consideration including: o Should the rate structures for both classes continue to employ customer baselines and, if yes, how should those baselines be set, and o Should the rate structures for the two classes, if separate, continue to be aligned. • One issue of note when considering this question is the fact that roughly half of the MGS customers have usage levels (in terms of kWh) that are more akin to those customers in the SGS class than the LGS class, which could mitigate against merging the two classes.
B. Could the LGS and MGS rate structures differ from one another or should they continue to be aligned?	• See the response to Question #7 A.

Additional Comments, Items you think should be in-scope, not currently identified:

CONSENT TO USE PERSONAL INFORMATION

I consent to the use of my personal information by BC Hydro for the purposes of keeping me updated about the 2015 RDA. For purposes of the above, my personal information includes opinions, name, mailing address, phone number and email address as per the information I provide.

Signature: _____ Date: April 9, 2015

Thank you for your comments.

Comments submitted will be used to inform the RDA Scope and Engagement process, including discussions with Government, and will form part of the official record of the RDA.

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2015 Rate Design Application (RDA) –

Small General Service (SGS), Medium General Service (MGS) and Large General Service (LGS) Rates

Workshop # 1 – Sessions 1 and 2

Feedback Form

Name/Organization: BC Sustainable Energy Association and Sierra Club BC

Presentation Topics	
	Comments **(Please do not identify third-party individuals in your comments. Comments bearing references to identifiable individuals will be discarded due to privacy concerns).**
1. SGS A. Is there a strong basis to depart from the current SGS flat energy charge given that the SGS energy charge is slightly above the upper end of BC Hydro's energy Long Run Marginal Cost of energy (LRMC)?	No.
B. The SGS Basic Charge is estimated to recover 33% of Customer related cost for F2016. (This is comparable to the Residential Inclining Block (RIB) rate Basic Charge cost recovery figure of about 30% - for reference BC Hydro found that most utilities are in the 35% to 65% range for residential customer-related fixed cost recovery – refer to Workshop No.3 slide deck presentation, slide #67). Given revenue neutrality, an increase in the Basic Charge must be offset by a reduction in the energy charge. Should BC Hydro consider increasing the Basic Charge to increase the recovery of Customer related costs?	No.

2. LGS and MGS: Customer Experience BC Hydro is interested in hearing from customers who take service under LGS or MGS rates regarding their experiences with the rate and in particular, whether the rates provide clear signals to conserve energy that can be acted upon, and if not why not. In responding, please identify which rate you take service from BC Hydro under.	N/A
3. LGS and MGS: Screened-in Alternatives BC Hydro presented three categories of screened-in alternatives in Workshop No. 8b for each of LGS and MGS rate together with a high level analysis of their benefits and drawbacks The three categories screened-in alternatives are: • Status Quo • Retain Baseline, Flat part 1 energy, and flat demand • No Baseline, flat part 1 energy and flat demand Are there other rate designs that BC Hydro should be considering for Workshop No. 11 scheduled for 11 June 2015?	No.

4. LGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo LGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	It is understood that this question is focuseed on the second of the three options, i.e., retain the baseline but with modifications. BCSEA-SCBC don't have any suggestions for modifications should should be modelled.

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the LGS class? Please provide comments and rationale for any recommendations.	BCSEA-SCBC are inclined to support the flat rate approach at this point. It may useful to the Commission for BC Hydro to take forward a status quo option (in addition to the Flat Rate option) for comparison purposes.
C. Should BC Hydro carry forward the No Baseline alternative for the LGS class? Please provide comments and rationale for any recommendations.	Yes, BCH should carry forward the LGS No Baseline, flat rate energy and flat rate demand option.
5. MGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo MGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	BCSEA-SCBC acknowledge the results of the research that BC Hydro presented showing no significant conservation savings due to the status quo MGS two-part baseline rate. It does not appear that 'tweaking' the baseline determination methodology or the price limit bands would solve the problem that the SQ MGS rate structure is little understood and difficult to explain.

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the MGS class? Please provide comments and rationale for any recommendations.	BCSEA-SCBC could see possible value in a status quo option being brought forward for comparison with a No Baseline flat rate option. However, BCSEA-SCBC are inclined to support the No Baseline flat rate option for MGS.
C. Should BC Hydro carry forward the No Baseline alternative for the MGS class? Please provide comments and rationale for any recommendations.	Yes.
6. LGS and MGS: Screened-out alternatives A. BC Hydro used the following criteria to screen-out alternatives: • Unsuited for large heterogeneous group of customers • Incurred large bill impacts (well above the 10% yellow light bill impact test) • Performed poorly on rate design objectives. Are the criteria used by BC Hydro the appropriate criteria for screening-out alternatives? If not, please provide reasons.	Yes.
B. Do you agree that the screened-out alternatives should not be advanced for further consideration by BC Hydro? If not, which screened-out alternative do you think should be advanced, and why?	Yes (agreed).

7. Demand Charges A. Currently BC Hydro has an inclining demand charge for both the LGS and MGS classes. There is not a cost of service basis for the inclining demand charge and BC Hydro's jurisdictional assessment indicates that this is an atypical structure for demand charges. Please provide comments as to whether there are other justifications for an inclining demand charge.	We are not aware of additional justifications for an inclining demand charge.
B. BC Hydro modelled the impacts of flattening the demand for LGS and MGS while retaining the revenue collected from the demand charge at the same level as is currently being recovered. The results of flattening all tiers were a demand charge is $8.07/kW for the LGS rate and $2.15/kW for the MGS rate. BC Hydro will also model demand charges where there is no charge for the first 35kW and a flat charge for all demand beyond 35kW. Are there any other demand structures BC Hydro should be considering? Please provide the rationale for your suggestion(s).	BCSEA-SCBC don't have suggestions for additional structures to model.
8. Separation of LGS and MGS rate classes A. LGS and MGS customers were split into separate rate classes in 2010. Should BC Hydro consider merging the two rate classes? If so, why?	BCSEA-SCBC don't have a position on whether the LGS and MGS rate classes should be merged. Nor do they have a position on whether BC Hydro should consider merging the two rate classes. In principle, merging the two classes would have the advantage of eliminating issues concerning customer movement between classes, but would have the disadvantage of complicating the transition from Baseline to No Baseline (and bill impacts thereof) if that is what is proposed and approved. Beyond that, BCSEA-SCBC are not fully aware of the potential benefits of merging the two classes.

B. Could the LGS and MGS rate structures differ from one another or should they continue to be aligned?	The question seems to be a matter of degree, as the LGS and MGS are currently both somewhat different and somewhat aligned. In principle, if the plan is to move toward simplification of LGS and MGS rate structures, then alignment would be the priority but there may be a trade-off with the speed of transition from the status quo to a new rate structure.

Additional Comments, Items you think should be in-scope, not currently identified:

In the event that the Commission approves No Baseline options for LGS and MGS, BCSEA-SCBC suggest that BC Hydro incorporate conservation and efficiency messaging in the communication to customers regarding the change in rate structure.

CONSENT TO USE PERSONAL INFORMATION

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Signature:_____ Date: _____

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2015 Rate Design Application (RDA) –

Small General Service (SGS), Medium General Service (MGS) and Large General Service (LGS) Rates

Workshop # 1 – Sessions 1 and 2

Feedback Form

Name/Organization:	British Columbia Utilities Commission

Presentation Topics	
	Comments **(Please do not identify third-party individuals in your comments. Comments bearing references to identifiable individuals will be discarded due to privacy concerns).**
1. SGS A. Is there a strong basis to depart from the current SGS flat energy charge given that the SGS energy charge is slightly above the upper end of BC Hydro's energy Long Run Marginal Cost of energy (LRMC)?	Recognizing the diverse nature of SGS customers, Commission staff believe that a strong basis to depart from the current flat energy charge for the SGS rate class will exist only if BC Hydro finds itself in more than one of the situations described below: (1) Conservation derived from a flat rate is not considered incremental conservation but natural conservation (reference: Summary of 21st Jan, 2015 rate design workshop p. 5 of 10 item #9) and the other conservation rate structures are not generating the projected DSM savings relied upon by BC Hydro for load resource planning; (2) Rate balancing is required on account of the SGS rate class having R/C ratios outside the range of reasonableness; (3) The new LRMC used in the 2015 RDA is not expected to fluctuate whereas the anticipated F2016 to F2019 rate increase for the SGS rate class (based on the rate increase caps under Direction No. 7) is much higher than the LRMC.

B. The SGS Basic Charge is estimated to recover 33% of Customer related cost for F2016. (This is comparable to the Residential Inclining Block (RIB) rate Basic Charge cost recovery figure of about 30% - for reference BC Hydro found that most utilities are in the 35% to 65% range for residential customer-related fixed cost recovery – refer to Workshop No.3 slide deck presentation, slide #67). Given revenue neutrality, an increase in the Basic Charge must be offset by a reduction in the energy charge. Should BC Hydro consider increasing the Basic Charge to increase the recovery of Customer related costs?	It would be helpful for BC Hydro to discuss increasing SGS Basic Charge in the 2015 RDA not only by comparing the % range of fixed cost recovery with its own RIB rate cost recovery and other utilities' residential customer fixed cost recovery, but also in the context of the re-pricing of the three elements of the RIB rate (Tier 1 energy rate, Tier 2 energy rate, Basic Charge) over the years based on revenue neutrality. E.g., 2008 RIB Decision, 2011 RIB Re-Pricing Decision, and the 2013 RIB Re-Pricing Decision and their treatments of applying increases to Basic Charge. During the period where the LRMC was increasing at a faster pace than inflation or general rate increase, as in the past, the Basic Charge has been adjusted with slower increases than the energy rates in order to maintain an energy charge to be more reflective of the LRMC. In an environment of stable or declining LRMC, and where the relatively low Customer-related cost recovery of Basic Charge is a revenue stability risk issue, then a slight increase in Basic Charge and a reduction in the energy charge becomes a supportable proposal. Under a scenario where rate stability and practicality/simplicity is given high priority in rate design objectives, it might imply leaving the energy charge and/or the Basic Charge as is.
2. LGS and MGS: Customer Experience BC Hydro is interested in hearing from customers who take service under LGS or MGS rates regarding their experiences with the rate and in particular, whether the rates provide clear signals to conserve energy that can be acted upon, and if not why not. In responding, please identify which rate you take service from BC Hydro under.	N.A.

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3. LGS and MGS: Screened-in Alternatives

BC Hydro presented three categories of screened-in alternatives in Workshop No. 8b for each of LGS and MGS rate together with a high level analysis of their benefits and drawbacks The three categories screened-in alternatives are:

• Status Quo
• Retain Baseline, Flat part 1 energy, and flat demand
• No Baseline, flat part 1 energy and flat demand

Are there other rate designs that BC Hydro should be considering for Workshop No. 11 scheduled for 11 June 2015?
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Slide 16 describes ‘Remove Baseline’ category as a major change from SQ. When considering viable alternatives it may be of some value to consider the circumstances that led to the current MGS and LGS rate designs, i.e., the negotiated MGS and LGS rate structures were a response to the Energy Plan’s focus on energy efficiency and conservation; the BCUC’s responded to the Energy Plan by directing BCH to develop a rate that encouraged conservation and which would not unduly harm or benefit the diverse group of customers. Have the two objectives of the BCUC directive proven to be incompatible for the diverse MGS or LGS customer groups?

The MGS rate design, as it is currently implemented, applies to a very large number of customers, is administratively complex, has failed to generate conservation savings and most customers are in the tier 1 rate. Therefore, the alternative of a flat energy and demand charge without a baseline could be used as the base alternative and the other alternatives compared to that in terms of achieving rate design objectives. The flat energy charge and flat demand charge of 8.98 c/kWh is not too far off the LRMC. (Reference: Slide 18)

The LGS class has a more manageable number of customers and the current rate structure is evaluated to have delivered some conservation savings. Commission staff observe that the alternative design of flat energy and demand charges without a baseline results in a flat energy charge that is much lower than LRMC (5.76 c/kWh).(Reference: Slide 17)

From the January 21, 2015 slide deck, slides 18 and 19 contain information that describes consumption (kWh) as driven by site type and that consumption levels vary widely by site type. In considering other rate design categories in addition to the three categories being put forward, it would be useful to have information related to where the estimated conservation savings (from LGS class) come from -- were the savings attributable to decreased consumption by businesses who have been consuming above the median annual consumption. In other words, are responses to rate designs site type specific?
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4. LGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo LGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	It will be informative in the review of alternatives to have BC Hydro's analysis on how often LGS customers exceed to +/- 20% price limit band and their preferences for any changes to the price limit band.

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the LGS class? Please provide comments and rationale for any recommendations.	Yes. The merits of the LGS alternatives without a baseline are less clear compared to the MGS alternatives.
C. Should BC Hydro carry forward the No Baseline alternative for the LGS class? Please provide comments and rationale for any recommendations.	Yes. The baseline remains an open question for the LGS class. It is not clear from Slide 17 under "Flat Part 1 Energy + Flat Demand, no baseline", whether this alternative, with the LRMC component taken out, could still be considered a conservation rate structure. Can a rate structure with Tier 3 be a viable alternative to one with a baseline for Part 2 rate?
5. MGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo MGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	See comments in #3 above.

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the MGS class? Please provide comments and rationale for any recommendations.	Following this round of feedback from customers and other stakeholders, BC Hydro may want to assess whether the existing rate structure (with baselines) has been a failed attempt to achieve the objectives of the rate design for general service customers in 2010; i.e., too complex to understand and react to, too costly to administer, and no conservation savings achieved.
C. Should BC Hydro carry forward the No Baseline alternative for the MGS class? Please provide comments and rationale for any recommendations.	Yes, the no baseline option for MGS is a real alternative to meet the rate design objectives.
6. LGS and MGS: Screened-out alternatives A. BC Hydro used the following criteria to screen-out alternatives: • Unsuited for large heterogeneous group of customers • Incurred large bill impacts (well above the 10% yellow light bill impact test) • Performed poorly on rate design objectives. Are the criteria used by BC Hydro the appropriate criteria for screening-out alternatives? If not, please provide reasons.	Yes.

B. Do you agree that the screened-out alternatives should not be advanced for further consideration by BC Hydro? If not, which screened-out alternative do you think should be advanced, and why?	Agreed in principle that the diverse nature of the LGS class makes a standard inclining block structure inappropriate (Slide 72 Alternative 1). Assuming that the baselines were to be removed from the rate structure, is BC Hydro able to discern any homogeneity among LGS customers above 2,500 MWh in annual consumption (as in Slide 26) and any homogeneity among MGS customers above 400 MWh in annual consumption (as in Slide 28) that could inform the rate design for a step 2 and step 3 threshold? It appears that 100% demand cost recovery would make the LGS energy charge too low. The current 15% demand cost recovery of the MGS class could be raised but unlikely to 100%.(Slide 72 Alternative 2) Retaining the baseline for MGS customers requires good justification given the evaluation report results and the 'credit only' option doesn't seem to be a justifiable difference between LGS or MGS customers. The 'credit only' option doesn't appear to add benefit and instead appears to provide little improvment the complexity problems of the existing MGS and LGS rates. (slide 72 Alternative 3)
7. Demand Charges A. Currently BC Hydro has an inclining demand charge for both the LGS and MGS classes. There is not a cost of service basis for the inclining demand charge and BC Hydro's jurisdictional assessment indicates that this is an atypical structure for demand charges. Please provide comments as to whether there are other justifications for an inclining demand charge.	BC Hydro should provide an assessment of whether existing inclining demand charges have provided real benefits to the system by moderating the demand profile of GS customers.

B. BC Hydro modelled the impacts of flattening the demand for LGS and MGS while retaining the revenue collected from the demand charge at the same level as is currently being recovered. The results of flattening all tiers were a demand charge is $8.07/kW for the LGS rate and $2.15/kW for the MGS rate. BC Hydro will also model demand charges where there is no charge for the first 35kW and a flat charge for all demand beyond 35kW. Are there any other demand structures BC Hydro should be considering? Please provide the rationale for your suggestion(s).	BC Hydro should consider what level of demand charge collection would best meet its rate design objectives.
8. Separation of LGS and MGS rate classes A. LGS and MGS customers were split into separate rate classes in 2010. Should BC Hydro consider merging the two rate classes? If so, why?	In the evaluation report, the results indicate that net savings for F2014 may be in the order of 77 GWh per year from LGS and no savings came from MGS rate class. In order to consider the re-merging of the two rates, it would be useful to explore whether the MGS rate class itself does not have conservation savings potential or whether the current rate structure does not incent conservation among MGS ratepayers. Could the MGS rate class also benefit from the rate structure designed for the LGS rate class? Is consumption level the only factor separating MGS and LGS? If the LGS and MGS rate classes are each considered diverse in themselves, would re-merging make the re-merged class even more diverse? Would a remerged GS class result in more customers being unfairly disadvantaged compared to the average customer or overall class R/C ratio? It would also be useful to enumerate the benefits in the existing class segmentation, especially as one considers new rate structures for the future.

