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September 29, 2011

Via Email<br>Original via mail

Ms. Alanna Gillis
Acting Commission Secretary
BC Utilities Commission
Sixth Floor, 900 Howe Street, Box 250
Vancouver, BC V6Z 2N3
Dear Ms. Hamilton:

## Re: FortisBC Inc. (FortisBC) Residential Inclining Block (RIB) Responses to Intervenor Information Requests

Please find attached FortisBC's responses to Information Requests No. 2 from the British Columbia Old Age Pensioners' Association et al., British Columbia Sustainable Energy Association, Mr. Andy Shadrack, and Mr. Richard Tarnoff in the above noted proceeding.

If further information is required, please contact the undersigned at (250) 717-0890.

Sincerely,


Dennis Swanson
Director, Regulatory Affairs

## Question \#1

## Reference:

## i) Exhibit B-5, BCUC IR 1.1

ii) Exhibit B-5, BCUC IR 6.2.1
iii) Exhibit B-5, BCUC IR 18.1
a) With respect to BCUC IR 1.1, part (b), is FortisBC's inability to report the actual conservation savings associated with the RIB rate a short-term issue (i.e., does FortisBC expect to be able to report the actual conservation from the RIB at sometime in the future)?

## Response:

As described in the responses to BCUC IR2 Questions 1.1 through 1.3, FortisBC intends to develop and implement a monitoring and evaluation plan to monitor the results of the RIB rate in the time period between approval and implementation of a RIB rate, so FortisBC does expect to provide more definitive estimates of actual conservation in the future.
b) If yes, what work/research is FortisBC undertaking to permit it to report on the actual conservation impact of the RIB in the future?

## Response:

Please see the response to BCUC IR2 Q1.1.
c) If no, will a similar situation exist when/if FortisBC introduces Residential TOU rates (i.e. will FortisBC be able to report on the actual conservation (and load shifting) effect of future TOU rates)? If yes, please explain why FortisBC will be able to report the actual impact of TOU rates but not the RIB rate.

## Response:

Gauging the conservation impact of both TOU and RIB rates has the same challenges. That is, the Company cannot directly measure an amount of energy "not used". In order to make a more definitive estimate of the impact of these programs, a methodology would need to be developed. Please see the discussion of the measurement and reporting of RIB results contained in BCUC IR2 Questions 1.1 through 1.3.

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d) In response to BCUC IR 6.2.1, FortisBC provides estimates of the annual capacity and energy savings from its current TOU rates. Please clarify whether these are estimates are reported actual savings (consistent the discussion in BCUC IR 1.1 b)).

## Response:

The estimates provided in response to BCUC IR1 Q6.2.1 are estimates, not actual savings. Actual savings from conservation rates are not possible to measure, as discussed in the response to BCUC IR1 Q1.1b.

## Question \#2

## Reference: <br> i) Exhibit B-5, BCUC IR 2.1

ii) Exhibit B-5, BCUC IR 18.2
iii) Exhibit B-5, BCUC IR 23.2
iv) Exhibit B-6, Nelson Hydro IR 2 a)
v) Exhibit B-6, OEIA IR's 3.3 and 3.4
a) If, for customers exposed to the RIB Block 2 rate, conservation increases (prior to any consideration of FortisBC DSM program impacts), please confirm that implementation of the RIB rate will increase the "free-ridership" on FortisBC's DSM programs for such customers and reduce the energy and demand savings that can be attributed to the programs themselves? If this is not expected to the case please explain why.

## Response:

There is potential for interactive effects to occur between a RIB rate and other DSM programs. Any increase in the amount of "free-ridership" and reduction in the amount of conservation from other DSM programs will depend in part on the motivations for responding to a RIB rate.

If a customer would have been motivated to purchase a heat pump as a result of the implementation of a RIB rate by itself, then this customer would be considered a free-rider if they also took advantage of a PowerSense heat pump rebate.

If a customer is motivated by a RIB rate to participate in the PowerSense heat pump program, then the attribution of savings between RIB and PowerSense becomes unclear.

In all likelihood, the implementation of a RIB rate will increase participation in PowerSense programs, and therefore the total amount of DSM from PowerSense programs. As highlighted in the above example, determination of any free-ridership effect is likely to be difficult.
b) The response Nelson IR 2 a) states that the impact of rate design "could" be considered an element of the overall DSM effort. The response to BCUC IR 18.2 states that the effects of the RIB (and other conservation rates) could reduce the DSM expenditures necessary to achieve its DSM targets which suggests that FortisBC expects to count the "conservation impact" of the RIB (and future TOU) rates as contributing towards its DSM savings targets. However, the response to OEIA IR 3.4 states that the impact of conservation rates will not be "counted" as contributing to FortisBC's conservation targets. Please clarify if the impacts of RIB rate (and other future conservation rates) will be "counted" as contributing to FortisBC's conservation goals (per BCUC IR 18.2 and the referenced $50 \%$ target in OEIA IR 3.3) and reconcile the preceding responses.

## Response:

OEIA IR1 Q3.4 does not state that the impact of conservation rates will not be "counted" as contributing to FortisBC's conservation targets. It states in its response that "FortisBC expects to achieve the 50 per cent target through its PowerSense DSM program alone. Any further conservation achieved through RIB or other conservation rates and through government implementation of additional conservation-related codes and standards, will be incremental to PowerSense DSM savings."

FortisBC intends to consider the effect of DSM programs as a whole (including RIB rates and other possible conservation rates) when considering the impact of DSM programs and measuring against DSM targets.
c) If the response to part (b) is yes (i.e., the effects of conservation rates will be counted towards FortisBC's conservation targets):

- How will FortisBC determine the actual contribution of the RIB rate towards its conservation targets?
- Why isn't the RIB considered part of PowerSenseDSM?


## Response:

Fortis $B C$ does not believe it is possible to measure the "actual" reduction in use from conservation programs as discussed in response to BCUC IR1 Q1.1b. However, FortisBC will estimate the contribution of the RIB rate as described in the responses to BCUC IR2 Q1.1 and Q1.3.

RIB and other conservation rates are not considered "part" of PowerSense DSM. PowerSense is a customer-focused program that provides information and financial incentives to assist customers with reducing their electricity use. Although the goal of conservation rates is similar to PowerSense programs, the expertise required to design and implement them is different. For this reason, conservation rates have not been considered part of the PowerSense program.
d) If the response to part b) is no, please explain how/why the effect of the reduced residential load due to the implementation of the RIB "may allow residential PowerSense expenditures to be reduced", per BCUC IR's 2.1 and 18.2.

## Response:

Please see the response to BCOAPO IR2 Q2c above.
e) The response to BCUC IR 23.2 states that "FortisBC expects a positive impact on DSM measures" due to the RIB rate. Please clarify whether by DSM measures, FortisBC means:

- Its DSM PowerSense program results, and if yes, reconcile with the response to part (a).
- Overall conservation savings, including both RIB impacts (assuming these are not part of FortisBC's PowerSense Program) and PowerSense Program results.


## Response:

In this context of the referenced response "DSM measures" means PowerSense program results. Within this context, there is no inconsistency to reconcile between this response and the response to part (a).

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## Question \#3

## Reference: $\quad$ i) Exhibit B-5, BCUC IR 4.1

a) Please comment on the consistency/similarity of the principles underlying the Block 1/Block 2 threshold as between the BC Hydro RIB rate and FortisBC's RIB rate.

## Response:

In its RIB application, BC Hydro presented a proposal that included a threshold of 1600 kWh that was consistent with the Commission's suggested parameters contained in its decision on the BC Hydro 2007 RDA, although BC Hydro also stated that the threshold size was unrelated to the Heritage Contract. Ultimately, the BC Hydro threshold of 1350 kWh was set by the BCUC by Order G-124-08. In that Order, the Commission indicated:

The Commission Panel considers that a residential threshold set at 90 percent of the median consumption (which is 762 kWh per month) will be $1,350 \mathrm{kWh}$ per two month billing period, will better reflect the typical residential use and will establish a fairer threshold.

FortisBC also considered that a threshold that reflected average residential usage would be easy to communicate and would make sense to customers. The Company modeled thresholds at both median consumption and $85 \%$ of median consumption which provides a value the same as that used by BC Hydro. The selection of 1600 kWh was made after a comparison of the options.

FortisBC considers the underpinnings of the block thresholds for the FortisBC RIB rate and BC Hydro RIB rate to be consistent.
b) Please comment on the consistency/similarity between the rate/bill impact tests used by BC Hydro in its development (and the BCUC in its approval) of the BC Hydro RIB rate and the rate/bill impact criterion proposed by FortisBC.

## Response:

The Company believes that while the technical approach to the consideration of customer impacts differs between the two companies, there is general consistency in the values used and the exceptions permitted. While BC Hydro first arrived at a rate design based on a determination of the threshold and block one and two rates, and then determined the bill impacts that resulted, FortisBC embedded the customer impact as an initial design element. Apart from this distinction, the allowable impact and permitted exceptions are similar. BC Hydro proposed that customer bill impacts as a result of its RIB rate should ideally be no more than 10 percent per year. This is similar to FortisBC proposing a rate where a certain percentage of customers
would experience impacts of no more than $10 \%$.In its Reasons for Decision accompanying Order G-124-08, the Commission paraphrased BC Hydro's position on exceptions as, "Annual bill impacts may be acceptable if absolute dollar increases in bills were nominal, or if small percentages of BC Hydro's 1.5 million residential customers faced adverse bill impacts greater than 10 percent annually. Such impacts would be acceptable because of the extremely wide distribution of residential consumption, and because of the difficulty of otherwise achieving the objectives of any RIB rate structure proposal under some of those scenarios." (page 96)By setting the percentage of customers who will face impacts less than a certain amount (such as at $95 \%$ in the Company's proposed option \#8, FortisBC similarly recognizes that some customers will face impacts greater than $10 \%$.
c) Please comment on the consistency/similarity between the basis for setting the BC Hydro Block 2 rate (per BCUC Decisions G-124-08 and G-204-10) and the approach used by FortisBC in terms of both i) setting a cap for the Block 2 rate and ii) the annual adjustment to the Block 2 rate.

## Response:

The determination of the block 2 rate for BC Hydro is detailed in the initial RIB Decision, and the RIB Re-pricing Decision as shown in the following table. The Company notes that Order G-20410 established the regulatory timetable for considering the RIB re-pricing, while Order G-45-11 approved the current BC Hydro RIB rate pricing principle. FortisBC considers that the most recent re-pricing decision is more relevant to the discussion.

| BC Hydro RIB Block 2 Rate Determination |  | ORDER G-124-08 |
| :--- | :--- | :--- |$\quad$ ORDER G-45-11


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$\left.\begin{array}{|l|l|l|}\hline \begin{array}{l}\text { Annual Adjustment (Fiscal 2012 to } \\ \text { Fiscal } 2014 \text { periods inclusive) }\end{array} & \begin{array}{l}\text { By application should the cost of new } \\ \text { supply change. }\end{array} & \begin{array}{l}\text { The Step 2 energy rate is } \\ \text { increased up to the higher of the } \\ \text { class average rate change or } \\ 10 \% \text { bill impact (the Higher of }\end{array} \\ \text { CARC or 10\% Principle), subject } \\ \text { to the Step 1 energy rate } \\ \text { increasing by no less than the } \\ \text { annual rate of inflation; }\end{array}\right\}$

By contrast, FortisBC proposes to set the initial block 2 rate formulaically by first setting the Customer Charge, allowable customer impact and threshold. FortisBC has not proposed a cap on the block 2 rate.

As the block 2 rate is developed residually after the initial level is set, annual increases to the block 2 rate in the Company's proposed pricing principle are dependent upon the revenue generated from the block-one consumption and Customer Charge.

The treatment of the block 2 rate differs between the two Companies.

## Question \#4

## Reference:

i) Exhibit B-5, BCUC IR 5.1 a)
ii) Exhibit B-5, BCUC IR 1.1 a)
iii) Exhibit B-6, BCOAPO IR 2 b)
iv) Exhibit B-11, FBC Additional Evidence, pages 5-6
a) With respect to page 6 of Exhibit B-11, please provide the values for the Block 2 rate for each of the last two columns based on current information and confirm how each was calculated.

## Response:

For reference, a portion of the table is reproduced below, with the values filled in. These rates are developed using the assumptions following the table.

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|  | Application |  |  |
| :--- | ---: | ---: | ---: |
| Rate in effect at: | May 1, 2011 <br> Pre-BCH <br> flow-through | May 1, 2011 Post- <br> BCH flow-through | January 1, 2012 |
| Rate Component * |  |  |  |
| Customer Charge (per billing period) | 28.93 | 28.93 | 29.65 |
| Block $1(/ \mathrm{kWh})$ | 0.07828 | 0.07938 | 0.08453 |
| Block $2(/ \mathrm{kWh})$ | 0.11272 | 0.11467 | 0.12408 |

## Table BCOAPO IR2 4a

The Block 2 rates were left uncalculated as they are dependent on a number of factors that are not yet known. For 2011, the block 2 rate is dependent upon the 2011 implementation date which will affect the amount of revenue and remaining 2011 forecast load that will be used to determine the revenue required to be collected in the remainder of the year. For 2012, the block 2 rate will depend on the residential load forecast approved by the Commission in the 2012-2013 Revenue Requirements Application.

If one assumes that for 2011, the RIB rate was implemented on May 1, and that revenue and load is evenly distributed through the year, this means that the block 2 rate is based on collecting the remaining $8 / 12$ of the revenue requirement.

For 2012, the block 2 rate is calculated assuming that the residential load forecast used in the development of the 2012-2013 Revenue Requirements Application is approved as filed.
b) With respect to the same page, please confirm whether the Block 1 rate for January 1, 2012 is determined by:

- Adding the $1.4 \%, 2.5 \%$ and $4 \%$ values to obtain a $7.9 \%$ escalation factor, or
- Compounding the effect of the $1.4 \%, 2.5 \%$ and $4 \%$ values to obtain an 8.09\% escalation factor.
(Note: The difference between the January 1, 2012 and initial May 1, 2011 values is $7.98 \%$ )


## Response:

Neither scenario presented in the question was used. The January 2012 increases are additive as contemplated in the filings related to the 2009 COSA. Therefore, the total of the 2012 increases (6.5\%) is compounded upon the 2011 increase (1.4\%). The effect of compounding the $6.5 \% 2012$ increase over the initial May 1, 2011 rate is $7.99 \%$. The difference between the
$7.98 \%$ referenced in the note to the question and the $7.99 \%$ as calculated by compounding the $6.5 \%$ increase over the $1.4 \%$ increase is due to rounding.

## Question \#5

## Reference:

## i) Exhibit B-5, BCUC IR 5.1 b)

a) Is it FortisBC's proposal that the pricing principles set out in part (b) would be applied until Fiscal 2015 regardless of the resulting Block 2 rate or the year over year customer bill impacts?

## Response:

Correct. If the pricing principle is approved by the Commission until 2015, FortisBC expects as per the proposal outlined in the Application and the response to BCUC IR1 Q5.1, the pricing principle would yield relative escalations as shown in the Application until 2015.

## Question \#6

## Reference:

## i) Exhibit B-5, BCUC IR 5.2

a) Please indicate whether mechanisms currently exist that would result in any (unforecasted) revenue shortfall due to the RIB rate being recovered from all customers in the following year as suggested in the first paragraph of the response. If yes, please indicate what these mechanisms are.

## Response:

The ROE sharing mechanism that currently provides for equal sharing with customers, of any variance above or below the approved earned return caused by a reduction in expected Net Income due to lower electricity sales volume will end with the performance based regulation regime at the end of 2011.

Section 4.1.5.1 of the Company's 2012 - 2013 Revenue Requirements Application, filed with the Commission on June 30, 2011, includes a proposal for a Revenue Variance Deferral Account. An excerpt from that section is repeated below.

In addition, as the Company implements conservation rates, and continues to utilize DSM programs as an incentive for customer energy conservation, the proposed deferral mechanism will help to ensure that the extent to which conservation occurs, will not cause the Company to over or under recover its revenue requirement. The Company
proposes that revenue variances be flowed through over a period of three years, in order to smooth the effect of weather variances and the effect on revenue requirements. That is, one third of the forecast opening (January 1) deferral account balance would be applied to rates in each year.

## Question \#7

## Reference:

## i) Exhibit B-5, BCUC IR's 6.3 and 6.4

ii) Exhibit B-6, Nelson Hydro IR's 3 a) \& b)

## iii) Exhibit B-6, OEIA IR 8.4

Preamble: In response to BCUC IR 6.3 FortisBC states that "TOU rates provide conservation benefits which are at minimum as good as the RIB rate". Similarly, Nelson Hydro IR 3 b) indicates that time-based conservation rates offer the best alternatives to flat rates for the Company and its customers. However, in response to BCUC IR 6.4 FortisBC indicates that it current plans are to introduce TOU on a voluntary basis to complement the RIB rate.
a) Based on FortisBC's current plans as outlined in OEIA IR 8.4, when does FortisBC expect the wide-scale implementation of AMI to be complete?

## Response:

FortisBC expects the wide-scale implementation of AMI to be complete in 2015 if the project is approved in early 2012.
b) Please indicate why the TOU rate will only be voluntary if FortisBC views it as the superior rate form?

## Response:

FortisBC believes that TOU rates will be voluntary due to:

- The order from the BCUC to apply for a RIB rate (and the rejection of future mandatory TOU rates proposed in its COSA/RDA application); and
- The reduced need for demand conservation due to the purchase of capacity from the Waneta expansion project.
c) Will the (now) voluntary nature of future TOU rates impact the business case for AMI and/or FortisBC's plans for introduction of smart meters? If yes, how? If no, why not?


## Response:

If the implementation of TOU rates were included in the AMI application, then the business case would have changed. However, FortisBC does not intend to propose any rate changes as part of the AMI application.

## Question \#8

Reference: $\quad$ i) Exhibit B-8, BCUC IR's re Errata \#3-5.1.3 and 5.2
a) The response to BCUC IR re Errata \#3-5.1.3 does not address reflect the fact that the question was with respect to the relative impact of voluntary TOU rates. Please revise as required.

## Response:

The response to BCUC IR re Errata 3 Q5.1.3 would not materially change if it specifically addressed voluntary TOU rates. FortisBC cannot definitively say whether voluntary TOU rates have better conservation potential than mandatory RIB rates.

However, it is likely that voluntary TOU rates will have less conservation potential than mandatory TOU rates.
b) Are the TOU savings estimates provided in response to BCUC IR Errata \#3 - 5.2 reflective of savings based on voluntary TOU rates?

## Response:

The TOU savings provided are reflective of a rough estimate of TOU rates generally (the actual response will depend on a number of factors, particularly the design of the TOU rate). As indicated in the response to BCOAPO IR2 Q8a, the Company would generally expect savings from voluntary TOU to be less than savings from mandatory TOU savings.

Question \#9

## Reference:

## i) Exhibit B-5, BCUC IR's 8.1 and 8.1.1

Preamble: FortisBC states that none of the 18 options considered would be unacceptable based on an unreasonable bill impact criterion.
a) Assuming $90 \%$ of customers experience bill impacts of less than $10 \%$, what percentage of customers would have to experience bill impacts in excess of 20\% in order for an option to be unacceptable based on customer bill impacts (noting that the customers concerned will be large volume customers with large bills)?

## Response:

As noted in the original response to BCUC IR1 Q8.1, "The Company did not apply a set amount for either metric. Rather, after the results of the various RIB rate options were known, they were assessed for extreme outcomes that would disqualify them from consideration."

The Company has considered what percentage would have prompted an option to be discarded during the original analysis. Arriving at a certain number is not practical because should all options exceed the value it could conceivably lead to all being discarded. For example, if the percentage were determined in advance of running the analysis to be $5 \%$, it would be likely not be appropriate to discard all options if each provided results just above that value.

Rather, the values must be considered relative to all the results. The "extreme outcomes" noted in the response to BCUC IR1 Q8.1 may now be $10 \%$ if the rest of the results were in the $5 \%$ range. Therefore, the Company maintains that results that would lead to certain options being discarded would be fairly obvious when viewed in the context of all results.

For example, but not indicative of any concrete guideline, an option that resulted in $5 \%$ of customers experiencing bill increases of greater than $20 \%$ would likely be discarded if other options that perform similarly on other measures were in the $2 \%$ range. Similarly, an option that resulted in $10 \%$ of customers experiencing bill increases of greater than $20 \%$ would likely be discarded if other options that perform similarly on other measures were in the $5 \%$ range.

While it is certainly possible to discard all options and reconsider the initial assumptions of the RIB rate design, the Company believes this eventuality to be an unlikely result given that the rest of the design criteria have been reasonably considered.
b) Assuming $95 \%$ of customers experience bill impacts of less than $10 \%$, what percentage of customers would have to experience bill impacts in excess of 20\% in order for an option to be unacceptable based on customer bill impacts (noting that the customers concerned will be large volume customers with large bills)?

## Response:

Please see the response to BCOAPO IR2 Q9a above.

## Question \# 10

## Reference: <br> i) Exhibit B-5, BCUC IR 8.2

Preamble: The response makes reference to FortisBC having applied to provide a low-income direct install program.
a) Please provide the current status of FortisBC's application for the direct install program.

## Response:

The response makes reference to a 2011 pilot program which is underway. A list of eligible buildings has been provided by the BC Non-Profit Housing Association, and energy audits of those buildings are underway. The primary purpose of the energy audits is to quantify the lighting retrofit opportunities (common area and in-suite), and the secondary purpose is to assess other DSM opportunities such as low-flow showerheads and aerators, appliances, and draft-proofing.

Lighting product supply and electrical installation services are in the RFQ process. After contracts have been negotiated with the successful proponents the direct install lighting projects will begin forthwith. Arrangements are also underway to simultaneously install low-flow showerheads, where applicable, in the subject buildings.
b) Please comment on when the program is expected to start and, in particular, whether it will be in operation prior to the July 1, 2012 anticipated RIB implementation date.

## Response:

The current pilot program will commence by October 2011. If the pilot is successful, and assuming the DSM expenditure in the Company's 2012-2013 Capital Expenditure Plan filing is approved, the low-income direct install program is expected to be fully implemented by July 1, 2012.

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c) How will "low income" be defined for purposes of program eligibility and how many participants are expected in the first year of operation?

## Response:

FortisBC uses the BC regional LICO figures for low-income program planning purposes. The direct install program is in collaboration with the BC Non-Profit Housing Association (BCNPHA), whose member societies serve low income individuals and families, First Nation people, fixed income seniors, people with mental illnesses or disabilities, and people at risk of homelessness. Occupants of BCNPHA member housing units are assumed to fall under the regional LICO cutoff figures.

In the direct install pilot underway in 2011, approximately thirty residential buildings, owned or operated by the BCNPHA members, and approximately 1,500 housing units (apartments), are expected to be retrofitted.

## Question \#11

## References: i) Exhibit B-5, BCUC IR 9.3

a) With respect to BCUC IR 9.3, please explain why no capacity savings were attributed to the RIB program.

## Response:

The RIB program is an energy savings, not a capacity savings program. Therefore, the measure of capacity savings is extremely uncertain as the Company's costs for capacity for the most part depend on peak capacity, not average capacity. For example, in response to the RIB program, it is anticipated that electric heat customers may respond by purchasing air source heat pumps. This will definitely save energy during the relatively mild temperatures over most of the winter and therefore lower the Company's average capacity. However, at the coldest temperatures that set the Company's peak capacity levels, air source heat pumps will provide little to no savings and therefore will have little to no impact on the Company's peak capacity requirements.

Given these uncertainties in how the peak capacity savings from the RIB program will relate to the energy savings, it is not possible to predict what, if any, peak capacity savings will occur and therefore no peak capacity savings have been forecast.

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b) What price elasticity estimate was assumed for purposes of this Table?

## Response:

The reduction in load assumed in Table BCUC IR1 Q9.3 results from the lower block/upper block elasticity estimate of $-.05 /-.10$ which is the most conservative set used in the Application.
c) Please re-do Table BCUC IR1 Q9.3 assuming the same price elasticity applies for all hours of the year and also incorporate an estimate for capacity savings into the marginal avoided cost per kWh for the RIB program.

## Response:

The Company does not believe it is appropriate to assume that the average capacity savings will be the same as the peak capacity savings for the reasons given in BCOAPO IR2 Q11a. However, if the energy savings are assumed to deliver the average capacity savings at peak, the results are shown in the table below.

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Table BCOAPO IR2 11c

## Power Purchase Expense

| Energy |  |  |  |  |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: |
| With RIB Program |  | $\mathbf{2 0 1 2}$ | $\mathbf{2 0 1 3}$ | $\mathbf{2 0 1 4}$ |  |
| Gross Load after DSM and other Customer Savings $(\mathrm{GWh})$ |  | 3,502 | 3,543 | 3,577 |  |
| Total Power Purchase Expense $\mathbf{( \$ 0 0 0 )}$ |  | 90,984 | 98,821 | 107,589 | 140,985 |

With No RIB Program

| Gross Load after DSM and other Customer Savings (GWh) | 3,505 | 3,552 | 3,591 | 3,619 |
| :--- | ---: | ---: | ---: | ---: |
| Total Power Purchase Expense (\$000) | $\mathbf{9 1 , 1 0 2}$ | $\mathbf{9 9 , 1 8 6}$ | $\mathbf{1 0 8 , 2 4 5}$ | $\mathbf{1 4 1 , 9 8 2}$ |


| Variance |  |  |  |  |
| :--- | :--- | ---: | ---: | ---: |
| Power Purchase (\$000) | 119 | 366 | 656 | 997 |
| Gross Load after DSM and other Customer Savings (GWh) | 3.1 | 8.6 | 14.3 |  |


| Marginal Cost for Energy (\$/GWh) | $\$$ | 38,042 | $\$$ | 42,407 | $\$$ | 45,748 | $\$$ | 49,155 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |


| Capacity |  | 2012 |  | 2013 |  | 2014 |  | 2015 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| RIB Savings (GWh) |  | 3.1 |  | 8.6 |  | 14.3 |  | 20.3 |
| Hours per Year |  | 8784 |  | 8760 |  | 8760 |  | 8760 |
| MW per Hour |  | 0.35 |  | 0.98 |  | 1.64 |  | 2.32 |
| Marginal Cost\$/MW/Month | \$ | 6,091 | \$ | 6,329 | \$ | 6,576 | \$ | 6,982 |
| Total Cost (\$) | \$ | 25,938 | \$ | 74,745 | \$ | 129,194 | \$ | 194,061 |
| Marginal Cost for Capacity (\$/GWh) | \$ | 8,322 | \$ | 8,670 | \$ | 9,008 | \$ | 9,565 |
| Total Marginal Cost (\$/GWh) | \$ | 46,363 | \$ | 51,077 | \$ | 54,756 | \$ | 58,720 |

3 The capacity savings component assumes 1 MW of Power Purchase Agreement capacity 4 deliveries from BC Hydro to the Company was avoided with no change in the energy deliveries, 5 as that would be taken into account under the energy portion of the savings.

Question \#12

## References:

## i) Exhibit B-5, BCUC IR's 9.3 and 9.4

ii) Exhibit B-11, FBC Additional Evidence, pages 16-18 and Table 4 b
iii) Exhibit B-8, BCUC IR's re Errata \#3-7.1 and 7.2
iv) FortisBC's 2012 Integrated System Plan, 2012 Long Term DSM Plan, page 13
v) FortisBC's 2012 Integrated System Plan, 2012 Long Term Resource Plan, Appendix B
a) With respect to the response to BCUC IR 9.3, please confirm that the Table titled Long Term Avoided Power Purchase Costs should be updated to that shown as Table 3.2.1 in the June 30, 2012 Long Term DSM Plan.