B. Could the LGS and MGS rate structures differ from one another or should they continue to be aligned?	Yes, they could differ substantially from one another if the new structures can better meet the rate design objectives. It would be useful to understand the migration pattern of LGS to MGS and MGS to LGS.

Additional Comments, Items you think should be in-scope, not currently identified:

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BC hydro
FOR GENERATIONS

2015 Rate Design Application (RDA) –

Small General Service (SGS), Medium General Service (MGS) and Large General Service (LGS) Rates

Workshop # 1 – Sessions 1 and 2

Feedback Form

Name/Organization:
Commercial Energy Consumers (CEC) Association of BC

Presentation Topics	
	Comments **(Please do not identify third-party individuals in your comments. Comments bearing references to identifiable individuals will be discarded due to privacy concerns).**
1. SGS A. Is there a strong basis to depart from the current SGS flat energy charge given that the SGS energy charge is slightly above the upper end of BC Hydro's energy Long Run Marginal Cost of energy (LRMC)?	Yes. In fairness to SGS consumers they should see the same price signals for the value of conservation and efficiency as others. Where energy savings come from is irrelevant to the value of the savings to the BC Hydro system and independent of what a customer pays for energy services. This can be done with an efficiency rated energy credit system such as the CEC is proposing.
B. The SGS Basic Charge is estimated to recover 33% of Customer related cost for F2016. (This is comparable to the Residential Inclining Block (RIB) rate Basic Charge cost recovery figure of about 30% - for reference BC Hydro found that most utilities are in the 35% to 65% range for residential customer-related fixed cost recovery – refer to Workshop No.3 slide deck presentation, slide #67). Given revenue neutrality, an increase in the Basic Charge must be offset by a reduction in the energy charge. Should BC Hydro consider increasing the Basic Charge to increase the recovery of Customer related costs?	There is argument for fair and appropriate cost recovery to have customer related costs recovered from customers directly. This becomes more sensible when the energy charge is not relied upon for the price signal for efficiency. Given that there is no demand charge, this can be seen as a step toward acknowledging fixed cost structure. Similar arguments could apply to RIB rates, though somewhat differently.

2. LGS and MGS: Customer Experience BC Hydro is interested in hearing from customers who take service under LGS or MGS rates regarding their experiences with the rate and in particular, whether the rates provide clear signals to conserve energy that can be acted upon, and if not why not. In responding, please identify which rate you take service from BC Hydro under.	The CEC's feedback from customers is that the price signal is poor and poorly understood. The rate impacts customers with long economic development and growth paths behind meters and provide limited incentive for conservation and efficiency investment. This can be substantially improved with the CEC's efficiency rated energy credit design approach. The demand charge approach used by BC Hydro can lead to some dysfunctional economic results without adding value to BC Hydro.
3. LGS and MGS: Screened-in Alternatives BC Hydro presented three categories of screened-in alternatives in Workshop No. 8b for each of LGS and MGS rate together with a high level analysis of their benefits and drawbacks The three categories screened-in alternatives are: • Status Quo • Retain Baseline, Flat part 1 energy, and flat demand • No Baseline, flat part 1 energy and flat demand Are there other rate designs that BC Hydro should be considering for Workshop No. 11 scheduled for 11 June 2015?	Yes. The CEC's efficiency rated energy credit design will enable delivery of appropriate price signals for conservation and efficiency and can be applied to any base rate structure, status quo, baselines and flat energy and demand and no baseline & flat energy and demand. The base rate structure can be simplified for customers ease of understanding.

4. LGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo LGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	• The current definition of baseline is complicated with monthly granularity and if retained should be examined with simpler definition forms. The question of different periods for setting baselines and for their roll forward nature depends on what consequence and what communication of price signal is intended and why. BC Hydro could simplify this significantly if it reconsiders the intent of the price communication and redesigns the consequences. • If the baseline is retained then BC Hydro should consider changes to periods for setting baselines and should do so on the basis appropriate to the indended price signaling purpose. • Price limit band variations could be useful to examine if the baseline concept is retained. The rationale for exploring more variations for the baseline concept is that it is weak in several respects and would need improvement. Likely better solutions will be found in exploring other concepts.

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the LGS class? Please provide comments and rationale for any recommendations.	Yes, possible base rate structure alternatives need to be considered along with options for getting the price signal for conservation and efficiency.
C. Should BC Hydro carry forward the No Baseline alternative for the LGS class? Please provide comments and rationale for any recommendations.	Yes, possible base rate structure alternatives need to be considered along with options for getting the price signal for conservation and efficiency.
5. MGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo MGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	• The current definition of baseline is complicated with monthly granularity and if retained should be examined with simpler definition forms. • The question of different periods for setting baselines and for their roll forward nature depends on what consequence and what communication of price signal is intended and why. BC Hydro could simplify this significantly if it redesigns the intent of the price communication • Price limit bands could be examined for variation regarding the potential price signal issues. The rationale is that the baseline concepts need considerable improvement as the current design is weak in a number of respects. However, it is more likely that better solutions would be found in exploring other concepts.

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the MGS class? Please provide comments and rationale for any recommendations.	Yes, possible base rate structure alternatives need to be conserved along with options for getting the price signal for conservation and efficiency. These are needed to support choices among alternatives.
C. Should BC Hydro carry forward the No Baseline alternative for the MGS class? Please provide comments and rationale for any recommendations.	Yes, possible base rate structure alternatives need to be conserved along with options for getting the price signal for conservation and efficiency. These are needed to support choices among alternatives.
6. LGS and MGS: Screened-out alternatives A. BC Hydro used the following criteria to screen-out alternatives: • Unsuited for large heterogeneous group of customers • Incurred large bill impacts (well above the 10% yellow light bill impact test) • Performed poorly on rate design objectives. Are the criteria used by BC Hydro the appropriate criteria for screening-out alternatives? If not, please provide reasons.	• The heterogeneous nature of general service customers is a critical issue in rate design for LGS, MGS and SGS. Fairness and price signal are difficult to achieve in one price structure. • Bill impact is a function of transition time to full implementation and can be managed. Fair cost allocation becomes a more important criteria for longer term assessment. • Poor performance on rate design objectives can be a function of poor design, but not necessarily poor concept. It is important to separate out the cause of poor performance.
B. Do you agree that the screened-out alternatives should not be advanced for further consideration by BC Hydro? If not, which screened-out alternative do you think should be advanced, and why?	No, alternatives which are screened out for various reasons may have conceptual advantages. Alterations to a good concept could result in a better design than other options. As an example retaining baseline with XX% demand charge has been screened out but variations could be considered to mitigate bill impact issues.

7. Demand Charges A. Currently BC Hydro has an inclining demand charge for both the LGS and MGS classes. There is not a cost of service basis for the inclining demand charge and BC Hydro's jurisdictional assessment indicates that this is an atypical structure for demand charges. Please provide comments as to whether there are other justifications for an inclining demand charge.	Inclining demand charges are conceptually a transition from zero demand charge rates to higher demand charge rates, with the idea of reflecting demand issues more strongly of higher demand levels. This is a proportional impact on demand issues concept. It may not be needed if the demand charge is rethought.
B. BC Hydro modelled the impacts of flattening the demand for LGS and MGS while retaining the revenue collected from the demand charge at the same level as is currently being recovered. The results of flattening all tiers were a demand charge is $8.07/kW for the LGS rate and $2.15/kW for the MGS rate. BC Hydro will also model demand charges where there is no charge for the first 35kW and a flat charge for all demand beyond 35kW. Are there any other demand structures BC Hydro should be considering? Please provide the rationale for your suggestion(s).	Yes! Other demand structures would separate out system demand issues from transmission and distribution demand issues. As system demand is is primarily a peak issue, the charge can be a seasonal price signal. Transmission and distribution system demand issure are moe related to regional system constraint timing. Demand charges have dysfunctional relationships to general service business without benefit to BC Hydro. There are a couple of other demand charge concepts which could be considered. One is a demand limit exceedance charge, with more demand revenue collected in the energy charge. This would be a way to reflect the importance of demand under the right circumstance while reflecting the greater value of energy use. A second approach would be to reflect demand charges at regional or system peak times and hours with none when peak is not important.
8. Separation of LGS and MGS rate classes A. LGS and MGS customers were split into separate rate classes in 2010. Should BC Hydro consider merging the two rate classes? If so, why?	This should not be considered until rebalancing is complete. Then it would be appropriate.
B. Could the LGS and MGS rate structures differ from one another or should they continue to be aligned?	The rate structures should be aligned because they are fundamentally similar.

Additional Comments, Items you think should be in-scope, not currently identified:

The CEC is prepared to work with BC Hydro to define alternative concepts to those being considered at this time, such as the alternatives the CEC is proposing be examined.

CONSENT TO USE PERSONAL INFORMATION

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COMMERCIAL ENERGY CONSUMERS ASSOCIATION OF BRITISH COLUMBIA

David Craig

_____ Date: ___April 17. 2015_____

Thank you for your comments.

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2015 Rate Design Application (RDA) –

Small General Service (SGS), Medium General Service (MGS) and Large General Service (LGS) Rates

Workshop # 1 – Sessions 1 and 2

Feedback Form

Name/Organization:
BC First Nations Energy and Mining Council (FNEMC)

Presentation Topics	
	Comments **(Please do not identify third-party individuals in your comments. Comments bearing references to identifiable individuals will be discarded due to privacy concerns).**
1. SGS A. Is there a strong basis to depart from the current SGS flat energy charge given that the SGS energy charge is slightly above the upper end of BC Hydro's energy Long Run Marginal Cost of energy (LRMC)?	*No, FNEMC feels that there isn't a strong basis to depart from the current SGS flat energy charge since given revenue neutrality decreasing the flat energy charge would result in an increase to the Basic Charge.*
B. The SGS Basic Charge is estimated to recover 33% of Customer related cost for F2016. (This is comparable to the Residential Inclining Block (RIB) rate Basic Charge cost recovery figure of about 30% - for reference BC Hydro found that most utilities are in the 35% to 65% range for residential customer-related fixed cost recovery – refer to Workshop No.3 slide deck presentation, slide #67). Given revenue neutrality, an increase in the Basic Charge must be offset by a reduction in the energy charge. Should BC Hydro consider increasing the Basic Charge to increase the recovery of Customer related costs?	*No, BC Hydro should not consider increasing the SGS Basic Charge since this is comparable to the RIB rate Basic Charge cost recovery.*

2. LGS and MGS: Customer Experience BC Hydro is interested in hearing from customers who take service under LGS or MGS rates regarding their experiences with the rate and in particular, whether the rates provide clear signals to conserve energy that can be acted upon, and if not why not. In responding, please identify which rate you take service from BC Hydro under.	
3. LGS and MGS: Screened-in Alternatives BC Hydro presented three categories of screened-in alternatives in Workshop No. 8b for each of LGS and MGS rate together with a high level analysis of their benefits and drawbacks The three categories screened-in alternatives are: • Status Quo • Retain Baseline, Flat part 1 energy, and flat demand • No Baseline, flat part 1 energy and flat demand Are there other rate designs that BC Hydro should be considering for Workshop No. 11 scheduled for 11 June 2015?	*FNEMC proposes the following rate designs for consideration:* *A. Both with and without the baseline:* *(1) Flat energy and Status Quo demand* *(2) Status Quo energy and flat demand* *B. Retain baseline with Part 2 Energy Adjustments (charge only)* *- To provide incentive for encouraging conservation behaviour.*

4. LGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo LGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the LGS class? Please provide comments and rationale for any recommendations.	*Yes, FNEMC agrees that BC Hydro carry forward this alternative for further analysis as it is too early to eliminate any alternatives for consideration. In addition FNEMC supports rates structures that encourage conservation measures.*
C. Should BC Hydro carry forward the No Baseline alternative for the LGS class? Please provide comments and rationale for any recommendations.	*Yes, FNEMC agrees that BC Hydro carry forward this alternative for further analysis as it is too early to eliminate any alternatives for consideration.*
5. MGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo MGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the MGS class? Please provide comments and rationale for any recommendations.	*Yes, FNEMC agrees that BC Hydro carry forward this alternative for further analysis as it is too early to eliminate any alternatives for consideration. In addition FNEMC supports rates structures that encourage conservation measures.*
C. Should BC Hydro carry forward the No Baseline alternative for the MGS class? Please provide comments and rationale for any recommendations.	*Yes, FNEMC agrees that BC Hydro carry forward this alternative for further analysis as it is too early to eliminate any alternatives for consideration.*
6. LGS and MGS: Screened-out alternatives A. BC Hydro used the following criteria to screen-out alternatives: • Unsuited for large heterogeneous group of customers • Incurred large bill impacts (well above the 10% yellow light bill impact test) • Performed poorly on rate design objectives. Are the criteria used by BC Hydro the appropriate criteria for screening-out alternatives? If not, please provide reasons.	*Yes – FNEMC agrees with these criteria.*
B. Do you agree that the screened-out alternatives should not be advanced for further consideration by BC Hydro? If not, which screened-out alternative do you think should be advanced, and why?	*Yes – FNEMC agrees that the screened-out alternatives should not be advanced for further consideration by BC Hydro due to the reasons stated in the workshop:* - *Unsuited to large heterogenous group of customers* - *Incurred high levels of bill impact* - *Performed prohibitively poorly on rate design objectives*

7. Demand Charges A. Currently BC Hydro has an inclining demand charge for both the LGS and MGS classes. There is not a cost of service basis for the inclining demand charge and BC Hydro's jurisdictional assessment indicates that this is an atypical structure for demand charges. Please provide comments as to whether there are other justifications for an inclining demand charge.	*FNEMC supports tiered demand charges as it encourages conservation behaviour.*
B. BC Hydro modelled the impacts of flattening the demand for LGS and MGS while retaining the revenue collected from the demand charge at the same level as is currently being recovered. The results of flattening all tiers were a demand charge is $8.07/kW for the LGS rate and $2.15/kW for the MGS rate. BC Hydro will also model demand charges where there is no charge for the first 35kW and a flat charge for all demand beyond 35kW. Are there any other demand structures BC Hydro should be considering? Please provide the rationale for your suggestion(s).	
8. Separation of LGS and MGS rate classes A. LGS and MGS customers were split into separate rate classes in 2010. Should BC Hydro consider merging the two rate classes? If so, why?	*In order to address whether to merge LGS and MGS rates classes, it would be helpful to understand the reasoning why these rate classes were split in 2010.*
B. Could the LGS and MGS rate structures differ from one another or should they continue to be aligned?	*Refer to response above.*

Additional Comments, Items you think should be in-scope, not currently identified:

FNEMC is submitting these comments on a without prejudice basis.

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Signature:_____ Date: _____

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2015 Rate Design Application (RDA) –

Small General Service (SGS), Medium General Service (MGS) and Large General Service (LGS) Rates

Workshop # 1 – Sessions 1 and 2

Feedback Form

Name/Organization: **Loblaw Companies Limited**

Presentation Topics	
	Comments **(Please do not identify third-party individuals in your comments. Comments bearing references to identifiable individuals will be discarded due to privacy concerns).**
1. SGS A. Is there a strong basis to depart from the current SGS flat energy charge given that the SGS energy charge is slightly above the upper end of BC Hydro's energy Long Run Marginal Cost of energy (LRMC)?	
B. The SGS Basic Charge is estimated to recover 33% of Customer related cost for F2016. (This is comparable to the Residential Inclining Block (RIB) rate Basic Charge cost recovery figure of about 30% - for reference BC Hydro found that most utilities are in the 35% to 65% range for residential customer-related fixed cost recovery – refer to Workshop No.3 slide deck presentation, slide #67). Given revenue neutrality, an increase in the Basic Charge must be offset by a reduction in the energy charge. Should BC Hydro consider increasing the Basic Charge to increase the recovery of Customer related costs?	

2. LGS and MGS: Customer Experience BC Hydro is interested in hearing from customers who take service under LGS or MGS rates regarding their experiences with the rate and in particular, whether the rates provide clear signals to conserve energy that can be acted upon, and if not why not. In responding, please identify which rate you take service from BC Hydro under.	Loblaws purchases electricity from BCH under both MGS and LGS rates. In our experience, both rates provide clear price signals to conserve electricity.
3. LGS and MGS: Screened-in Alternatives BC Hydro presented three categories of screened-in alternatives in Workshop No. 8b for each of LGS and MGS rate together with a high level analysis of their benefits and drawbacks The three categories screened-in alternatives are: • Status Quo • Retain Baseline, Flat part 1 energy, and flat demand • No Baseline, flat part 1 energy and flat demand Are there other rate designs that BC Hydro should be considering for Workshop No. 11 scheduled for 11 June 2015?	The Status Quo is the preferable alternative to Loblaws.

4. LGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo LGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	We feel that the current definition of the LGS rate and baseline is appropriate.

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the LGS class? Please provide comments and rationale for any recommendations.	
C. Should BC Hydro carry forward the No Baseline alternative for the LGS class? Please provide comments and rationale for any recommendations.	
5. MGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo MGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	We feel that the current definition of the MGS rate and baseline is appropriate.

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the MGS class? Please provide comments and rationale for any recommendations.	
C. Should BC Hydro carry forward the No Baseline alternative for the MGS class? Please provide comments and rationale for any recommendations.	
6. LGS and MGS: Screened-out alternatives A. BC Hydro used the following criteria to screen-out alternatives: • Unsuited for large heterogeneous group of customers • Incurred large bill impacts (well above the 10% yellow light bill impact test) • Performed poorly on rate design objectives. Are the criteria used by BC Hydro the appropriate criteria for screening-out alternatives? If not, please provide reasons.	The criteria used by BCH appears to be appropriate.
B. Do you agree that the screened-out alternatives should not be advanced for further consideration by BC Hydro? If not, which screened-out alternative do you think should be advanced, and why?	Agreed.

7. Demand Charges A. Currently BC Hydro has an inclining demand charge for both the LGS and MGS classes. There is not a cost of service basis for the inclining demand charge and BC Hydro's jurisdictional assessment indicates that this is an atypical structure for demand charges. Please provide comments as to whether there are other justifications for an inclining demand charge.	We have no objection to simplifying the demand charges to both LGS & MGS classes, as long as the electricity cost impact is neutral.
B. BC Hydro modelled the impacts of flattening the demand for LGS and MGS while retaining the revenue collected from the demand charge at the same level as is currently being recovered. The results of flattening all tiers were a demand charge is $8.07/kW for the LGS rate and $2.15/kW for the MGS rate. BC Hydro will also model demand charges where there is no charge for the first 35kW and a flat charge for all demand beyond 35kW. Are there any other demand structures BC Hydro should be considering? Please provide the rationale for your suggestion(s).	The proposed rates appear to be reasonable.
8. Separation of LGS and MGS rate classes A. LGS and MGS customers were split into separate rate classes in 2010. Should BC Hydro consider merging the two rate classes? If so, why?	Not necessary.
B. Could the LGS and MGS rate structures differ from one another or should they continue to be aligned?	

Additional Comments, Items you think should be in-scope, not currently identified:

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2015 Rate Design Application (RDA) –

Small General Service (SGS), Medium General Service (MGS) and Large General Service (LGS) Rates

Workshop # 1 – Sessions 1 and 2

Feedback Form

Name/Organization: **Peterson Commercial Property Management**

Presentation Topics	
	Comments **(Please do not identify third-party individuals in your comments. Comments bearing references to identifiable individuals will be discarded due to privacy concerns).**
1. SGS A. Is there a strong basis to depart from the current SGS flat energy charge given that the SGS energy charge is slightly above the upper end of BC Hydro's energy Long Run Marginal Cost of energy (LRMC)?	
B. The SGS Basic Charge is estimated to recover 33% of Customer related cost for F2016. (This is comparable to the Residential Inclining Block (RIB) rate Basic Charge cost recovery figure of about 30% - for reference BC Hydro found that most utilities are in the 35% to 65% range for residential customer-related fixed cost recovery – refer to Workshop No.3 slide deck presentation, slide #67). Given revenue neutrality, an increase in the Basic Charge must be offset by a reduction in the energy charge. Should BC Hydro consider increasing the Basic Charge to increase the recovery of Customer related costs?	

2. LGS and MGS: Customer Experience BC Hydro is interested in hearing from customers who take service under LGS or MGS rates regarding their experiences with the rate and in particular, whether the rates provide clear signals to conserve energy that can be acted upon, and if not why not. In responding, please identify which rate you take service from BC Hydro under.	
3. LGS and MGS: Screened-in Alternatives BC Hydro presented three categories of screened-in alternatives in Workshop No. 8b for each of LGS and MGS rate together with a high level analysis of their benefits and drawbacks The three categories screened-in alternatives are: • Status Quo • Retain Baseline, Flat part 1 energy, and flat demand • No Baseline, flat part 1 energy and flat demand Are there other rate designs that BC Hydro should be considering for Workshop No. 11 scheduled for 11 June 2015?	

4. LGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo LGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	We have experienced issues with the baseline when purchasing a building. The new owner of the building does not have the benefit of the baseline as the information stays with the previous owner. Suggestion: The history of the baseline for the building should follow the building and not the account holder. Flexibility to review the baseline due to change of occpants. Our building usage increased due to the type of tenant business, ie call centers that have extended business hours. There is no mechanism in place to review the baseline that is established prior to the new tenants. Suggestion: Develop reviewing guidelines for the baseline.

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the LGS class? Please provide comments and rationale for any recommendations.	
C. Should BC Hydro carry forward the No Baseline alternative for the LGS class? Please provide comments and rationale for any recommendations.	
5. MGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo MGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the MGS class? Please provide comments and rationale for any recommendations.	
C. Should BC Hydro carry forward the No Baseline alternative for the MGS class? Please provide comments and rationale for any recommendations.	
6. LGS and MGS: Screened-out alternatives A. BC Hydro used the following criteria to screen-out alternatives: • Unsuited for large heterogeneous group of customers • Incurred large bill impacts (well above the 10% yellow light bill impact test) • Performed poorly on rate design objectives. Are the criteria used by BC Hydro the appropriate criteria for screening-out alternatives? If not, please provide reasons.	
B. Do you agree that the screened-out alternatives should not be advanced for further consideration by BC Hydro? If not, which screened-out alternative do you think should be advanced, and why?	

7. Demand Charges A. Currently BC Hydro has an inclining demand charge for both the LGS and MGS classes. There is not a cost of service basis for the inclining demand charge and BC Hydro's jurisdictional assessment indicates that this is an atypical structure for demand charges. Please provide comments as to whether there are other justifications for an inclining demand charge.	
B. BC Hydro modelled the impacts of flattening the demand for LGS and MGS while retaining the revenue collected from the demand charge at the same level as is currently being recovered. The results of flattening all tiers were a demand charge is $8.07/kW for the LGS rate and $2.15/kW for the MGS rate. BC Hydro will also model demand charges where there is no charge for the first 35kW and a flat charge for all demand beyond 35kW. Are there any other demand structures BC Hydro should be considering? Please provide the rationale for your suggestion(s).	
8. Separation of LGS and MGS rate classes A. LGS and MGS customers were split into separate rate classes in 2010. Should BC Hydro consider merging the two rate classes? If so, why?	
B. Could the LGS and MGS rate structures differ from one another or should they continue to be aligned?	

Additional Comments, Items you think should be in-scope, not currently identified:			

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Signature:____ Date: __________________________

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2015 Rate Design Application (RDA) – Small General Service (SGS), Medium General Service (MGS) and Large General Service (LGS) Rates

Workshop # 1 – Sessions 1 and 2 Feedback Form

Name/Organization: TransLink (BC Rapid Transit Company Ltd & Coast Mountain Bus Company)

BC hydro
FOR GENERATIONS

2015 Rate Design Application (RDA) –

Small General Service (SGS), Medium General Service (MGS) and Large General Service (LGS) Rates

Workshop # 1 – Sessions 1 and 2

Feedback Form

Name/Organization:

Toby Creek Utility – Electrical (TCU-E), and

Panorama Mountain Village Inc. (PMV)

Presentation Topics	
	Comments **(Please do not identify third-party individuals in your comments. Comments bearing references to identifiable individuals will be discarded due to privacy concerns).**
1. SGS A. Is there a strong basis to depart from the current SGS flat energy charge given that the SGS energy charge is slightly above the upper end of BC Hydro's energy Long Run Marginal Cost of energy (LRMC)?	
B. The SGS Basic Charge is estimated to recover 33% of Customer related cost for F2016. (This is comparable to the Residential Inclining Block (RIB) rate Basic Charge cost recovery figure of about 30% - for reference BC Hydro found that most utilities are in the 35% to 65% range for residential customer-related fixed cost recovery – refer to Workshop No.3 slide deck presentation, slide #67). Given revenue neutrality, an increase in the Basic Charge must be offset by a reduction in the energy charge. Should BC Hydro consider increasing the Basic Charge to increase the recovery of Customer related costs?	

2. LGS and MGS: Customer Experience BC Hydro is interested in hearing from customers who take service under LGS or MGS rates regarding their experiences with the rate and in particular, whether the rates provide clear signals to conserve energy that can be acted upon, and if not why not. In responding, please identify which rate you take service from BC Hydro under.	Service: LGS rates Business: Micro-utility (electricity reseller) and Mountain Resort Our business and our customers are located in a rural setting, where heat is provided solely by electricity. Therefore, our electricity consumption is directly proportional to temperature fluctuations – both cold (heat) and hot (air conditioning). Since we are located approximately 800km from the ocean, our seasonal temperatures are not moderated by the constant sea temperatures. The result is that an unseasonably cold winter, for example, can result in exhorbitant LGS-2 penalties due to the billing period being compared to the rolling average of the previous three years. As a business, it is impossible to predict, and therefore budget for, electricity costs. As a reseller, we pass the penalties (and credits) on to our customers, whom also have difficulty budgeting electricity costs. Furthermore, the LGS-2 rate structure does not encourage conservationism, it merely stagnates business growth. For example, as a ski resort, when contemplating increasing our uphill lift capacity (eg. Installing a new chairlift) we must budget not only for the additional consumption, but also the penalties incurred for consumption above the baseline for the next three years. In other words, this rate structure does not incentify economic growth.

3. LGS and MGS: Screened-in Alternatives BC Hydro presented three categories of screened-in alternatives in Workshop No. 8b for each of LGS and MGS rate together with a high level analysis of their benefits and drawbacks The three categories screened-in alternatives are: • Status Quo • Retain Baseline, Flat part 1 energy, and flat demand • No Baseline, flat part 1 energy and flat demand Are there other rate designs that BC Hydro should be considering for Workshop No. 11 scheduled for 11 June 2015?	We would prefer to see the the third option, No Baseline, flat part 1 energy and flat demand.
4. LGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo LGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	The only opinion that we have is that the baseline should be eliminated because; - It is impossible to budget for, - Electricity consumption is not steady state year to year due to fluctuating heating/colling demand cycles, and - It does not encourage business growth

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the LGS class? Please provide comments and rationale for any recommendations.	No, the baseline should be eliminated. The only opinion that we have is that the baseline should be eliminated because; - It is impossible to budget for, - Electricity consumption is not steady state year to year due to fluctuating heating/colling demand cycles, and It does not encourage business growth
C. Should BC Hydro carry forward the No Baseline alternative for the LGS class? Please provide comments and rationale for any recommendations.	Yes. The only opinion that we have is that the baseline should be eliminated because; - It is impossible to budget for, - Electricity consumption is not steady state year to year due to fluctuating heating/colling demand cycles, and It does not encourage business growth
5. MGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo MGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	N/A

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the MGS class? Please provide comments and rationale for any recommendations.	N/A
C. Should BC Hydro carry forward the No Baseline alternative for the MGS class? Please provide comments and rationale for any recommendations.	N/A
6. LGS and MGS: Screened-out alternatives A. BC Hydro used the following criteria to screen-out alternatives: • Unsuited for large heterogeneous group of customers • Incurred large bill impacts (well above the 10% yellow light bill impact test) • Performed poorly on rate design objectives. Are the criteria used by BC Hydro the appropriate criteria for screening-out alternatives? If not, please provide reasons.	We have no opinion on BC Hydro's screening rationale
B. Do you agree that the screened-out alternatives should not be advanced for further consideration by BC Hydro? If not, which screened-out alternative do you think should be advanced, and why?	We have no opinion on this question

7. Demand Charges A. Currently BC Hydro has an inclining demand charge for both the LGS and MGS classes. There is not a cost of service basis for the inclining demand charge and BC Hydro's jurisdictional assessment indicates that this is an atypical structure for demand charges. Please provide comments as to whether there are other justifications for an inclining demand charge.	We and our customers are keenly aware of the impact of Demand Charge on electrical costs and we stringently manage our operations to mitigate its effect. Inclining Demand Charge unfairly penalizes certain seasonal operations (Snowmaking) which use large amounts of power. We can not provide any justification for an inclining demand charge.
B. BC Hydro modelled the impacts of flattening the demand for LGS and MGS while retaining the revenue collected from the demand charge at the same level as is currently being recovered. The results of flattening all tiers were a demand charge is $8.07/kW for the LGS rate and $2.15/kW for the MGS rate. BC Hydro will also model demand charges where there is no charge for the first 35kW and a flat charge for all demand beyond 35kW. Are there any other demand structures BC Hydro should be considering? Please provide the rationale for your suggestion(s).	We would support the flat rate Demand Charge scheme provided there is $0 charged for the first 35kW. A flat rate of $8.07/kW for exceeding 35kW would be supported. Charging a flat rate for exceeding 0 kW would not incentivise consumers to manage rate of usage.
8. Separation of LGS and MGS rate classes A. LGS and MGS customers were split into separate rate classes in 2010. Should BC Hydro consider merging the two rate classes? If so, why?	No opinion
B. Could the LGS and MGS rate structures differ from one another or should they continue to be aligned?	No opinion

Additional Comments, Items you think should be in-scope, not currently identified:

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Signature:  Date: June 10. 2015

Andrew Cradduck

Thank you for your comments.

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Fax number: 604-623-4407 – "Attention 2015 RDA"

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Presentation Topics	
	Comments **(Please do not identify third-party individuals in your comments. Comments bearing references to identifiable individuals will be discarded due to privacy concerns).**
1. SGS A. Is there a strong basis to depart from the current SGS flat energy charge given that the SGS energy charge is slightly above the upper end of BC Hydro's energy Long Run Marginal Cost of energy (LRMC)?	No.
B. The SGS Basic Charge is estimated to recover 33% of Customer related cost for F2016. (This is comparable to the Residential Inclining Block (RIB) rate Basic Charge cost recovery figure of about 30% - for reference BC Hydro found that most utilities are in the 35% to 65% range for residential customer-related fixed cost recovery – refer to Workshop No.3 slide deck presentation, slide #67). Given revenue neutrality, an increase in the Basic Charge must be offset by a reduction in the energy charge. Should BC Hydro consider increasing the Basic Charge to increase the recovery of Customer related costs?	No.

2. LGS and MGS: Customer Experience BC Hydro is interested in hearing from customers who take service under LGS or MGS rates regarding their experiences with the rate and in particular, whether the rates provide clear signals to conserve energy that can be acted upon, and if not why not. In responding, please identify which rate you take service from BC Hydro under.	Both MGS and LGS accounts. - No clear signal given complicated rate structure that cannot be clearly understood and modelled. - In time of growth any benefit would get lost due to the penalty imposed on expansion. Regardless of the fact energy efficient investments are being made. - Incentive for energy efficiency is likely best provided through PowerSmart.
3. LGS and MGS: Screened-in Alternatives BC Hydro presented three categories of screened-in alternatives in Workshop No. 8b for each of LGS and MGS rate together with a high level analysis of their benefits and drawbacks The three categories screened-in alternatives are: • Status Quo • Retain Baseline, Flat part 1 energy, and flat demand • No Baseline, flat part 1 energy and flat demand Are there other rate designs that BC Hydro should be considering for Workshop No. 11 scheduled for 11 June 2015?	- Could consider a Tier 1 price for fixed number of Kwh and Tier 2 price for remainder…no baseline (based on historical usage) however.

4. LGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo LGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	No – current definition of baseline is not equitable in time of growth. If the baseline was kept a new process/criteria to rebaseline the business and "start fresh" should be considered. This process would have to be supported by incremental resources and costs may > benefits. Could be onerous as well when there are multiple accounts impacted by the same impetus for growth. Baseline - see above. At a minimum need to more easily re-establish baseline in time of growth and then start again. Once in status quo operations, some average may be justified. If baseline was perhaps considered over a rolling 12 months vs. a rolling 3 years, that could at least help minimize the penalty being imposed on business over 1 vs. 3 years. Price limit band – in status quo, these should be reviewed and rejustified.

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the LGS class? Please provide comments and rationale for any recommendations.	No. See above. Main reason is the penalty imposed on businesses for growth/expansion. Often during an expansion upgrades are being made, many of which are more energy efficient investments, and the benefit of those energy investments are not being clearly rewarded due to the fact the penalty far exceeds any reduction (at least in the first 3 years).
C. Should BC Hydro carry forward the No Baseline alternative for the LGS class? Please provide comments and rationale for any recommendations.	Yes. The no baseline alternative should be carried forward. However, there is a goal for revenue neutrality, yet that revenue includes existing penalties being imposed on businesses. There should be an adjustment for this in this rate class, otherwise the growth penalty from the existing structure carries forward into the next. Need to start again.
5. MGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo MGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the MGS class? Please provide comments and rationale for any recommendations.	No.
C. Should BC Hydro carry forward the No Baseline alternative for the MGS class? Please provide comments and rationale for any recommendations.	Yes.
6. LGS and MGS: Screened-out alternatives A. BC Hydro used the following criteria to screen-out alternatives: • Unsuited for large heterogeneous group of customers • Incurred large bill impacts (well above the 10% yellow light bill impact test) • Performed poorly on rate design objectives. Are the criteria used by BC Hydro the appropriate criteria for screening-out alternatives? If not, please provide reasons.	Yes, these are appropriate. Could also consider one of the criteria as does not penalize economic growth/development in the region.
B. Do you agree that the screened-out alternatives should not be advanced for further consideration by BC Hydro? If not, which screened-out alternative do you think should be advanced, and why?	Yes.