## Response:

Confirmed. This update was discussed in the response to BCUC Q7.1 on Errata 3 (Exhibit B-8).
b) Please clarify the basis for the $\$ 84.94 / \mathrm{MWh}$ value (Exhibit B-11, page 16) in terms of the following:

- How does it relate to the forecast of annual BC Wholesale Market Energy costs shown in Table 5.1.3.3-A of Appendix B from the 2012 Long Term Resource Plan?
- Is it expressed in 2011 dollars and, if not, in what year's dollars is it expressed?
- For what year/years is it applicable and is it a "levelized cost" these years? If it is a levelized cost, over what years is it based and what inflation rate should be applied to derive a specific year's value? If the cost for a specific year, what year's cost does it represent?)
- Is it a generation plant gate cost or has it been adjusted for losses? If not, please provide the loss adjusted value for delivery to a residential customer.


## Response:

The $\$ 84.94 / \mathrm{MWh}$ LRMC in Exhibit B-11 is the levelized cost to acquire additional power through market purchases based on the 2011-2040 "Expected" cost in BC Wholesale Market Energy Curve, presented in Table 5.1.3.3-A of Appendix B of the 2012 Long Term Resource Plan, using

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an $8 \%$ nominal discount rate. It is based on a forecast of Mid-C prices, converted to Canadian dollars, delivered to the FortisBC territory. See the FortisBC 2012 Long-Term Resource Plan, Appendix B, Section 5.1 in FortisBC's 2012 - 2013 Revenue Requirements Application and 2012 Integrated System Plan for details on the derivation of this forecast.

The $\$ 84.94 / \mathrm{MWh}$ represents the wholesale market price at the FortisBC service territory border. Assuming 11\% system losses for delivery to residential customers, that price would be \$95.44/MWh.

A levelized cost is determined by discounting an escalating or variable price or payment stream over a defined term to obtain the constant payment stream that is equivalent on a present value basis. The main purpose of using levelized costs is to be able to compare different supply options on an "apples to apples" basis based on a forecast of generation costs or market prices, however it does not mean that the Company could enter into a long term market based contract at this price.

In this case, the Company has levelized the BC Wholesale Market Energy Curve using an 8\% nominal discount rate to obtain an equivalent flat nominal price over the 30 year term 20112040. In other words the levelized price is the nominal price in every year of the period. One alternative could be to adjust the annual forecast price stream to real dollars (i.e. before inflation) and use a real discount rate to calculate a levelized price in real dollars (e.g. the equivalent levelized price in 2011 dollars that escalates with inflation in each year). Using this alternative methodology, and assuming inflation at $2 \%$ per year and a real discount rate of $6 \%$, the levelized price before adjustment for system losses is $\$ 69.97 / \mathrm{MWh}$ in 2011 dollars.
c) Please clarify the basis for the $\$ 125.80 / \mathrm{MWh}$ value (Exhibit $\mathrm{B}-11$, page 16) in terms of the following:

- How does it relate to the forecast of annual BC New Resource Market Energy costs shown in Table 5.2-A of Appendix B from the 2012 Long Term Resource Plan?
- Is it expressed in 2011 dollars and, if not, in what year's dollars is it expressed?
- For what year/years is it applicable and is it a "levelized cost" these years? If a levelized cost, over what years is it based and what inflation rate should be used to derive a specific year's value? If the cost for a specific year, what year's cost does it represent?)
- How does it relate to the $\$ 154.15$ value reported in Table 3.2.1 of the 2012 Long Term DSM Plan and in response to reference (iii) above?


## Response:

The $\$ 125.80 / \mathrm{MWh}$ provided in Exhibit B-11 is the $\$ 111.96$ levelized LRMC of new resources adjusted for $11 \%$ losses

The $\$ 111.96 / \mathrm{MWh}$ LRMC provided in Exhibit B-11 is the levelized cost to acquire additional power through new resource purchases based on the 2011-2040 energy costs in the BC New Resources Market Energy Curve, presented in Table 5.2-A of Appendix B of the 2012 Long Term Resource Plan, using an 8\% nominal discount rate. It is based on the BC Hydro Standing Offer Program average based price of $\$ 101.39 / \mathrm{MWh}$ in 2011 dollars, escalated at $50 \%$ of CPI . (See the FortisBC 2012 Long-Term Resource Plan, Appendix B, Section 5.2 for details on the derivation of this forecast.)

As discussed in the response to BCOAPO IR2 Q12b) a levelized cost is determined by discounting an escalating or variable price or payment stream over a defined term to obtain constant payment stream that is equivalent on a present value basis. In this case, the Company has levelized the the forecast of annual BC New Resource Market Energy costs using an 8\% nominal discount rate to obtain an equivalent flat nominal price over the 30 year term 20112040. One alternative could be to adjust the annual forecast price stream to real dollars (ie before inflation) and use a real discount rate to calculate a levelized price in real dollars (e.g. the equivalent levelized price in 2011\$ that escalates with inflation in each year). Using this alternative methodology, and assuming inflation at 2\% per year and a real discount rate of 6\%, the levelized cost before adjustment for system losses is $\$ 92.23 / \mathrm{MWh}$ in 2011 dollars.

The $\$ 154.15 / \mathrm{MWh}$ reported in Table 3.2.1 of the 2012 Long-Term Demand Side Management Plan has been changed by Errata 2 to the 2012-2013 Revenue Requirements Application and 2012 Integrated System Plan. It is now revised to $\$ 143.53 / \mathrm{MWh}$. The $\$ 143.53$ represents the BC Hydro avoided energy costs determined in the CDPR.
d) The text in Exhibit B-11, page 17 (lines 7-9) suggests that the $\$ 125.80$ is calculated using a nominal discount rate of $8 \%$. However, Table 4b suggests that the calculation is based on a real discount rate of $8 \%$. Please reconcile.

## Response:

The text is correct; Table 4b should have indicated that the levelised $\$ 125.80$ cost is calculated using a nominal discount rate of $8 \%$.

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e) What, in FortisBC's view, is the appropriate Marginal Cost of Supply (at the point of customer delivery) that is consistent with the approach adopted by the BCUC for BC Hydro (G-114-08 Decision with Reasons, pages 108-109 and G-45-11, Appendix A, page 9)?

## Response:

The Company assumes that the correct reference should be Commission Order G-124-08, not G-114-08. Also, in order to be consistent with the approach adapted by the BCUC for BC Hydro, the Company's proxy for LRMC from new resources is utilized in this response.

In Order G-124-08, the Commission found that,
"For all the reasons stated in the previous paragraph, the Commission Panel is of the view that a suitable cap for the Step 2 rate is BC Hydro's current estimate of the cost of new supply at the plant gate..."

From page 8 of Appendix A to Decision G-45-11, the Commission also notes that,
"BC Hydro's conservation rates, including the residential Step 2 rate, have consistently used the levelized weighted average plant gate price of BC Hydro's most recent call for energy as proxy for its LRMC for rate setting purposes."

And,
"This specific rate was based on the F2006 Call for Tenders."
In Exhibit B-11, in Table 4b FortisBC presents its proxy for the levelized LRMC of new resources as $\$ 111.96 / \mathrm{MWh}$. The detailed calculations can be found in BCUC IR2 Q9.1. As discussed in the response to BCOAPO 12(c), this plantgate forecast has been levelized to determine an equivalent flat unescalated price on a nominal basis over the 30 year forecast period starting in 2011, using an $8 \%$ nominal discount rate. It is assumed any incremental transmission needed related to the project would be paid by the project proponent or would result in an adjustment to the price paid for energy. Therefore, the only incremental cost for delivery to the customer would be losses of $11 \%$, bringing the levelized price to $\$ 125.80 / \mathrm{MWh}$.
f) Based on this view, what is the Marginal Cost of Supply (at point of customer delivery) for:

- 2011 (expressed in 2011\$)
- $\quad 2015$ (expressed in 2015\$)?

| Year | LRMC Plantgate <br> \$/MWh <br> (Nominal dollars, no <br> losses) | LRMC Delivered <br> \$/MWh <br> (Nominal dollars, <br> $\mathbf{1 1 \% ~ l o s s e s ) ~}$ |
| :---: | ---: | ---: |
| 2011 | $\$ 111.96$ | $\$ 125.80$ |
| 2012 | $\$ 111.96$ | $\$ 125.80$ |
| 2013 | $\$ 111.96$ | $\$ 125.80$ |
| 2014 | $\$ 111.96$ | $\$ 125.80$ |
| 2015 | $\$ 111.96$ | $\$ 125.80$ |

g) Please clarify the basis for the $\$ 104.32 / \mathrm{MWh}$ value (BCUC IR re Errata \#3-7.2) in terms of the following:

- What is the basis for the blending factors used (i.e., $28 \%$ for $\$ 154.15$ and 72\% for 84.94)?
- Is it expressed in 2011 dollars and, if not, in what year's dollars is it expressed?
- For what year/years is it applicable and is it a "levelized cost" these years? If a levelized cost, over what years is it based and what inflation rate should be applied to derive a specific year's value? If the cost for a specific year, what year's cost does it represent?)
- Is it a generation plant gate cost or has it been adjusted for losses? If not, please provide the loss adjusted value for delivery to a residential customer.

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Response:
Please see FortisBC's 2012 RRA/ISP proceedings Exhibit B-1-6 (Errata 2) for the update to the blended avoided cost, which has been revised to $\$ 101.34$ in 2011 dollars.

It is a levelized cost and the 72\% proportion based on the expected long term market price over the 30 -year period 2011-40. The $28 \%$ weighting is based on the proportion of FBC total energy requirements expected to be supplied by BC Hydro.

It is a generation plant gate cost, but the value is not adjusted for losses. Instead DSM energy savings at the customers' meters are adjusted i.e. grossed-up, for line losses in the load forecast.
h) If the response to part (e) differs from the Long Term Avoided Purchased Power Cost (\$104.32) used by FortisBC to evaluate DSM (per reference (iii) above) please explain why this is appropriate.

## Response:

The long term avoided cost used for DSM purposes, is blended to include the authority's longterm marginal cost of new supply for the portion of the Company's resource needs obtained from BC Hydro, as prescribed in the DSM Regulation 326/2008 s4(3).
i) Based on FortisBC's Long Term Avoided Purchased Power Cost as used to evaluate its DSM programs, what is the avoided cost of new supply for:

- 2011 (expressed in 2011\$)?
- 2015 (expressed in 2015\$)?


## Response:

For DSM purposes, FortisBC uses the Long Term Avoided Purchased Power Cost for evaluating cost-effectiveness as per the DSM regulation.

In 2011, FortisBC used a Long Term Avoided Purchased Power Cost of $\$ 154.15$ to evaluate cost-effectiveness of 2011 DSM programs.

In evaluating the cost-effectiveness of 2012 and 2013 DSM programs, the Company used $\$ 101.34$ (in 2011\$) to evaluate the cost-effectiveness of 2012 and 2013 DSM programs.

No programs beyond 2013 have been re-evaluated for cost-effectiveness, so no Long Term Avoided Purchased Power Cost was used for these years.

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j) What would be the levelized cost of new supply (for the next 30 year) based on a combination of the cost of market purchases for the near to medium term and the cost of new resources for the longer term. Please express the result in 2011\$.

## Response:

In order to answer this question properly, there are a number of fundamental assumptions that would have to be made which go beyond the analysis done by the Company in the 2012 LongTerm Resource Plan and the 5 year Load Forecast.

Specifically, this includes the timing of construction of new generation resources. The Resource Plan does not forecast specific dates for new resources, it just suggests that this could occur in the long-term. The Resource Plan does forecast a time where new generation costs may be lower than market prices; however this crossover date can change with updated forecasts. In addition, the timing for addition of new generation resources is not only affected by price, but also by the size of the energy gap, finding an appropriate resource to meet that gap, and opportunity.

If FortisBC assumes a new generation resource will be added to correspond to the year 2031 crossover point in the price forecasts presented in the 2012 Long-Term Resource Plan, the levelized cost of new supply would be $\$ 83.22$. Adjusted for FortisBC system losses of $11 \%$, this would increase the levelized cost to $93.51 / \mathrm{MWh}$.
.As discussed in the response to BCOAPO IR2 Q12b) a levelized cost is determined by discounting an escalating or variable price or payment stream over a defined term to obtain the equivalent constant payment stream on a present value basis. In this case, the Company has levelized the hybrid forecast developed for this question using an 8\% nominal discount rate to obtain an equivalent flat nominal price over the 30 year term 2011-2040. An alternative could be to adjust the annual forecast price stream to real dollars (ie before inflation) and use a real discount rate to calculate a levelized price in real dollars (e.g. the equivalent levelized price in 2011 dollars that escalates with inflation in each year). Using this alternative methodology, and assuming inflation at $2 \%$ per year and a $6 \%$ real discount rate, the levelized cost before adjustment for system losses is $\$ 68.56 / \mathrm{MWh}$ in 2011 dollars.
k) Based on the response to part (j), what is the avoided cost of new supply for:

- 2011 (expressed in 2011\$)?
- 2015 (expressed in 2015\$)?


## Response:

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Based on the response to BCOAPO IR2 Q12(j), the proxy for levelized cost of new supply would be $\$ 83.22 / \mathrm{MWh}$. Adjusting for FortisBC system losses of $11 \%$ for delivery to the customer, this would increase the cost to $\$ 93.51 / \mathrm{MWh}$. As discussed in BCOAPO IR2 Q12(j), these are nominal costs which are flat over a 30 year term starting in 2011 (i.e. it is the same number in 2011 dollars and 2015 dollars).

The forecast of actual cost of new supply for 2011 and 2015 that is incorporated into this levelized cost is obtained from the BC Wholesale Market Energy Curve in Table 5.1.3.3-A in Appendix B of the 2012 Long Term Resource Plan. This shows the forecast nominal costs (before losses) as being $\$ 51.79$ in 2011 and $\$ 64.49$ in 2015.
I) What year's dollars (e.g., 2011) are the costs provided in Table 4 b?

## Response:

- The $\$ 38.04 / \mathrm{MWh}$ Marginal Cost is actually the annual marginal cost for 2012, and is in dollars of the day (ie 2012 dollars). See the Table in BCUC IR1 Q9.3;
- The $\$ 84.98 / \mathrm{MWh}$ levelized LRMC from market purchases is in nominal dollars. As discussed in the response to BCOAPO IR2 Q12(b) the levelized cost was determined by discounting the forecast of annual BC New Resource Market Energy costs using an 8\% nominal discount rate to obtain an equivalent flat nominal price over the 30 year term 2011-2040. As discussed in the response to 12(b). Adjusting for inflation and using a real discount rate of $6 \%$ would result in a levelized price in $2011 \$$ of $\$ 69.97 / \mathrm{MWh}$ that then escalates annually with inflation;
- The \$97/MWh LRMC New Construction - Similkameen UEC is in 2010 dollars which would then escalate with inflation;
- As with the levelized LRMC from market purchases, the $\$ 111.96 / \mathrm{MWh}$ levelized BC New Resources Market Energy is in nominal dollars, and is the equivalent flat price for a 30 year term starting in 2011. As discussed in BCOAPO IR2 Q12(c) adjusting for inflation and using a real discount rate of $6 \%$ would result in a levelized price of $\$ 92.23 / \mathrm{MWh}$ in $2011 \$$ that then escalates annually with inflation;
- The $\$ 124.30 / \mathrm{MWh}$ BCH levelized LRMC (Clean Power Call, Delivered to LML) is in 2009 dollars and would escalate with inflation; and
- The $\$ 111.3 / \mathrm{MWh}$ BC Hydro levelized LRMC (Clean Power Call, Plantgate) is in 2009 dollars and would escalate with inflation.

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m) Please confirm that the values in Table 4 b can be converted to a future year's dollars by applying an inflation factor.

- If yes, what is the inflation factor that should be applied?
- If no, how would the values be converted to a future year's dollars?


## Response:

In the Company's response to BCOAPO IR2 Q12(I), FortisBC has identified which costs in Table 4b are in real dollars and which are in nominal dollars. The costs in real dollars can be converted to future year's dollars by applying an inflation factor. For the purpose of the levelized cost calculations, the Company has assumed an inflation factor of $2 \%$.

The levelized costs presented in nominal dollars are levelized on a flat basis, and therefore there is no escalation over a 30 year period starting in 2011.
n) Please explain what year's dollars the long-term avoided costs presented in Table 3.2.1 (per the 2012 Long Term DSM Plan, page 13) are expressed in and how they would be converted to a future year's dollars.

## Response:

Please see the response to BCOAPO IR2 Q12g for the revised \$101.34/MWh which is in 2011 dollars.

Future value (year) $=\$ 101.34 \times 1.0 \mathrm{i}^{\mathrm{n}}$, where $\mathrm{i}=$ inflation rate in percent and $\mathrm{n}=$ future year 2011.
e.g. $F V(2015)=\$ 101.34 \times 1.02^{4}=\$ 109.70$
o) Please explain the basis for the year over year escalation rates presented in response to BCUC IR 9.4 and why the values are significantly higher than forecast inflation.

## Response:

The year over year escalation rates in BCUC IR1 Q9.4 are driven directly by the values in the last row of Table BCUC IR1 Q9.3. These values in turn result from the analysis preformed to respond to that question using the assumptions regarding power purchases and load impacts of the RIB program. As such, they are not expected to mirror inflation rates.

Question \#13

## Reference: i) Exhibit B-5, BCUC IR 9.6.1

Preamble: The third sentence of the response states - "whenever the lower block exceeds the current flat rate, any customer who uses less than the threshold will effectively be sent the wrong price signal" (emphasis added).
a) Please confirm whether FortisBC meant to use the phrase "exceeds" or whether the wording should be changed to "is less than". If no change is required, please explain.

## Response:

The text should read "is less than" as opposed to "exceeds". The correct wording should be, "whenever the lower block is less than the current flat rate, any customer who uses less than the threshold will effectively be sent the wrong price signal".
b) Please confirm what FortisBC means by the "wrong price signal".

## Response:

In the context of the statement, a wrong price signal is one that does not discourage consumption. The Company recognizes that with a block one rate that is below the current flat rate a customer will be able to increase consumption to some level without experiencing higher bills.

## Question \#14

## Reference: <br> i) Exhibit B-5, BCUC IR 3.6

ii) Exhibit B-5, BCUC IR's 9.7 and 9.9
iii) Exhibit B-6, BCOAPO IR's 1 a), b) \& d)
iv) Exhibit B-11, FBC Additional Evidence, pages 15-16 and 18
v) Exhibit B-8, BCUC IR re Errata \#3-6.1
a) With respect to BCUC IR's 9.7 and 9.9, does FortisBC consider efficient price signals to be prices that encourage a customer to either use less or refrain from increasing consumption even in circumstances where, to do so, the customer

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may (due to the price signal seen) incur higher costs than what FortisBC would incur to supply that customer with electricity over the long term?

## Response:

Yes. Within the context of both BCUC IR1 Q9.7 and Q9.9 which discuss FortisBC's use of the term "efficient price signals" within the Application, and given the stated objective of the rate and all underlying criteria as "to incent customers to adopt behaviour that leads to an overall decrease in consumption by a particular class of customers", the behaviour described in the question is efficient. FortisBC did not consider underlying costs or broader economic analysis in its discussion.
b) Please reconcile FortisBC's view of efficient price signals as expressed in response to BCUC IR 9.7, BCUC IR 9.9 and BCOAPO IR 1 b) with discussion of efficient pricing as found in Exhibit B-11 (pages 15 \& 18) and Bonbright's consumer rationing objective that "rates are designed to discourage the wasteful use of public utility services while promoting all use that is economically justified" (emphasis added). (Note: Reference is to James C. Bonbright, Principles of Public Utility Rates, 1961, page 292).

## Response:

FortisBC's use of the term "efficient price signals" and the more theoretical "economically justified" use are not attempting to describe the same thing and are thus difficult to reconcile.

As noted in the original response to BCOAPO IR1 Q1b), FortisBC simply described an efficient price signal as one that is "sufficient to encourage some portion of customers to reduce consumption."

This only speaks to behaviour (in this case, reducing consumption), and not to any consideration of whether or not the degree to which that behaviour occurs is sufficient, or exceeds that which would achieve some stated objective.

Given a rate setting environment based on the cost of service standard, and not incorporating some promotional pricing objectives, the Bonbright assertion is that rates should be set with an appropriate consideration of marginal costs such that service is neither supplied in wasteful amounts or that the use of the service is unduly restricted.

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c) Similarly, with respect to BCUC IR 3.6, does FortisBC consider "rate DSM" where the reduction in consumption from the introduction of alternative rates arises from the customer incurring higher costs (in response to the high price signals seen) than what FortisBC would incur to supply the electricity over the long term to be an appropriate form of DSM?

## Response:

"Rate DSM" can be an appropriate form of DSM, but as evidenced throughout this regulatory process, "appropriateness" is evaluated against a number of objectives that are in some cases competing.
d) Please confirm that FortisBC uses the TRC test to screen its DSM programs and does not, as general practice, offer DSM programs where the cost of achieving DSM savings would exceed its long-term avoided supply costs. If this is not the case, please explain.

## Response:

Confirmed.

## Question \#15

Reference:
i) Exhibit B-8, BCUC IR's re Errata \#3 - 2.1 and 6.1
ii) Exhibit B-11, FBC Additional Evidence pages 15 (lines 11-17), 18 (lines 16-18) and 22-24
a) Given the discussion at Exhibit B-11, pages 15 \& 18 and the response to BCUC IR re Errata \#3 - 6.1, why is the absolute impact of the residential use considered an indicator as to whether or not an option meets Bonbright Principle \#3?

## Response:

The Company assumes that the question meant to ask, ".....why is the absolute impact on the residential use...", rather than, "....why is the absolute impact of the residential use....." as appears above. FortisBC has reviewed the referenced materials and does not believe that they support the conclusion that the Company considers absolute impact to residential use to be indicative of compliance with the Bonbright Principle. The Company has acknowledged that the RIB rate objective described in Section 3.2 of the Application is not the same as the Bonbright

Principle 3, where the latter considers economic use as it relates to the undesired consumption levels that may result from prices below or above the marginal cost. The Company considers, however, that with the uncertainty surrounding elasticity and marginal cost measures, the pricing scenario that sets a block 2 rate above the block 1 rate (the criteria for an efficient price signal articulated in the response to BCOAPO IR1 Q2.1 provides a reasonable means of reflecting the higher cost of power at the margin where knowing the actual values is not possible.
b) Why wouldn't a more appropriate indicator be the extent to which the Block 2 rate deviates from FortisBC's avoided cost?

## Response:

Assuming that the avoided cost referred to in the question is the long run marginal cost as described on page 17 of Exhibit B-11, the Company agrees that comparing that value to the Block 2 rate would be an appropriate indicator of the degree to which an option satisfies Bonbright Principle 3.
c) Using the avoided cost values from Question 12 e) \& f) above, please discuss the extent to which each options noted on page 24 satisfies Bonbright Principle \#3 when the degree to which the Block 2 Rate in 2015 matches the FortisBC's 2015 Avoided Cost is used as the indicator.

## Response:

Inherent in the Bonbright principle regarding efficient price signals is a linkage of price to marginal cost, where optimally, price should be set at the marginal cost. (This is different than the interpretation of "Efficient Price Signals" as used by FortisBC in its Application).

Given that the appropriate value of marginal cost provided by FortisBC in the referenced IR responses is below the block 2 rate in all cases, this principle cannot be used as a means to differentiate between options.
d) The response to BCUC IR re Errata \#3-2.1 notes that there are a number of "tests" that while not considered to be pass/fail in nature are useful measures and indicators in assessing the various options. Does FortisBC agree that the extent to which an Option's Block 2 rate matches FortisBC's avoided cost would be another useful measure/indicator to consider? If not, why not?

## Response:

The comparison of the block 2 rate to a measure of avoided cost or long-run marginal cost was not considered at the time the Application was filed. The use of such a metric in any case is muted by the fact that the short-term avoided cost of $\$ 38.04 / \mathrm{MWh}$ is below the block 2 rate for every option examined, and the LRMC based on the BC New Resources Market Energy ( $\$ 125.80 / \mathrm{MWh})$ is below the block 2 energy rate in all but 4 options as early as 2012.

## Question \#16

Reference: i) Exhibit B-5, and B-8, BCUC IR's 10.1 and 10.2 (Initial Response and re Errata 3)
ii) Exhibit B-6, and B-1-2 BCOPAO 16 a) (Initial Response and Errata 3)

Preamble: Exhibit B-1, pages 2 and BCUC IR 10.1 both state that the Block 1 rate will be adjusted by an amount equal to the sum of the general revenue requirement increase and any rebalancing adjustments.
a) Please confirm that in the corrected response to BCOAPO 16 a) the supporting worksheets calculate the increase in the Block 1 rate is based on the general rate increase plus any rebalancing adjustments - as opposed to the increase in the general revenue requirement plus any rebalancing adjustments

## Response:

This is confirmed. In the quoted text, rate increases due to the general revenue requirement increase were referred to as a "general revenue requirement increase". FortisBC apologizes if the non-exact nature of the phrase caused any confusion.
b) Please confirm that the wording in Exhibit B-1 (page 2) and BCUC IR 10.1 should both be revised to state that the Block 1 rate will be adjusted by an amount equal to the general rate increase and rebalancing adjustments and not based on the increase in the general revenue requirement (Note: The increase in the general revenue requirement is calculated as the percentage increase in the dollar value of the revenue requirement and not the overall general rate increase (where the later also takes into account changes in sales volumes and is generally lower if sales volumes and customer counts are increasing annually per calculations set out in BCOAPO IR 16 a) - Attachment)).

## Response:

Confirmed. Please see the response to BCOAPO IR2 Q16a above.

## Question \#17

## Reference: i) Exhibit B-5, BCUC IR 12.4

## ii) Exhibit B-6, Andy Shadrack IR 20

a) The responses make reference to the collection of fixed costs through fixed charges. Please clarify what FortisBC means by "fixed costs". Are they the customer-related costs per the COSA?

## Response:

FortisBC considers fixed costs to be those that do not vary with the amount of electricity consumed. In the context of the references, which are discussions specific to Customer Charges, fixed costs are those customer-related costs allocated to the residential class within the COSA.

## Question \#18

Reference: $\quad$ i) Exhibit B-11, FBC Additional Evidence, pages 27-28
a) Please explain the difference between $\$ 13.62$ cost attributed to customer cost of meters, service, meter reading, accounting, billing and customer service on page 27 ( $\$ 5.88+\$ 7.74$ ) with the $\$ 12.95$ value referenced on page 28.

## Response:

Please see the response to BCUC IR2, Q13.1.1.

## Question \#19

## Reference:

## i) Exhibit B-5, BCUC IR 13.2

ii) BCUC Reasons for Decision, Order G-124-08, page 107
a) What are the median and mean consumption values if the high and low outliers (less than 100 kWh per month and more than $10,000 \mathrm{kWh}$ per month) are excluded consistent with the BCUC approach in the BC Hydro RIB Decision?

## Response:

The mean would change from 2,118 to 2,026 . The median would change from 1,674 to 1,659 . These changes are not material and do not warrant changes to the threshold proposed by FortisBC.

## Question \#20

Reference:

## i) Exhibit B-5, BCUC IR's 17.3 \& 17.3.2

a) Please explain why FortisBC did not include any evaluation factors that relate to Efficient Price Signals in its evaluation criteria (Exhibit B-1, Table 7.1).

## Response:

FortisBC responded to BCOAPO IR1 Q1 with the following:
Within the context of the Application, an efficient price signal is one that is sufficient to encourage some portion of customers to reduce consumption.

The Company considers that for the purposes of the Application the presence of an efficient price signal is simply a yes/no proposition where a yes is determined by having a block 2 rate that is higher than the block 1 rate.