7. Demand Charges A. Currently BC Hydro has an inclining demand charge for both the LGS and MGS classes. There is not a cost of service basis for the inclining demand charge and BC Hydro's jurisdictional assessment indicates that this is an atypical structure for demand charges. Please provide comments as to whether there are other justifications for an inclining demand charge.	No justification for an inclining demand charge. Larger customers could face higher bills, regardless of whether they consumed that energy in peak periods. Inherent penalty for growth as well.
B. BC Hydro modelled the impacts of flattening the demand for LGS and MGS while retaining the revenue collected from the demand charge at the same level as is currently being recovered. The results of flattening all tiers were a demand charge is $8.07/kW for the LGS rate and $2.15/kW for the MGS rate. BC Hydro will also model demand charges where there is no charge for the first 35kW and a flat charge for all demand beyond 35kW. Are there any other demand structures BC Hydro should be considering? Please provide the rationale for your suggestion(s).	Need to review the resulting $8.07/kW and $2.15/kW and justify the cost difference. Why is the demand charge almost 4 times higher than the demand charge for MGS? In its review, Hydro should factor out amolies introduced from previous policies that have influenced these prices in the wrong direction and set a demand charge that is just.
8. Separation of LGS and MGS rate classes A. LGS and MGS customers were split into separate rate classes in 2010. Should BC Hydro consider merging the two rate classes? If so, why?	This could be simpler for businesses with various accounts in both MGS and LGS categories. If moving to a flat structure it could be considered. Need to factor in the amount of change on customers in this RDA or perhaps use a phased approach for the changes.
B. Could the LGS and MGS rate structures differ from one another or should they continue to be aligned?	This question is contradictory. No comment.

Additional Comments, Items you think should be in-scope, not currently identified:

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Signature:____ Date: _______________________

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2015 Rate Design Application (RDA) –

Small General Service (SGS), Medium General Service (MGS) and Large General Service (LGS) Rates

Workshop # 1 – Sessions 1 and 2

Feedback Form

Name/Organization: **VITERRA**

Presentation Topics	
	Comments **(Please do not identify third-party individuals in your comments. Comments bearing references to identifiable individuals will be discarded due to privacy concerns).**
1. SGS A. Is there a strong basis to depart from the current SGS flat energy charge given that the SGS energy charge is slightly above the upper end of BC Hydro's energy Long Run Marginal Cost of energy (LRMC)?	No specific comment. However rate design must reflect that structure is understandable to the end user and conservation methods will fall into acceptable investment methodologies. Viterra agrees with revenue neuratility conscepts within rate classes.
B. The SGS Basic Charge is estimated to recover 33% of Customer related cost for F2016. (This is comparable to the Residential Inclining Block (RIB) rate Basic Charge cost recovery figure of about 30% - for reference BC Hydro found that most utilities are in the 35% to 65% range for residential customer-related fixed cost recovery – refer to Workshop No.3 slide deck presentation, slide #67). Given revenue neutrality, an increase in the Basic Charge must be offset by a reduction in the energy charge. Should BC Hydro consider increasing the Basic Charge to increase the recovery of Customer related costs?	Viterra agrees with revenue neuratility conscepts within rate classes.

2. LGS and MGS: Customer Experience BC Hydro is interested in hearing from customers who take service under LGS or MGS rates regarding their experiences with the rate and in particular, whether the rates provide clear signals to conserve energy that can be acted upon, and if not why not. In responding, please identify which rate you take service from BC Hydro under.	Viterra does not believe that the rate structure sends clear signals for conservation which is aligned with BCH's own studies. Viterra has operated facilities under all Conservation Rates including the current Transmission Rate and the LGS Rate has been uneccessarily complicated when it should be a relatively simple model. We are strong proponents of the elements contained in the Transmission Service – Stepped Rate Tariff and by BCH's own analysis which has achieved the conservation targets expected. It is difficult to understand why the approach was not applied such that Conservation Rate design continued to focus on the larger BCH consumers first then moving conservation successively to smaller energy consumption groups.
3. LGS and MGS: Screened-in Alternatives BC Hydro presented three categories of screened-in alternatives in Workshop No. 8b for each of LGS and MGS rate together with a high level analysis of their benefits and drawbacks The three categories screened-in alternatives are: • Status Quo • Retain Baseline, Flat part 1 energy, and flat demand • No Baseline, flat part 1 energy and flat demand Are there other rate designs that BC Hydro should be considering for Workshop No. 11 scheduled for 11 June 2015?	Viterra maintains the position that a uniform approach to the LGS customers is inappropriate. It is clear that there is a portion of the LGS customer base that operates more in-line with the transmission customer base yet is forced onto the LGS rate solely as a result of inappropriate service voltage available. None of the 3 "Screened-in Alternatives" are viewed as an acceptable basis to move forward with. Our position continues to be that modeling the Transmission Rate structure sends better price signals and has a much better ability to achieve the conservation rates that BCH is seeking. The fundamental argument provided to the contrary is based on the ability for BCH to work with the number of customers in the MGS and LGS categories based on bringing all the attributes of the Transmission Rate across whichin Viterra's opinion is not necessary only the key elements. Viterra's view that MGS customers due to the nature of the customer database is better served by a complete flat energy model where the price signal is direct to their cost of supply.

4. LGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo LGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	Viterra has expressed on many occasion that monthly baselines are difficult if not impossible to manage due the volatility of our business. We have been consistent that any Rate model that retains a baseline should be based on an annual model. Annual models have a level of predictability as the cyclic nature of the business tends to average out over either a fiscal or in our case crop year period. Though neither aline with the BCH year they provide clarity for looking at conservation without having to be analyzing every trend. In addition BCH has failed to date to provide consistent revenue metering that guarantees the necessary consistency that a calendar month in one year is the same calendar month in the next year. To be operating a monthly baseline without the appropriate revenue metering seems to be counter productive even at it's base design level.

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the LGS class? Please provide comments and rationale for any recommendations.	No, see response in question 3 Viterra does not understand how this model can create a fair cost of service without penalizing larger LGS customers. Flat lining will create an immediate cost impact in excess of BCH approved rate increases to the larger consumption customers within the LGS group.
C. Should BC Hydro carry forward the No Baseline alternative for the LGS class? Please provide comments and rationale for any recommendations.	No, see response in question 3 Viterra does not understand how this model can create an appropriate incentive for conservation.
5. MGS A. BC Hydro seeks feedback on retaining the baseline and refining issues related to the status quo MGS rate, including: • Definition of the baseline – is the current definition appropriate • Should BC Hydro consider different periods for setting customer baselines, and if so on what basis • Price limit band. Please provide comments and rationale for any recommendations.	See responses below

B. Should BC Hydro carry forward the Retain Baseline, Flat Part-1 energy alternative for the MGS class? Please provide comments and rationale for any recommendations.	Viterra agrees that there should be flatline consumption for a reconfigured MGS classification of customers (see response in question 6.B.)
C. Should BC Hydro carry forward the No Baseline alternative for the MGS class? Please provide comments and rationale for any recommendations.	Viterra agrees that there should be no baseline for a reconfigured MGS classification of customers (see response in question 6.B.)
6. LGS and MGS: Screened-out alternatives A. BC Hydro used the following criteria to screen-out alternatives: • Unsuited for large heterogeneous group of customers • Incurred large bill impacts (well above the 10% yellow light bill impact test) • Performed poorly on rate design objectives. Are the criteria used by BC Hydro the appropriate criteria for screening-out alternatives? If not, please provide reasons.	Viterra believes the heart of the problem is the large heterogeneous nature of the LGS customer database and BCH must consider a model that breaks this group up under a revenue neutral basis for the revenue groups created. It may also be appropriate to reset the MGS/LGS distinction and move a segment of the lower consumer LGS customers into a revised MGS group (see response in question 3).

B. Do you agree that the screened-out alternatives should not be advanced for further consideration by BC Hydro? If not, which screened-out alternative do you think should be advanced, and why?	Viterra is of the position that none of the "screened-in" or "screened-out" alternatives should be forwarded and that BCH should request extension to seek a solution that rebuilds the MGS/LGS rate structure from scratch. Viterra's position is that BCH should seek a recourse that accomplishes approx. the following: 1. Enlarge the MGS class with the bottom third of the LGS class (<1GWH Consumption) and create a flatline consumption model and Demand charge for Demand >0.075MW. This would enlarge the number of customers to approx. 18-19,000 customers who would have a simplified and understandable rate structure. 2. Create a large user's class out of the LGS database ie. >2MW Demand and >2GWH Consumption and model to the Transmission Rate structure though not necessarily with all the bells and whistles within that Rate structure. This would create approx. 1400 customers who would have likely both the resources and ability to implement meaningful conservation projects. 3. The remaining LGS Class remain in the existing rate structure with annualized baselines. This would now effect only 3500 customers. The thresholds are to some degree subjective, but to continue the LGS Rate structure under the current number of accounts at 7000 is administratively unsupportable at either BCH's level or by the customer. It should be the objective that each of these 3 revised classifications remain revenue neutral.
7. Demand Charges A. Currently BC Hydro has an inclining demand charge for both the LGS and MGS classes. There is not a cost of service basis for the inclining demand charge and BC Hydro's jurisdictional assessment indicates that this is an atypical structure for demand charges. Please provide comments as to whether there are other justifications for an inclining demand charge.	See response in 6. B.

B. BC Hydro modelled the impacts of flattening the demand for LGS and MGS while retaining the revenue collected from the demand charge at the same level as is currently being recovered. The results of flattening all tiers were a demand charge is $8.07/kW for the LGS rate and $2.15/kW for the MGS rate. BC Hydro will also model demand charges where there is no charge for the first 35kW and a flat charge for all demand beyond 35kW. Are there any other demand structures BC Hydro should be considering? Please provide the rationale for your suggestion(s).	See response in 6. B.
8. Separation of LGS and MGS rate classes A. LGS and MGS customers were split into separate rate classes in 2010. Should BC Hydro consider merging the two rate classes? If so, why?	See response in 6. B.
B. Could the LGS and MGS rate structures differ from one another or should they continue to be aligned?	See response in 6. B.

Additional Comments, Items you think should be in-scope, not currently identified:

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Signature:____ ____Date: ___Mar. 14th, 2015_____

Thank you for your comments.

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BC hydro

2015 Rate Design Application

January 21, 2015/February 11, 2015
Workshop Nos. 8a and 8b
LGS/MGS/SGS Rate Structures
BC Hydro Summary and Consideration of Participant Feedback

Attachment 3
Presentation to Building Owners and Managers Association of British Columbia,
May 7, 2015: General Service Rates Overview

BC Hydro General Service Rates

Shiau-Ching Chou
Program Manager, Customer Service Operations

Paulus Mau
Sr. Regulatory Advisor, Regulatory & Rates

May 7, 2015

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- LGS/MGS/SGS overview
- Understanding your bill
- Observed issues
- 2015 Rate Design Application
- Reviewed LGS MGS Alternatives

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GENERAL SERVICE RATES OVERVIEW

General Service Rates

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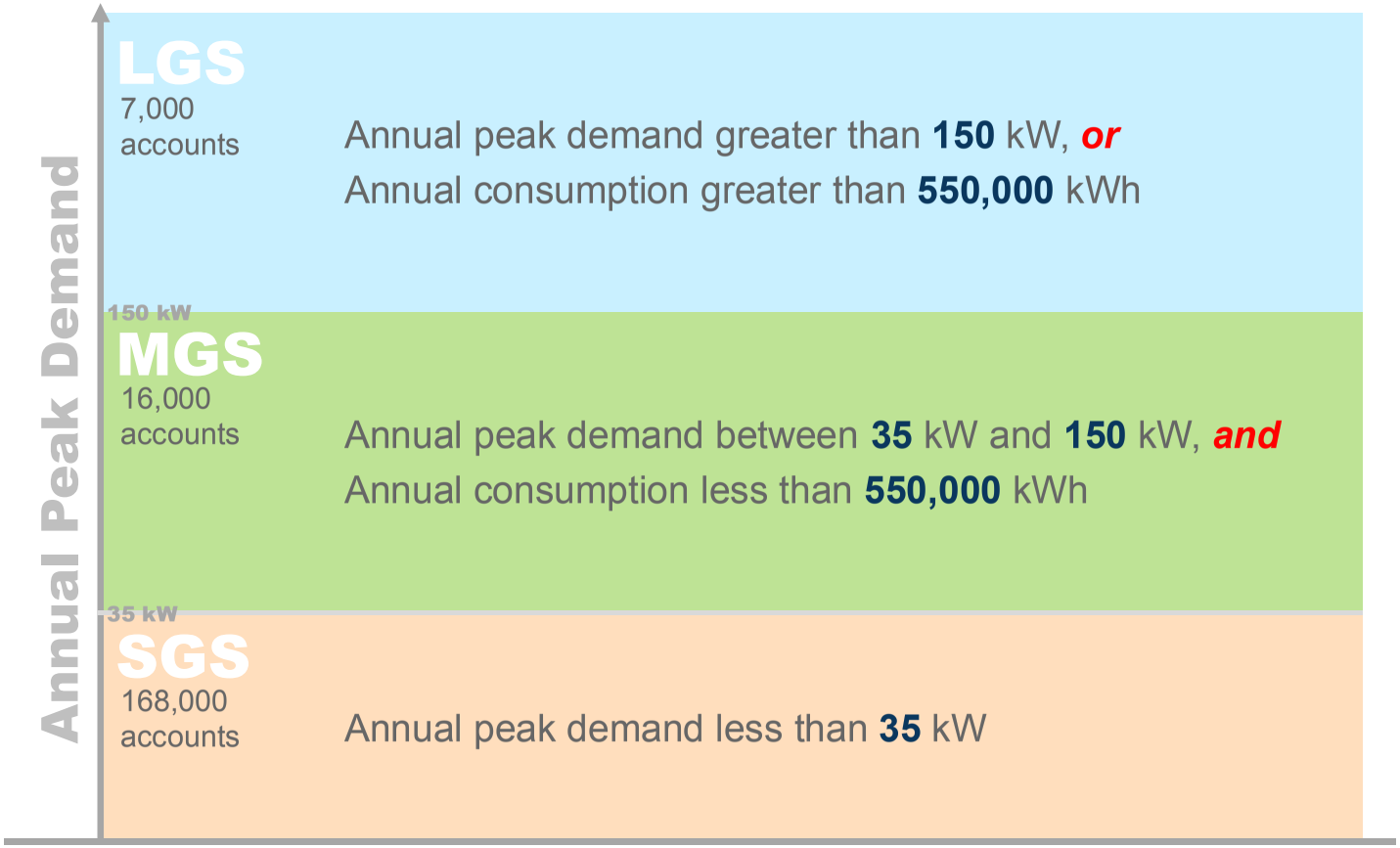


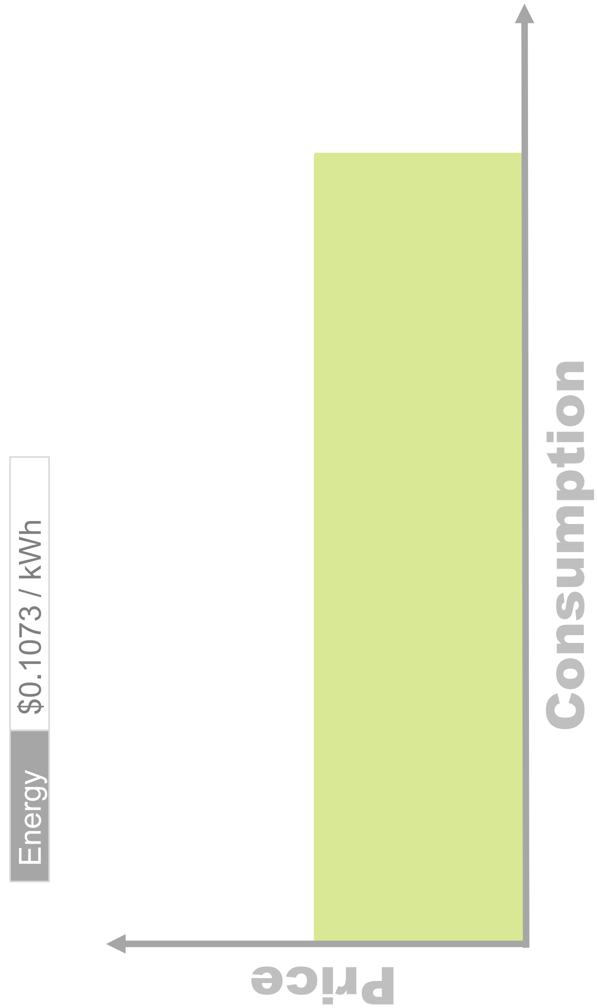
General Service Rate Elements

BC hydro
FOR GENERATIONS

Basic Charge	A small, daily charge that partially covers the fix cost of services for things such as metering and billing.
Energy Charge	The amount of electricity used, typically measured in kilowatt hours (kWh) on your bills.
Demand Charge	The rate electricity is used, typically measured in kilowatts (kW). Peak demand is the highest rate of electricity use during a period of time. For LGS and MGS customers only.
Power Factor Surcharge	A measure of efficiency. A power factor surcharge is applied to LGS and MGS customers who have power factor below 90%.
Rate Rider	Covers additional and unpredictable energy costs resulting from, for example, low water inflows or higher than forecast market prices.