Although the Efficient Price Signal is listed as an evaluation metric, this list is in the section more broadly describing RIB Rate Objectives. The objective of providing an Efficient Price Signal (as used in the Application) is satisfied by all the rate options and would not be helpful in choosing from among them.

FortisBC did not intend to carry the use of the term "Efficient" any further than specifically considered by the definition in italics above. Consideration was not given to the magnitude of customer reaction to the price signals, nor were they related to FortisBC cost of supply or any other economic driver.

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## Question \#21

## Reference:

## i) Exhibit B-5, BCUC IR's 20.1 and 20.2

ii) Exhibit B-8, BCUC IR re Errata \#3-\#2.1 iii)
a) Other than for those customers whose usage is close to the threshold (either above or below), please explain why the Block 1/Block2 differential is a relevant pricing signal to use for purposes of evaluation.

## Response:

The Company acknowledges that the RIB rate is likely to have the most immediate behavioural impact on those customers who are approaching the threshold either from above or below. Customers that are exposed to the block 2 rate will see a stronger price signal to conserve and these are the customers who can most easily make changes to take advantage of the rate.

Large rate differences between blocks increase the energy efficiency incentives for highconsuming customers.

However, this is true of all the rate options that were initially modelled and does not invalidate the assumption that a block $1 /$ block 2 differential must be sufficiently high to provide an conservation incentive but not so high as to be unduly punitive to any particular customer segment.
b) For all customers in general, why isn't the level of the price they will experience under the RIB rates for incremental use/savings relative to what they would have seen under the existing rate structure a more relevant price signal?

## Response:

The relationship between the RIB rates and the flat rate is inherent in the elasticity assumptions and the conservation potential results for each rate and is thus considered in the evaluation of the rates.

## Question \#22

## Reference:

## i) Exhibit B-5, BCUC IR 21.2

## ii) Exhibit B-11, FBC Additional Evidence, page 8

a) Please clarify whether the 2012 through 2015 CARC values reported for FortisBC in BCUC IR 21.2 are for the "customer average rate change" or the "average revenue requirement change"? Note: Please see Question \#16 b) above for a discussion of "average rate change" versus "average revenue requirement change".

## Response:

The rate increases quoted in the response to BCUC IR1 Q21.2 are the customer average rate changes projected for the years in question. These are the forecast general rate increases to be applied to rates and not the change in the amount of the revenue requirement.
b) Please clarify whether the RRA increases reported in Exhibit B-11 are "average rate changes" or "average revenue requirement changes".

## Response:

The percentages shown in the table on page 8 of Exhibit B-11 are the estimated rate increases that will be applied to customer rates in the year given.

## Question \#23

## Reference:

## i) Exhibit B-5, BCUC IR 21.4

ii) Exhibit B-5 and B-1-2 BCUC 22.1 (Original Response and Errata 3)
a) Please confirm whether the 2012-2015 rates in response to BCUC IR 21.4 need to be updated based on the corrections underlying Errata \#3. If not, why not? If yes, please provide a revised response.

## Response:

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The rates in BCUC IR1 Q21.4 were escalated in 2012-2015 based on applying the expected annual rate increase equally to the customer, block 1 and block 2 charges. This differs from the issue that was corrected in Errata 3 and therefore no change is required.
b) Please confirm that the response to BCUC IR 21.4 is based on option \#9 per Table 7-2.

## Response:

## Confirmed.

c) Please update the response to BCUC IR 21.4 to reflect the anticipated CARC for 2011-2015 (including BC Hydro rate increases) as set out in Exhibit B-11 (page 8).

## Response:

Please see the table below.
Table BCOAPO IR2 Q23

|  | 2011 | 2012 | 2013 | 2014 | 2015 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Customer Charge Block 1 Rate <br> Block 2 Rate | \$28.93 | \$30.81 | \$33.65 | \$35.60 | \$39.65 |
|  | \$0.0856 | \$0.0911 | \$0.0995 | \$0.1053 | \$0.1173 |
|  | \$0.1001 | \$0.1066 | \$0.1164 | \$0.1232 | \$0.1372 |
| Threshold (kWh) | 1600 | 1600 | 1600 | 1600 | 1600 |
| Percent Customers with Impacts in the Range of: |  |  |  |  |  |
| -5.0\% -2.5\% | 53.1\% | 0.0\% | 0.0\% | 0.0\% | 0.0\% |
| -2.5\% 0.0\% | 22.6\% | 0.0\% | 0.0\% | 0.0\% | 0.0\% |
| 0.0\% 2.5\% | 12.9\% | 0.0\% | 0.0\% | 0.0\% | 0.0\% |
| 2.5\% 5.0\% | 8.7\% | 0.0\% | 0.0\% | 0.0\% | 0.0\% |
| 5.0\% 7.5\% | 2.1\% | 100.0\% | 0.0\% | 100.0\% | 0.0\% |
| 7.5\% 10.0\% | 0.6\% | 0.0\% | 100.0\% | 0.0\% | 0.0\% |
| 10.0\% 12.5\% | 0.0\% | 0.0\% | 0.0\% | 0.0\% | 100.0\% |

Question \#24

## Reference:

## i) Exhibit B-5, BCUC IR 22.1

ii) Exhibit B-6, BCOAPO IR 15 d)
iii) Exhibit B-6, BCOAPO IR 16 h)
iv) Exhibit B-11, FBC Additional Evidence, pages 16-18
a) Please re-do the responses to BCUC IR 22.1, BCOAPO IR 15 d) and BCOAPO IR 16 h ) and incorporate FortisBC's view as the to appropriate long run supply cost in each year as per Exhibit B-11 and the response to Question 12 e) \& f) above and the corrected projection of RIB rates for 2012-2015 per Errata 3 and Exhibit B-11 (per new CARC, page 8).

## Response:

The following tables provide the requested data using a LRMC of $\$ 0.1258$ and updated 5 -year rates per Exhibit B-11.

Table BCOAPO IR2 24a

|  |  | 2011 | 2012 | 2013 | 2014 | 2015 |
| :---: | :--- | :---: | :---: | :---: | :---: | :---: |
| 2.1 | Block 1 Rate | 0.07526 | 0.08127 | 0.08875 | 0.09389 | 0.10460 |
| (A) | Block 2 Rate | 0.11138 | 0.12202 | 0.13550 | 0.14532 | 0.16575 |
| 2.2 | Block 1 Rate | 0.07526 | 0.07526 | 0.07526 | 0.07526 | 0.07526 |
| (B) | Block 2 Rate | 0.11138 | 0.12989 | 0.15316 | 0.16971 | 0.20416 |
| 8.1 | Block 1 Rate | 0.07828 | 0.08453 | 0.09231 | 0.09767 | 0.10880 |
| $(\mathrm{C})$ | Block 2 Rate | 0.11272 | 0.12379 | 0.13784 | 0.14815 | 0.16961 |
| 8.2 | Block 1 Rate | 0.07828 | 0.07828 | 0.07828 | 0.07828 | 0.07828 |
| (D) | Block 2 Rate | 0.11272 | 0.13460 | 0.16211 | 0.18167 | 0.22239 |
| 11.3 | Block 1 Rate | 0.08197 | 0.08852 | 0.09666 | 0.10227 | 0.11393 |
| (E) | Block 2 Rate | 0.11066 | 0.11950 | 0.13049 | 0.13806 | 0.15380 |
| 11.4 | Block 1 Rate | 0.08197 | 0.08197 | 0.08197 | 0.08197 | 0.08197 |
| (F) | Block 2 Rate | 0.11066 | 0.12807 | 0.14973 | 0.16463 | 0.19563 |
| 17.3 | Block 1 Rate | 0.08449 | 0.09124 | 0.09963 | 0.10541 | 0.11743 |
| (G) | Block 2 Rate | 0.11152 | 0.12043 | 0.13151 | 0.13914 | 0.15500 |
| 17.4 | Block 1 Rate | 0.08449 | 0.08449 | 0.08449 | 0.08449 | 0.08449 |
| (H) | Block 2 Rate | 0.11152 | 0.13211 | 0.15770 | 0.17532 | 0.21197 |
| 6.1 | Block 1 Rate | 0.08743 | 0.09442 | 0.10311 | 0.10909 | 0.12152 |
| (CARC + 10\%) | Block 2 Rate | 0.10055 | 0.11143 | 0.12538 | 0.13586 | 0.15768 |
| Flat Block | All kWh | 0.09090 | 0.09816 | 0.10719 | 0.11341 | 0.12634 |
| LRMC | All kWh | 0.12580 | 0.12580 | 0.12580 | 0.12580 | 0.12580 |


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Figure BCOAPO 24(a)
Comparison of Block 1 and 2 Rates to Flat Block and LRMC


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Table BCOAPO IR2 24a-2

| Option | Threshold | 2011 Block 2 Rate | LRMC | Block 2 Rate |
| :---: | :---: | ---: | :---: | :---: |
| 1 | 1350 |  | 0.12580 |  |
| 2 | 1350 | 0.11138 | 0.12580 | $88.5 \%$ |
| 3 | 1350 | 0.10039 | 0.12580 | $79.8 \%$ |
| 4 | 2100 | 0.13641 | 0.12580 | $108.4 \%$ |
| 5 | 2100 | 0.11618 | 0.12580 | $92.4 \%$ |
| 6 | 2100 | 0.10055 | 0.12580 | $79.9 \%$ |
| 7 | 1600 | 0.12584 | 0.12580 | $100.0 \%$ |
| 8 | 1600 | 0.11272 | 0.12580 | $89.6 \%$ |
| 9 | 1600 | 0.10012 | 0.12580 | $79.6 \%$ |
| 10 | 1350 | 0.12121 | 0.12580 | $96.4 \%$ |
| 11 | 1350 | 0.11066 | 0.12580 | $88.0 \%$ |
| 12 | 1350 | 0.10001 | 0.12580 | $79.5 \%$ |
| 13 | 2100 | 0.13341 | 0.12580 | $106.0 \%$ |
| 14 | 2100 | 0.11488 | 0.12580 | $91.3 \%$ |
| 15 | 2100 | 0.10050 | 0.12580 | $79.9 \%$ |
| 16 | 1600 | 0.12421 | 0.12580 | $98.7 \%$ |
| 17 | 1600 | 0.11152 | 0.12580 | $88.6 \%$ |
| 18 | 1600 | 0.10016 | 0.12580 | $79.6 \%$ |

2
3

| Option | Base Rate <br> Option | 2015 Block 2 Rate | LRMC |
| :---: | :---: | ---: | ---: |
| $2.1(\mathrm{~A})$ | 2 | $\$ 0.16575$ | $\$ 0.12580$ |
| $2.2(\mathrm{~B})$ | 2 | $\$ 0.20416$ | $\$ 0.12580$ |
| $8.1(\mathrm{C})$ | 8 | $\$ 0.16961$ | $\$ 0.12580$ |
| $8.2(\mathrm{D})$ | 8 | $\$ 0.22239$ | $\$ 0.12580$ |
| $11.3(\mathrm{E})$ | 1 | $\$ 0.15380$ | $\$ 0.12580$ |
| $11.4(\mathrm{~F})$ | 1 | $\$ 0.19563$ | $\$ 0.12580$ |
| $17.3(\mathrm{G})$ | 17 | $\$ 0.15500$ | $\$ 0.12580$ |
| $17.4(\mathrm{H})$ | 17 | $\$ 0.21197$ | $\$ 0.12580$ |


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## Question \#25

## Reference:

## i) Exhibit B-6, BCOAPO IR 1 c )

## ii) Exhibit B-11, FBC Additional Evidence, page 18 (lines 21-23)

a) Does FortisBC include avoided transmission and distribution costs in its calculation of TRC for purposes of evaluating DSM programs?

- If yes, what are the estimated avoided costs for 2011 residential savings? If the value is expressed in terms of $\$ / \mathrm{kW}$ (peak reduction), please convert to equivalent $\$ / \mathrm{kWh}$ using the residential load factor.
- If not, why not?


## Response:

No, the blended avoided cost is for firm energy that includes capacity benefits. FortisBC does not anticipate having to build any generation assets, and therefore no related Transmission and Distribution infrastructure, in the next several years.

## Question \#26

## Reference:

## i) Exhibit B-6, BCOAPO IR 8 b)

a) Does FortisBC determine actual weather normalized values for overall residential sales? If yes, please provide the following for each of 2009 and 2010:

- Actual total residential sales
- Weather normalized residential sales.


## Response:

FortisBC determines actual weather normalization values for the residential and wholesale classes.

The 2009 and 2010 total residential sales are $1,293 \mathrm{GWh}$ and $1,224 \mathrm{GWh}$ respectively. The 2009 and 2010 weather normalized residential sales are $1,239 \mathrm{GWh}$ and $1,242 \mathrm{GWh}$ respectively.

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| :---: |

Table BCOAPO IR2 Q26a

|  | Actual from <br> BCUC Annual <br> Report | Normalized |
| :---: | ---: | ---: |
|  | GWh |  |
| 2009 | 1,293 | 1,239 |
| 2010 | 1,224 | 1,242 |

## Question \#27

## Reference:

## i) Exhibit B-6 and Exhibit B-1-2, BCOAPO IR 16 g) (Original and Errata 3)

ii) Exhibit B-5, BCUC IR's 21.4 and 22.1
iii) Exhibit B-11, FBC Additional Evidence, pages 5-6 and 8
a) Please confirm that the percentages of residential customers reported in Table BCOAPO IR1 Q16g include the impact of i) the general increase, ii) any assumed rate rebalancing and iii) the RIB rate annual adjustments but do not include any pass through of BCH rate increases.

## Response:

Confirmed.
b) Please update the response to BCOPAO 16 g ) to reflect the currently anticipated annual rate adjustments (including the BC Hydro rate increases).

## Response:

Please refer to the response to BCOAPO IR2 Q27c below.
c) Please provide a revised response to part (b) above that includes the CARC+10\% Option (per BCUC IR 21.4 -corrected) and CARC+10\% Option (per BCUC 22.1 - corrected) and reflects the anticipated future rate increases as per Exhibit B-11, page 8.
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## Response:

2 Please see Table BCOAPO IR2 Q27c below which provides the response to both Q27b and 3 Q27c.

Table BCOAPO IR2 Q27c

|  | Percent <br> Customers <br> with Impacts <br> Greater Than: | 2012 | 2013 | 2014 | 2015 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Option 2.1 | $10 \%$ | $0.0 \%$ | $6.4 \%$ | $0.0 \%$ | $48.0 \%$ |
| (A) | $15 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $20 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $25 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| Option 2.2 | $10 \%$ | $14.5 \%$ | $21.3 \%$ | $0.2 \%$ | $29.3 \%$ |
| (B) | $15 \%$ | $0.3 \%$ | $1.3 \%$ | $0.0 \%$ | $8.0 \%$ |
|  | $20 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $25 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| Option 8.1 | $10 \%$ | $0.0 \%$ | $8.0 \%$ | $0.0 \%$ | $45.2 \%$ |
| (C) | $15 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $20 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| Option 8.2 | $25 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| (D) | $10 \%$ | $14.5 \%$ | $21.3 \%$ | $1.3 \%$ | $29.3 \%$ |
|  | $15 \%$ | $1.9 \%$ | $2.7 \%$ | $0.0 \%$ | $11.4 \%$ |
|  | $20 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.6 \%$ |
|  | $25 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| Option 11.3 | $10 \%$ | $0.6 \%$ | $10.1 \%$ | $0.0 \%$ | $45.2 \%$ |
| (E) | $15 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.3 \%$ |
|  | $20 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $25 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| Option 11.4 | $10 \%$ | $14.5 \%$ | $16.4 \%$ | $6.4 \%$ | $22.7 \%$ |
| (F) | $15 \%$ | $6.4 \%$ | $8.0 \%$ | $0.1 \%$ | $12.9 \%$ |
|  | $20 \%$ | $1.9 \%$ | $1.9 \%$ | $0.0 \%$ | $4.2 \%$ |
|  | $25 \%$ | $0.3 \%$ | $0.3 \%$ | $0.0 \%$ | $0.6 \%$ |


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Table BCOAPO IR2 Q27c cont'd

|  | Percent <br> Customers <br> with Impacts <br> Greater Than: | 2012 | 2013 | 2014 | 2015 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Option 17.3 | $10 \%$ | $0.0 \%$ | $8.0 \%$ | $0.0 \%$ | $45.2 \%$ |
| (G) | $15 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $20 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $25 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| Option 17.4 | $10 \%$ | $16.4 \%$ | $21.3 \%$ | $1.9 \%$ | $27.5 \%$ |
| (H) | $15 \%$ | $1.9 \%$ | $5.2 \%$ | $0.0 \%$ | $12.9 \%$ |
|  | $20 \%$ | $0.1 \%$ | $0.3 \%$ | $0.0 \%$ | $1.3 \%$ |
|  | $25 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| Option 6.1 | $10 \%$ | $0.6 \%$ | $10.1 \%$ | $0.0 \%$ | $45.2 \%$ |
| CARC+10\% | $15 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.3 \%$ |
| BCUC IR 21.4 | $20 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $25 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| Option 6.2 | $10 \%$ | $14.5 \%$ | $16.4 \%$ | $6.4 \%$ | $22.7 \%$ |
| CARC+10\% | $15 \%$ | $6.4 \%$ | $8.0 \%$ | $0.1 \%$ | $12.9 \%$ |
| BCUC IR 21.4 | $20 \%$ | $1.9 \%$ | $1.9 \%$ | $0.0 \%$ | $4.2 \%$ |
|  | $25 \%$ | $0.3 \%$ | $0.3 \%$ | $0.0 \%$ | $0.6 \%$ |
| Option 9.1 | $10 \%$ | $0.0 \%$ | $8.0 \%$ | $0.0 \%$ | $45.2 \%$ |
| CARC+10\% | $15 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| BCUC IR 22.1 | $20 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $25 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| Option 9.2 | $10 \%$ | $16.4 \%$ | $21.3 \%$ | $1.9 \%$ | $27.5 \%$ |
| CARC+10\% | $15 \%$ | $1.9 \%$ | $5.2 \%$ | $0.0 \%$ | $12.9 \%$ |
| BCUC IR 22.1 | $20 \%$ | $0.1 \%$ | $0.3 \%$ | $0.0 \%$ | $1.3 \%$ |
|  | $25 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |


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d) Given that the RIB will not be introduced until 2012 please provide an revised version of the response to part (c) above where the 2011 rates are assumed to be the flat rates as of August 24, 2011 and the 2012 and subsequent rates are set per FortisBC's pricing principles (i.e., result in the rates shown in revised Table 8.3 but updated for the new anticipated rate increases per Exhibit B-11, page 8).

## Response:

Please see Table BCOAPO IR2 Q27d below.
Table BCOAPO IR2 Q27d

|  | Percent <br>  <br> Customers <br> with Impacts <br> Greater Than: | 2012 | 2013 | 2014 | 2015 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Option 2.1 | $10 \%$ | $21.3 \%$ | $6.4 \%$ | $0.0 \%$ | $48.0 \%$ |
| (A) | $15 \%$ | $11.4 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $20 \%$ | $2.7 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $25 \%$ | $1.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| Option 2.2 | $10 \%$ | $21.3 \%$ | $21.3 \%$ | $0.2 \%$ | $29.3 \%$ |
| (B) | $15 \%$ | $14.5 \%$ | $1.3 \%$ | $0.0 \%$ | $8.0 \%$ |
|  | $20 \%$ | $8.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $25 \%$ | $1.9 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| Option 8.1 | $10 \%$ | $18.7 \%$ | $8.0 \%$ | $0.0 \%$ | $45.2 \%$ |
| (C) | $15 \%$ | $10.1 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $20 \%$ | $4.2 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $25 \%$ | $1.3 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| Option 8.2 | $10 \%$ | $21.3 \%$ | $21.3 \%$ | $1.3 \%$ | $29.3 \%$ |
| (D) | $15 \%$ | $12.9 \%$ | $2.7 \%$ | $0.0 \%$ | $11.4 \%$ |
|  | $20 \%$ | $8.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.6 \%$ |
|  | $25 \%$ | $4.2 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| Option 11.3 | $10 \%$ | $12.9 \%$ | $10.1 \%$ | $0.0 \%$ | $45.2 \%$ |
| (E) | $15 \%$ | $1.9 \%$ | $0.0 \%$ | $0.0 \%$ | $0.3 \%$ |
|  | $20 \%$ | $0.1 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $25 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |


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Table BCOAPO IR2 Q27d cont'd

|  | Percent <br> Customers <br> with Impacts <br> Greater Than: |  | 2012 | 2013 | 2014 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Option 11.4 | $10 \%$ | $16.4 \%$ | $16.4 \%$ | $6.4 \%$ | 2015 |
| (F) | $15 \%$ | $10.1 \%$ | $8.0 \%$ | $0.1 \%$ | $12.9 \%$ |
|  | $20 \%$ | $5.2 \%$ | $1.9 \%$ | $0.0 \%$ | $4.2 \%$ |
|  | $25 \%$ | $1.9 \%$ | $0.3 \%$ | $0.0 \%$ | $0.6 \%$ |
| Option 17.3 | $10 \%$ | $14.5 \%$ | $8.0 \%$ | $0.0 \%$ | $45.2 \%$ |
| (G) | $15 \%$ | $1.9 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $20 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $25 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| Option 17.4 | $10 \%$ | $18.7 \%$ | $21.3 \%$ | $1.9 \%$ | $27.5 \%$ |
| (H) | $15 \%$ | $10.1 \%$ | $5.2 \%$ | $0.0 \%$ | $12.9 \%$ |
|  | $20 \%$ | $1.9 \%$ | $0.3 \%$ | $0.0 \%$ | $1.3 \%$ |
| Option 6.1 | $10 \%$ | $12.9 \%$ | $10.1 \%$ | $0.0 \%$ | $45.2 \%$ |
| CARC+10\% | $15 \%$ | $1.9 \%$ | $0.0 \%$ | $0.0 \%$ | $0.3 \%$ |
| BCUC IR 21.4 | $20 \%$ | $0.1 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $25 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| Option 6.2 | $10 \%$ | $16.4 \%$ | $16.4 \%$ | $6.4 \%$ | $22.7 \%$ |
| CARC+10\% | $15 \%$ | $10.1 \%$ | $8.0 \%$ | $0.1 \%$ | $12.9 \%$ |
| BCUC IR 21.4 | $20 \%$ | $5.2 \%$ | $1.9 \%$ | $0.0 \%$ | $4.2 \%$ |
|  | $25 \%$ | $1.9 \%$ | $0.3 \%$ | $0.0 \%$ | $0.6 \%$ |
| Option 9.1 | $10 \%$ | $14.5 \%$ | $8.0 \%$ | $0.0 \%$ | $45.2 \%$ |
| CARC+10\% | $15 \%$ | $1.9 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| BCUC IR 22.1 | $20 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
|  | $25 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |
| Option 9.2 | $10 \%$ | $18.7 \%$ | $21.3 \%$ | $1.9 \%$ | $27.5 \%$ |
| CARC+10\% | $15 \%$ | $10.1 \%$ | $5.2 \%$ | $0.0 \%$ | $12.9 \%$ |
| BCUC IR 22.1 | $20 \%$ | $1.9 \%$ | $0.3 \%$ | $0.0 \%$ | $1.3 \%$ |
|  | $25 \%$ | $1.0 \%$ | $0.0 \%$ | $0.0 \%$ | $0.0 \%$ |


| FortisBC Inc. (FortisBC or the Company) <br> Residential Inclining Block Rate Application | Submission Date: <br> September 29, 2011 |
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## Question \#28

## Reference:

## i) Exhibit B-6 and Exhibit B-1-2 BCOAPO IR 16 i) (Original and

 Errata 3)a) According to the June 27th letter from FortisBC (page 2) the revisions in Errata 3 did not affect the RIB rates for 2011. If this is the case, please explain why the response to BCOAPO IR 16 i) changes in Errata 3.

## Response:

The original BCOAPO IR1 Q16i indicated that the 2011 rates should reflect the general rate increase, the rebalancing increase and the BC Hydro interim increase. The RIB rates as filed for 2011 did not reflect the BC Hydro interim rate increase during 2011 as it would occur midyear. The original response to 16 (i) used the 2011 rates from Table 8-3 without any adjustments. When the errata were filed, it included the BC Hydro interim rate increase which was not part of 2011 for Table 8-3. The 2011 rates were adjusted to include the BC Hydro interim rate increase for purposes of the response to 16 (i).
b) Please re-do the response to BCOAPO IR 16 i) using the rates for Options 2, 8, 11 and 17 as set out in response to BCOAPO IR 14 a).

## Response:

The following table provides the response for both BCOAPO IR2 Q28b and Q28c.

| Table BCOPAO IR2 <br> Q28bPercent <br> Customers with Impacts <br> Greater Than: | Option 2 <br> (A \& B) | Option 8 <br> (C \& D) | Option 11 <br> (E \& F) | Option 17 <br> (G \& H) | Option 6 <br> (CARC <br> +10\%) | Option 9 <br> (CARC <br> +10\%) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $10 \%$ | $27.5 \%$ | $25.8 \%$ | $27.5 \%$ | $25.8 \%$ | $51.0 \%$ | $92.1 \%$ |
| $15 \%$ | $14.5 \%$ | $12.9 \%$ | $14.5 \%$ | $14.5 \%$ | $40.1 \%$ | $67.4 \%$ |
| $20 \%$ | $5.2 \%$ | $5.2 \%$ | $5.2 \%$ | $5.2 \%$ | $27.5 \%$ | $45.2 \%$ |
| $25 \%$ | $1.3 \%$ | $1.9 \%$ | $1.3 \%$ | $1.3 \%$ | $16.4 \%$ | $37.6 \%$ |

c) Please re-do the response to BCOAPO 16 i) using the rates for the CARC+10\% options set out in response to BCUC IR's 21.4 and 22.1.

## Response:

Please see the response to BCOAPO IR2 Q28b above.

## Question \#29

Reference: $\quad$ i) Exhibit B-6, BCOAPO IR's 14 a) and 18 a) \& b)
ii) Exhibit B-11, FBC Additional Evidence, page 8 and Appendix

A
a) Please update BCOAPO IR's 18 a) \& b) to reflect the currently anticipated annual rate adjustments and $B C$ Hydro rate increases as described in Exhibit B-11, page 8.

## Response:

Please see the following two tables.

| FortisBC Inc. (FortisBC or the Company) <br> Residential Inclining Block Rate Application | Submission Date: <br> September 29, 2011 |
| :---: | :---: |
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Table BCOAPO IR2 Q29(i)

|  | Base Rate Option | Threshold | Rate Increase Applied | Rate Component | 2011 | 2012 | 2013 | 2014 | 2015 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | 2 | 1350 kWh | Both Blocks | Customer Charge | 29.34 | 29.65 | 30.34 | 30.34 | 30.34 |
|  |  |  |  | Block 1 Rate | 0.09217 | 0.08127 | 0.08875 | 0.09389 | 0.10460 |
|  |  |  |  | Block 2 Rate5 |  | 0.12202 | 0.13550 | 0.14532 | 0.16575 |
|  |  |  |  | Ratio: Block 2 / Block 1 |  | 1.50 | 1.53 | 1.55 | 1.58 |
| B | 2 | 1350 kWh | Block 2 Only | Customer Charge | 29.34 | 29.65 | 30.34 | 30.34 | 30.34 |
|  |  |  |  | Block 1 Rate | 0.09217 | 0.07526 | 0.07526 | 0.07526 | 0.07526 |
|  |  |  |  | Block 2 Rate5 |  | 0.12989 | 0.15316 | 0.16971 | 0.20416 |
|  |  |  |  | Ratio: Block 2 / Block 1 |  | 1.73 | 2.04 | 2.26 | 2.71 |
| C | 8 | 1600 kWh | Both Blocks | Customer Charge | 29.34 | 29.65 | 30.34 | 30.34 | 30.34 |
|  |  |  |  | Block 1 Rate | 0.09217 | 0.08453 | 0.09231 | 0.09767 | 0.10880 |
|  |  |  |  | Block 2 Rate5 |  | 0.12379 | 0.13784 | 0.14815 | 0.16961 |
|  |  |  |  | Ratio: Block 2 / Block 1 |  | 1.46 | 1.49 | 1.52 | 1.56 |
| D | 8 | 1600 kWh | Block 2 Only | Customer Charge | 29.34 | 29.65 | 30.34 | 30.34 | 30.34 |
|  |  |  |  | Block 1 Rate | 0.09217 | 0.07828 | 0.07828 | 0.07828 | 0.07828 |
|  |  |  |  | Block 2 Rate5 |  | 0.13460 | 0.16211 | 0.18167 | 0.22239 |
|  |  |  |  | Ratio: Block 2 / Block 1 |  | 1.72 | 2.07 | 2.32 | 2.84 |
| E | 11 | 1350 kWh | All Components | Customer Charge | 29.34 | 23.22 | 25.35 | 26.82 | 29.88 |
|  |  |  |  | Block 1 Rate | 0.09217 | 0.08852 | 0.09666 | 0.10227 | 0.11393 |
|  |  |  |  | Block 2 Rate5 |  | 0.11950 | 0.13049 | 0.13806 | 0.15380 |
|  |  |  |  | Ratio: Block 2 / Block 1 |  | 1.35 | 1.35 | 1.35 | 1.35 |
| F | 11 | 1350 kWh | Customer Charge and Block | Customer Charge | 29.34 | 23.22 | 25.35 | 26.82 | 29.88 |
|  |  |  |  | Block 1 Rate | 0.09217 | 0.08197 | 0.08197 | 0.08197 | 0.08197 |
|  |  |  |  | Block 2 Rate5 |  | 0.12807 | 0.14973 | 0.16463 | 0.19563 |
|  |  |  |  | Ratio: Block 2 / Block 1 |  | 1.56 | 1.83 | 2.01 | 2.39 |
| G | 17 | 1600 kWh | All Components | Customer Charge | 29.34 | 23.22 | 25.35 | 26.82 | 29.88 |
|  |  |  |  | Block 1 Rate | 0.09217 | 0.09124 | 0.09963 | 0.10541 | 0.11743 |
|  |  |  |  | Block 2 Rate5 |  | 0.12043 | 0.13151 | 0.13914 | 0.15500 |
|  |  |  |  | Ratio: Block 2 / Block 1 |  | 1.32 | 1.32 | 1.32 | 1.32 |
| H | 17 | 1600 kWh | Customer Charge and Block | Customer Charge | 29.34 | 23.22 | 25.35 | 26.82 | 29.88 |
|  |  |  |  | Block 1 Rate | 0.09217 | 0.08449 | 0.08449 | 0.08449 | 0.08449 |
|  |  |  |  | Block 2 Rate5 |  | 0.13211 | 0.15770 | 0.17532 | 0.21197 |
|  |  |  |  | Ratio: Block 2 / Block 1 |  | 1.56 | 1.87 | 2.08 | 2.51 |


| FortisBC Inc. (FortisBC or the Company) <br> Residential Inclining Block Rate Application | Submission Date: <br> September 29, 2011 |
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|  | FortisBC Inc. (FortisBC or the Company) <br> Residential Inclining Block Rate Application |
| :---: | :---: |
| FORTIS BC | Submission Date: <br> September 29, 2011 |
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b) Please explain the basis for the values for the "Cumulative Conservation Impact from RIB" reported for the "Continued Flat Rate Option" (i.e. why aren't all the values zero)?

## Response:

The Cumulative Conservation Impact from RIB for the flat block rate is intended to reflect the savings associated with the assumed elasticity values when rate increases on an annual basis under a flat block rate are applied. This has been referred to as the "Natural" conservation in some cases.
c) Please provide a revised Appendix A such that:

- The 2011 Rates are those currently in effect (per BCOAPO IR 18 a))
- The bill and conservation impacts reflect a 2012 implementation of the RIB (as planned by FortisBC) such that the bill impacts and conservation impacts start in 2012.
- It includes a second Flat Rate option where the Customer Charge is only increased by the Rebalancing Increase and the associated conservation impact is based the "Continued Flat Rate Option".
- It includes Options \#3 and \#8 from BCOAPO IR 14 a) - where Pricing Principle \#1 (per Exhibit B-11, page 8) is applied to obtain the post-2011 rates.
- It includes the CARC+10\% options from BCUC IR's 21.4 and 22.1 where Pricing Principle \#1 is applied to obtain the post-2011 rates.


## Response:

The revised tables from Appendix A are provided below as requested. Note that Options 3 and 8 from BCOAPO 14(a) are options 35 and 40. The CARC+10\% options from BCUC 21.4 and 22.1 are options 6 and 9.

| FortisBC Inc. (FortisBC or the Company) |
| :---: | :---: | :---: |
| Residential Inclining Block Rate Application |$\quad$| Submission Date: |
| :---: |
| September 29, 2011 |

FORTIS BC

## Table BCOAPO IR2 Q29c - 1: Comparison of Options with \$28.93 Customer Charge




| $\begin{array}{c}\text { FortisBC Inc. (FortisBC or the Company) } \\ \text { Residential Inclining Block Rate Application }\end{array}$ |  |  |  | $\begin{array}{c}\text { Submission Date: } \\ \text { September 29, 2011 }\end{array}$ |
| :---: | :---: | :---: | :---: | :---: |
| RORTIS BC" | Response to British Columbia Old Age Pensioners et al (BCOAPO) |  |  |  |
| Information Request (IR) No. 2 |  |  |  |  |



| FortisBC Inc. (FortisBC or the Company) |
| :---: | :---: | :---: |
| Residential Inclining Block Rate Application |$\quad$| Submission Date: |
| :---: |
| September 29, 2011 |


| Table BCOAPO IR2 Q29c - 3: Comparison of Options with \$15.00 Customer Charge |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Base Rate Option |  | $\begin{array}{\|c} \text { Rate Increase } \\ \text { Applied } \end{array}$ |  | 5-Year Rate Projection |  |  |  |  | Elasticity | cumulative Conservation Impact |  |  |  |  |  | $\begin{aligned} & \text { Min Bill } \\ & \hline \text { Impact } \\ & \hline \end{aligned}$ | $\begin{array}{\|l} \hline \text { Max } \times \text { Bll } \\ \text { Impact } \\ \hline \end{array}$ | Percent of customers with Decrease of: |  |  |  | Percent of Customers with Increase of: |  |  |  |  |  |
|  |  | $\begin{gathered} \text { Threshold } \\ \mathrm{kWh} \end{gathered}$ |  |  | 2011 | 2012 | 2013 | 2014 | 2015 | Estimate | 2011] | 2012] | 2013 |  | 2015 |  |  |  | 30\%+ | \| 20.30\% | 10-20\% | 0.10\% | 0-10\% | 10-20\% | 20-30\% | 30-40\% | 40-50\% | 50\%+ |
|  |  |  |  | RRA Increase |  | 4.00\% | 6.90\% | 5.80\% | 11.40\% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | Rebal ancing Increase |  | 2.50\% | 2.30\% | 0.00\% | 0.00\% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 28.1 | 28 | 2100 | Pricing Principle 1. Both Blocks | Customer Charge | 29.34 | 15.38 | 15.73 | 15.73 | 15.73 | . $05 / 10$ | 0.0\% | 2.8\% | 2.7\% | 2.7\% | 2.7\% | 2012 Impact | -37.3\% | 52.5\% | 2.9\% | 3.1\% | 26.6\% | 36.1\% | 12.5\% | 8.6\% | 7.4\% | 1.7\% | 1.0\% | 0.1\% |
|  |  |  |  | Block 1 Rate | 0.09217 | 0.09211 | 0.10058 | 0.10641 | 0.11854 | . $10 / 20$ | 0.0\% | 5.6\% | 5.5\% | 5.5\% | 5.4\% | 4-yr Net R1B Impact | -59.2\% | 50.2\% | 7.9\% | 24.8\% | 24.8\% | 19.9\% | 9.9\% | 6.5\% | 4.5\% | 1.4\% | 0.4\% | 0.1\% |
|  |  |  |  | Block 2 Rate | 0.09217 | 0.14322 | 0.15843 | 0.16928 | 0.19186 | .20/.30 | 0.0\% | 8.3\% | 8.3\% | 8.3\% | 8.3\% | 4-yr Total Impact | -26.3\% | \%\% | 0.0\% | .6\% | 2.7\% | 1.7\% | 16.1 | 35.3\% | 13.3\% | 12.9\% | 5\% | 8.0\% |
|  |  |  |  | Ratio: Block 2/Block 1 | 1.00 | 1.56 | 1.58 | 1.59 | 1.62 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 28.2 | 28 | 2100 | PricingPrinciple 2.Block 2 Only | Customer Charge | 29.34 | 15.38 | 15.73 | 15.73 | 15.73 | .05/.10 | 0.0\% | 3.9\% | 4.5\% | 4.7\% | 5.1\% | 2012 Impact | -38.99 | 71.7\% | 4.3\% | 11.3\% | 36.4\% | 18.79 | 10.6\% | 7.3 | 5.0\% | 3.7\% | 1.4 | 1.3\% |
|  |  |  |  | Block 1 Rate | 0.09217 | 0.08529 | 0.08529 | 0.08529 | 0.08529 | . $10 / 20$ | 0.0\% | 7.8\% | 8.9\% | 9.4\% | 10.3\% | 4 -yr Net RIB Impact | -70.3\% | 99.6\% | 57.4\% | 11.4\% | 1.9\% | $8.0 \%$ | $2.6 \%$ | 5.8\% | 2.8\% | 3.7\% | 3.7 | 2.7\% |
|  |  |  |  | Block 2 Rate | 0.09217 | 0.16229 | 0.20096 | 0.22804 | 0.28438 | .20/.30 | 0.0\% | 11.5\% | 13.1\% | 13.8\% | 15.0\% | 4-yr Total Impact | -37.4\% | 132.5\% | 2.9\% | 9.8\% | 33.3\% | 4\% | 11.4\% | 1.9\% | 4.9\% | 5.7\% | 4.2\% | 14.5\% |
|  |  |  |  | Ratio: Block 2/Block 1 | 1.00 | 1.90 | 2.36 | 2.67 | 3.33 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 28.3 | 28 | 2100 | PricingPrinctipe 3-AllComponents | Customer Charge | 29.34 | 16.20 | 17.69 | 18.71 | 20.85 | . $05 / 10$ | $0.0 \%$ | 2.7\% | 2.6\% | 2.5\% | 2.3\% | 2012 Impact | -35.1\% | 51.0\% | 1.6\% | 4.4\% | 26.6\% | 36.1\% | 12.5\% | 8.6\% | 7.4\% | 2.1\% | 0.6 | 0.1\% |
|  |  |  |  | Block 1 Rate | 0.09217 | 0.09211 | 0.10058 | 0.10641 | 0.11854 | . $10 / 20$ | 0.0\% | 5.4\% | 5.1\% | 5.0\% | 4.7\% | 4-yr Net R1B Impact | -41.6\% | 44.5\% | 4.3\% | 14.4\% | 38.7\% | 19.9\% | 11.3\% | 7.2\% | 2.9\% | $1.2 \%$ | 0.2\% | 0.0\% |
|  |  |  |  | Block 2 Rate | 0.09217 | 0.14185 | 0.15490 | 0.16388 | 0.18256 | .20/.30 | 0.0\% | 8.0\% | 7.7\% | 7.5\% | 7.2\% | 4-yr Total Impact | -8.7\% | 77.4\% | 0.0\% | 0.0\% | 0.0\% | 2.9\% | 7.6\% | 41.5\% | 18.7\% | 14.8\% | 8.1\% | 6.4\% |
|  |  |  |  | Ratio: Block 2/Block 1 | 1.00 | 1.54 | 1.54 | 1.54 | 1.54 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 28.4 | 28 | 2100 | PricingPrinciple 4.Customer andBlock 2 | Customer Charge | 29.34 | 16.20 | 17.69 | 18.71 | 20.85 | .05/.10 | 0.0\% | 3.8\% | 4.3\% | 4.5\% | 4.9\% | 2012 Impact | -36.7\% | 70.2\% | 2.9\% | $9.8 \%$ | 39.3\% | 18.7\% | 10.6\% | 7.3\% | 5.0\% | 3.7\% | 1.7\% | 1.0\% |
|  |  |  |  | Block 1 Rate | 0.09217 | 0.08529 | 0.08529 | 0.08529 | 0.08529 | . $10 / 20$ | 0.0\% | 7.6\% | 8.6\% | 9.0\% | 9.7\% | 4-yr Net RIB Impact | .51.1\% | 95.2\% | 57.4\% | 11.4\% | 1.9\% | 8.0\% | 4.8\% | 3.6\% | 2.8\% | 3.7\% | 3.7\% | 2.7\% |
|  |  |  |  | Block 2 Rate | 0.09217 | 0.16081 | 0.19743 | 0.22265 | 0.27508 | .20/.30 | 0.0\% | 11.2\% | 12.6\% | 13.2\% | 14.1\% | 4-yr Total Impact | -18.2\% | 128.1\% | 0.0\% | 0.0\% | 29.2\% | 25.3\% | 7.3 | 8.8 | 6.6 | 4.0 | 4.2 | 14.5\% |
|  |  |  |  | Ratio: Block 2/Block 1 | 1.00 | 1.89 | 2.31 | 2.61 | 3.23 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 66.1 | 66 | 1350 | Pricing Principle 1 Both Blocks | Customer Charge | 29.34 | 15.38 | 15.73 | 15.73 | 15.73 | .05/.10 | 0.0\% | $2.7 \%$ | 2.7\% | 2.7\% | 2.7\% | 2012 Impact | -38.7\% | 40.3\% | 4.3\% | 8.48 | 33.3\% | 11.4\% | 19.9\% | 14.7\% | $6.6 \%$ | 1.3\% | 0.1\% | 0.0\% |
|  |  |  |  | Block 1 Rate | 0.09217 | 0.08620 | 0.09413 | 0.09959 | 0.11094 | .10/.20 | $0.0 \%$ | 5.3\% | $5.4{ }^{2}$ | $5.4 \%$ | 5.5 | 4-ry Net R1B Impact | -61.08 | 36.6\% | 15.68 | 24.1\% | 17.7 | 13.3 | 14.8\% | 11.8\% | 2.3\% | 0.42 | 0.0 | 0.0\% |
|  |  |  |  | Block 2 Rate | 0.09217 | 0.13106 | 0.14429 | 0.15367 | 0.17320 | .20/.30 | 0.0\% | 7.9\% | 8.0\% | 8.0\% | 8.2\% | 4-yr Total Impact | -28.1\% | 69.5\% | $0.0 \%$ | 1.6\% | 2.7\% | $6.2 \%$ | 22.1\% | 19.3\% | 16.8 | 12.5\% | ${ }^{12.3}$ | 6.4\% |
|  |  |  |  | Ratio: Block 2/Block 1 | 1.00 | 1.52 | 1.53 | 1.54 | 1.56 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 66.2 | 66 | 1350 | $\begin{aligned} & \text { Pricing } \\ & \text { Principle 2. } \\ & \text { Block } 2 \text { Only } \end{aligned}$ | Customer Charge | 29.34 | 15.38 | 15.73 | 15.73 | 15.73 | .05/.10 | 0.0\% | 3.3\% | 3.8 | 4.0\% | 4.4\% | 2012 Impact | -40.2\% | 48.9\% | 4.3\% | 24.9\% | 19.8\% | 10.9 | ${ }^{17.3}$ | 12.7\% | 7.4 | 2.1 | 0.6 | 0.0\% |
|  |  |  |  | Block 1 Rate | 0.09217 | 0.07982 | 0.07982 | 0.07982 | 0.07982 | . $10 / 20$ | 0.0\% | 6.6\% | 7.5\% | 8.0\% | 8.9\% | 4 4y Net RIB Impact | .71.5\% | 61.5\% | 49.0\% | 8.4\% | 2.5\% | 10.8\% | 9.4\% | 7.0\% | 6.5 | 3.7\% | 2.1 | 0.6 |
|  |  |  |  | Block 2 Rate | 0.09217 | 0.13941 | 0.16302 | 0.17955 | 0.21393 | .20/.30 | 0.0\% | 9.8\% | 11.1\% | 11.7\% | 12.9\% | 4-yr Total Impact | -38.6\% | 94.4\% | 4.3\% | 21.4\% | 7.0\% | 13.3\% | 6.0\% | 8.0\% | 8.8 | 8.5\% | 8.2 | 14.5\% |
|  |  |  |  | Ratio: Block 2/Block 1 | 1.00 | 1.75 | 2.04 | 2.2 | 2.68 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 66.3 | 66 | 1350 | $\begin{array}{\|c\|} \text { Pricing } \\ \text { Principle 3-All } \\ \text { Components } \end{array}$ | Customer Charge | 29.34 | 16.20 | 17.69 | 18.71 | 20.85 | . $05 / 10$ | 0.0\% | $2.6 \%$ | 2.5\% | 2.5\% | 2.4\% | 2012 Impact | -36.5\% | 39.4\% | 2.9\% | 7.6\% | 29.2\% | 17.78 | 19.9\% | 14.7\% | 6.6 | 1.3\% | 0.0 | 0.0\% |
|  |  |  |  | Block 1 Rate | 0.09217 | 0.08620 | 0.09413 | 0.09959 | 0.11094 | . $10 / .20$ | 0.0\% | 5.2\% | 5.1\% | 5.0\% | 4.9\% | 4-yr Net R1B Impact | -43.0\% | 32.9\% | 6.0\% | 26.6\% | 19.3\% | 18.7 | 16.5\% | 10.2\% | 2.5\% | 0.2 | 0.0 | 0.0\% |
|  |  |  |  | Block 2Rate | 0.09217 | 0.13016 | 0.14214 | 0.15038 | 0.16752 | .20/.30 | 0.0\% | 7.7\% | 7.5\% | 7.4\% | 7.3\% | 4-yr Total Impact | -10.1\% | 65.8\% | 0.0\% | 0.0\% | 1.6\% | 2.7 | 17.8\% | 26.9\% | 19.8\% | 14.8\% | 13.7\% | 2.7\% |
|  |  |  |  | Ratio: Block 2/Block 1 | 1.00 | 1.51 | 1.51 | 1.51 | 1.51 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 66.4 | 66 | 1350 | Pricing <br> Principle 4. <br> Customer and <br> Block 2 <br> R | Customer Charge | 29.34 | 16.20 | 17.69 | 18.71 | 20.85 | .05/.10 | 0.0\% | 3.2\% | 3.6\% | 3.8\% | 4.2\% | 2012 Impact | -38.0\% | 47.9\% | 4.3\% | 24.9\% | 19.8\% | 10.9\% | 17.3\% | 12.7\% | 7.4\% | 2.3\% | 0.4\% | 0.0\% |
|  |  |  |  | Block 1 Rate | 0.09217 | 0.07982 | 0.07982 | 0.07982 | 0.07982 | . $10 / 20$ | 0.0\% | 6.5\% | 7.3\% | 7.6\% | 8.3\% | 4.yr Net RIB Impact | .52.0\% | 58.3\% | 46.0\% | 8.8\% | 5.1\% | 10.8\% | 9.4\% | 9.8\% | 5.8\% | 2.4\% | 1.6\% | 0.3\% |
|  |  |  |  | Block 2 Rate | 0.09217 | 0.13851 | 0.16087 | 0.17626 | 0.20826 | .20/30 | 0.0\% | 9.5\% | 10.7\% | 11.2\% | 12.1\% | 4.yr Total Impact | -19.1\% | 91.12 | $0.0 \%$ | 0.0 | 29.2 | 16.8 | 6.08 | 8.0 | 8.8 | 9.9\% | 8.5\% | 12.9 |
|  |  |  |  | Ratio: Block 2/Block 1 | 1.00 | 1.74 | 2.02 | 2.21 | 2.61 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 69.1 | 69 | 1600 | $\begin{gathered} \text { Pricing } \\ \text { Principle 1. } \\ \text { Both Blocks } \end{gathered}$ | Customer Charge | 29.34 | 15.38 | 15.73 | 15.73 | 15.73 | .05/.10 | 0.0\% | $2.7 \%$ | 2.7\% | 2.7\% | 2.7\% | 2012 Impact | . $38.1 \%$ | 43.7\% | 2.9\% | 5.0\% | 38.1\% | 13.9\% | 20.2\% | 9.8\% | 8.2\% | 1.7\% | 0.2\% | 0.0\% |
|  |  |  |  | Block 1 Rate | 0.0921 | 0.08896 | 0.09714 | 0.1027 | 0.11449 | . $10 / 20$ | 0.0\% | 5.4\% | 5.4\% | 5.4\% | $5.4 \%$ | 4-rr Net RIB Impact | -60.1\% | 40.5\% | 12.7\% | 23.5\% | 21.2\% | 15.1\% | 13.0\% | 10.3\% | 3.2\% | 1.02 | 0.1 | 0.0\% |
|  |  |  |  | Block 2 Rate | 0.0921 | 0.13450 | 0.14826 | 0.15806 | 0.17844 | .20/30 | 0.0\% | 8.0\% | 8.0\% | 8.1\% | 8.2\% | 4.yy Total Impact | -27.3\% | $73.3{ }^{\circ}$ | 0.02 | 1.6\% | 2.7 | 3.6 | 21.4 | 2.7 | 16.8 | 12.5 | 12.3\% | 6.4\% |
|  |  |  |  | Ratio: Block 2/Block 1 | 1.00 | 1.51 | 1.53 | 1.57 | 1.56 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 69.2 | 69 | 1600 | PricingPrinciple 2.Block 2 Only | Customer Charge | 29.3 | 15.38 | 15.73 | 15.7 | 15.7 | .05/.10 | $0.0 \%$ | 3.5\% | 4.0\% | 4.3\% | 4.7\% | 2012 mpa | -39.6\% | 55.4\% | 4.3\% | 24.9\% | 22.7\% | 12.4\% | 12.9\% | 9.9\% | 8.6\% | 2.9\% | 1.2\% | 0.2\% |
|  |  |  |  | Block 1Rate | ${ }_{0}^{0.09217}$ | 0.0823 | 0.08237 | 0.08237 | 0.083398 | . 20 /20,30 | 0.0\%\% | 10.3\% | 11.8\% | 12.5\% | 13.7\% |  | - 7.0 .98 | 105.9\% | 52.0\% | 17.4\% | 11.4\% | 9.5\% | 5.4\% | 7.0\% | 6.3\% | 5.4\% | 5.3\% | 1.9\% |
|  |  |  |  | Ratio: Block 2/Block 1 | 1.00 | 1.1.77 | 2.11 | 2.35 | 2.84 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 69.3 | 69 | 1600 | Pricing <br> Principle 3-All <br> Components | Customer Charge | 29.34 | 16.20 | 17.69 | 18.71 | 20.85 | . $05 / 10$ | 0.0\% | 2.6\% | 2.5\% | 2.5\% | $2.4 \%$ | 2012 Impact | . $35.9 \%$ | 42.6\% | $1.6 \%$ | 4.4\% | 30.2\% | 23.8\% | 20.2\% | 11.9\% | 6.1\% | $1.8 \%$ | 0.1\% | 0.0\% |
|  |  |  |  | Block 1Rate | 0.09217 | 0.08896 | 0.09714 | 0.10277 | 0.11449 | . $10 / 20$ | 0.0\% | 5.2\% | 5.1\% | 5.0\% | 4.8\% | 4-yr Net RIB Impact | -42.4\% | 36.2\% | 4.3\% | 24.9\% | 28.2\% | 15.1\% | 14.6\% | 10.2\% | 2.3 | 0.4 | 0.0\% | 0.0\% |
|  |  |  |  | Block 2 Rate | 0.09217 | 0.13343 | 0.14571 | 0.15416 | 0.17174 | .20/,30 | 0.0\% | 7.7\% | 7.6\% | 7.4\% | 7.2\% | 4-yr Total Impact | 9.5\% | 69.0\% | 0.0\% | 0.0\% | 0.0\% | 4.3\% | 11.3 | 36. | 16.8\% | 14.8\% | 12.2 | 4.2\% |
|  |  |  |  | Ratio: Block 2/Block 1 | 1.00 | 1.50 | 1.50 | 1.50 | 1.50 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 69.4 | 69 | 1600 | PricingPrinciple 4.Customer andBlock 2 | Customer Charge | 29.34 | 16.20 | 17.6 | 18.71 | 20.85 | .05/.10 | 0.0\% | 3.4\% | 3.9\% | 4.1\% | 4.4\% | 2012 Impact | -37.4\% | 54.3\% | 4.3\% | 17.8\% | 29.9\% | 12.4\% | 12.9\% | 11.3\% | 8.7\% | 1.4\% | 1.2\% | 0.2\% |
|  |  |  |  | Block 1 Rate | 0.09217 | 0.08237 | 0.08237 | 0.08237 | 0.08237 | . $10 / 20$ | 0.0\% | 6.8\% | 7.7\% | 8.1\% | 8.9\% | 4-yr Net R1B Impact | -51.6\% | 69.4\% | 52.0\% | $5.4 \%$ | 11.4\% | 3.7\% | 8.8\% | 5.8 | 6.5 | 3.7\% | 1.4 | 1.3\% |
|  |  |  |  | Block 2 Rate | 0.09217 | 0.14882 | $\frac{0.17124}{208}$ | 0.18944 | ${ }_{0}^{0.22727}$ | .20,.30 | 0.0\% | 10.1\% | 11.3\% | 11.9\% | 12.9\% | 4-yr Total Impact | -18.7\% | 102.3\% | 0.0\% | 0.0\% | 32.6\% | 19.3\% | 5.4\% | 4.9\% | 8.3\% | 9.4\% | 5.3\% | 14.5\% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |


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Table BCOAPO IR2 Q29c - 4: Comparison of Options with $\$ 10.00$ Customer Charge



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## Question \#30

## Reference:

## i) Exhibit B-6, BCSEA IR 5.1

a) Please confirm that unless the monthly usage is the same in all billing periods, the maximum monthly bill impact for a high consumption residential customer will be greater than the overall annual bill impact. If not, please demonstrate with an example why not.

## Response:

Confirmed. However, it is also true that in some months the monthly bill impact will be less than the overall annual bill impact.

## Question \#31

## Reference:

## i) Exhibit B-6, Nelson Hydro IR 7 b)

a) The response states that "if the implementation of a RIB rate results in a reduction in residential load and marginal power purchases there may be an increase the utility's revenue requirement". Please confirm that FortisBC meant there may be an increase in the utility's "rates" as opposed to "revenue requirement". If this is not the case, please explain.

## Response:

Not confirmed. The Company's Revenue Requirement can increase which may or may not result in an increase in customer rates. For instance if the load of other customer classes were to increase to a level where the total revenues at prior years rates were to exceed the Company's Revenue Requirement, the customer rates could decrease, despite the Revenue Requirement having increased.

## Question \#32

## Reference:

## i) Exhibit B-6. OEIA IR's 3.1 and 3.2

a) The response to OEIA IR 3.1 states that the $66 \%$ goal in the Clean Energy Act applies only to BC Hydro. However, the wording of the Act as provided in response to OEIA IR 3.2 characterizes the $66 \%$ is a provincial energy objective. Please reconcile.

## Response:

FortisBC believes that the wording of the Act means that the relevant British Columbia energy objective is "to take demand-side measures and conserve energy". The definition in the Act goes on to clarify that the objective is "including the objective of the authority reducing its expected increase in demand for electricity by the year 2020 by at least $66 \%$ " [emphasis added], which FortisBC interprets as being supportive of the BC Hydro $66 \%$ reduction objective.