BC hydro FOR GENERATIONS

SGS – Flat Rate



LGS and MGS – Baseline Rates

BC hydro
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Baselines = average usage in the past

Customers pay for their baselines

Use less than baseline = credit

Use more than baseline= charge

LGS Conservation Rate

BC hydro
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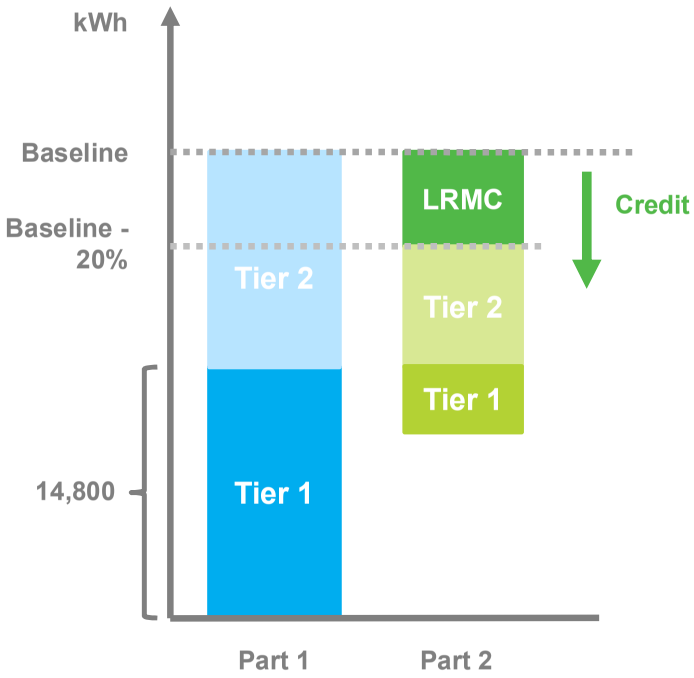
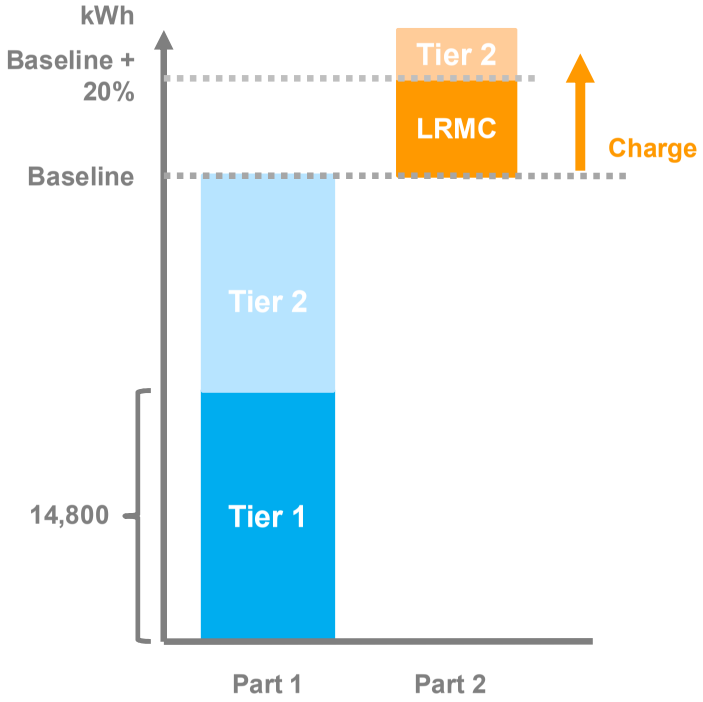
Tier 1	$0.1010 / kWh
Tier 2	$0.0513 / kWh
LRMC	$0.0990 / kWh

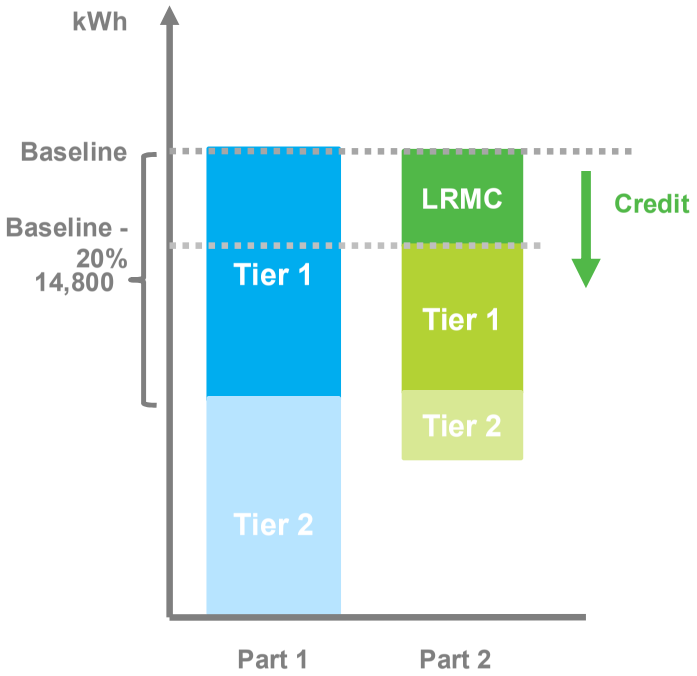


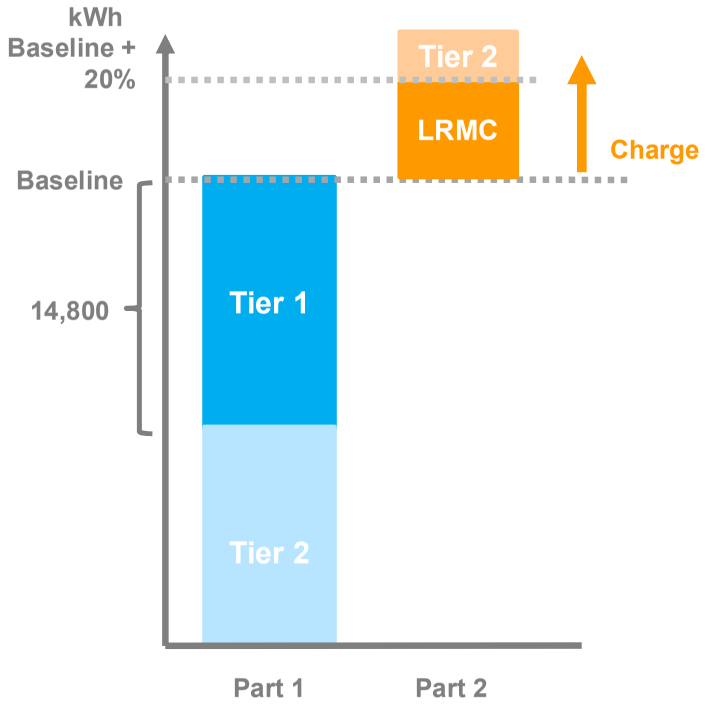


MGS Conservation Rate

BC hydro
FOR GENERATIONS

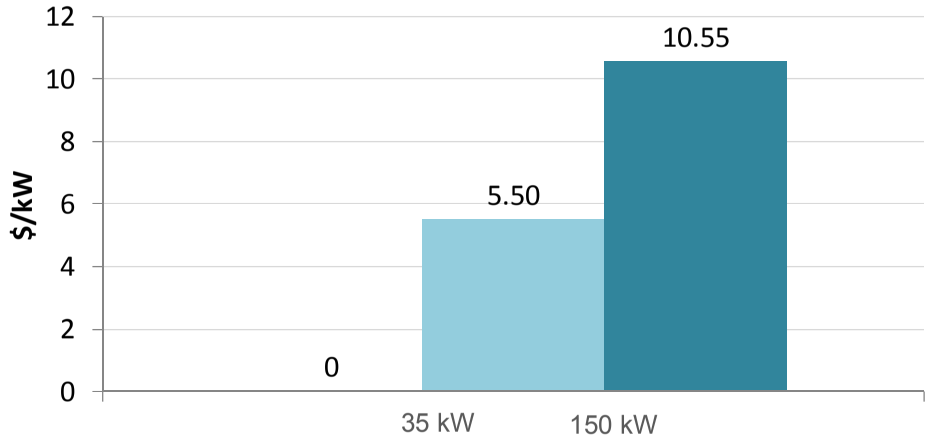
Tier 1	$0.0989 / kWh
Tier 2	$0.0690 / kWh
LRMC	$0.0990 / kWh





LGS/MGS Demand Charge

BC hydro
FOR GENERATIONS



BC hydro
FOR GENERATIONS

UNDERSTANDING YOUR BILL

The Bill - SGS

BC hydro
FOR GENERATIONS

BC Hydro	Electric Charges		
	May 26 to Jul 23 (Small General Service Rate 1300)		
1	Basic Charge: 59 days @ $0.22570 /day		13.32*
2	Usage Charge: 5600 kW.h @ $0.10730 /kW.h		600.88*
3	Rate Rider at 5.0%		30.71*
4	* GST		32.25
	PST		45.14
			$722.30
Taxes	The following is a summary of taxes billed to your account since your last invoice:		
	GST at 5 % on 644.91	32.25	
	PST at 7 % on 644.91	45.14	
		Balance payable	**$722.30**

The Bill - MGS

BC hydro
FOR GENERATIONS

BC Hydro	Electric Charges	
	Apr 30 to May 28 (MGS Conservation Rate 1500)	
1	Basic Charge: 29 days @ $0.22570 /day	6.55*
	Part 1: Energy Charge of 17,441 kW.h	
	14800 kW.h @ $0.09890/kW.h	1,463.72*
2	2641 kW.h @ $0.06900/kW.h	182.23*
	Part 2	
	-3488 kW.h @ $0.09900/kW.h	345.31CR*
	-1953 kW.h @ $0.09890/kW.h	193.15CR*
	0 kW.h @ $0.06900/kW.h	0.00
3	**Demand Charge**	
	35 kW @ $0.00000 /kW	0.00
	15 kW @ $5.50000 /kW	82.50*
4	**kVarh: Power Factor 92 % surcharge 0 %**	0.00
5	Rate Rider at 5.0%	59.83*
6	* GST	62.82
	PST	87.95
		$1,407.14
7	This billing period you used 12,000 kWh. As a result, you received a Part 2 Energy Credit of $538.46 because your usage was 5,441 kWh below your baseline.	

OBSERVED ISSUES

Complexity

BC hydro
FOR GENERATIONS

Sample Residential Energy Charge Calculation

Customer X consumed 1,800 kWh from Oct 15 to Dec 14, 2014

Step1 22.1918 kWh X 61 Days X $0.0752 = $115.34

Step2 (1,800-1,354) kWh X $0.1127 = $ 50.26

==========

Total Energy charge: **$165.60**

Complexity

BC hydro
FOR GENERATIONS

Sample LGS Energy Charge Calculation

1 Retrieve 3 year history

Year	9/15-10/14	10/15-11/14	11/15-12/14
2011	100,000	105,000	110,000
2012	95,000	100,000	105,000
2013	90,000	95,000	100,000

2 Calculate monthly baselines

2011
9/15-10/14 Daily Average: 100,000/30 days = 3,333
10/15-11/14 Daily Average: 105,000/31 days = 3,387
11/15-12/14 Daily Average: 110,000/30 days = 3,667
2012
9/15-10/14 Daily Average: 95,000/30 days = 3,167
10/15-11/14 Daily Average: 100,000/31 days = 3,226
11/15-12/14 Daily Average: 105,000/30 days = 3,500
2013
9/15-10/14 Daily Average: 90,000/30 days = 3,000
10/15-11/14 Daily Average: 95,000/31 days = 3,065
11/15-12/14 Daily Average: 100,000/30 days = 3,333
2014 Baselines
2011 Prorated Oct: (3,333X14)+(3,387X17) = 104,247
2012 Prorated Oct: (3,167X14)+(3,226X17) = 99,172
2013 Prorated Oct: (3,000X14)+(3,065X17) = 94,097
2014 Oct Baseline = (104,247+99,172+94,097)/3 = 99,172
2011 Prorated Nov: (3,387X14)+(3,667X16) = 106,086
2012 Prorated Nov: (3,226X14)+(3,500X16) = 101,161
2013 Prorated Nov: (3,065X14)+(3,333X16) = 96,237
2014 Nov Baseline = (106,086+101,161+96,237)/3 = 101,161

3 Calculate billing baseline

Average Oct Daily Baseline: 99,172/31 days = 3,199
Average Nov Daily Baseline: 101,161/30 days = 3,263
2014 Oct 15 – Nov 14 billing baseline
3,199X16 days + 3,263X14 days = 96,871

4 Calculate Part 1 Charge (baseline)

Tier1 14,800 kWh X $0.1010 = $1,494.80
Tier2 (96,871-14,800) kWh X $0.0486 = $3,988.67
Total Part 1: $1,494.80 + $3,988.67 = $5,483.47

5 Calculate Part 2 Charge (credit/charge)

Difference between consumption and baseline:
95,000 – 96,871 = (-1,871)
Credit LRMC Range: 96,871 X (-20%) = (-19,374)
(-1,871 < -19,374)
LRMC Credit: (-1,871 X $0.0971) = $181.70 CR
Tier 1 Credit: 0 X $0.1010 = $0
Tier 2 Credit: 0 X $0.0486 = $0
Total Part 2 Credits: $181.70 + $0 + $0 = $181.70 CR

6 Calculate Two-Part Energy Charge

Part 1 = $5,483.47
Part 2 = $ 181.70 CR
Total: $5,483.47 + $181.70 CR = **$5,301.76**

7 Calculate Minimum Energy Charge

95,000 kWh X $0.0311 = $2,954.50
Total: **$2,954.50**

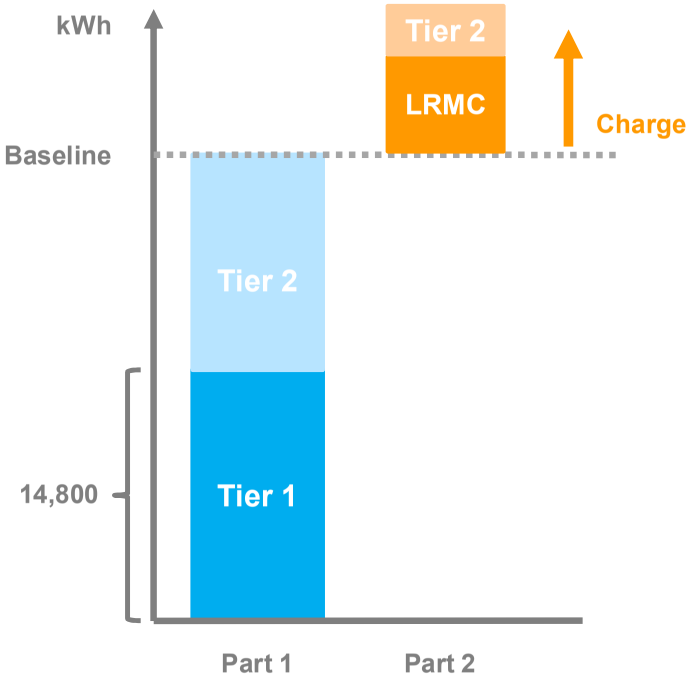
8 Calculate Monthly Minimum Charge

Peak Winter Demand = 300 kW
Step 1 = 35 kW X $0 = $0
Step 2 = 115 kW X $5.19 = $ 596.85
Step 3 = 150 kW X $9.95 = $1,492.5
Total: $0 + $596.95 + $1,492.5 CR = **$2,089.35**

9 Total Energy Charge

Two-Part>Minimum Energy Charge>Monthly Minimum Charge
$5,301.76 > $2,954.50 > $2,089.35
Total: **$5,301.76**

Growth Related Issues



The rates are perceived by customers as barriers to growth.