## Question \#33

## Reference:

i) Exhibit B-6, OEIA IR 8.4.2
a) Has FortisBC completed the 2009/2010 planned study on the effects of timebased rates? If so, please provide.

## Response:

Please refer to the response to BCUC IR2 Q18.1.

## Question \#34

Reference: i) Exhibit B-6, OEIA IR 12.3.5
a) With respect to Table OEIA IR1 Q12.3.5, please confirm that the Row titled "Percentage of Load at Flat Block" should read "Percentage of Customers Who Have Consumption in the Second Block at Least Once". If not, please clarify what the row represents.

## Response:

The Percentage of Load at Flat Block represents the amount of the load that would occur in the winter months (60\%) compared to the amount of load in the summer months (40\%). This is based on historic data under a flat block rate and does not account for any seasonal shifts that could potentially occur under a RIB rate. "Percentage of Load at Flat Block" is therefore an accurate heading for the Row.

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## Question \#35

## Reference:

## i) Exhibit B-6, OEIA IR 13.1

## ii) Exhibit B-5, BCUC IR 19.3

a) FortisBC states (OEIA IR 13.1) that the percentage of load in Block 2 criterion serves as a proxy for the likelihood that a rate option will incent customers as a group towards conservation. However, in response to BCUC IR 19.3, FortisBC states that the calculations regarding the conservation effect are based on the amount of load facing the Block 2 rate and not the amount of load billed at Block 2. Please explain why the amount of load facing the Block 2 rate would not be a better evaluation/screening criteria (per Exhibit B-1, pages 20 and 23) with respect to the promotion of conservation.

## Response:

In using the percentage of load in block 2 as a factor in comparing options, the percentage is used to compare alternatives relative to one another and the precise number is not material in and of itself. The amount of load facing block 2 was used for calculating elasticity impacts and would also be indicative as to which options would likely provide a bigger conservation incentive. Because the two percentages are highly correlated to one another, there is no reason that one would be a better evaluation/screening criterion than the other.
b) Please re-do Table 7-2 substituting "Percentage of Load Facing Block 2 Rate" instead of "Percent of Load Billed in Block 2".

## Response:

Please see Table BCOAPO IR2 Q35b below.


## Table BCOAPO IR2 Q35b

| Option | Criterion | Threshold | Customer Charge | Block 1 Rate | Block 2 Rate | Block Differential | $\begin{gathered} \text { Annual } \\ \text { Breakeven } \\ \text { kWh } \end{gathered}$ | Percentage of customers better off | Maximum Bill Impact | $\left\lvert\, \begin{gathered} \text { Percentage } \\ \text { of } \\ \text { Customers } \\ \text { with Bill } \\ \text { Increases > } \\ 20 \% \end{gathered}\right.$ | Percentage of customers who have consumption in the second block at least once | Percentage of load facing Block 2 | Conservation Impact (-lower/upper) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  | .05/.10 | .101.20 | .201.30 |
| 1 | 90\% see <10\% | 1350 | 28.93 | 0.06708 | 0.12208 | 82.0\% | 13500 | 70.7\% | 32.4\% | 2.7\% | 79.2\% | 87.2\% | 2.8\% | 5.6\% | 8.3\% |
| 2 | $95 \%$ see <10\% | 1350 | 28.93 | 0.07526 | 0.11138 | 48.0\% | 13500 | 70.7\% | 21.3\% | 0.1\% | 79.2\% | 87.2\% | 1.9\% | 3.7\% | 5.5\% |
| 3 | 100\% see <10\% | 1350 | 28.93 | 0.08365 | 0.10039 | 20.0\% | 13500 | 70.7\% | 9.9\% | 0.0\% | 79.2\% | 87.2\% | 0.9\% | 1.7\% | 2.5\% |
| 4 | 90\% see < $10 \%$ | 2100 | 28.93 | 0.07454 | 0.13641 | 83.0\% | 16000 | 78.7\% | 46.9\% | 4.2\% | 60.7\% | 71.4\% | 3.3\% | 6.6\% | 9.7\% |
| 5 | $95 \%$ see <10\% | 2100 | 28.93 | 0.08181 | 0.11618 | 42.0\% | 16000 | 78.7\% | 26.0\% | 0.4\% | 60.7\% | 71.4\% | 1.8\% | 3.7\% | 5.4\% |
| 6 | 100\% see < 10\% | 2100 | 28.93 | 0.08743 | 0.10055 | 15.0\% | 16000 | 78.7\% | 9.9\% | 0.0\% | 60.7\% | 71.4\% | 0.7\% | 1.4\% | 2.1\% |
| 7 | 90\% see <10\% | 1600 | 28.93 | 0.07069 | 0.12584 | 78.0\% | 15000 | 75.7\% | 36.2\% | 2.7\% | 72.8\% | 82.9\% | 3.0\% | 6.0\% | 8.8\% |
| 8 | 95\% see <10\% | 1600 | 28.93 | 0.07828 | 0.11272 | 44.0\% | 15000 | 75.7\% | 22.6\% | 0.2\% | 72.8\% | 82.9\% | 1.9\% | 3.7\% | 5.5\% |
| 9 | $100 \%$ see < $10 \%$ | 1600 | 28.93 | 0.08557 | 0.10012 | 17.0\% | 14000 | 72.5\% | 9.6\% | 0.0\% | 72.8\% | 82.9\% | 0.8\% | 1.6\% | 2.3\% |
| 10 | 90\% see <10\% | 1350 | 21.50 | 0.07391 | 0.12121 | 64.0\% | 13500 | 70.7\% | 31.6\% | 1.9\% | 79.2\% | 87.2\% | 2.8\% | 5.6\% | 8.2\% |
| 11 | 95\% see < $10 \%$ | 1350 | 21.50 | 0.08197 | 0.11066 | 35.0\% | 13500 | 70.7\% | 20.6\% | 0.1\% | 79.2\% | 87.2\% | 1.8\% | 3.7\% | 5.4\% |
| 12 | 100\% see < $10 \%$ | 1350 | 21.50 | 0.09010 | 0.10001 | 11.0\% | 13500 | 70.7\% | 9.5\% | 0.0\% | 79.2\% | 87.2\% | 0.9\% | 1.7\% | 2.6\% |
| 13 | 90\% see <10\% | 2100 | 21.50 | 0.08037 | 0.13341 | 66.0\% | 16000 | 78.7\% | 43.8\% | 2.7\% | 60.7\% | 71.4\% | 3.2\% | 6.4\% | 9.4\% |
| 14 | $95 \%$ see <10\% | 2100 | 21.50 | 0.08703 | 0.11488 | 32.0\% | 15500 | 77.3\% | 24.7\% | 0.4\% | 60.7\% | 71.4\% | 1.8\% | 3.6\% | 5.4\% |
| 15 | 100\% see <10\% | 2100 | 21.50 | 0.09220 | 0.10050 | 9.0\% | 14000 | 72.5\% | 9.9\% | 0.0\% | 60.7\% | 71.4\% | 0.8\% | 1.5\% | 2.3\% |
| 16 | 90\% see <10\% | 1600 | 21.50 | 0.07715 | 0.12421 | 61.0\% | 14000 | 72.5\% | 34.6\% | 2.7\% | 72.8\% | 82.9\% | 2.9\% | 5.8\% | 8.6\% |
| 17 | 95\% see <10\% | 1600 | 21.50 | 0.08449 | 0.11152 | 33.0\% | 14000 | 72.5\% | 21.4\% | 0.1\% | 72.8\% | 82.9\% | 1.8\% | 3.6\% | 5.4\% |
| 18 | 100\% see < $10 \%$ | 1600 | 21.50 | 0.09106 | 0.10016 | 10.0\% | 13500 | 70.7\% | 9.6\% | 0.0\% | 72.8\% | 82.9\% | 0.8\% | 1.7\% | 2.5\% |
| $\begin{aligned} & 2 \\ & 2 \\ & 3 \end{aligned}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |


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c) Would adopting this alternative criteria change the conclusions in Table 8.1?

## Response:

The option proposed by the Company would remain the same.

## Question \#36

## Reference:

## i) Exhibit B-6, Russell Work IR's 1.3 \& 1.4

ii) Exhibit B-5, BCUC IR 6.1
a) What restrictions, if any, are there on residential customers who want to opt for and be billed on FortisBC's current TOU rates?

## Response:

Restrictions for the residential TOU rate are contained in the "APPLICABLE:" notation in the rate schedule (2A), provided below:

To residential use including service to incidental motors of 5 HP or less. This rate is applicable to Customers with satisfactory, as determined by the Company, load factors. Service under this Schedule is 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.
b) How will these restrictions change after the implementation of AMI?

## Response:

The Company does not anticipate any changes to the eligibility requirements for TOU service as part of the AMI implementation. If a requirement for a change to the TOU rate schedule becomes necessary after the implementation of AMI, an application for such changes would need to be filed with the Commission.

Question \#37

Reference:

## i) Exhibit B-11, FBC Additional Evidence, pages 1-5

a) The discussion focuses on sales and revenue stability. Recognizing that both revenues and costs vary as sales vary, what does FortisBC consider to be more important: i) revenue stability or ii) net income stability?

## Response:

Revenue and net income are closely linked, as the question correctly suggests, and variations in revenue will lead to variations in net income. Neither is desirable to the utility and given that both can be mitigated through the use of a stabilization account, the Company considers each to be more or less analogous and views both as being important.
b) Please re-do Figure 1 but consider the impact on net income of different load levels.

## Response:

Please see Figure BCOAPO IR2 Q37b below. These values represent the after-tax impact of the revenue variances due to varying Customer Charge levels, as compared to the base-case of $\$ 28.93$ per billing period.

Figure BCOAPO IR2 Q37b


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Question \#38
Reference: i) Exhibit B-11, FBC Additional Evidence, pages 6-11 and Appendix A
a) Page 9 suggests that the fact use per customer continues to rise is "contradictory" to its elasticity analysis results. Please comment on whether or not the increase in use per customer could be the result of other factors (e.g., increasing disposable income per customer) that more than offset the increase in electricity prices.

## Response:

Demographic factors such as disposable income are likely to have an impact on use per customer. However, as such factors are considered to be inherent in the elasticity assumptions for the commodity, the Company views the results to be somewhat contradictory.

## Response \#39

## Reference: $\quad$ i) Exhibit B-6, BCOAPO IR 20 d)

## ii) Exhibit B-5, BCUC IR re Errata \#3-9.1

a) The response to 9.1 is based on the assumption that if a customer has use in Block, 2 then electricity costs will form a higher share of disposable income. However, the response to BCOAPO IR 20 d) indicates that low income customers have lower annual use and therefore are more likely not to have usage (or the same high \% of usage) in Block 2 as customers with higher income. Please reconcile.

## Response:

While there is a correlation between income and usage, as shown in the response to BCOAPO IR1 Q20d, the data provided in response to BCUC IR2 Q2.2 and Q16.1 show that many high use customers also have low income levels. One cannot conclude that low income customers are not likely to have usage in block 2. The response to BCUC Q9.1 on Errata 3 states that "Other things being equal", customers with block 2 usage will have bills that represent a higher portion of income. This is not true when comparing customers with different income levels as that breaks the "Other things being equal" proviso. The response to Q9.1 is used only as an explanation as to one reason why different elasticity values are used for blocks 1 and block 2. The Company does not believe that this contradicts the findings provided in response to BCOAPO IR1 Q20d. However, the Company reiterates that the elasticity values are provided to


1 assist in comparing the options and are by no means definitive. FortisBC looked at many 2 different goals and criteria in selecting rate options to consider and recommend.

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### 14.0 Topic: Meaningful comparison of RIB rate options

Reference: Exhibit B-11, Additional Evidence, Appendix A Tables; Exhibit B10-1

The Tables in Appendix A are difficult to work with because the rows for the various RIB rate designs do not show Bill Impact Criterion ( $90 \%$, $95 \%$ or $100 \%$ see $<10 \%$ ). Bill Impact Criterion is the single biggest determinant of both conservation impact and bill impact. In order to meaningfully compare one RIB rate design to another, it appears that one has to match the Base Rate Option number from the Appendix A table to the Option number in Exhibit B10-1 (errata version) to determine the "Criterion."

Not all the RIB rate options listed in Exhibit B10-1 are shown in the Appendix A tables, either at all or with the same pricing principles. As a result, for example, the Company's preferred option, Table 1 line 8.1 ( $\$ 28.93$ customer charge; $95 \%$ see $<10 \%$; Pricing Principle 1) cannot be compared with a $\$ 21.50$ customer charge version because Appendix A Table 2 shows $\$ 21.50$ customer charge designs without any with Pricing Principle 1. Similarly, the Company's preferred option cannot be compared with a $\$ 15.00$ customer charge version because Appendix A Table 3 shows $\$ 15$ customer charge options without the Option 70, $95 \%$ see $<10 \%$. The Company's preferred option cannot be compared with a $\$ 10.00$ customer charge version because Appendix A Table 4 has no Pricing Principle 1 options. The same with $\$ 7.50$ customer charge options in Table 5. And the Company's preferred option cannot be compared with a $\$ 0.00$ customer charge option because Table 6 has only the $90 \%$ see <10\% option (Option 57), not a $95 \%$ see < 10\% version (Option 58).
14.1 Is there some way that the effect of a change in Customer charge on Conservation impact can be meaningfully compared using the filed data? If so, please explain. If not, please provide the data necessary to make such an analysis.

## Response:

The effect of a change in the customer charge on conservation can be seen by looking at those options with the same criteria. This may require looking at more than one table as there is only so much information that can fit into a single table. Exhibit B-10-1 is the most complete compilation of sortable rate options. Several examples are provided in the response to BCSEA IR2 Q14.3 below.

Lowering the customer charge requires that the energy charges increase in order to collect the same amount of revenue. Reducing the customer charge and increasing the rate differential between block 1 and block 2 result in similar impacts. They both lead to larger conservation savings, smaller bills for low usage customers and larger bills for high usage customers.
14.2 Please provide data for all combinations of reasonable permutations of RIB rate design, showing, for each design, a unique identifier, a reference to earlier versions, filings, errata, etc., the values for each design parameter (including the Bill Impact Criterion, initial customer charge, threshold, and pricing principle), the computed values for each design element (such as Block 1 rate, Block 2 rate, Customer charge, in successive years, etc.), and selected, top-priority computed or estimated measures of key attributes such as bill impact and conservation impact.

## Response:

The requested information is attached as BCSEA IR2 Electronic Attachment 14.2. Reasonable permutations are those identified in Appendix B to Exhibit B-11. To avoid confusion, the Unique Identifiers used in this response are consistent with the numbering used in the tables in Appendices A and B to Exhibit B-11. The Company does not wish to have the same option identified with more than one identifier in any of the materials.
14.3 Please provide tables that illustrate the effect of a change in one variable while other variables are held constant in order to allow meaningful comparison of RIB rate options. Please provide tables showing the effect on bill impact and conservation impact (and any other key attributes) of various choices of (a) Threshold, (b) Customer charge, and (c) Pricing Principles. Please provide separate tables for each of the three Bill Impact Criterion values, to allow comparison of the RIB rate options.

## Response:

The table below looks at three cases where all factors are held constant except the threshold. The impacts with respect to changing the threshold are:

- When the criteria is $90 \%$ see $<10 \%$, the block 2 rate increases and the maximum bill impact goes up as the threshold goes up. Conservation savings also increase;
- When the criteria is $95 \%$ see $<10 \%$, the block 2 rate increases and the maximum bill impact goes up as the threshold goes up. But the impacts are less than in the $90 \%$ case. The conservation savings are very similar to one another; and
- When the criteria is $100 \%$ see $<10 \%$, the block 2 rates and maximum bill impacts are similar, but the conservation savings goes down slightly as the threshold increases.

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Table BCSEA IR2 14.3a

| Option | Criterion | Threshold | Customer <br> Charge | Block 1 <br> Rate | Block 2 <br> Rate | Block <br> Differential | Maximum <br> Bill <br> Impact | Conservation Impact <br> (-lower/upper) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | $90 \%$ see $<10 \%$ | 1350 | 28.93 | 0.06708 | 0.12208 | $82.0 \%$ | $32.4 \%$ | $2.82 \%$ | $5.65 \%$ | $8.30 \%$ |
| 7 | $90 \%$ see $<10 \%$ | 1600 | 28.93 | 0.07069 | 0.12584 | $78.0 \%$ | $36.2 \%$ | $2.99 \%$ | $5.99 \%$ | $8.79 \%$ |
| 4 | $90 \%$ see $<10 \%$ | 2100 | 28.93 | 0.07454 | 0.13641 | $83.0 \%$ | $46.9 \%$ | $3.32 \%$ | $6.64 \%$ | $9.70 \%$ |
|  |  |  |  |  |  |  |  |  |  |  |
| 2 | $95 \%$ see <10\% | 1350 | 28.93 | 0.07526 | 0.11138 | $48.0 \%$ | $21.3 \%$ | $1.85 \%$ | $3.71 \%$ | $5.45 \%$ |
| 8 | $95 \%$ see <10\% | 1600 | 28.93 | 0.07828 | 0.11272 | $44.0 \%$ | $22.6 \%$ | $1.87 \%$ | $3.74 \%$ | $5.49 \%$ |
| 5 | $95 \%$ see $<10 \%$ | 2100 | 28.93 | 0.08181 | 0.11618 | $42.0 \%$ | $26.0 \%$ | $1.84 \%$ | $3.69 \%$ | $5.39 \%$ |
|  |  |  |  |  |  |  |  |  |  |  |
| 3 | $100 \%$ see <10\% | 1350 | 28.93 | 0.08365 | 0.10039 | $20.0 \%$ | $9.9 \%$ | $0.86 \%$ | $1.72 \%$ | $2.53 \%$ |
| 9 | $100 \%$ see $<10 \%$ | 1600 | 28.93 | 0.08557 | 0.10012 | $17.0 \%$ | $9.6 \%$ | $0.79 \%$ | $1.58 \%$ | $2.32 \%$ |
| 6 | $100 \%$ see $<10 \%$ | 2100 | 28.93 | 0.08743 | 0.10055 | $15.0 \%$ | $9.9 \%$ | $0.70 \%$ | $1.41 \%$ | $2.06 \%$ |

2 The next table looks at the impacts of a change in the customer charge, with all other factors held constant. All three cases have a 1600 threshold, however, the impacts are consistent for the other thresholds as well. The impacts associated with a change in the customer charge are:

- When the criteria is $90 \%$ see $<10 \%$, the block 1 rate increases and the block 2 rate decreases if the customer charge goes down. The maximum bill impact goes down slightly. Conservation savings go down at first but then increase again as the customer charge drops to $\$ 7.50$ and $\$ 0$. This occurs because a very low customer charge requires that block 1 is higher than the current flat black rate, leading to additional conservation savings;
- When the criteria is $95 \%$ see $<10 \%$, the impacts are the same as for the $90 \%$ case; and
- When the criteria is $100 \%$ see $<10 \%$, the impacts are generally the same as the other cases. However, when the customer charge goes to $\$ 7.50$ and $\$ 0$, there is no room left for a RIB rate and the two blocks are the same. This leads to higher maximum bill impacts because while the low energy users have the higher energy charge by the customer charge reduction, the largest customers receive the full impact of the higher energy charge.

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Table BCSEA IR2 14.3b

| Option | Criterion | Threshold | Customer Charge | Block 1 <br> Rate | Block 2 <br> Rate | Block Differential | Maximum Bill Impact | Conservation Impact (-lower/upper) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 7 | 90\% see < $10 \%$ | 1600 | 28.93 | 0.07069 | 0.12584 | 78.0\% | 36.2\% | 2.99\% | 5.99\% | 8.79\% |
| 16 | 90\% see < 10\% | 1600 | 21.50 | 0.07715 | 0.12421 | 61.0\% | 34.6\% | 2.91\% | 5.81\% | 8.59\% |
| 69 | 90\% see < $10 \%$ | 1600 | 15.00 | 0.08237 | 0.12356 | 50.0\% | 33.9\% | 2.49\% | 4.98\% | 7.34\% |
| 63 | 90\% see < $10 \%$ | 1600 | 10.00 | 0.08650 | 0.12283 | 42.0\% | 33.2\% | 2.49\% | 4.98\% | 7.41\% |
| 25 | 90\% see < $10 \%$ | 1600 | 7.50 | 0.08893 | 0.12183 | 37.0\% | 32.2\% | 2.80\% | 5.60\% | 8.40\% |
| 57 | 90\% see < $10 \%$ | 1600 | 0.00 | 0.09510 | 0.12078 | 27.0\% | 31.1\% | 2.80\% | 5.50\% | 8.30\% |
| 8 | 95\% see < 10\% | 1600 | 28.93 | 0.07828 | 0.11272 | 44.0\% | 22.6\% | 1.87\% | 3.74\% | 5.49\% |
| 17 | 95\% see < 10\% | 1600 | 21.50 | 0.08449 | 0.11152 | 33.0\% | 21.4\% | 1.82\% | 3.64\% | 5.40\% |
| 70 | 95\% see < 10\% | 1600 | 15.00 | 0.08958 | 0.11108 | 24.0\% | 21.0\% | 1.60\% | 3.19\% | 4.77\% |
| 64 | 95\% see < $10 \%$ | 1600 | 10.00 | 0.09331 | 0.11104 | 19.0\% | 21.0\% | 1.65\% | 3.30\% | 4.98\% |
| 26 | 95\% see < $10 \%$ | 1600 | 7.50 | 0.09539 | 0.11065 | 16.0\% | 20.6\% | 1.80\% | 3.70\% | 5.60\% |
| 58 | 95\% see < $10 \%$ | 1600 | 0.00 | 0.10153 | 0.10965 | 8.0\% | 19.6\% | 1.80\% | 3.60\% | 5.50\% |
| 9 | 100\% see < 10\% | 1600 | 28.93 | 0.08557 | 0.10012 | 17.0\% | 9.6\% | 0.79\% | 1.58\% | 2.32\% |
| 18 | 100\% see < $10 \%$ | 1600 | 21.50 | 0.09106 | 0.10016 | 10.0\% | 9.6\% | 0.85\% | 1.69\% | 2.54\% |
| 71 | 100\% see < $10 \%$ | 1600 | 15.00 | 0.09604 | 0.09988 | 4.0\% | 9.4\% | 0.80\% | 1.59\% | 2.47\% |
| 65 | 100\% see < 10\% | 1600 | 10.00 | 0.09980 | 0.09980 | 0.0\% | 9.3\% | 0.85\% | 1.69\% | 2.67\% |
| 27 | 100\% see < $10 \%$ | 1600 | 7.50 | 0.10097 | 0.10097 | 0.0\% | 10.5\% | 1.00\% | 2.00\% | 3.10\% |
| 59 | 100\% see < 10\% | 1600 | 0.00 | 0.10450 | 0.10450 | 0.0\% | 14.2\% | 1.40\% | 2.70\% | 4.20\% |

2 The final table looks at the impacts of the pricing principles with other factors held constant.
3 The impacts are similar regardless of customer impact criterion, customer charge or threshold.
4 The impacts associated with changing the pricing principles are:
5 - Both the maximum bill impact and the conservation savings increase when pricing principle 2 is used rather than pricing principle 1;

- Both the maximum bill impact and the conservation savings increase when pricing principle 4 is used rather than pricing principle 3 ;
- Pricing principle 1 and 3 are similar, although bill impacts and conservation savings are slightly less with pricing principle 3; and
- Pricing principle 2 and 4 are similar, although bill impacts and conservation savings a slightly less with pricing principle 4.


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Table BCSEA IR2 14.3c

| Option | Principle |  | 5-Year Rate Projection |  | Elasticity Estimate | Cumulative <br> Conservation <br> Impact from <br> RIB |  |  | Min Bill | Max Bill |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 2011 | 2015 |  | 2011 | 2015 |  |  |  |
| 8.1 | Pricing <br> Principle 1 - <br> Both Blocks | Customer | 28.93 | 30.34 | .05/.10 | 1.9\% | 2.5\% | 2011 Impact | -10.1\% | 22.6\% |
|  |  | Block 1 | 0.07828 | 0.10880 | .10/.20 | 3.7\% | 4.9\% | 5-yr Net RIB Impact | -26.3\% | 31.1\% |
|  |  | Block 2 | 0.11272 | 0.16961 | .20/.30 | 5.5\% | 7.3\% | 5-yr Total Impact | 8.0\% | 65.4\% |
|  |  | Ratio | 1.44 | 1.56 |  |  |  |  |  |  |
| 8.2 | Pricing <br> Principle 2- <br> Block 2 Only | Customer | 28.93 | 30.34 | .05/.10 | 1.9\% | 4.7\% | 2011 Impact | -10.1\% | 22.6\% |
|  |  | Block 1 | 0.07828 | 0.07828 | .10/.20 | 3.7\% | 9.4\% | 5-yr Net RIB Impact | -42.7\% | 61.0\% |
|  |  | Block 2 | 0.11272 | 0.22239 | .20/.30 | 5.5\% | 13.8\% | 5-yr Total Impact | -8.4\% | 95.3\% |
|  |  | Ratio | 1.44 | 2.84 |  |  |  |  |  |  |
| 66.1 | Pricing <br> Principle 1 - <br> Both Blocks | Customer | 15.00 | 15.73 | .05/.10 | 2.5\% | 2.5\% | 2011 Impact | -40.4\% | 30.9\% |
|  |  | Block 1 | 0.07982 | 0.11094 | .10/.20 | 4.9\% | 5.1\% | 5-yr Net RIB Impact | -59.8\% | 34.5\% |
|  |  | Block 2 | 0.12053 | 0.17320 | .20/.30 | 7.6\% | 7.6\% | 5-yr Total Impact | -25.5\% | 68.8\% |
|  |  | Ratio | 1.51 | 1.56 |  |  |  |  |  |  |
| 66.2 | Pricing <br> Principle 2 - <br> Block 2 Only | Customer | 15.00 | 15.73 | .05/.10 | 2.5\% | 4.1\% | 2011 Impact | -40.4\% | 30.9\% |
|  |  | Block 1 | 0.07982 | 0.07982 | .10/.20 | 4.9\% | 8.1\% | 5-yr Net RIB Impact | -71.4\% | 57.4\% |
|  |  | Block 2 | 0.12053 | 0.21393 | . $20 / .30$ | 7.6\% | 11.8\% | 5-yr Total Impact | -37.1\% | 91.7\% |
|  |  | Ratio | 1.51 | 2.68 |  |  |  |  |  |  |
| 66.3 | Pricing Principle 3 All Components | Customer | 15.00 | 20.85 | .05/.10 | 2.6\% | 2.3\% | 2011 Impact | -40.4\% | 30.9\% |
|  |  | Block 1 | 0.07982 | 0.11094 | . $10 / .20$ | 4.9\% | 4.5\% | 5-yr Net RIB Impact | -40.3\% | 31.0\% |
|  |  | Block 2 | 0.12053 | 0.16752 | .20/.30 | 7.2\% | 6.8\% | 5-yr Total Impact | -6.0\% | 65.3\% |
|  |  | Ratio | 1.51 | 1.51 |  |  |  |  |  |  |
| 66.4 | Pricing <br> Principle 4 Customer and Block 2 | Customer | 15.00 | 20.85 | .05/.10 | 2.6\% | 3.8\% | 2011 Impact | -40.4\% | 30.9\% |
|  |  | Block 1 | 0.07982 | 0.07982 | .10/.20 | 4.9\% | 7.6\% | 5-yr Net RIB Impact | -50.9\% | 54.4\% |
|  |  | Block 2 | 0.12053 | 0.20826 | . $20 / .30$ | 7.2\% | 11.1\% | 5-yr Total Impact | -16.6\% | 88.7\% |
|  |  | Ratio | 1.51 | 2.61 |  |  |  |  |  |  |
| 22.3 | Pricing Principle 3 All Components | Customer | 7.50 | 10.42 | .05/.10 | 3.0\% | 2.6\% | 2011 Impact | -58.0\% | 38.9\% |
|  |  | Block 1 | 0.09111 | 0.12663 | .10/.20 | 5.9\% | 5.3\% | 5-yr Net RIB Impact | -57.9\% | 38.9\% |
|  |  | Block 2 | 0.12847 | 0.17856 | .20/.30 | 8.9\% | 8.1\% | 5-yr Total Impact | -23.6\% | 73.2\% |
|  |  | Ratio | 1.41 | 1.41 |  |  |  |  |  |  |
| 22.4 | Pricing <br> Principle 4 Customer and Block 2 | Customer | 7.50 | 10.42 | .05/.10 | 3.0\% | 5.7\% | 2011 Impact | -58.0\% | 38.9\% |
|  |  | Block 1 | 0.09111 | 0.09111 | .10/.20 | 5.9\% | 11.5\% | 5-yr Net RIB Impact | -74.6\% | 87.7\% |
|  |  | Block 2 | 0.12847 | 0.27739 | .20/.30 | 8.9\% | 16.9\% | 5-yr Total Impact | -40.3\% | 122.0\% |
|  |  | Ratio | 1.41 | 3.04 |  |  |  |  |  |  |

### 15.0 Topic: Threshold size

## Reference: Exhibit B-6, Table BCSEA IR1 Q3.1

BC Hydro's Threshold is $1,350 \mathrm{kWh}$ per two-month billing period, based on $90 \%$ of Median Consumption. FortisBC proposes a Threshold of 1,600 kWh per two-month billing period, based on Class Median Consumption.
15.1 For the FortisBC RIB rate design, what would be the Threshold (in kWh/billing period) if it was based on $90 \%$ of Median Consumption as is BC Hydro's? Please provide a precise figure, and a rounded figure that would be easier to communicate to customers.

## Response:

Median residential consumption is identified in the Application, Exhibit B-1, as 1674 kWh for a two-month billing period. $90 \%$ of this amount is 1506.6 kWh and a round number closest to this $90 \%$ figure would be 1500 kWh .
15.2 Does the Company agree that in setting the size of the Threshold for a FortisBC RIB rate design there are four basic approaches:
(a) using the same numerical figure as is used by BC Hydro, i.e., 1,350 kWh/billing period,
(b) using a figure that is determined using the same method as BC Hydro's Threshold is determined, i.e., $90 \%$ of Median Consumption, rounded,
(c) using Median Consumption, i.e., 1,600 kWh/billing period, as proposed by FortisBC; and
(d) using some other figure, determined either arbitrarily or on some other basis?

## Response:

The Company agrees that with the inclusion of point (d), it effectively covers off any conceivable method for setting the threshold level of consumption.

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15.3 Acknowledging that the Company initially selected $1,600 \mathrm{kWh} /$ billing period, based on Median Consumption, as its proposed Threshold for reasons it found persuasive at the time, what is the Company's current position regarding its preferred Threshold size? Why?

## Response:

The Company continues to support the 1600 kWh level as the threshold as none of the analysis performed since the filing of the Application has provided any information that would conclusively point to another value that in isolation yields an option that performs better than the one initially proposed.
15.4 To help identify the consequences of the choice of Threshold, does the Company agree that, holding all other elements of a RIB rate design equal, and within the range of 1350 to $2100 \mathrm{kWh} /$ billing period, using a lower Threshold results in:
(a) a lower initial Block 1 rate,
(b) a substantially lower initial Block 2 rate,
(c) a smaller Block 2:Block 1 Ratio
(d) a lower Annual Breakeven point (kWh/y below which a customer pays less with RIB than without, assuming no change in consumption),
(e) a smaller percentage of customers "better off" (i.e., who would have a lower annual bill with RIB than without RIB, assuming no change in consumption)
(f) a lower Maximum Bill Impact
(g) a smaller percentage of customers with bill increases $>20 \%$ annually, assuming no change in consumption
(h) a higher percentage of customers with consumption in the second block at least once per year
(i) a higher percentage of load billed in Block 2
(j) a somewhat lower Conservation Impact, based on FBC's two-part elasticity estimation

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(k) almost no change in the amount by which the Block 1 rate increases over 5 years due to annual rate increases
(I) a substantially smaller amount by which the Block 2 rate increases over 5 years due to annual rate increases?

## Response:

The Company agrees with the results, within the range provided, with the exception of $c$ ) and $g$ ), where the results are sometimes but not always true. For k) and I) the results will depend on which pricing principle is used to apply rate increases and whether the question is referring to dollar or percentage increases.
15.5 Correspondingly, does the Company agree that, holding all other elements of a RIB rate design equal, and within the range of 1350 to $2100 \mathrm{kWh} / \mathrm{billing}$ period, using a higher Threshold results in the opposite of the consequences listed in the preceding IR?

## Response:

The Company agrees subject to the same exceptions as stated in BCSEA IR2 Q15.4.

### 16.0 Reference: Exhibit B-11, Additional Evidence, Appendix A, Tables

The tables have a column heading "Cumulative Conservation Impact from RIB" (with subheadings for 2011 to 2015).
16.1 The rows for Continued Flat Rate, shaded, have positive figures under "Cumulative Conservation Impact from RIB." Please explain. Are these conservation estimate figures based on the effect of elasticity on annual rate increases? Please confirm that for the other rows, for various RIB rate configurations, the figures under "Cumulative Conservation Impact from RIB" are net of conservation due to annual rate increases.

## Response:

Please see the response to BCOAPO IR2 Q29b.
The impacts shown in the shaded row result from the "natural" impacts that would occur from annual rate increases under a flat rate scenario. FortisBC confirms that for the other rows, the impacts are net of the conservation impacts shown in the shaded row.
16.2 For greater certainty, please confirm that the RIB rate conservation estimates should be understood to be in addition to the conservation estimates shown for the Continued Flat Rate scenario.

## Response:

The cumulative conservation estimates for the RIB options are in addition to the "natural" conservation for the flat rate option.
16.3 Please define " 5 -yr Net RIB Impact." Does this mean net of general rate increases but not net of RIB rate-induced conservation and efficiency?

## Response:

The 5 -year Net RIB impact reflects the net impact on the bill, not on usage levels. It is net of the annual rate increases. This is distinct from Cumulative Conservation Impact which refers to

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impact on usage levels rather than bill impacts. The projected rate increases used to calculate the 5 -year Net RIB impacts on bills do not account for any additional increases in rates associated with reduced load resulting from RIB rates.
16.4 Please define "Cumulative Conservation Impact from RIB." Does this mean year over year percentage permanent reduction in load due to RIB? Please confirm that this is net of year over year changes in load forecast.

## Response:

Please see the response to BCUC IR2 Q7.1.1.

### 17.0 Topic: Customer Charge and Revenue Stability

Reference: Exhibit B-11, Additional Evidence
The Company has provided evidence showing that decreasing the Customer Charge and correspondingly increasing the energy charge causes larger revenue shortfalls (to the utility) when actual load falls below forecast load for a given year.
17.1 For the record, please confirm that the reverse also holds, i.e., decreasing the Customer Charge and correspondingly increasing the energy charge causes larger revenue surpluses when actual load exceeds forecast load.

## Response:

Confirmed.
"With the use of a deferral account as proposed in the FortisBC 2012/2013 Revenue Requirement Application, the impact of such revenue variations could be managed such that Revenue Stability becomes less of a concern." [p.4]
17.2 Please confirm that the Company currently, i.e., for 2011, does not have a deferral account that captures revenue variations due to variations between actual and forecast load for the residential class.

## Response:

Confirmed.
17.3 If the use of a deferral account as proposed in the FortisBC 2012/2013 RRA was approved by the Commission, what would be the Company's remaining concerns about reducing the residential customer charge?

## Response:

While the establishment of a deferral account alleviates concerns associated with yearly load variation, it does not remove the potential for the adverse impact to higher consumption customers. Decreasing the Customer Charge requires that energy rates be higher in order to collect the class revenue requirement. The Company is concerned that such customers may be unduly penalized by a rate with a low or absent Customer Charge and higher block 1 and block 2 rates. In addition, the lower Customer Charge will provide some customers with a greater benefit without any behavioural change.
17.4 Is the Company's concern about the revenue stability impact of reducing the customer charge based on the possibility of the Commission not approving the deferral account as proposed in the FBC 2012/2013 RRA? Is there a way to eliminate that concern?

## Response:

The concerns of the Company with respect to revenue stability could be mitigated by either Commission approval of a deferral account as applied for in the 2012-13 RRA or the approval of a rate option that maintains the current level of the Customer Charge.

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"The need is revenue stability itself (which also directly impacts rate stability for customers)." [p.4]
17.5 Please describe the mechanism by which revenue instability for the utility (for example, reduced below-forecast revenue in a given year due to warm winter weather) causes rate instability for customers.

## Response:

Rate stability in this context can also be read as bill stability. An inclining block rate structure, with a higher second block, can cause large variations in bills during times of traditionally high consumption (such as heating season). This situation is exacerbated by a lower Customer Charge.

### 18.0 Topic: Long-run marginal cost

Reference: Exhibit B-11 Additional evidence, p. 18
"Under specifically defined conditions, economic efficiency is maximized (in the long run) where price equals long run marginal cost. Therefore, if price is either higher or lower than long run marginal cost, efficiency will not be maximized."
18.1 Please confirm that "price" in the above statement assumes a single price, not a two-part price as in a RIB rate.

## Response:

The Company can confirm that the referenced statement was meant to be generic in nature and as such was not written specifically for a two-part rate.

### 19.0 Reference: Exhibit B-11, Additional Evidence, Appendix A Table 1: Comparison of Options with \$28.93 Customer Charge

Option 7.1 shows Base Rate Option 7, which has a threshold of 1600 kWh per billing period, $\$ 28.93$ per billing period customer charge, Pricing Principle 1, and $90 \%$ see <10\% bill impact, indicates Maximum Bill Impact 5-yr Net RIB Impact of 43.9\%.

Option 8.1, which is the same as Option 7.1 except that Option 8.1 has $95 \%$ see $<10 \%$ bill impact, indicates Maximum Bill Impact 5-yr Net RIB Impact of 31.1\%.
19.1 Please provide the Maximum Bill Impact 5-yr Net RIB Impact for Option 7.1, and for Option 8.1, under the assumption that the affected customers' consumption declined according to the High Elasticity Estimate (.20/.30).

## Response:

The Maximum Bill Impact 5 -year Net RIB Impact would be $32 \%$ for Option 7.1 and $24 \%$ for Option 8.1, all else being equal. However, the reduction in kWh billed for the assumed elasticity numbers are significant and would reduce revenues unless rate increases were higher than those assumed in the table. This could lead to additional bill impacts for all customers.
19.2 Please confirm that Option 8.1 is the Company's preferred RIB rate design option.

## Response:

The Company confirms that Option 8 with pricing principle 1 is its preferred option.

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### 20.0 Topic: Estimation of conservation impact of RIB rate design options

Reference: Exhibit B-1; B-6; B-11
FortisBC has used three pairs of elasticity assumptions to generate three conservation impact estimates for each RIB Rate option.
20.1 Please confirm that the rationale was to illustrate the range of potential conservation impact outcomes given uncertainty about which one of the three elasticity pairs would be the most accurate.

## Response:

Confirmed.
20.2 Please confirm that FBC is putting forward these conservation impact estimates to allow comparison between RIB Rate options, not because FBC is suggesting that precise conservation outcomes should be expected.

## Response:

Confirmed.

The three elasticity pairs are presented in order of strength: low (.05/.10), medium (10/.20), and high (.20/.30).
20.3 Please confirm that for each RIB rate design option the three conservation impact estimate values increase in size, corresponding to the low, medium and high elasticity pairs.

Response:
Confirmed.

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20.4 Please confirm that, now that the errata have been filed, the conservation impacts of the RIB rate design options are always positive (reduced consumption).

Response:
Confirmed.
20.5 Please confirm that, when comparing any two RIB rate options using the three conservation impact estimates (corresponding to the assumed three elasticity pairs), whichever RIB Rate option has a higher conservation impact according to one of the three estimates also has higher conservation impact on the other two estimates. In other words, the ranking of RIB Rate options according to conservation impact is the same regardless of whether the low, medium or high conservation impact estimate is used.

Response:
Confirmed.
20.6 Please confirm that, when comparing any two RIB rate options using the three conservation impact estimates (corresponding to the assumed three elasticity pairs), the spread is slightly greater for the high-elasticity estimate than for the medium-elasticity estimate, and slightly greater for the medium-elasticity estimate than for the low-elasticity estimate.

## Response:

Confirmed.
20.7 When comparing the elasticity-based estimated conservation impact (low, medium or high elasticity) of two RIB rate options, is the Company able to say what amount of difference (in percentage points) between the two figures is statistically significant? Is the Company able to say that a difference of one tenth of a percentage point is not statistically significant? Two tenths of a point?

## Response:

FortisBC does not have any information that would allow it to place a measure of statistical significance on the various savings resulting from the elasticity values. The concept of statistical significance applies to random variables, which the estimated conservation impact is not.

### 21.0 Topic: Estimation of conservation impact of RIB rate design options

 Reference: Exhibit B-1; B-6; B-11In addition to the three elasticity-based conservation impact estimates, FortisBC uses three other indicators of potential conservation impact:
(a) Percentage of Load Billed in Block 2,
(b) Block Differential, and
(c) Percentage of Customers Who Have Consumption in the Second Block At Least Once [i.e., in at least one two-month billing period per year].
21.1 Please confirm that in terms of indicating the relative conservation consequences of different RIB Rate options, the Percentage of Load Billed in Block 2 is effectively the same as the Threshold between Block 1 and Block 2, albeit with different units.

## Response:

The Percentage of Load Billed in Block 2 was used primarily to compare bill impacts. It is true that the Percentage of Load Billed in Block 2 is directly related to the threshold.

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21.2 Please confirm that, for any given RIB rate design, the lower the Threshold between Block 1 and Block 2, the higher the Percentage of Load Billed in Block 2.

## Response:

Confirmed.
21.3 Please confirm that the Company makes the following distinction between "facing" and "billing" for the purpose of calculating the two-part elasticity-based conservation impact estimate: Where consumption in a billing period is less than the Threshold, the consumption both faces the Block 1 rate and is billed at the Block 1 rate. Where consumption in a billing period exceeds the Threshold, all of the consumption faces the Block 2 rate, however only the amount exceeding the Threshold is billed at the Block 2 rate.

## Response:

## Confirmed.

21.4 Please confirm that, when comparing different RIB rate designs, the Percentage of Load Billed in Block 2 is not the same (even with different units) as the elasticity-based conservation impact estimate, because the elasticity-based conservation impact estimate uses load "facing" Block 2, not load billed at Block 2.

## Response:

Confirmed.

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21.5 For the record, please define Block Differential.

## Response:

The Block Differential is the ratio of the block 2 to block 1 rate in any given year as calculated by dividing the block 2 rate by the block 1 rate.
21.6 Please confirm that the both the Block Differential and the elasticity-based conservation impact estimates capture the difference between the Block 1 rate and the Block 2 rate. However, the Block Differential does not capture the proportion of load facing, or billed at, Block 2 due to a change in the Threshold. That is, Block Differential captures only one of the two factors captured by the elasticity-based conservation impact estimates.

## Response:

## Confirmed.

21.7 Please confirm that the Percentage of Customers Who Have Consumption in the Second Block At Least Once relates to conservation impact through price elasticity, but on an annual basis rather than the two-month billing period basis used for the three elasticity-based conservation impact estimates.

## Response:

Not confirmed. Although the metric is indirectly related to the conservation impact, the conservation impact was calculated as described in the response to BCUC IR2 Q5.1.

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21.8 Please discuss whether the Percentage of Customers Who Have Consumption in the Second Block At Least Once is relevant to conservation impact to the extent that customers adjust their level of annual consumption in response to having to pay, or seeking to avoid paying, the Block 2 rate even once during the year. An example would be a customer who is motivated to install a more-efficient lightbulb that is in place year-round.

## Response:

The percentage of customers who have consumption in the second block at least once is not directly related to conservation impact. Conservation impact is calculated as described in BCUC IR2 Q5.1.

### 22.0 Topic: Comparison of RIB rate design options according to conservation impact

 Reference: Exhibit B-1; B-6; B-1122.1 Please comment on the statement: "It would be much easier to compare different RIB Rate options if there was only one indicator of relative conservation impact for each option."

## Response:

While there are three Conservation Impact values for each option presented in the Application and related materials (based on 3 different sets of elasticity values), this should not present any difficultly as only the magnitude and not the direction of the conservation impact varies. For example, in comparing the Conservation Impact of options 1 and 2, the outcome is the same whether using the $.05 / .10, .10 / .20$, or $.20 / .30$ elasticity pairings. Option 1 has a greater Conservation Impact in all cases. In effect, there is only one indicator of conservation impact for each option.

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22.2 Dealing first with the three elasticity-based conservation impact estimates, would any information that is crucial to the selection of one RIB Rate option over another be lost if the current three conservation impact estimates were combined into a single measure of conservation impact?

## Response:

Please see the response to BCUC IR2 Q22.1 above. It is not necessary to combine the three Conservation Impact values. Simply choosing one of the pairings as a consistent basis for comparison will yield the same result regardless of which pairing, or a simple average, is selected. Therefore, no information would lost if there was only a single measure of conservation impact.
22.2.1 If yes, please explain.

## Response:

Please see the response to BCUC IR2 Q22.1 above. It is not necessary to combine the three Conservation Impact values. Simply choosing one of the pairings as a consistent basis for comparison will yield the same result regardless of which pairing, or a simple average, is selected. However, no information that is crucial to the selection of one RIB Rate option over another would be lost if the three conservation impacts were combined into a single measure of conservation impact.

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22.2.2 If not, what would be the best method of creating a single elasticity-based conservation impact measure out of the three current measures? For example, an average of the three current estimates? Using only the estimate from the low-elasticity pair? The mid-elasticity pair? The highelasticity pair? The criterion is to best facilitate comparison of the RIB Rate options.

## Response:

Generally, the Company believes that the low-elasticity is more representative of the near term conservation impact and the high-elasticity is more representative of the longer term conservation impact. Please also see the response to IR 22.2 above.
22.3 Consider four indicators of a RIB Rate option's conservation impact: (a) Percentage of Load Billed in Block 2, (b) Block Differential, (c) Percentage of Customers Who Have Consumption in the Second Block At Least Once, and (d) a single elasticity-based conservation impact estimate (referred to in the previous IR). Which is the best measure for comparing RIB Rate options in terms of the conservation objective of the RIB Rate concept?

## Response:

The conservation impact of each rate, using the elasticity assumptions contained in the Application is best represented by the Conservation Impact figures associated with the elasticity pairings. These estimates inherently contain the other factors mentioned, which are presented primarily to describe attributes of the rates.

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### 23.0 Topic: Simplification of comparison of RIB Rate options by bill impact

Reference: Exhibit B-1; B-6; B-11
23.1 Please confirm that in the Application, the IRs and the IR responses, various methods have been used to quantify the adverse financial impact of the implementation of a RIB Rate option on a single customer or a sub-category of customers who choose not to alter their consumption pattern due to the RIB Rate.

## Response:

Confirmed. Note however that some customers are better off under the RIB rate without changing consumption patterns.
23.2 Please confirm that the financial impact on all customers is deemed to be zero, because of the class revenue neutrality criterion built into the RIB Rate options.)

## Response:

Provided that residential load is such that the revenue collected is consistent with the forecast revenue requirement under the flat rate (as is assumed in the Application), no customer class as a whole, residential or otherwise, would be adversely affected.
23.3 Please confirm that the various financial impact measures address either or both of: the size of the impact; and the number of customers who experience it.

## Response:

Confirmed.

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23.4 Please confirm that the Percentage of Customers Better Off and the Annual Breakeven kWh focus exclusively on the numbers of customers who experience negative versus positive financial impact (if they don't alter their consumption).

## Response:

Confirmed.
23.5 Please confirm that, at the other extreme, the Maximum Bill Impact, as the name indicates, focuses only on the size of the impact, regardless of the number of customers who experience it.

## Response:

Confirmed.
23.6 Please confirm that the financial impact measure used most widely in the materials is the Bill Impact Criterion, expressed as three values: $90 \%$ see $<10 \%$; $95 \%$ see $<10 \%$ and $100 \%$ see $<10 \%$.

## Response:

The Bill Impact Criterion appears roughly as often as the other financial comparators as they most often appear in the same charts together.
23.7 Please confirm that the Bill Impact Criterion addresses both the number of customers affected (i.e., $10 \%, 5 \%$ and none) and the size of the impact (annual bill impact less than $10 \%$-- or some other percentage as defined).

## Response:

Confirmed.

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23.8 Please confirm that the presentation differs in that the Bill Impact Criterion is built into, and defined for, each RIB Rate option, whereas the other impact measures are shown as consequences of each RIB Rate option.

## Response:

Confirmed.
23.9 Please confirm that, assuming class revenue neutrality (which is the case for all RIB Rate options), there is a trade-off between the number of customers financially disadvantaged by the RIB Rate and the size of the maximum annual bill impact of the RIB Rate (as always, assuming no change in consumption pattern due to the RIB Rate).

## Response:

Confirmed.
23.10 Considering the three Bill Impact Criterion and the other four indicators of a RIB Rate option's financial impact (assuming no change in consumption pattern), which is the best single measure for comparing RIB Rate options in terms of financial impact on customers? Why?

## Response:

While the Company understands the desire of interveners to have a single or preferred measure on which to rank the available RIB options, it believes that it would be an oversimplification to identify such a number. The reality is that within the range of RIB options that are currently before the Commission (and even within the "reasonable options" presented in Exhibit B-11), there are multiple variants that differ only subtly in terms of outcome. The Company designed each rate option in consideration of the Customer Impact Criterion. In a broad sense, all of the options using the same criterion are considered to be equivalent in terms of overall customer impact. Within those groups however, some have incremental impacts on individual customers or subsets that cannot be justified by the marginal increases in estimated Conservation Impacts.

It is clear that there is no obvious choice that emerges even after the large amount of further analysis and additional options that have been explored at the request of the Commission and

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interveners are reviewed. The Company further believes that the examination of further options, pricing principle scenarios, or rate increase assumptions would be of little benefit to the process.
23.11 Does there have to be two separate measures of financial impact? If so, why, and which are they?

## Response:

Measures that speak directly to financial impact (in Exhibit B-1 Table 7-2 these would be, Percentage of Customers Better off, Maximum Bill Impact, and Percentage of Customers with bill increases $>20 \%$ ), are included to aid reviewers in evaluating the rate options. There is no need to have a particular number of such measures and the Company only expects that taken together they provide means of better comparing the options.

### 24.0 Topic: Convenient comparison of RIB Rate options

Reference: General
24.1 Please provide spreadsheet versions of the RIB rate options comparison tables so that the options can be sorted by column.

## Response:

An electronic version of the option spreadsheet presented at the procedural conference was provided with the filing of Exhibit B-10-1 on August 4, 2011 and is available on the Commission website.

Electronic versions of Appendices $A$ and $B$ to Exhibit B-11 are attached as BCSEA IR2 Electronic Attachment 24.1.

### 25.0 Topic: Comparison of FortisBC RIB Rate and BC Hydro RIB Rate

Reference: Exhibit B-6, BCSEA IR 3.1
Table BCSEA IR1 Q3.1 provides a comparison of BC Hydro RIB Rate and FortisBC proposed RIB Rate.
25.1 Please confirm that the ratio of Block 1 rate to Block 2 rate for FortisBC Proposed RIB Rate is $69 \%$ and for the BC Hydro RIB Rate is $69 \%$. Is this a coincidence? If not, please explain.

## Response:

Confirmed as demonstrated below. The result is a coincidence.
Table BCSEA IR2 25.1

|  |  | BC Hydro Schedule <br> 1101 | FortisBC Preferred <br> Rate |
| :---: | :--- | ---: | ---: |
| a | Block $1(\$ / \mathrm{kWh})$ | 0.0667 | 0.07828 |
| b | Block $2(\$ / \mathrm{kWh})$ | 0.0962 | 0.11272 |
| c | Ratio $(\mathrm{a} / \mathrm{b})$ | $69.33 \%$ | $69.45 \%$ |

### 26.0 Topic: Comparison of FortisBC RIB Rate and BC Hydro RIB Rate

Reference: Exhibit B-6, BCSEA IR 3.1
Table BCSEA IR1 Q3.1 provides a comparison of BC Hydro RIB Rate to FortisBC proposed RIB Rate. The row "Estimated Conservation (BCH elasticity assumptions) Source: Figures 3 \& 4, BCH RIB Rate Re-Pricing Application" gives the FortisBC proposed RIB Rate figure as $1.90 \%$ and the BC Hydro figure as 1,430 GWh by F2018.
26.1 Please provide the FortisBC proposed RIB Rate figure in GWh with a reference year, and the BC Hydro RIB Rate figure as a percentage.

## Response:

The $1.9 \%$ figure translates into 23.4 GWh savings achieved over the long term. For the purpose of analysis, it was assumed that the savings would be achieved by 2017, however the Company stresses that both this assumption and the $1.9 \%$ figure contain uncertainty.

The Company does not have sufficient information to determine the basis upon which BC Hydro calculated the GWh number, or whether the figure would be comparable to the FortisBC amount.

### 27.0 Topic: Comparison of FortisBC RIB Rate and BC Hydro RIB Rate

## Reference: Exhibit B-6, BCSEA IR 3.1

Table BCSEA IR1 Q3.1 provides a comparison of BC Hydro RIB Rate to FortisBC proposed RIB Rate. The row "Estimated Conservation (FBC elasticity assumptions)" gives the FortisBC proposed RIB Rate figures for each of the three elasticity assumptions as follows:

| $0.05 / 0.1$ | $0.1 / 0.2$ | $0.2 / 0.3$ |
| :---: | :---: | :---: |
| $1.90 \%$ | $3.70 \%$ | $5.50 \%$ |

27.1 Please provide the three FortisBC proposed RIB Rate Estimated Conservation figures (per three elasticity assumptions) in GWh with a reference year.

## Response:

The GWh figures that correspond to the conservation savings are as follows:
Table BCSEA IR2 27.1

|  | $.05 / .10$ | $.10 / .20$ | $.20 / .30$ |
| :--- | :---: | :---: | :---: |
| Percent | $1.9 \%$ | $3.7 \%$ | $5.5 \%$ |
| GWh | 23.4 | 46.8 | 68.8 |

These savings figures represent the long-term savings associated with a specific RIB rate and not necessarily the impact in the year of implementation. This Application has used 2011 as the implementation date for purposes of the analyses.

### 28.0 Topic: Characteristics of customers at different consumption levels

Reference: Exhibit B-6, BCSEA IR 4.1; Exhibit B-5, BCUC IR 1.16.6; 1.16.7
FortisBC was asked to provide a description of a representative customer at low, medium and high consumption levels. FortisBC provided Table BCSEA IR1 Q4.1 but declined to provide further information, saying:
"FortisBC does not have readily available data that would identify common characteristics of these consumption groups, although it expects that building size and fuel choice are the biggest determinants of consumption. Even fuel choice is not particularly determinative however, as the average annual consumption for electric heat customer is $13,422 \mathrm{kWh}$ and the average for non electric heat is $9,708 \mathrm{kWh}$."

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28.1 Please use FortisBC's REUS data to provide, for each of the low, medium and high consumption residential customer categories, average income, percentages of housing type, percentages of heating source, percentages of electric cooling (or air conditioning if that is how the data is coded).