Property Management Issues

BC hydro
FOR GENERATIONS

- One meter (one account) for multiple units
- Phased development projects

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2015 RATE DESIGN APPLICATION

BC hydro
FOR GENERATIONS

General Service Rates

General Service Workshop 1

- Session 1 (Jan 21): Purpose is to review regulatory history and existing rate structures
- Session 2 (Feb 11): Purpose is to review alternatives to the existing LGS/MGS rate structures

Now → **Customer Feedback Collection**

General Service Workshop 2 (June 25)

- BC Hydro will provide further alternatives analysis and discuss transition strategies
- Details of the workshop will be available on www.bchydro.com/2015rda

BC Hydro plans to file its 2015 Rate Design Application in September.

LGS MGS Evaluations and Analysis

BC hydro
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- Multiple lines of evidence indicate that the customer conservation response to the LGS and MGS rates was considerably less than forecast
  - Achieved 8% of forecasted savings (77 GWh) for LGS, with declining confidence in persistence
  - zero energy savings for MGS accounts
- Unaided awareness and demonstrated understanding of the rates was low
- Focus group outcomes shows that both the tiered demand and two-part energy pricing structure is difficult to understand
- On analysis, the three tier demand structure's cost basis is weak

Reviewed Alternatives for LGS and MGS

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Alternative	Flatten Part-1 Energy 	Flatten Demand All Tiers 	Remove Baseline 
What we hope to address	Simplification	Simplification and demand structure cost basis	Customer Acceptance Simplification Practicality
Bill Impact Trends for customers	High Consumption leads to higher bills	High Demand leads to Lower bills	• Does not impact bills if consumption has been constant, consistently from year to year. • Loss of Credits and Charges
Key take-away	**Flattening both simultaneously leads to offsetting and softens bill impacts**		

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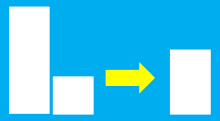
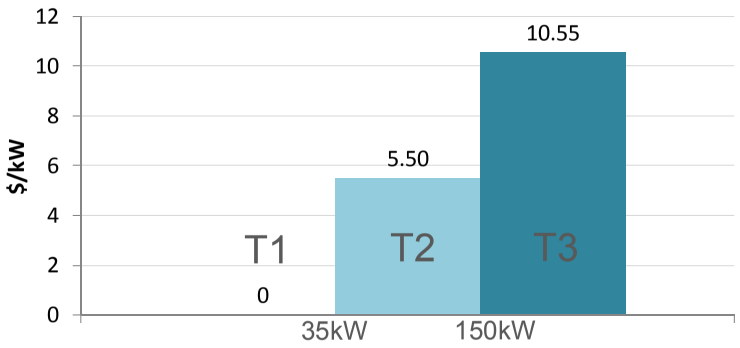
The following slides illustrate estimated prices for the following

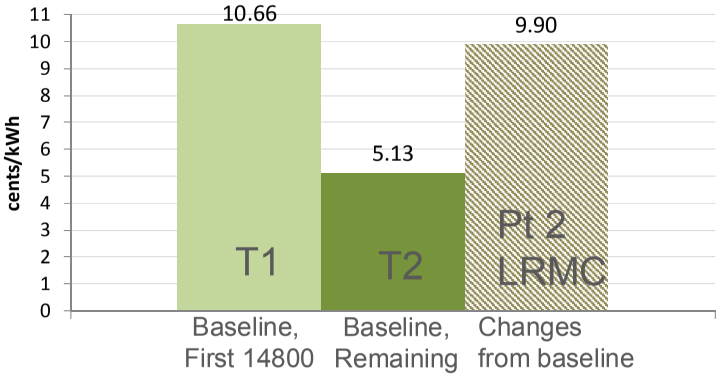
Alternative	Flatten Part 1 Energy 	Flatten Demand All Tiers 	Remove Baseline 
1. SQ	F2016 SQ rates		
2. Flat Part-1 Energy and Flat Demand	X	X	
3. Flat Part-1 Energy and Flat Demand + No baseline	X	X	X

We'd like to seek your feedback from your perspective.

LGS Status Quo (F2016)



Demand Charges



Energy Charges

Illustrative Customer Bill

Load Factor of 46%, Baseline Consumption = 744,240 kWh per year, Billed kW = 185 kW each month

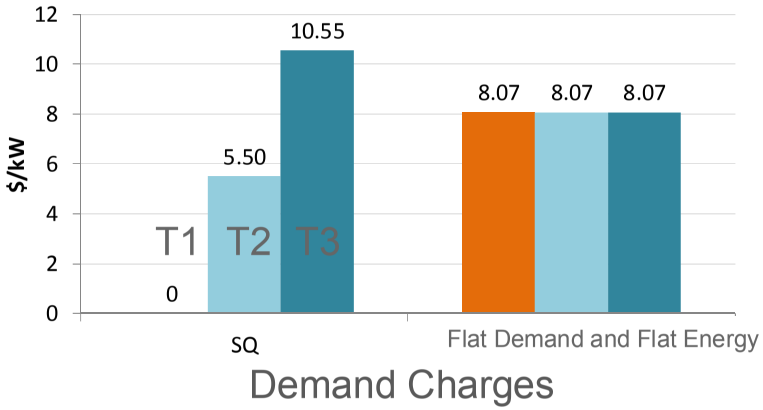
Customer Scenario	Demand Charge	Energy Charge	Basic Charge	Total Bill SQ
Consume at baseline	$12,021	$48,001	$82	$60,104
+ 5% from baseline	$12,021	$51,685	$82	$63,788
- 5% from baseline	$12,021	$44,317	$82	$56,420

Note: Illustrative bill computation excludes rate rider, discounts, ratchets, and other provisions

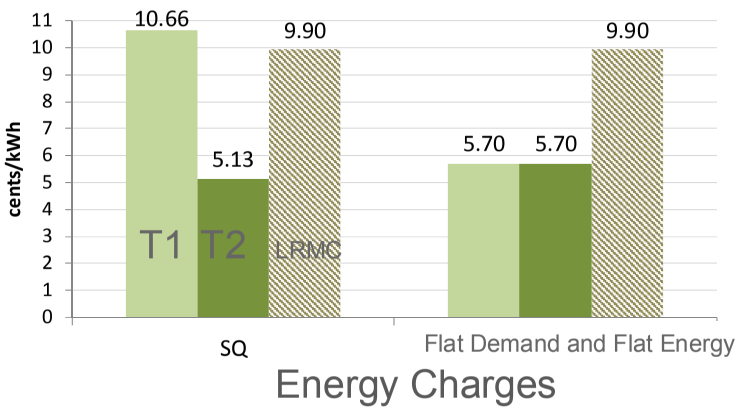
Observations:

- Bill impact at around the general rate increase if left untouched
- Continue to have credits and charges

LGS Flattening of Pt 1 Energy rate and flattening of Demand Charges



Demand Charges



Energy Charges

Illustrative Customer Bill

Load Factor of 46%, Baseline Consumption = 744,240 kWh per year, Billed kW = 185 kW each month

Customer Scenario	Demand Charge	Energy Charge	Basic Charge	Total Bill	SQ Bill	Variance
Consume at baseline	$17,915	$42,422	$82	$60,419	$60,104	$315 (1%)
+ 5% from baseline	$17,915	$46,106	$82	$64,103	$63,788	$315 (0%)
- 5% from baseline	$17,915	$38,738	$82	$56,735	$56,420	$315 (1%)

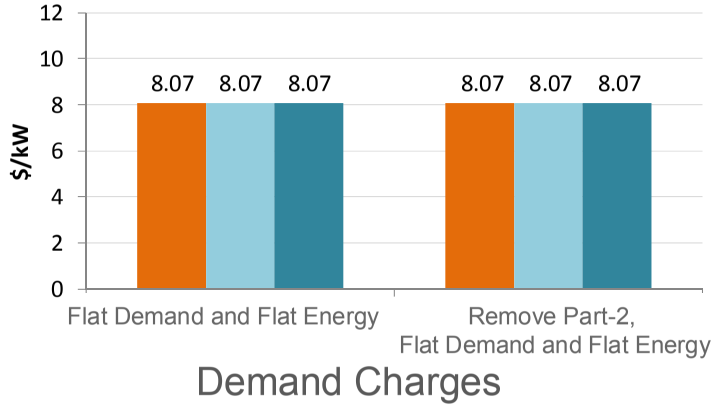
Note: Illustrative bill computation excludes rate rider, discounts, ratchets, and other provisions

Observations:

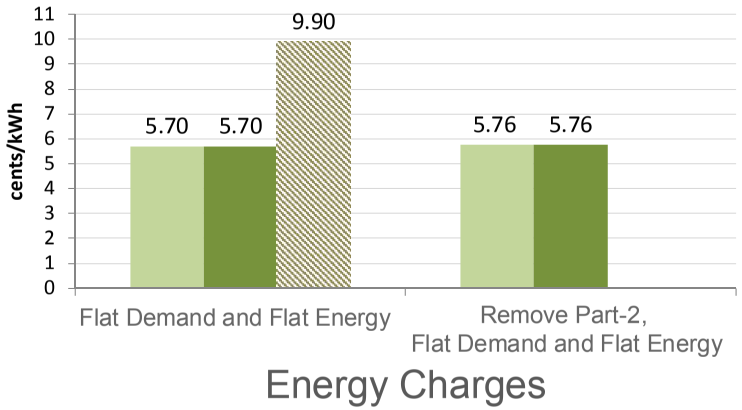
- Offset effect:
  - Bill increase due to Demand flattening
  - Reduction in bills due to Energy flattening

LGS: REMOVE Baseline Rate (Part-2), Flatten Energy rate and flatten demand charges

Comparison with Flat Energy + Flat Demand Design including Part-2



Demand Charges



Energy Charges

Illustrative Customer Bill

Load Factor of 46%, Baseline Consumption = 744,240 kWh per year, Billed kW = 185 kW each month

Customer Scenario	Demand Charge	Energy Charge	Basic Charge	Total Bill No 2-Part	Total Bill With 2- Part	Variance (Between with 2Pt and no 2Pt)
Consume at baseline	$17,917	$42,868	$82	$60,868	$60,419	$448 (1%)
+ 5% from baseline	$17,917	$45,012	$82	$63,011	$64,103	-$1,092 (-2%)
- 5% from baseline	$17,917	$40,725	$82	$58,724	$56,735	$1,989 (4%)

Note: Illustrative bill computation excludes rate rider, discounts, ratchets, and other provisions

Observations:

- Negligible change on Part-1 rates
- Customer who grow are better off
- Customers who decrease are worse off

LGS bill impact estimates under the alternative

BC hydro FOR GENERATIONS

Annual Consumption kWh – Range that encompass most customers in the class

Highest kW

Load Factor

*	200,000	400,000	600,000	800,000	1,000,000	1,200,000	1,400,000	1,600,000	1,800,000	2,000,000	2,200,000	2,400,000	2,600,000	2,800,000	3,000,000	3,200,000	3,400,000
10%	-5.7%	-7.6%	-8.2%	-8.5%	-8.7%	-8.8%	-8.9%	-8.9%	-9.0%	-9.0%	-9.1%	-9.1%	-9.1%	-9.1%	-9.1%	-9.2%	-9.2%
20%	-6.2%	-0.8%	-1.8%	-2.5%	-2.6%	-2.8%	-3.0%	-3.1%	-3.2%	-3.2%	-3.3%	-3.3%	-3.4%	-3.4%	-3.4%	-3.5%	-3.5%
30%	-13.0%	3.8%	2.4%	1.8%	1.4%	1.1%	0.9%	0.8%	0.7%	0.6%	0.5%	0.4%	0.4%	0.4%	0.3%	0.3%	0.3%
40%	-16.9%	0.5%	5.4%	4.7%	4.2%	3.9%	3.7%	3.5%	3.4%	3.3%	3.2%	3.1%	3.1%	3.0%	3.0%	2.9%	2.9%
50%	-19.5%	-1.9%	5.9%	6.8%	6.3%	6.0%	5.7%	5.5%	5.4%	5.3%	5.2%	5.1%	5.1%	5.0%	4.9%	4.9%	4.9%
60%	-21.4%	-3.6%	4.3%	8.5%	7.9%	7.6%	7.3%	7.1%	7.0%	6.8%	6.7%	6.7%	6.6%	6.5%	6.5%	6.4%	6.4%
70%	-22.8%	-4.9%	3.1%	7.6%	9.2%	8.9%	8.6%	8.4%	8.2%	8.1%	8.0%	7.9%	7.8%	7.7%	7.7%	7.6%	7.6%
80%	-23.8%	-5.9%	2.1%	6.7%	9.6%	9.9%	9.6%	9.4%	9.2%	9.1%	9.0%	8.9%	8.8%	8.7%	8.7%	8.6%	8.6%
90%	-24.7%	-6.7%	1.3%	5.9%	8.9%	10.8%	10.5%	10.2%	10.1%	9.9%	9.8%	9.7%	9.6%	9.6%	9.5%	9.5%	9.4%

Lowest kW

"typical" customers fall within the blue oval area

More intense green indicates higher bill impact (only positive impacts are colored)

Red means higher than General Rate Increase (6%)

LGS Annual Consumption kWh vs kW conversion Table

Demand (kW) lookup

Highest kW

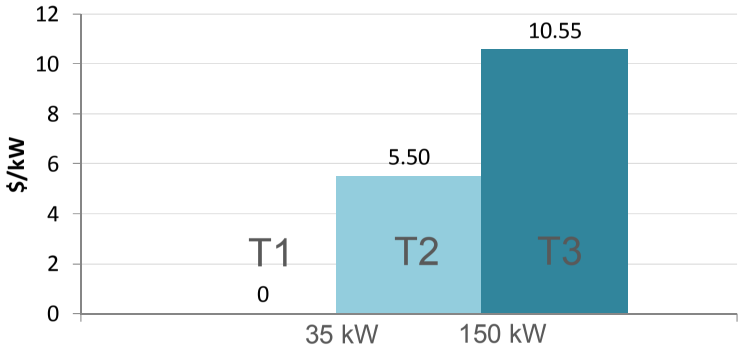
Load Factor

	200,000	400,000	600,000	800,000	1,000,000	1,200,000	1,400,000	1,600,000	1,800,000	2,000,000	2,200,000	2,400,000	2,600,000	2,800,000	3,000,000	3,200,000	3,400,000
10%	228	457	685	913	1,142	1,370	1,598	1,826	2,055	2,283	2,511	2,740	2,968	3,196	3,425	3,653	3,881
20%	114	228	342	457	571	685	799	913	1,027	1,142	1,256	1,370	1,484	1,598	1,712	1,826	1,941
30%	76	152	228	304	381	457	533	609	685	761	837	913	989	1,065	1,142	1,218	1,294
40%	57	114	171	228	285	342	400	457	514	571	628	685	742	799	856	913	970
50%	46	91	137	183	228	274	320	365	411	457	502	548	594	639	685	731	776
60%	38	76	114	152	190	228	266	304	342	381	419	457	495	533	571	609	647
70%	33	65	98	130	163	196	228	261	294	326	359	391	424	457	489	522	554
80%	29	57	86	114	143	171	200	228	257	285	314	342	371	400	428	457	485
90%	25	51	76	101	127	152	178	203	228	254	279	304	330	355	381	406	431

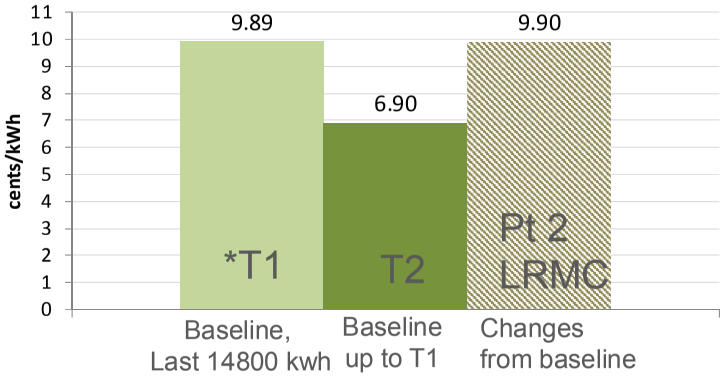
Lowest kW

In T1 | In T2 | In T3

MGS Status Quo (F2016)



Demand Charges



Energy Charges

*Note: Energy T1 and T2 are presented in the same sequence as the LGS rate for ease of illustration

Illustrative Customer Bill

Load Factor of 36%, Baseline Consumption = 153,240 kWh per year, Billed kW = 49 kW each month

Customer Scenario	Demand Charge	Energy Charge	Basic Charge	Total Bill SQ
Consume at baseline	$924	$15,155	$82	$16,162
+ 5% from baseline	$924	$15,914	$82	$16,920
- 5% from baseline	$924	$14,397	$82	$15,403