## Response:

Please refer to the below tables:
Table BCSEA IR2 28.1a

|  |  | Total | Yearly Electricity Usage - kWh |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Low 66000 | $\begin{gathered} \text { Medium } \\ 6000-18000 \end{gathered}$ | High 18000+ |
| "Please indicate the combined total income before taxes for your household in the last year" | "Under \$20k" |  | 8\% | 12\% | 5\% | 4\% |
|  | "\$20k to \$40k" | 25\% | 31\% | 28\% | 22\% |
|  | " $\$ 40 \mathrm{k}$ to \$ 60 k " | 23\% | 23\% | 26\% | 18\% |
|  | "\$60k to \$80k" | 18\% | 15\% | 18\% | 23\% |
|  | "\$80k to \$120k" | 17\% | 12\% | 17\% | 22\% |
|  | "\$120k or over" | 9\% | 7\% | 6\% | 12\% |
| Total | Base | 1739 | 219 | 405 | 140 |

Table BCSEA IR2 28.1b

|  |  | Total | Yearly Electricity Usage - kWh |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Low <6000 | $\begin{gathered} \text { Medium } \\ 6000-18000 \end{gathered}$ | High 18000+ |
| "What type of dwelling do you live in?" | "Single detached house" |  | 69\% | 50\% | 74\% | 93\% |
|  | "Apartment, condominium" | 13\% | 25\% | 6\% | 1\% |
|  | "Mobile home" | 8\% | 8\% | 9\% | 3\% |
|  | "Row, townhouse -3+ units attached" | 7\% | 9\% | 8\% | 3\% |
|  | "Duplex" | 4\% | 8\% | 3\% | 1\% |
|  | "Other" | 0\% | 0\% | 0\% |  |
| Total | Base | 1970 | 239 | 443 | 150 |


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Table BCSEA IR2 28.1c
***************SPACE HEATING**************
Main Fuel used to heat your home:

|  |  | Total | Yearly Electicity Usage - kWh |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Low 66000 | $\begin{gathered} \text { Medium } \\ 6000-18000 \end{gathered}$ | High 18000+ |
| "Please <br> indicate <br> the fuels <br> used to <br> heat your <br> home <br> (main <br> fuel)" | "Natural gas" |  | 52\% | 57\% | 58\% | 11\% |
|  | "Electricity -including portable heaters" | 38\% | 34\% | 30\% | 77\% |
|  | "Wood" | 7\% | 6\% | 7\% | 5\% |
|  | "Bottled propane" | 1\% | 1\% | 1\% |  |
|  | Geothermal Water | 1\% |  | 1\% | 4\% |
|  | "Piped propane" | 1\% | 1\% | 2\% |  |
|  | "Oil" | 1\% | 0\% | 0\% | 1\% |
|  | "Don't know" | 0\% | 0\% |  | 1\% |
| Total | Base | 1968 | 240 | 447 | 149 |


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Table BCSEA IR2 28.1d
Main Heating System used to heat your home:

|  |  | Total | Yearly Electricity Usage - kWh |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Low 66000 | $\begin{gathered} \text { Medium } \\ 6000-18000 \end{gathered}$ | High 18000+ |
| "Please indicate the main heating system you use to heat <br> your <br> home <br> (main <br> fuel)" | "Central forced air furnace" | 53\% | 57\% | 57\% | 35\% |
|  | "Electric baseboard only" | 19\% | 23\% | 15\% | 22\% |
|  | "Heat pump - air source" | 8\% | 3\% | 9\% | 16\% |
|  | "Wood stove" | 4\% | 3\% | 5\% | 2\% |
|  | "Gas fireplace-used for heating" | 3\% | 4\% | 3\% | 1\% |
|  | "Both central fumace and electric baseboards" | 2\% | 2\% | 2\% | 5\% |
|  | "Wood fireplace -used for heating" | 2\% | 2\% | 2\% | 3\% |
|  | "Heat pump - ground source" | 1\% | 1\% | 1\% | 5\% |
|  | "Electric radiant ceiling or floor" | 1\% | 1\% | 1\% | 3\% |
|  | "Portable electric heaters" | 1\% | 1\% | 1\% |  |
|  | "Other" | 1\% | 0\% | 1\% | 1\% |
|  | "Hot water baseboards" | 1\% | 0\% | 0\% | 2\% |
|  | Hot water infloor | 1\% | 1\% | 0\% | 1\% |
|  | "Hot water radiators" | 1\% |  | 1\% | 1\% |
|  | "Electric fireplace -used for heating" | 1\% |  | 1\% | 1\% |
|  | "Natural gas wall heater" | 0\% | 0\% | 0\% |  |
|  | "Dual fuel furnace" | 0\% |  | 0\% | 1\% |
| Total | Base | 1965 | 240 | 449 | 149 |


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Column percentages may exceed $100 \%$ because multiple responses provided
Table BCSEA IR2 28.1e

## Response:

Confirmed.

FortisBC obtained REUS-type data from 35 large annual-consumption customers, discussed in the responses to BCUC IR 1.16.6, et seq.
28.3 Was any of these customers a multiple unit residential building (MURB)?

## Response:

The 35 customers were not taken from the REUS sample and therefore we do not have specific demographic or housing type information for those customers. Please also refer to the response to BCUC IR1 Q18.8.
28.4 In Exhibit C10-2, Strata Corporation KAS2464 implies that it is a residential customer of FortisBC. Is this correct? Is it usual for a MURB to be a single residential customer of FortisBC? Are MURBs allowed to be served on the residential tariff? Does FortisBC encourage it?

## Response:

The common use areas in multiple residential dwellings are permitted on the residential rate pursuant to Section 4.3.2(b) of FortisBC's Electric Tariff No. 2. The Company does not actively encourage or dissuade customers from taking service under this provision.
28.5 Does a MURB obtaining residential service have an option to switch to a commercial tariff? Does FortisBC foresee MURBs with residential service switching to a commercial tariff in the event that a RIB rate is approved? What are FortisBC's views on the pros and cons of MURBs switching from residential to commercial service.

## Response:

As a Commercial entity, a Strata Corporation is able to obtain service under a Commercial rate. It is unlikely however as the Small Commercial rate is currently a declining block rate with the first block higher than both the current flat rate and the block 1 rate under any RIB rate option currently under consideration. The Company expects that customers will opt for the rate that is most beneficial but does not foresee a significant migration in customers from one rate to another and thus is not concerned about this potential.
28.6 Would FortisBC agree that there is a problematic information gap if the REUS does not identify and obtain data on residential customers that are multiple unit residential buildings?

## Response:

The Company does not believe this to be a significant issue. The REUS did not target any specific segment of the residential customer group but rather, collected information through the responses received as the result of a survey of a randomly selected portion of the class. Multiunit residential buildings were not excluded and had an equal chance of being included in the information gathering.
28.7 Table BCUC IR1 Q16.7 and Table BCUC IR1 Q16.9.3 indicate that $0.1 \%$ of residential customers are in the "over $150,000 \mathrm{KWh} / \mathrm{y}$ " category. How many customers is that?

## Response:

The $0.1 \%$ of residential customers in the "over $150,000 \mathrm{KWh} / \mathrm{y}$ " category equates to 47 customers.
28.8 Table BCUC IR1 Q16.9.3 indicates that when the extra 35 large customers were added to the 871 REUS data points, $0.7 \%$ of the total sample was in the "over $150,000 \mathrm{kWh} / \mathrm{y}$ " category. Does that mean one of the extra 35 large customers was in the "over $150,000 \mathrm{kWh} / \mathrm{y}$ " category? What information does FortisBC have about this customer or customers in the "over $150,000 \mathrm{kWh} / \mathrm{y}$ " category generally? Are these single family dwellings? MURBs? Grow-ops? What electrical applications and appliances is a customer using in order to consume over $150,000 \mathrm{kWh} / \mathrm{y}$ ? Are such customers supposed to be in the residential rate class?

## Response:

There were seven customers in the sample data that had consumption over 150,000 kWh per year. Even though there is a higher percentage in this usage category for the sample compared

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to the overall population, the sample results were only used to show the expected average impact on customers with usage over 150,000 kWh per year.

As these customers were not selected from the REUS sample, the corresponding housing type and appliance data is not available.

These customers might in some cases be for the common areas in multi-family buildings. They do not qualify for commercial rates and will face the RIB rates along with every other residential customer.
28.9 Would FortisBC agree that it would be problematic to use Maximum Bill Impact (for customers consuming over $150,000 \mathrm{kWh} / \mathrm{y}$ ) as a criterion for choosing a RIB Rate option, in the absence of information about such customers' building type, socio-economic characteristics, and so on?

## Response:

The Company believes that using any single attribute or outcome of the RIB rate as a means of choosing the appropriate option would be problematic. For this reason, a number of measures and outcomes have been presented and considered and a balance between then struck to arrive at a final recommendation.

### 29.0 Topic: Definition and calculation of maximum bill impact

Reference: Exhibit B-6, BCSEA IR 5.1; Exhibit B-1, FBC RIB Application, p.20, Table 7-1, RIB Rate Evaluation Criteria; Table 7-2, RIB Rate Option Comparison

The BCSEA IR 5.1 preamble states:
"The description of "Maximum Bill Impact" states: "The highest single percentage increase experienced by a customer in any month when the RIB rate option is compared to the flat rate." [Underline added]"

BCSEA IR 5.1 asks:
"Is the reference to bill impact in any month a mistake? Should it read in any year? If there is no mistake, please reconcile the "Maximum Bill Impact" criterion with the customer impact criterion on p .17 defined in terms of annual rate impact."

FortisBC responds:
"The maximum bill impact applies to the category of the largest residential users with consumption of over $150,000 \mathrm{kWh}$ per year. While the actual calculation was based on the annual bill for customers in that block, these customers all have the majority of their consumption in block 2 for every billing period and the maximum bill impact would apply equally to a single bill impact and the annual bill impact."
29.1 Please answer whether the definition of "maximum bill impact" should read "The highest single percentage increase experienced by a customer in any year when the RIB rate option is compared to the flat rate."

## Response:

The maximum bill impact does apply, as stated in the response to BCSEA IR2 Q5.1, to the annual percentage increase expected for the highest usage category.
29.2 For greater certainty, please provide the definition for the column "Maximum Bill Impact" given as a percentage in Table 7-2.

## Response:

The "Maximum Bill Impact" is in fact the average annual impact for the sample customers within the $150,000 \mathrm{kWh}$ and above usage category. Although it is not the single largest impact of any one customer from entire residential class, it is a good proxy for maximum bill impact.
29.3 What is meant by "the actual calculation was based on the annual bill for customers in that block ["the category of the largest residential users with consumption of over 150,000 kWh per year"]?

## Response:

The "actual calculation" is the calculation described in the response to BCSEA IR2 Q29.2.

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### 29.3.1 What actual calculation?

## Response:

Please see the response to BCSEA IR2 Q29.3 above.
29.3.2 Is FortisBC saying that "maximum bill impact" was determined not by taking the largest annual bill impact from among the annual bill impacts of each of the customers in the sample group; but rather by taking the annual bill impact of the largest tranche ( $150,000 \mathrm{kWh} / \mathrm{y}$ ) of customers by annual consumption in the sample group?

## Response:

Please see the response to BCSEA IR2 Q29.2.
29.3.3 If so, please confirm that these are two different measures.

## Response:

Confirmed.
29.3.4 If so, please confirm that all of FortisBC's bill impact calculations were based on annual consumption tranches, not on a ranking of annual bill totals.

## Response:

Confirmed. This approach was taken for several reasons. While bill impacts were calculated for each customer within the sample group for each of the RIB options presented, it was not practical or meaningful to provide a list of 906 customer bill impacts. Instead, the average bill impacts for each of 54 usage categories were calculated. Also, the bill impacts of the individual sample customers were intended to represent all of the residential customers, and it was
expected that the impacts averaged over multiple customers in each usage category was more representative than the individual customer impacts in the sample. Further, it is standard utility practice to show bill impacts on the basis of usage categories.
29.3.5 Please confirm that FortisBC's bill impact calculations were based on the 871 REUS data points plus the 35 additional large user data points; not on the entire residential customer database.

## Response:

Confirmed. This was a practical and statistically accurate way to estimate bill impacts for close to 100,000 customers for 6 different billing periods for the original 18 different RIB options. The use of REUS data also allowed FortisBC to provide additional demographic information for each consumption category.
29.4 For the Bill Impact Criterion "100\% see <10\%", does the use of consumption tranches in the calculation of bill impact mean that $100 \%$ of the entire $>150,000$ $\mathrm{kWh} / \mathrm{y}$ tranche "see $<10 \%$ "; not that the single largest customer sees " $<10 \%$ "?

## Response:

It means that the average bill impact in the highest usage category (over 150,000 kWh per year) is less than $10 \%$. It does not mean that the single largest user sees less than $10 \%$. Practically, this means that the Block 2 rate is set at approximately $10 \%$ higher than the flat rate (Block 2 rates in the " $100 \%$ see $<10 \%$ " options vary from $10.0 \%$ to $10.6 \%$ above the flat rate).

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29.4.1 From the residential customer database, what is the size of the spread between the smallest and largest annual bill total in the >150,000 kWh/y tranche? How many customers are in that tranche?

## Response:

The 7 sample customers in the $>150,000 \mathrm{kWh}$ residential usage category have annual usage between $156,376 \mathrm{kWh}$ and $666,216 \mathrm{kWh}$.

The 46 customers in the $>150,000 \mathrm{kWh}$ residential usage category in the total customer population have annual usage between 151,686 and $2,085,383$ kWh per year.
29.4.2 Based on the spread between $150,000 \mathrm{kWh} / \mathrm{y}$ and the highest-consuming customer, and using, saying Option 8, where a customer consuming $150,000 \mathrm{kWh} / \mathrm{y}$ sees an annual bill increase of less than $10 \%$ what is the percentage bill increase seen by the largest-consuming customer?

## Response:

The largest customer in the sample referenced in BCSEA IR2 Q29.4.1 would see an annual increase of $23.4 \%$ under Option 8.
29.5 Please provide the complete definition of the bill impact criterion " $x \%$ see $<10 \%$ " and how it is calculated. Please confirm that it means that $x \%$ of customers in the representative sample would have an annual bill total on a RIB basis of less than $10 \%$ greater than their annual bill on a flat rate basis.

## Response:

Confirmed. FortisBC first defined the consumption thresholds that capture $\mathrm{x} \%$ of consumption (using all residential customer data, not just the sample group). Then the RIB rate for each option was adjusted such that the sample usage group that included the relevant consumption threshold had an increase of less than or equal to $10 \%$.

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29.6 FortisBC states that for customers in the over $150,000 \mathrm{kWh} / \mathrm{y}$ category "maximum bill impact would apply equally to a single bill impact and the annual bill impact." Please correct this statement, or explain. Is it not the case that assuming there is some variation in the quantity consumed, either individually or by the category in total, from one bi-month billing period to the next there must be a corresponding variation in the bill impact (between RIB and flat rate) from one bi-month billing period to the next; and therefore the highest of the six bi-monthly bill impacts must surely be higher than the bill-weighted average bill impact (i.e., the annual bill impact)?

## Response:

The bill impact in the over $150,000 \mathrm{kWh} /$ year usage group would not be exactly the same in every billing period, but would be reasonably close to one another and will be correct on average. Further, as stated above, the high consumption in this usage group means that the majority of the bill is based on the block 2 rate and the bill impact approaches the difference between the block 2 rate and the flat block rate.

### 30.0 Topic: Revenue neutrality

## Reference: Exhibit B-5, BCUC IR 1.5.2; BCUC IR 1.21.3

"...In addition, the Company believes that as it implements conservation rates and customer behaviour changes in response to those rates, it could result in an over- or under-collection of the Company's revenue requirement. Therefore the Company anticipates proposing (in its upcoming Revenue Requirements Application) a deferral and flow-through mechanism for revenue variances to eliminate the effect of any such over- or under-collection."
30.1 Please confirm that the proposed deferral account mechanism is based on the difference between forecast and actual load, not on an estimate of the actual conservation impact of the RIB rate.

## Response:

Confirmed.

### 31.0 Topic: TOU rates

## Reference: Exhibit B-5, BCUC IR 1.6.4

Asked "Is it still the intention of FortisBC to introduce TOU rates as mandatory to replace the proposed RIB rate in this Application?", FortisBC responds:
"It remains the position of FortisBC that time-based conservation rates offer the best alternatives to flat rates for the Company and its customers. Should a RIB rate be mandated by the Commission, it is currently the Company's intention to introduce some suite of time-based rates to complement the RIB rates, likely on a voluntary participation basis."
31.1 If the Commission approved the current RIB rate application, and if FortisBC's advanced meters initiative is approved and implemented, would FortisBC consider a mandatory residential rate design that combined TOU and RIB features?

## Response:

FortisBC will consider a rate structure that combines time-based and RIB principles, but believes that such a rate structure is overly complex for customers. Assuming that the simplest two-step inclining block is combined with the simplest time-based rate with one on-peak and one-off peak rate, the resulting combined rate structure would require four different prices that vary depending on the time of use and the amount of use within the billing period.

### 32.0 Topic: Long-run marginal cost

Reference: Exhibit B-5, BCUC IR1 Q9.3, Table BCUC IR1 Q9.3
32.1 For Table BCUC IR1 Q9.3, how did FBC calculate (estimate) the "With RIB Program, Gross Load after DSM and other Customer Savings"? Did FBC start with an estimate of RIB savings (i.e., 3.1 GWh in 2012) and then subtract it from the "Without RIB Program, Gross Load after DSM and other Customer Savings"?

## Response:

Please refer to BCUC IR2 Q3.1 and Q3.2 for tables that break out the forecast numbers in detail.

The Company first forecasts expected sales without DSM or any other Customer Savings. Expected DSM and other Customer Savings are then subtracted from the forecast. The sales forecast is then grossed up for losses to arrive at the Gross Load forecast. In other words, yes,

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the Company began with a "Without RIB Program" forecast and then subtracted RIB (but not the 3.1 as that includes losses), then adjusted for losses. The final impact including losses is 3.1 GWh in 2012.
32.2 For Table BCUC IR1 Q9.3, what RIB option does FBC assume? Which elasticity assumption?

## Response:

FortisBC used Option 8 from Table 7-2 in the application, with the $0.05 / 0.10$ elasticity assumption
32.3 Table BCUC IR1 Q9.3 shows RIB program savings in GWh for 2012, 2013, 2014 and 2015.
32.3.1 How were these conservation impact estimates made?

## Response:

Please refer to the response to BCUC IR2 Q3.1.1.
32.3.2 Does the figure for 2012 reflect the RIB rate beginning on July 1 (i.e., only one-half a year of savings)?

## Response:

Yes, the 2012 figure represents approximately six months of savings.
32.3.3 How are the GWh savings ("Variance, Gross Load after DSM and other Customer Savings (GWh))" for 2012, 2013, 2014 and 2015 defined?

## Response:

Table BCUC IR1 Q9.3 is reproduced with row numbers added to assist understanding the definitions.

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Table BCSEA IR1 32.3.3

| 1 Power Purchase Expense |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2 |  |  |  |  |  |  |  |  |
| 3 Energy |  |  |  |  |  |  |  |  |
| 4 With RIB Program |  | 2012 |  | 2013 |  | 2014 |  | 2015 |
| 5 Gross Load after DSM and other Customer Savings (GWh) |  | 3,502 |  | 3,543 |  | 3,577 |  | 3,599 |
| 6 Total Power Purchase Expense (\$000) |  | 90,984 |  | 98,821 |  | 107,589 |  | 140,985 |
| 7 |  |  |  |  |  |  |  |  |
| 8 With No RIB Program |  |  |  |  |  |  |  |  |
| 9 Gross Load after DSM and other Customer Savings (GWh) |  | 3,505 |  | 3,552 |  | 3,591 |  | 3,619 |
| 10 Total Power Purchase Expense (\$000) |  | 91,102 |  | 99,186 |  | 108,245 |  | 141,982 |
| 11 |  |  |  |  |  |  |  |  |
| 12 Variance |  |  |  |  |  |  |  |  |
| 13 Power Purchase (\$000) |  | 119 |  | 366 |  | 656 |  | 997 |
| 14 Gross Load after DSM and other Customer Savings (GWh) |  | 3.1 |  | 8.6 |  | 14.3 |  | 20.3 |
| 15 |  |  |  |  |  |  |  |  |
| 16 Marginal Cost for Energy (\$/GWh) | \$ | 38,042 | \$ | 42,407 | \$ | 45,748 | \$ | 49,155 |

## Power Purchase Variance = Row $10-$ Row 6

Gross Load after DSM and other Customer Savings (GWh) Variance $=$ Row $9-$ Row 5.
They are the difference in expected power purchase expense and expected gross load with and without the RIB program.

Gross Load after DSM and other Customer Savings (GWh) is the Company's load forecast.
32.3.4 Please explain why the size of the GWh savings increases so substantially, in particular from 2013 to 2014 and to 2105 (assuming 2012 represents a half-year of the RIB rate).

## Response:

The expected savings due to the RIB program shown in Table BCUC IR1 Q9.3 are cumulative and growing by about 6 GWh a year. The slight variance in the annual incremental increase is due to load growth. The table below illustrates this:

Table BCSEA IR2 32.3.4

|  | RIB Savings |  |
| :---: | :---: | :---: |
|  | Annual | Cumulative |
| 2012 | 3.1 | 3.1 |
| 2013 | 5.5 | 8.6 |
| 2014 | 5.7 | 14.3 |
| 2015 | 6.0 | 20.3 |

32.3.5 Please reconcile the RIB Rate program GWh savings for 2012, 2013, 2014 and 2015 shown in Table BCUC IR1 Q9.3 with option C-8 in Table 8-3.

## Response:

Option C-8 in Table 8-3 cannot be directly related to Table BCUC IR1 Q9.3. However, Option C-8 is related to Option 8 in Table 7-2 of the RIB Application, from which the $1.9 \%$ long-term savings figure was used. The $1.9 \%$ figure was used to derive the savings shown in Table BCUC IR1 Q9.3 using the methodology described in the response to BCUC IR2 Q3.1.1.
"The majority of this change [in gross load] will be met through changes in the Company's purchase of power purchase agreement ("PPA") power from BC Hydro although there will also be minor changes in the Company's market energy purchases and surplus sales." [Exhibit B-5, BCUC IR 1.9.3, p.21.]
32.4 Does the fact that the majority of the change in gross load due to implementation of the RIB Rate will be met through changes in the Company's purchase of PPA power from BC Hydro mean that BC Hydro's long-run marginal cost of energy is an appropriate proxy for FortisBC's long-run marginal cost of energy, at least concerning the design of the RIB Rate?

## Response:

If it could be assumed that BC Hydro's LRMC is representative of BC Hydro's marginal cost to meet increased energy deliveries under the PPA, it may be a suitable proxy for FortisBC's long run marginal cost if the PPA is the long term marginal resource required to meet FortisBC's growth. As illustrated in the response to BCUC IR1 Q9.3, in the short to medium term FortisBC currently expects to meet the majority of its growth requirements through the PPA. However there is a limit to the energy and capacity available under that agreement and the Company's access to PPA power is already becoming constrained from time to time due to reaching contractual supply limits in the winter. As a result FortisBC's long term marginal resource will be from other sources, and using BC Hydro's LRMC would not be representative of avoided long term marginal costs for FortisBC customers.

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32.5 Does it follow from the quote above [Exhibit B-5, BCUC IR 1.9.3, p.21.] that the "Marginal Cost of RIB Program (\$/GWh)" for 2012, 2013, 2014 and 2015 in Table BCUC IR1 Q9.3 is effectively a short-run marginal cost of energy?

## Response:

Yes, and that is why FortisBC believes its proposed approach to pricing Tier 2 energy is appropriate. Pricing Tier 2 energy at the marginal cost of energy, or even the long-run marginal cost of energy does not provide the appropriate price signals for conservation.
"The values in Table BCUC IR1 Q9. 3 represent what, in the opinion of the Company, is appropriate for the RIB rate comparison." [Exhibit B-5, BCUC IR 1.9.3, p.21, underline added.]
32.6 By "The values in Table BCUC IR1 Q9.3" is FBC referring to the values for "Marginal Cost of RIB Program (\$/GWh)" for 2012, 2013, 2014 and 2015 ?

## Response:

The series of questions in the first round of IRs to which this question and response belong probed the appropriateness of using the long-run marginal cost (LRMC) of power as a referent or cap for the block 2 rate under RIB. The statement above indicates that the values in the Table (meaning the Marginal Cost of the RIB Program, highlighted in yellow), were appropriate as a comparator to the LRMC.
32.7 In comparison of the RIB rate with what? The Block 1 rate and Block 2 rate?

## Response:

Please see the response to BCSEA IR2 Q32.6 above.
32.8 Why does FBC use the term "Marginal Cost of RIB Program (\$/GWh)" in Table BCUC IR1 Q9.3? Should this be 'marginal value'?

## Response:

The response was framed using the terminology contained in the question however marginal value would be just as appropriate. The values in the table represent the dollar amount, on a per-GWh basis of the avoided power purchases anticipated due to the RIB program.
32.9 BCUC IR 1.9.3 asks for an explanation of "how the marginal cost of electricity is defined and assessed at FortisBC." [underline added] Table BCUC IR1 Q9.3 appears to provide the avoided cost of energy saved by the RIB Program in \$/GWh. That figure appears to derive directly from an assumed average ("blended") cost of power purchase that is embedded in the Total Power Purchase Expense, with and without the RIB Program. Is an average cost of power responsive to the marginal cost of power purchase? How does the use of a blended cost where the BC Hydro proportion is $28 \%$ jibe with the statement that the majority of the change in gross load due to implementation of the RIB Rate will be met through changes in the Company's purchase of PPA power from BC Hydro?

## Response:

The amount of power represented by BC Hydro purchases in the Company's overall power purchase expense or quantity is less relevant than where the power serving the marginal residential load is likely to be sourced. As stated in the referenced response, this is the BC Hydro PPA in the amounts indicated.

Subsection 4(3) of the Demand-Side Measures Regulation, B.C. Reg. 326/2008, under the Utilities Commission Act, states:

4 (3) In determining whether a demand-side measure of a bulk electricity purchaser is cost-effective, the commission must consider the benefit of the avoided supply cost to be the authority's long-term marginal cost of acquiring new electricity to replace the electricity sold to the bulk electricity purchaser and not the bulk electricity purchaser's cost of purchasing electricity from the authority.
32.10 Is FortisBC a "bulk electricity purchaser" within the meaning of s.4(3) of the DSM Regulation?

## Response:

Yes. FortisBC fits the definition in the Regulation, which reads "... a public utility that purchases electricity from the authority for resale to the public utility's customers."
32.11 Is the proposed FBC RIB Rate a demand-side measure within the meaning of s.4(3) of the DSM Regulation?

## Response:

Yes, within the context of the DSM Regulation, demand-side measures include rates undertaken to conserve energy.
32.12 Does s.4(3) of the DSM Regulation require the Commission to consider BC Hydro's long-term marginal cost of acquiring new electricity in determining whether the proposed FBC RIB Rate is cost-effective?

## Response:

Yes. FortisBC believes that the Commission must consider the long-term marginal cost of acquiring new electricity to replace the electricity purchased from BC Hydro by FortisBC in determining whether the RIB rate structure is cost-effective.