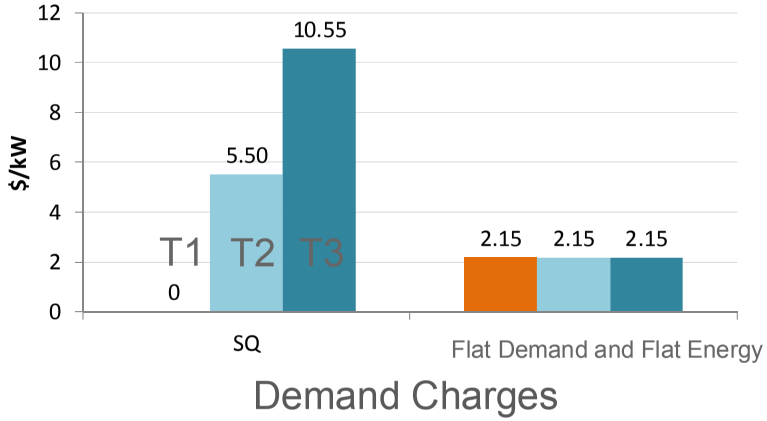
Note: Illustrative bill computation excludes rate rider, discounts, ratchets, and other provisions

Observations:

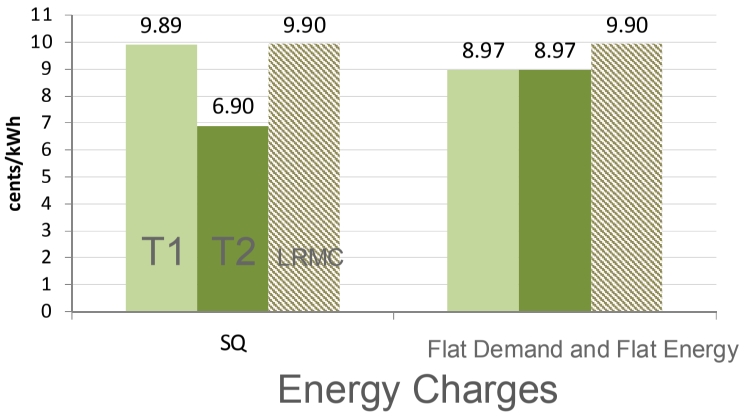
- Bill impact at around the general rate increase if left untouched
- Continue to have credits and charges

MGS Flattening of Pt 1 Energy rate and flattening of Demand Charges

BC hydro FOR GENERATIONS



Demand Charges



Energy Charges

Illustrative Customer Bill

Load Factor of 36%, Baseline Consumption = 153,240kWh per year, Billed kW = 49kW each month

Customer Scenario	Demand Charge	Energy Charge	Basic Charge	Total Bill	SQ Bill	Variance
Consume at baseline	$1,264	$13,746	$82	$15,092	$16,162	-$1,070 (-7%)
+ 5% from baseline	$1,264	$14,504	$82	$15,851	$16,920	-$1,070 (-6%)
- 5% from baseline	$1,264	$12,987	$82	$14,334	$15,403	-$1,070 (-7%)

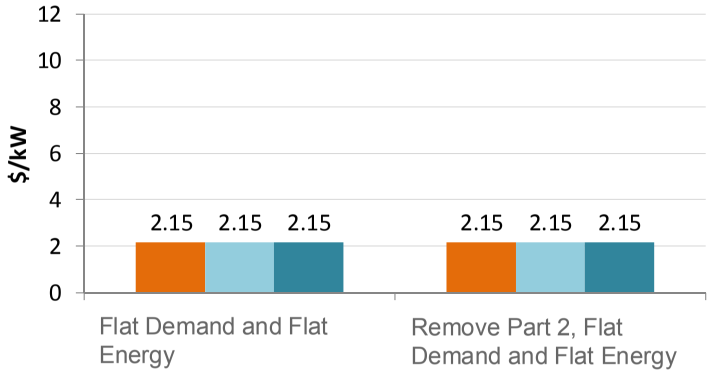
Note: Illustrative bill computation excludes rate rider, discounts, ratchets, and other provisions

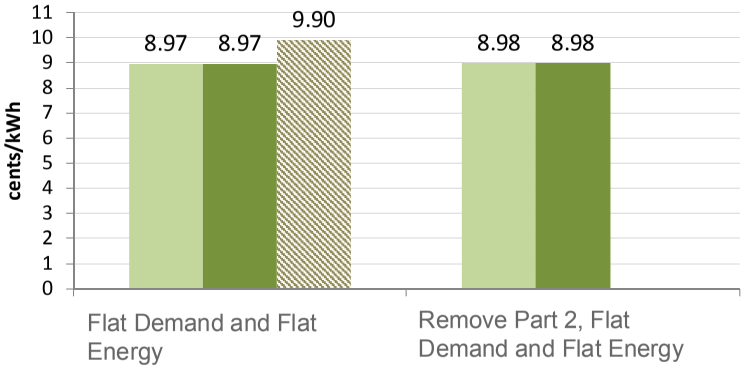
Observations:

- Illustrative customer see a substantive decline in bills
- T1 and T2 Demand charges are relatively low, because a high proportion of customers have most demand usage at T1,
- Flat Energy rate close to T1 energy rate

MGS: REMOVE Baseline Rate (Part-2), Flatten Energy rate and flatten demand charges

Comparison with Flat Energy + Flat Demand Design including Part-2





Illustrative Customer Bill

Load Factor of 36%, Baseline Consumption = 153,240kWh per year, Billed kW = 49kW each month

Customer Scenario	Demand Charge	Energy Charge	Basic Charge	Total Bill No 2-Part	Total Bill With 2- Part	Variance (Between with 2Pt and no 2Pt)
Consume at baseline	$1,264	$13,761	$82	$15,108	$15,092	$15 (0%)
+ 5% from baseline	$1,264	$14,449	$82	$15,796	$15,851	-$55 (0%)
- 5% from baseline	$1,264	$13,073	$82	$14,419	$14,334	$86 (1%)

Note: Illustrative bill computation excludes rate rider, discounts, ratchets, and other provisions

Observations:

- Negligible change on Part-1 Rates
- No substantive change in customer bills
- Customers who grow are better off
- Customers who decrease are worse off

MGS bill impact estimates under the alternative

BC hydro
FOR GENERATIONS

Bill Impacts

MGS Annual Consumption kWh

Load Factor

	10,000	30,000	60,000	90,000	120,000	150,000	180,000	210,000	240,000	270,000	300,000	330,000	360,000	390,000	420,000	450,000	480,000
10%	25.9%	27.0%	-6.9%	-14.9%	-18.5%	-24.5%	-29.7%	-31.5%	-32.8%	-33.8%	-34.6%	-35.2%	-35.7%	-36.1%	-36.5%	-36.8%	-37.1%
20%	11.4%	11.6%	11.7%	-0.2%	-5.7%	-8.7%	-10.3%	-8.5%	-7.1%	-6.8%	-8.5%	-9.9%	-11.0%	-11.9%	-12.7%	-13.3%	-13.9%
30%	6.5%	6.5%	6.5%	6.1%	0.6%	-2.9%	-4.8%	-2.7%	-1.1%	0.2%	1.3%	2.2%	2.9%	3.6%	2.7%	1.7%	0.9%
40%	4.1%	4.0%	4.0%	3.9%	3.9%	0.5%	-1.6%	0.7%	2.5%	3.9%	5.1%	6.1%	6.9%	7.6%	8.3%	8.8%	9.3%
50%	2.6%	2.4%	2.4%	2.4%	2.4%	2.4%	0.5%	2.9%	4.8%	6.1%	7.6%	8.7%	9.6%	10.3%	11.0%	11.6%	12.1%
60%	1.7%	1.4%	1.4%	1.3%	1.3%	1.3%	1.7%	4.5%	6.5%	8.1%	9.4%	10.5%	11.5%	12.3%	13.0%	13.6%	14.1%
70%	1.0%	0.7%	0.6%	0.6%	0.6%	0.6%	1.0%	5.5%	7.8%	9.4%	10.8%	11.9%	12.9%	13.7%	14.5%	15.1%	15.6%
80%	0.4%	0.1%	0.1%	0.0%	0.0%	0.0%	0.4%	4.9%	8.5%	10.5%	11.9%	13.0%	14.0%	14.9%	15.6%	16.3%	16.8%
90%	0.0%	-0.3%	-0.4%	-0.4%	-0.4%	-0.4%	0.0%	4.4%	8.0%	11.0%	12.7%	13.9%	14.9%	15.8%	16.5%	17.2%	17.8%

Demand (kW) lookup

MGS Annual Consumption kWh

Highest kW

Load Factor

	10,000	30,000	60,000	90,000	120,000	150,000	180,000	210,000	240,000	270,000	300,000	330,000	360,000	390,000	420,000	450,000	480,000
10%	11	34	68	103	137	171	205	240	274	308	342	377	411	445	479	514	548
20%	6	17	34	51	68	86	103	120	137	154	171	188	205	223	240	257	274
30%	4	11	23	34	46	57	68	80	91	103	114	126	137	148	160	171	183
40%	3	9	17	26	34	43	51	60	68	77	86	94	103	111	120	128	137
50%	2	7	14	21	27	34	41	48	55	62	68	75	82	89	96	103	110
60%	2	6	11	17	23	29	34	40	46	51	57	63	68	74	80	86	91
70%	2	5	10	15	20	24	29	34	39	44	49	54	59	64	68	73	78
80%	1	4	9	13	17	21	26	30	34	39	43	47	51	56	60	64	68
90%	1	4	8	11	15	19	23	27	30	34	38	42	46	49	53	57	61

Lowest kW

In T1

In T2

In T3 (likely migrate to LGS)

Red means higher than CARC of 6%; More intense green indicates higher bill impact
Most "typical" customers as defined by kWh and LF fall within the blue oval area.

LGS AND MGS BILL IMPACTS: SUMMARY BY CUSTOMER TYPE

	LGS Bill Impacts		MGS Bill Impacts	
	Generally Higher	**Generally Lower**	**Generally Higher**	**Generally Lower**
Flat Part-1 Energy + Flat Demand	• High consumption + high load factor • Very Low consumption + very low load factor	• Low consumption + low load factor	• High consumption + high load factor • Low consumption + low load factor	• Typical customers with consumption and load factor at around median are better off
	• **Generally, bill impacts from flattening of demand rates and energy rates offset** • Typical customers with consumption and load factor at around median have minimal impact • Effect of higher demand prices at T1 and T2 and lower demand prices at T3 are balanced by lower energy prices in Energy T1 and higher energy prices in Energy T2		• **Generally, bill impacts from flattening of demand rates and energy rates offset**	
Flat Part-1 Energy + Flat Demand, no Baseline	As above	As above	As above	As above
	As above		As above	

Removal of baselines: no additional charge or credits at LRMC.

Your feedback is important

Please send your feedback to:

Shiau-Ching Chou
Shiau-ching.chou@bchydro.com

BC hydro

2015 Rate Design Application

January 21, 2015/February 11, 2015
Workshop Nos. 8a and 8b
LGS/MGS/SGS Rate Structures
BC Hydro Summary and Consideration of Participant Feedback

Attachment 4
BC Hydro Response to Clause 17 of LGS NSA
January 17, 2014

BC hydro
FOR GENERATIONS

Janet Fraser
Chief Regulatory Officer
Phone: 604-623-4046
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bchydroregulatorygroup@bchydro.com

January 17, 2014

Ms. Erica Hamilton
Commission Secretary
British Columbia Utilities Commission
Sixth Floor – 900 Howe Street
Vancouver, BC V6Z 2N3

Dear Ms. Hamilton:

RE: British Columbia Utilities Commission (BCUC)
British Columbia Hydro and Power Authority (BC Hydro)
Large General Service Rate Application Negotiated Settlement Agreement (LGS NSA) - Response to Clause 17

BC Hydro is writing in response to BCUC Letter L-75-12 which approved BC Hydro's request for an extension of time for filing BC Hydro's response to Clause 17 of the LGS NSA. The extension granted was to within four months of the submission of the Integrated Resource Plan (**IRP**) to the B.C. Government, or December 31, 2013, whichever is earlier. BC Hydro submitted its IRP to the B.C. Government on November 15, 2013 and it was approved on November 25, 2013 by Order In Council No. 514. Therefore BC Hydro would have had to file this response with the BCUC by December 31, 2013. On December 20, 2013, BC Hydro requested that the BCUC grant a further extension with a revised filing date of January 17, 2014. On December 23, 2013, the BCUC granted this extension request.

Clause 17 of the LGS NSA states the following:

> 17. As part of its first time-of-use rate application, or before December 2012, whichever is sooner, BC Hydro will review the MGS and LGS demand charge rate structures and the impact of making changes, including the costs and benefits of offering an optional interruptible rate for LGS and MGS accounts. This review will include, at least, high-level consideration of potential rate designs, and will be done in consultation with customers and/or stakeholders.

The following will first provide a review of the MGS and LGS demand charge rate structures and of offering an optional interruptible rate for LGS and MGS accounts. It will then provide BC Hydro's response to Clause 17 of the LGS NSA.

1 MGS and LGS Demand Charge Rate Structures

1.1 Background

The existing MGS and LGS demand rate structure is inclining whereby the demand charge increases according to the following demand thresholds:

- First 35 kW - $0/kW
- Greater than 35 kW and less than or equal to 150 kW - $4.76/kW
- Greater than 150 kW - $9.13/kW.

The existing demand rate structure has been in place for more than 30 years for general service accounts with demands greater than 35 kW.

The demand rate structure was last reviewed in detail during the 2007 BC Hydro Rate Design Application (**2007 RDA**). BC Hydro proposed flattening both the declining energy rate structure, to provide a better price signal, and the inclining demand rate structure since there was no cost of service basis for it. Even though BC Hydro proposed the flattening to take place over a three-year period and the cumulative percentage bill impact was relatively small (5 per cent over three years for large customers)[1], the BCUC rejected this proposal, citing large dollar bill impacts on large high load factor customers[2].

The most contentious aspect of the demand charge in recent years has been the 50 per cent ratchet provision[3] and whether it unduly penalizes customers during economic downturns. The ratchet was a significant concern for large and medium sized industrial customers during the 2008 recession. BC Hydro's ratchet provision is low by industry standards (most other utilities use 75 per cent or higher ratchets to ensure fair intra-class cost recovery).

1.2 Drivers for Changing the MGS and LGS Demand Rate Structure

Table 1 summarizes the potential drivers behind changing the MGS and LGS demand rate structure and associated considerations. These potential drivers include (i) demand side management (**DSM**) capacity savings which may be increased by increasing the inclining price signal, and (ii) maintaining the cost of service basis for the demand charges by flattening the demand charge or by increasing the demand charge levels and reducing energy charges.

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1 Refer to 2007 RDA, Exhibit B-3, BCUC IR 1.37.1, page 7 of 12.

2 Refer to BCUC 2007 RDA Phase 1 Decision (October 26, 2007) page 162.

3 The current MGS and LGS rates include a Monthly Minimum Charge in the form of a demand charge ratchet i.e., "50% of the highest maximum Demand Charge billed in any Billing Period wholly within an on-peak period during the immediately preceding eleven Billing Periods. For the purpose of this provision an on-peak period commences on 1 November in any year and terminates on 31 March of the following year."

Table 1 Drivers for MGS and LGS Demand Rate Structure Change and Considerations

Driver	Options for MGS and LGS demand rate structure	Considerations
Demand Side Management Capacity Savings	Status Quo - Maintain current inclining price signal	The existing inclining demand rate structure provides a directional signal for customers to manage load.
	Increase the inclining price signal	Bill impacts would likely be unacceptable to large customers with higher demand. Per sections 3 and 4, BC Hydro is not proposing to change the MGS and LGS demand rate structure to gain additional DSM capacity savings at this time.
Maintaining the Cost of Service Basis for the Demand Charges	Flatten the demand charge	Large bill impacts on smaller, low load factor customers.
	Increase demand charges and lower energy charges	Large bill impacts on lower load factor MGS and LGS customers

However, any meaningful change to demand charges will likely have large bill impacts on some customers. This has already been supported by analysis done in the 2007 RDA and for the 2009 BC Hydro LGS Rate Application (**LGS Application**). These concerns are now underscored by the rate increases announced by the Province on November 26, 2013.[4]

- The 2007 RDA LGS energy and demand charge flattening proposal had about 157 customers, who were smaller with lower load factors that would have had an annual bill increase of greater than 25 per cent even with the lower first tier energy charge that was proposed as part of the energy flattening
- In the LGS Application (Appendix M, page 4), Dr. Ren Orans of Energy & Environmental Economics Inc. (**E3**) stated in his Direct Testimony "We found no demand, basic charge, or threshold modification that could more equitably distribute the bill impacts among larger accounts and smaller accounts, while still achieving modest amounts of conservation." The demand charge modification was based on E3's analysis of bill impacts on the MGS customers if Tier 1 and Tier 2 Demand charges were flattened over a period of six years.

[4] The rate increases are 9 per cent in F2015 and 6 per cent in F2016. The Deferral Account Rate Rider (**DARR**) remains at 5 per cent in both these fiscal years.

2 Interruptible Rate Options for LGS and MGS Customers

Interruptible/curtailable rates are usually integrated in the customer's tariff and provide an incentive to reduce load at times requested by the utility, triggered either by a grid reliability problem or high electricity prices (where the driver could be economic benefit/market opportunity). These rates typically provide a rate discount or bill credit for the customer agreeing to reduce load, typically to a pre-specified firm service level (FSL), during system contingencies. Penalties for failure to reduce load are typically in the form of very high electricity prices during the contingency events or removal from the program. These rates are often limited to large customers (over 1 MW).

To date, BC Hydro has focused its interruptible/curtailment rate efforts on the transmission service rate class because some of these customers can curtail large loads with relatively short notice and therefore it is easier and more economical to design and implement a rate for them, rather than for smaller distribution service customers. Electricity costs also tend to form a large share of operating costs for these larger, more flexible customers.

3 BC Hydro's 2013 IRP

BC Hydro submitted its 2013 IRP to the B.C. Government on November 15, 2013 and it was approved on November 25, 2013.

As set out in section 9.2.2.1 of the IRP, there is a need for capacity resources beginning in F2019 assuming implementation of the DSM Plan and EPA renewals. The capacity need is expected to last until F2023, before Site C is expected to come online. BC Hydro proposes to address this short-term capacity gap (without LNG load) with a series of bridging measures such as market purchases, backed up by the power from Canadian Entitlement provided under the Columbia River Treaty.

In parallel, BC Hydro plans to pursue DSM capacity conservation programs which could potentially reduce the need for bridging resources to the extent the capacity savings are realized. These programs have the potential to deliver cost-effective capacity savings over the long-term. Pursuing these programs now will provide BC Hydro with information on the cost and impacts of these capacity-focused DSM options, the amount of capacity savings that are available and whether these savings can be relied upon for long-term planning purposes. The capacity conservation programs described in the IRP include:

- **Implementing a voluntary industrial load curtailment program from F2015 to F2018 to determine how much capacity savings can be acquired and relied upon over the long-term**
- **Piloting voluntary capacity-focused programs (e.g., direct load control) for residential, commercial and industrial customers over two years, starting in F2015**

The industrial load curtailment program targets BC Hydro's industrial customers who agree to curtail load on short notice to provide BC Hydro with capacity relief during peak

periods. The program will be developed and implemented in stages between F2015 and F2018. In general, experience is needed to see how savings for the initiative translate into peak reduction for the entire BC Hydro integrated system.

BC Hydro has implemented a load curtailment program targeted at shorter term (one to three years) operational capacity needs in recent years, and customers have delivered as requested. However, these programs have not resulted in a long-term commitment either by BC Hydro to acquire load curtailment, or customers to interrupt or adjust operations when and as required. It is also not clear how easily these can be translated into long-term agreements that can reliably reduce peak demand over a longer term.

BC Hydro envisions the execution as follows:

- F2015: BC Hydro will work with industry to explore the level of interest and curtailment opportunity, and to develop conceptual program offers, including contractual terms and conditions
- F2016 – F2017: BC Hydro will test the conceptual offers to understand the industry's response and key integration aspects. BC Hydro will launch the full program offer allowing industry to respond to and be comfortable with the program. The program can then be expanded (by number of participants or level of participant commitment in hours or MW) based on future BC Hydro need (MW) and value ($/kW-year).

In addition to the load curtailment program, BC Hydro plans to pilot a suite of capacity focused programs for residential, commercial and industrial customers over two years, starting in F2015. These programs would likely leverage equipment and load management systems to enable peak load reductions to occur automatically or with intervention.

Examples of these programs include load control of water heaters, heating, lighting and air conditioning. Similar to load curtailment, experience is needed to see how savings for the initiative translate into peak reduction for the entire BC Hydro integrated system. BC Hydro envisions the execution as follows:

- F2015-F2016: BC Hydro will implement a voluntary two-year pilot program for residential, commercial and industrial customers in a specific region to test conceptual offers, understand key integration aspects, and design the program offer
- F2017: BC Hydro will launch the full program

3.1 Consultation

As described in Chapter 7 of the IRP, BC Hydro consulted on the Integrated Resource Plan through three consultation streams: a First Nations consultation stream, a public and stakeholder stream and a technical stream which included a Technical Advisory Committee (**TAC**) that includes representation from some of the main intervener groups.

Participants provided feedback on the draft August 2013 IRP through a written comment period held in September and October 2013. They were asked to provide their level of support with BC Hydro's recommended actions, among them a 'conserving first' set of actions which included implementing a voluntary industrial load curtailment program and piloting the capacity focused programs.

Feedback results from all three consultation streams showed general support for the DSM set of recommended actions overall.

4 BC Hydro's Response to Clause 17 of the LGS NSA

The following sections provide BC Hydro's response to Clause 17 of the LGS NSA regarding the MGS and LGS demand rate structure and interruptible rates.

4.1 MGS and LGS Demand Rate Structure

BC Hydro's plan is to maintain the current inclining demand rate structure and to review the cost of service basis for the demand rate structure in its next RDA in 2015.

The reasons for this are as follows:

a) Maintaining the current inclining demand rate structure provides a good directional price signal for customers to manage load. BC Hydro is not proposing to increase the inclining demand price signal to obtain additional capacity because:

- Bill impacts would likely be unacceptable to large customers with higher demand
- BC Hydro in its 2013 IRP plans to pursue capacity-focused DSM via a voluntary load curtailment program for industrial customers and direct load control programs. These programs are expected to inform the capacity savings potential from MGS and LGS customers in general, and may provide insights on the potential for future rate offerings.

b) The cost of service basis for changing the MGS and LGS demand charge level and rate structure can be reviewed at the next RDA proceeding, when a new cost of service study will be available

4.2 Interruptible Rates

BC Hydro's plan is to not review the costs and benefits of offering an optional interruptible rate for LGS and MGS accounts with customers and/or stakeholders for the following reason:

- BC Hydro in its 2013 IRP recommends pursuing capacity-focused DSM via a voluntary load curtailment program for industrial customers and direct load control programs. These programs are expected to inform the capacity savings potential from MGS and LGS customers in general, and may provide insights on the potential for future rate offerings.

BC hydro

For further information, please contact Gordon Doyle at 604-623-3815 or by email at bchydroregulatorygroup@bchydro.com.

Yours sincerely,

Janet Fraser
Chief Regulatory Officer

ac/tn

Copy to: BCUC Project No. 3698573 (LGS Rate Application) Registered Intervener Distribution List.

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2015 Rate Design Application

January 21, 2015/February 11, 2015
Workshop Nos. 8a and 8b
LGS/MGS/SGS Rate Structures
BC Hydro Summary and Consideration of Participant Feedback

Attachment 5
Default General Service Charges and Optional Rates Survey
Canada – June 2015

OVERVIEW: DEFAULT GENERAL SERVICE CHARGES JUNE 2015 – CANADA

Canadian Utility	General Service Rate Class	Definition of Class + Energy Charge	Demand Charge	Minimum Bill
SaskPower	Small Commercial	Commercial and municipal loads <= 75 kilovolt amperes (kVA) **Energy Charge = Declining 2 Step**	**Inclining 2 Step** First 50 kVA/month = $0 (Urban (U) & Rural (R)) Balance $/kVA = 13.10 (U) Balance $/kVA = 13.41 (R)	Basic Monthly Charge (~$27(U), ~$37 (R)) *plus* $4.24/kVA of the maximum recorded demand over 50 kVA over the past 11 months
	Standard	Non-residential & non-farm loads > 75 kVA **Energy Charge = Declining 2 Step**	**Inclining 2 Step** First 50 kVA/month = $0 (U & R) Balance $/kVA = 13.40 (U & R)	Basic Monthly Charge (~$50 (U), ~$58 (R)) *plus* $4.24/kVA of the maximum recorded demand over 50 kVA over the past 11 months)
Manitoba Hydro	Small	Non-residential loads <= 200 kVA **Energy Charge = Declining 3 Step**	**Inclining 2 Step** First 50 kVA/month = $0 Balance $/kVA = $9.09	Minimum monthly bill is the Basic Charge (~$28, 3 phase) + Demand Charge
	Medium	Non-residential loads > 200 kVA **Energy Charge = Declining 3 Step**	**Inclining 2 Step** First 50 kVA/month = $0 Balance $/kVA = $9.09	Minimum monthly bill is the Basic Charge (~$29) + Demand Charge Demand Charge is applied to the Monthly Billing Demand defined as the greater of the following expressed in kVA: • measured demand • 25% of contract demand • 25% of the highest measured demand in any of the previous 12 months
Hydro Quebec	Rate G: Small Power	Minimum demand < 65 kW **Energy Charge = Declining 2 Step**	**Inclining 2 Step** First 50 kW/month = $0 Balance $/kW = $17.19	Minimum billing demand for any given consumption period is equal to 65% of the maximum power demand during a consumption period that falls wholly in the winter period included in the 12 consecutive monthly periods ending at the end of the given consumption period
	Rate M: Medium Power	Maximum demand > 50 kW at least once in last 12 billing periods **Energy Charge = Declining 2 Step**	**Flat** $14.37/kW	

OVERVIEW: DEFAULT GENERAL SERVICE CHARGES JUNE 2015 – CANADA

Canadian Utility	General Service Rate Class	Definition of Class + Energy Charge	Demand Charge	Minimum Bill
Nova Scotia Power	Small Commercial	Annual consumption < 32,000 kWh **Energy Charge = Declining 2 Step**	**No Demand Charge**	
	Commercial	Annual consumption >= 32,000 kWh & regular billing demand is less than 2,000 kVA or 1,800 kW **Energy Charge = Declining 2 Step**	**Flat** $10.497/month/kW maximum demand	The maximum charge per kWh will be that for a billing load factor of 10% except that the minimum monthly bill shall not be less than $12.65
	Large Commercial	Consumption for any use except industrial, where the regular billing demand is 2,000 kVA or 1,800 kW and over **Energy Charge = Flat**	**Flat** $13.345/month/kVA of maximum demand of the current month	Demand charge applied to maximum actual demand of the previous December, January or February occurring in the previous eleven (11) months
Newfoundland Power	General Service	< 100 kW (110 kVA) **Energy Charge = Declining 2 Step**	**Seasonal** **(higher rates in 4 winter mo.)** $8.68 per kW of billing demand in the months of December, January, February and March and $6.18 per kW in all other months.	~22/month (single phase) (Basic) ~36/month (three phase)
		110 kVA (100 kW) – 1000 kVa **Energy Charge = Declining 2 Step**	**Seasonal** **(higher rates in 4 winter mo.)** $7.54 per kVA of billing demand in the months of December, January, February and March and $5.04 per kVA in all other months.	~50/month (Basic)
		> 1000 kVa **Energy Charge = Declining 2 Step**	**Seasonal** **(higher rates in 4 winter mo.)** $7.12 per kVA of billing demand in the months of December, January, February and March and $4.62 per kVA in all other months.	~85/month (Basic)

OVERVIEW: DEFAULT GENERAL SERVICE CHARGES JUNE 2015 – CANADA

Canadian Utility	General Service Rate Class	Definition of Class + Energy Charge	Demand Charge	Minimum Bill
New Brunswick Power	Standard	Electricity use other than residential, small and large industrial, street lighting or unmetered categories **Energy Charge = Declining 2 Step**	**Inclining 2 Step** First 20 kW/month = $0 Balance $/kW = $10.05	Basic Charge: $21.78 per Billing Period
ATCO Electric Yukon	General Service	**Multiple Energy Structures** 1. Hydro – Gov. Municipal 2. Hydro – Gov. Federal 3. Hydro – Non-Government	**Flat** 1. $7.39/kW/month 2. $12.31/kW/month 3. $7.39/kW/month	1. $36.95 / month (5 kW) 2. $61.55 / month (5 kW) 3. $36.95 / month (5 kW)
FortisBC	Small Commercial	Demand generally < 40 kW **Energy Charge = Flat**	**Not applicable**	Customer Charge $34.87 (60 day billing period)
	Commercial	Demand > 40 kW, < 500 kW **Energy Charge = Declining 2 Step**	**Inclining 2 Step** First 40 kW/month = $0 Balance $/kW = $7.73	The greatest of: • 25% of Contract Demand • maximum Demand in kW (kVA Large Commercial) • 75% of the maximum Demand in kW (kVA Large Commercial) registered during the months previous eleven month period
	Large Commercial	Demand >= 500 kW **Energy Charge = Flat**	**Flat** $8.25 / kVA	
BC Hydro	Small	Demand < 35kW **Energy Charge = Flat**	**Not applicable**	Basic Charge = 22.57 cents per day
	Medium	Demand >= 35 kW, <150 kW, or energy consumption in any 12 month period equal to or less than 550,000 kWh **Energy Charge = Baseline Rate**	**Inclining 3 Step** • First 35 kW = $0 • Next 115 kW = $5.50/kW/mo • All additional kW = $10.55/ kW/mo	50% of the highest maximum Demand Charge billed in any Billing Period wholly within an on-peak period during the immediately preceding eleven Billing Periods
	Large	Demand >= 150 kW, or energy consumption in any 12 month period greater than 550,000 kWh **Energy Charge = Baseline Rate**	**Inclining 3 Step** • First 35 kW = $0 • Next 115 kW = $5.50/kW/mo • All additional kW = $10.55/ kW/mo	50% of the highest maximum Demand Charge billed in any Billing Period wholly within an on-peak period during the immediately preceding eleven Billing Periods

OVERVIEW: GENERAL SERVICE / COMMERCIAL CUSTOMER RATE OPTIONS – JUNE 2015 – CANADA

Canadian Utility	Option	General Service Availability
SaskPower	Not available	Not available
Manitoba Hydro	**Limited Use of Billing Demand – Lower Demand Charges & Higher Energy Charges** • Customers with relatively low load factors (approximately 18% or less) will benefit • Demand charge structure is the same as for default , but demand charges are lower • A comparatively higher and flat energy charge (structure is no longer 3-tier declining block)	All General Service demand customers
	Surplus Energy Program • Energy Charge varies week to week according to spot market conditions • Possible lengthy interruptions; working alternate back-up system required in most cases	Connected load > 200 kW + other eligibility requirements
Hydro Quebec	**Limited Use of Billing Demand** • Demand charges are lower • Comparatively higher and flat energy charge (structure is no longer 2-tier declining block)	Medium Power - not applicable to demand that never exceeds 65 kW
	Additional Electricity Option • Consume a small amount of electricity in excess of normal consumption during off-peak hours to meet short-term or exceptional need • Designed for customers who are able to adjust their production and to manage their electricity consumption under lower rates while working around the associated constraints	Medium Power - Maximum power demand has been at least 1,000 kW during a consumption period included in the 12 consecutive monthly periods preceding the date of the sign-up request

	Economic Development Rate (ends 2024)
	• Initial 20% rate deduction, to be reduced by 5 % points a year over the final 3 years, in order to ensure a gradual transition to applicable rates
	• Eligibility :
	  ◦ Build / commission a new facility with a power demand of at least 1,000 kW or to add at least 1,000 kW of demand to an existing facility
	  ◦ For an existing facility, the expected maximum power demand of the new equipment must not be less than 20% of the highest billing demand during the 12 consumption periods preceding its commissioning
	  ◦ Facility's electricity costs must account for at least 10% of operating expenses
	  ◦ The facility must have significant potential for the net addition of new loads within Québec.
	  ◦ Each project evaluated also on the project's value added and its economic benefits to Quebec	

	Running-in of New Equipment Option • Temporary exemption from conditions that apply contract power is exceeded. • Allows testing of new equipment without having to pay for the resulting increase in power demand during the running-in period	Medium Power
	Interruptible Electricity Option • Credits in exchange for curtailing your electricity consumption on request	Medium Power

OVERVIEW: GENERAL SERVICE / COMMERCIAL CUSTOMER RATE OPTIONS – JUNE 2015 – CANADA

Canadian Utility	Option	General Service Availability
Nova Scotia Power	Not available	Not available
Newfoundland Power	**Curtailable Service Option** • Curtailment credit available and determined based on whether: 1. Customer contracts to reduce demand by a specific amount during curtailment periods ; or 2. Customer contract to reduce demand to a Firm Demand level which cannot exceed maximum demand during a Curtailment period Curtailment periods will: 1. Not exceed 6 hours duration for any one occurrence 2. Not be requested to start within 2 hours of the expiration of a prior Curtailment period 3. Not exceed 100 hours duration in total during a winter period	For customers or 110-100 kVA or >1000 kVA that can reduce their demand by between 300 kW (330 kVA) and 5000 kW (5500 kVA) upon request by the Company during the Winter Peak Period.
New Brunswick Power	Not available	Not available
ATCO Electric Yukon	Not available	Not available
FortisBC	**Time of Use Options** • Primary and Secondary voltage customers. • Customers required satisfactory load factors, as determined by the Company • Available for a minimum of 12 consecutive months and will continue, at the election of the Customer, to be available for a minimum of 36 consecutive months after commencement of service	Commercial and Large Commercial
BC Hydro	Not available	Not available

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