### 33.0 Topic: Comparison of RIB Rate option 8 and option 2

Reference: Exhibit B-5, BCUC IR 1.9.10
"...As can be seen by comparing Option 8 with Option 2 in Table 7-2, forcing more load into the second block by lowering the threshold reduces the conservation impact while negatively impacting customers." [underline added]
33.1 Please explain the referenced comparison to Option 8 and Option 2 in Table 7-2. Has there been an errata? Please comment on the following observations:

## Response:

The statement is drawn from the following elements:

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- "....lowering the threshold..." - the threshold in option 8 is 1600 kWh versus 1350 kWh in option 2;
- "...reduces the conservation impact..." - the conservation impact is in fact slightly lower in the second decimal place for option 2 as compared to option 8 , however this is not visible in the table nor is it significant; and
- "...negatively impacting customers..." - in drawing this conclusion the Company only considered the metric "Percentage of customers better off". In the options discussed, $75.7 \%$ of customers are better off under option 8 as compared to $70.7 \%$ under option 2.
33.1.1 In the version of Table 7-2 at hand, the Conservation Impact of Option 8 is $1.9 \%, 3.7 \%, 5.5 \%$ (for the three elasticity assumptions) and the Conservation Impact of Option 2 is exactly the same at $1.9 \%, 3.7 \%$, 5.5\%.


## Response:

Please see the response to BCSEA IR2 Q33.1 above.
33.1.2 In addition, the Maximum Bill Impact of Option 8 is $22.6 \%$, which is slightly higher than the Maximum Bill Impact of Option 2, which is $21.3 \%$. (Both Option 2 and Option 8 are " $95 \%$ see $<10 \%$ annual bill impact.")

## Response:

Please see the response to BCSEA IR2 Q33.1 above.
33.1.3 Similarly, the Percentage of Customers with Bill Increases $>20 \%$ is $0.2 \%$ for Option 8, which is slightly higher than the figure for Option 2, which is 0.1\%.

## Response:

Please see the response to BCSEA IR2 Q33.1 above.

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### 34.0 Topic: BC Hydro rate increase

## Reference: Exhibit B-5, Table BCUC IR1.11.1; Exhibit B-1, Table 8-3; Exhibit B-6, BCOAPO IR 1.3; Exhibit B-11 Additional evidence

BCUC IR 1.11.1 states:
"Commission Order G-72-11 approved an across-the-board rate increase of $8.0 \%$ for BC Hydro, effective May 1, [2011]. Please describe the implications of these rate increases on FortisBC's various proposals, as well as on the preferred option 8."

FortisBC responds:
"An increase of 8.0 per cent for BC Hydro wholesale purchases will have an impact of 0.9 per cent (annualized) for the Company's 2011 residential revenue requirements. Since the proposed customer charges are fixed at various levels under the 18 options examined, the block 1 and block 2 energy rates would need to increase by an amount greater than 0.9 per cent."

In Table 8-3, a footnote states: "Does not include any forecast increases related BC Hydro flow-through." [underline added]

In its Additional Evidence, the Company addresses some aspects of the flow-through of the BC Hydro wholesale price increase.
34.1 Does "the block 1 and block 2 energy rates would need to increase by an amount greater than 0.9 per cent" mean 0.9 percentage points, as would appear from Table BCOAPO IR1 Q3b?

## Response:

BCUC IR1 Q11.1 refers to information contained in the Application (Exhibit B-1) section 5.2 which together with section 5 generally, discusses the options for designing a RIB rate within the revenue requirement constraint and the methods for applying rate increases.

The referenced passage is intended to convey the fact that whereas under normal circumstances a BC Hydro rate increase would be applied to all rate components equally (i.e. by applying the same percentage), in the case of RIB no increase attributable to BC Hydro would be applied to the Customer Charge. Therefore, if an increase of $0.9 \%$ were normally applied to all components, in the absence of any increase to the Customer Charge, a higher percentage increase would need to be applied to the remaining rate components.
34.1.1 Is the $0.9 \%$ figure premised on an increase in FortisBC residential rates (due to the change in the BC Hydro wholesale price) for only a portion of 2011, or for all of 2011?

## Response:

A 1.4\% interim rate increase was applied to all rates on June 1, 2011 in response to the interim 8.0\% increase in BC Hydro rates. Had the BC Hydro increase occurred at the beginning of the year it would have increased FortisBC rates by approximately $0.9 \%$. The increase is adjusted to take into account that the increase occurs mid-year.
34.2 Does FortisBC's response mean that if a RIB Rate is approved in this proceeding then "the block 1 and block 2 energy rates" will increase by an amount greater than 0.9 per cent (or percentage points)?

## Response:

The response indicates that if the Customer Charge is only subject to rebalancing increases, and not the revenue requirement related increases or BC Hydro flow-through increases, the block 1 and 2 rates will be increased by a percentage that is higher than what all rate components would be experience under a flat rate.
34.3 Please confirm that "increase" here means set initially at a level higher than would otherwise have occurred, as distinct from being set at one level and then later being increased.

## Response:

Please see the response to BCSEA IR2 Q34.2 above. Any year in which there is a BC Hydro related increase, and a pricing principle is in place that excludes the Customer Charge, this situation will exist. In this sense, the Company confirms that "increase" is meant to reflect a future application of rate increases to whatever initial rates are set.
34.4 Please confirm that "the block 1 and block 2 energy rates [increasing] by an amount greater than 0.9 per cent" means that the load-weighted average of the block 1 and block 2 rates increases by greater than 0.9 per cent, although the

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amount by which either the block 1 rate or the block 2 rate increases could be less or more than 0.9 per cent depending on the configuration of bill impact, threshold, and customer charge.

Response:
Please see the response to BCSEA IR2 Q34.2 above.
34.5 Please confirm that this increase in the revenue requirement does not directionally affect the conservation impact and other attributes of the RIB Rate options set out in Table 7-2.

## Response:

Confirmed.
34.6 To clarify, is it the case that the $8.0 \%$ increase in the BC Hydro wholesale price has already caused an increase in the FortisBC residential rates in 2011? As of what date?

## Response:

The increase to all FortisBC rates resulting from the BC Hydro increase was applied effective June 1, 2011.
34.7 Has FortisBC factored in the 2011 change in BC Hydro wholesale price in the tables showing the combined effect of class average rate change (CARC) and RIB Rate?

## Response:

The BC Hydro flow-through has been included in calculations where requested in information requests. A summary of the treatment of the $B C$ Hydro increase can be found below.

Table BCSEA IR2 34.7

| Exhibit | Table | BC Hydro flow-through <br> included in table? |
| :--- | :--- | :---: |
| B-1 | Table 8-3 | No |
| B-5 (Response to BCUC | IR Response 10.1 | No |
| IR1) | IR Response 21.4 | No |
|  | IR Response 22.1 | No |
| B-6 (Response to | Table BCOAPO IR1 Q17a | Yes |
| Intervenor IR1) | Table BCOAPO IR1 Q18a | Yes |
| B-8 (response to BCUC | Table BCUC IR2 Q1.2 | No |
| IR on Errata 3) | Table BCUC IR2 Q1.2 | No |
| B-11 | Appendices A \& B | Yes |

### 35.0 Topic: Customer Charge

## Reference: Exhibit B-5, BCUC IR1 Q12.4

The IR is:
"12.4 Is it true that by lowering the customer charge, there is more flexibility to increase the Block 1 and Block 2 rates, and all other things being equal and on a revenue neutral basis, there is potential to increase energy savings from customers? Please illustrate your answer."

FortisBC responds in part:
"All other things being equal, including the customer impact criterion, at each level of customer charge there will only be one set of rates that will collect the revenue requirement. ..."
35.1 Please comment on the following as an answer to BCUC IR 12.4?: No. It cannot be said as a general rule that by lowering the customer charge there is more flexibility to increase the Block 1 and Block 2 rates. Assuming one of the things being held equal is the maximum level of customer annual bill impact, then some of the bill impact 'room' that would otherwise be available to garner larger conservation impacts by increasing the differential between block 1 and block 2 is taken up by the bill impact of the reduction in the customer charge.

## Response:

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As stated in the original response, at each combination of Threshold, Customer Charge, and Customer Impact, there is only one set of block 1 and block 2 rates possible. There is flexibility in setting the Customer Charge, but this will only result in a single possible rate set.

Holding the threshold and Customer Impact constant and reducing the Customer Charge does not lead to an increase in both the block 1 and block 2 rates, and does not lead to an increase in the block differential as the question seems to suggest. In fact, the opposite is true. Therefore, the conclusion drawn in the question is not supported. This can be seen in the chart below using options from Exhibit B-10-1 (numbered 8, 17, 70, 64, 26, and 58). It should also be noted to underscore the position that focussing on the small variations in the options is not particularly helpful as these options have estimated conservation impacts (at the .20/.30 elasticity assumption) of $5.5 \% .5 .4 \%, 4.8 \%, 5.0 \%, 5.6 \%$, and $5.5 \%$ respectively.

Figure BCSEA IR2 35.1


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### 36.0 Topic: Customer charge

Reference: Exhibit B-5, BCUC IR1 Q12.4; 12.4.1
FortisBC continues its response to BCUC IR 12.4:
"In referring to Options 1 and 10 from Table 7-2 in the Application, which holds all aspects of the rate constant other than the level of the customer charge, it can be seen that with a lower customer charge the block 1 rate increases, the block 2 rate decreases slightly and the rate differential also declines. The conservation impact change is negligible."

BCUC IR 12.4.1 states:
"12.4.1 If the above is not true or true only under certain conditions, please explain your answer."

FortisBC responds:
"The above is true for all options examined in preparing the Application. However, due to the increase in the per-kWh consumption rate associated with a decrease in the customer charge, the breakeven point at which bills are lower with a lower basic charge happens sooner.

For example, all other things being equal, a customer being billed under scenario 10 from Table 7-2 ( $\$ 21.50$ customer charge) will pay less than a customer being billed under Scenario 1 ( $\$ 28.93$ customer charge) up to approximately $11,000 \mathrm{kWh}$ annually.

Were the customer charge in Option 10 lowered to $\$ 7.50$, the customer will begin to see bills higher than those under Option 1 after annual consumption of only $7,500 \mathrm{kWh}$."
36.1 Please confirm that the response to BCUC IR 1.12.4.1 addresses the impact of a reduced customer charge on the breakeven point but not on the estimated conservation impact.

## Response:

Confirmed.

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### 37.0 Topic: Customer charge

## Reference: Exhibit B-5, BCUC IR1 Q12.7 as revised July 29, 2011;

Table BCUC IR1 Q12.7 provides RIB Rate Options Comparisons for customer charge = \$15.00/billing period.
37.1 To illustrate the relationship between customer charge and conservation impact, please provide a line graph showing conservation impact on the $y$-axis and customer charge on the x-axis. For simplicity, use options with the $95 \%$ see $<10 \%$ bill impact criterion. Please show all the RIB Rate options with different customer charges that have now been developed (e.g., in response to Panel IR1.)

## Response:

Please see the chart below which shows the Conservation Impact for various levels of the customer charge and threshold values.

Figure BCSEA IR2 37.1
Conservation Impact vs Customer Charge


Note that the option with a 2100 kWh threshold and a $\$ 10.00$ customer charge has not previously been requested but has been added to complete the chart. With this option, the conservation impact rises since there are less kWh in block 2, both the block 1 and 2 rates need to go up relative to the other $\$ 10$ options. This leads to higher savings.

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#### Abstract

38.0 Topic: Electric space heating and cooling data Reference: Exhibit B-6, BCUC IR 1.13.4 "...FortisBC does not have data on the proportion of customers that use electricity for both space heating and cooling." 38.1 Where does FortisBC get its data on the proportion of residential customers who use electricity as the primary space heating source, the proportion who use electricity as a secondary space heating source, and the proportion who use electric space cooling?

\section*{Response:}

FortisBC used data from its 2009 Residential End-Use Survey (REUS). 38.2 If the usage data comes from the REUS, why isn't data available on the use of both electric space heating and cooling?

\section*{Response:}

The REUS provided information on the proportion of customers with space heating and space cooling, but did not provide a statistic for the combined use of both. This limitation is common throughout the REUS, since the proportions of the possible combinations of all the factors studied are far too numerous to include.


### 39.0 Reference: Exhibit B-6, BCUC IR 1.13.6, Table BCUC IR1 Q13.7

Table BCUC IR1 Q13.7 shows "Number of Customers" for 2006 and 2010 by Block Usage.
39.1 Please clarify if "Number of Customers" means the number of bills.

## Response:

The "Number of Customers" does not mean the number of bills.

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### 40.0 Topic: Threshold and conservation impact

## Reference: Exhibit B-6, BCUC IR 1.15.1, Table BCUC IR1 Q15.1

Table BCUC IR1 Q15.1 shows RIB Rate Options Comparison for two new options 19 and 20: Customer Charge $=\$ 28.93 /$ billing period and Customer Charge $=\$ 21.50 /$ billing period, where customer bill impact $=90 \%$ see $<10 \%$ and threshold $=1500 \mathrm{kWh} / \mathrm{billing}$ period.
40.1 Please confirm that the assumptions for option 19 are the same as for options 1 and 7 in Table 7-2, except regarding the thresholds (Option $19=1500 \mathrm{kWh}$; Option 1 = 1350 kWh ; Option $7=1600 \mathrm{kWh}$ ).

## Response:

This is not confirmed. Option 19 features a $\$ 7.50$ Customer Charge whereas options 1 and 7 feature a $\$ 28.93$ Customer Charge.
40.2 Please confirm that the assumptions for option 20 are the same as for options 10 and 16 in Table 7-2, except regarding the thresholds (Option $20=1500 \mathrm{kWh}$; Option $10=1350 \mathrm{kWh}$; Option $16=1600 \mathrm{kWh}$ ).

## Response:

This is not confirmed. Option 20 features a $\$ 7.50$ Customer Charge whereas options 1 and 7 feature a $\$ 21.50$ Customer Charge.
40.3 Please provide a table with all the columns of Table 7-2, showing options 19, 1, and 7 and 20,10 and 16.

## Response:

Please see Table BCSEA IR2 40.3 below.

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Table BCSEA IR2 $\mathbf{4 0 . 3}$

|  | Percentage of <br> load billed in <br> Block 2 |  |  |
| ---: | ---: | ---: | ---: |
|  | Conservation Impact <br> (-lower/upper) |  |  |
|  | $.05 / .10$ | $.10 / .20$ | $.20 / .30$ |
| $43.3 \%$ | $2.8 \%$ | $5.6 \%$ | $8.3 \%$ |
| $36.6 \%$ | $3.0 \%$ | $6.0 \%$ | $8.8 \%$ |
| $43.3 \%$ | $2.8 \%$ | $5.6 \%$ | $8.2 \%$ |
| $36.6 \%$ | $2.9 \%$ | $5.8 \%$ | $8.6 \%$ |
| $43.3 \%$ | $2.7 \%$ | $5.5 \%$ | $8.2 \%$ |
| $43.3 \%$ | $1.9 \%$ | $3.7 \%$ | $5.6 \%$ |


| Percentage of <br> customers who <br> have <br> consumption in <br> the second <br> block at least <br> once |
| :---: |
| $79.2 \%$ |
| $72.8 \%$ |
| $79.2 \%$ |
| $72.8 \%$ |
| $79.2 \%$ |
| $79.2 \%$ |

40.4 Regarding options where customer charge $=\$ 28.93 /$ billing period, please confirm that for option 19 (threshold = $1500 \mathrm{kWh} /$ billing period) the conservation impact set (3.15, $6.1 \%$ and $9.0 \%$ ) is higher than both the option 1 (threshold $=1350$ ) conservation impact set $(2.8 \%, 5.6 \%$ and $8.3 \%)$ and the option 7 (threshold $=$ 1600) conservation impact set ( $3.0 \%, 6.0 \%$ and $8.8 \%$ ). Does this result suggest that the threshold can be adjusted between 1350 and $1600 \mathrm{kWh} /$ billing period to optimize conservation impacts, where customer charge $=\$ 28.93 /$ billing period?

## Response:

The Company cannot comment on the scenario as Option 19 has a Customer Charge of $\$ 7.50$ not $\$ 28.93$ as assumed in the question.
40.5 Please extend the table requested in the second previous IR by adding versions of options 19 and 20 with bill impacts of $95 \%$ see $<10 \%$ and $100 \%$ see $<10 \%$.

## Response:

Options 19 and 20 both have threshold values of 1350 kWh and a Customer Charge of $\$ 7.50$.
A similar option but with a Customer Impact Criterion of " $100 \%$ see $<10 \%$ " is already shown as Option 21.

### 41.0 Topic: Determination of Block 1 rate and Block 2 rate

Reference: Exhibit B-5, BCUC IR 1.16.2; 1.16.3
The question is how the Block 1 and Block 2 rates were determined for the various RIB Rate options.

The explanation begins with five steps to develop the percentage of usage in each block. It then says that "When setting the various rate options, the customer charge was established first." Then it says "The differential between block 1 and block 2 rates was then optimized so that the revenues were the same as without a RIB rate and the criteria for rate increases for each option was met." [underline added]
41.1 With respect to what was the block differential optimized? Or does this mean that the block differential was maximized?

## Response:

It means that the differential was changed until revenues were equal to the appropriate level and the rate increase criterion was met.
41.2 Is it the case that FBC set the block 1 and block 2 rates in order to maximize the block differential; and not to maximize conservation impact?

## Response:

The rates were set to meet the stated customer impact criteria. Three different customer impact criteria were used to provide different options for consideration. It was recognized that there is a trade-off between conservation impacts and customer bill impacts. FortisBC is neither trying to maximize or minimize the rate differential nor is it trying to maximize or minimize the conservation savings. The Company is trying to balance the different goals set out in the Application.
41.3 If so, why? Please confirm that under the bill impact constraint and with a twopart elasticity assumption maximization of the block differential does not equate to maximization of the conservation impact.

## Response:

There was not bill impact "constraint" but rather there were three different bill impact criteria that were used to generate options for consideration. Nor was there an attempt through the calculation of the block rates and differentials to achieve any particular conservation objective.
41.4 Please confirm that the block 1 and 2 rates would be different if they had been determined by maximizing the conservation impact rather than the block differential.

## Response:

The block 1 and 2 rates would have been different if the only goal was to maximize conservation savings. FortisBC does not believe that the only goal in RIB rate design should be to maximize conservation savings.

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41.5 Please continue with a step by step description of how the block 1 rate and block 2 rate were determined, after the percentage of usage in each block was determined.

## Response:

Step 1: The customer charge for the desired option was set
Step 2: A formula was set such that block 2 was equal to block 1 times the rate differential.
Step 3: The rate differential was set at a given level and then the block 1 rate was set so that the revenue equaled the appropriate amount.

Step 4: The bill impacts were examined to see if the bill impact criterion was met.
Steps 3 and 4 were repeated multiple times with different rate differentials until the applicable bill impact criteria were met.
41.6 In BCUC IR 1.16.3, FortisBC says that the "first analysis" was rejected. Does this refer to the first analysis set out in the response to BCUC IR 1.16.2?

## Response:

The "first analysis" referred to is that described in the Application, Exhibit B-1, on page 18, line 18-23.

### 42.0 Topic: Customer income and consumption

## Reference: Exhibit B-5, BCUC IR 1.16.4; Table BCUC IR1 Q16.4

Table BCUC IR1 Q16.4 provides customer income categories for consumption tranches based on REUS data.
42.1 Please discuss cell size for this table and identify which values are significant.

## Response:

The Company does not understand the reference to "cell size" in the question and cannot comment on the significance for this reason.

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42.2 Please confirm that the percentage figures shown are the percentage of each annual energy tranche consumed by customers within a given income category. These are not the percentages of customers of a given income category who consumed a certain amount of energy.

## Response:

The percentages reflect the breakdown of customers by income level for each of the usage categories.
42.3 Please provide a table showing the percentage of customers by income category and annual energy tranche, so that the rows total $100 \%$.

Response:
Please refer to the below table.
Table BCSEA IR2 42.3 Proportion of Customers by Usage Group

|  | Annual kWh |  |  |  |  |  |  |  |  | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Income | <2,000 | $\begin{gathered} 2,000- \\ 4,000 \end{gathered}$ | $\begin{aligned} & 4,000- \\ & 6,000 \end{aligned}$ | $\begin{gathered} 6,000- \\ 8,000 \end{gathered}$ | $\begin{aligned} & 8,000- \\ & 10,000 \end{aligned}$ | $\begin{aligned} & \text { 10,000- } \\ & 12,000 \end{aligned}$ | $\begin{aligned} & 12,000- \\ & 15,000 \end{aligned}$ | $\begin{aligned} & 15,000- \\ & 20,000 \end{aligned}$ | >20,000 |  |
| <\$20k | 14\% | 22\% | 29\% | 4\% | 10\% | 6\% | 4\% | 6\% | 6\% | 100\% |
| \$20k-\$40k | 3\% | 9\% | 15\% | 15\% | 16\% | 8\% | 12\% | 13\% | 7\% | 100\% |
| \$40k-\$60k | 5\% | 8\% | 15\% | 18\% | 12\% | 13\% | 14\% | 8\% | 8\% | 100\% |
| \$60k-\$80k | 3\% | 7\% | 14\% | 15\% | 15\% | 5\% | 9\% | 19\% | 14\% | 100\% |
| \$80k-\$120k | 4\% | 6\% | 10\% | 10\% | 16\% | 15\% | 14\% | 13\% | 12\% | 100\% |
| >\$120k | 4\% | 5\% | 2\% | 13\% | 14\% | 20\% | 5\% | 9\% | 29\% | 100\% |

42.4 Take as an example, row Income $<\$ 20,000$ and column Annual kWh $>20,000$. Confirm that the cell value of $4 \%$ means that $4 \%$ of the energy consumed by customers who consumed more than $20,000 \mathrm{kWh}$ per year was consumed by customers in the <\$20,000 income category. What level of significance should be attached to this cell value? To what extent is it possible that the REUS data conflates family income with customer consumption, for example where there is more than one family served by a single customer meter?

## Response:

The $4 \%$ reflects the percent of customers in the sample that have both income $<\$ 20,000$ and consumption $>20,000 \mathrm{kWh} /$ year. The table was provided in response to the referenced
question only and FortisBC did not make a determination as to whether or not this information was significant to the RIB application. However, there have been many questions asked by various parties regarding correlation between high bill impacts, high usage and high income. The various parties are likely more concerned about low income customers and their bill impacts and believed that the high usage customers that were facing high bill impacts also had high income levels. However, as indicated in the responses to BCUC IR\#2 2.2 and 2.3, the findings show that many high use customers also have low incomes. This means that some of the largest bill impacts will apply to both low income and high income customers. The survey used to collect the income data did not ask how many families were living in the home.

### 43.0 Topic: Customer income and dwelling type and heating source

Reference: Exhibit B-5, BCUC IR 1.16.5; Table BCUC IR1 Q16.5
Table BCUC IR1 Q16.5 shows Single-Family Homes and Other by customer income categories; and Electric Heat and Other by customer income categories.
43.1 Please provide two tables, one for dwelling type and the other for heating source, showing customer numbers and percentages by income category horizontally.

## Response:

Please find the requested information in the tables below.
Table BCSEA IR2 43.1a

|  | Income <br> $<\$ 20 \mathrm{k}$ | Income <br> $\$ 20 \mathrm{k}-$ <br> $\$ 40 \mathrm{k}$ | Income <br> $\$ 40 \mathrm{k}-$ <br> $\$ 60 \mathrm{k}$ | Income <br> $\$ 60 \mathrm{k}-$ <br> $\$ 88 \mathrm{k}$ | Income <br> $\$ 80 \mathrm{k}-$ <br> $\$ 120 \mathrm{k}$ | Income <br> $>\$ 120 \mathrm{k}$ |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Single Family Homes |  |  |  |  |  |  |
| \# Customers in Sample | 20 | 133 | 112 | 107 | 94 | 45 |
| \% Customers in Sample | $39 \%$ | $62 \%$ | $62 \%$ | $78 \%$ | $74 \%$ | $80 \%$ |
| Other |  |  |  |  |  |  |
| \# Customers in Sample | 31 | 80 | 70 | 30 | 33 | 11 |
| \% Customers in Sample | $61 \%$ | $38 \%$ | $38 \%$ | $22 \%$ | $26 \%$ | $20 \%$ |
| Total |  |  |  |  |  |  |
| \# Customers in Sample | 51 | 213 | 182 | 137 | 127 | 56 |
| \% Customers in Sample | $100 \%$ | $100 \%$ | $100 \%$ | $100 \%$ | $100 \%$ | $100 \%$ |

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Table BCSEA IR2 43.1b

|  | Income <br> $<\$ 20 \mathrm{k}$ | Income <br> $\$ 20 \mathrm{k}-$ <br> $\$ 40 \mathrm{k}$ | Income <br> $\$ 40 \mathrm{k}-$ <br> $\$ 60 \mathrm{k}$ | Income <br> $\$ 60 \mathrm{k}-$ <br> $\$ 80 \mathrm{k}$ | Income <br> $\$ 80 \mathrm{k}-$ <br> $\$ 120 \mathrm{k}$ | Income <br> $>\$ 120 \mathrm{k}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Electric Heat |  |  |  |  |  |  |
| \# Customers in Sample | 29 | 88 | 67 | 52 | 36 | 19 |
| \% Customers in Sample | $57 \%$ | $41 \%$ | $37 \%$ | $38 \%$ | $28 \%$ | $34 \%$ |
| Other |  |  |  |  |  |  |
| \# Customers in Sample | 22 | 125 | 115 | 85 | 91 | 37 |
| \% Customers in Sample | $43 \%$ | $59 \%$ | $63 \%$ | $62 \%$ | $72 \%$ | $66 \%$ |
| Total |  |  |  |  |  |  |
| \# Customers in Sample | 51 | 213 | 182 | 137 | 127 | 56 |
| \% Customers in Sample | $100 \%$ | $100 \%$ | $100 \%$ | $100 \%$ | $100 \%$ | $100 \%$ |

43.2 Please discuss cell size for these tables and identify which values are significant.

## Response:

The Company does not understand the reference to "cell size" in this situation. FortisBC has no opinion regarding the significance of these values in relation to the RIB rates proposed. However, the Company does note that higher income customers are more likely to live in a single-family residence and less likely to have electric heat.

### 44.0 Topic: Calculation of conservation impact

## Reference: Exhibit B-5, BCUC IR 1.19.3; Exhibit B-1, s.7.2

"...Also, the calculations are based on the amount of load facing block 2, not the amount of load billed at block 2. The amount of load facing block 2 represents the percentage of bills that are above the threshold and see the block 2 rate as their marginal cost. This amount is 87.2 per cent for the 1,350 threshold, 82.9 per cent for the 1,600 threshold and 71.4 per cent for the 2,100 threshold. This approach is the same as how BC Hydro calculated elasticity impacts." [BCUC IR 1.19.3]
"The Company further contends that it is reasonable to assume that different elasticity values apply to consumption above and below the threshold level of consumption. This difference in elasticity results from the assumption that customers are more inclined to respond to a price that is above the current flat rate. For this reason, in examining the
conservation effects of the RIB rate, two values for the elasticity have been used - a lower absolute elasticity value for consumption in the first block and a higher absolute value for consumption in the second block. Regardless of the values chosen, conservation impacts are evident." [Exhibit B-1, p.21]
44.1 Is it a misstatement where the Application says that the conservation impact was calculated using the lower elasticity figure for consumption in the first block and the higher elasticity figure for consumption in the second block? Please confirm that this is what FBC refers to in BCUC IR 1.19.3 as calculations based on load billed at block 2, as distinct from being based on load facing block 2.

## Response:

In the case of elasticity calculations, the consumption in block 1 refers to the consumption facing block 1 and the consumption in block 2 refers to the consumption facing block 2. The statement in the Application was not intended to imply that consumption in a particular block was the same as the consumption billed at that particular block. The Company acknowledges that this could have been made clearer.
44.2 Please confirm that when FBC states "The amount of load facing block 2 represents the percentage of bills that are above the threshold and see the block 2 rate as their marginal cost" this means that each bi-monthly bill that exceeds the threshold is given a conservation impact equal to the entire amount of the billed consumption, times the difference between the Block 2 rate and what would otherwise have been the flat rate, times the higher of the two elasticity figures in the pair.

## Response:

Confirmed. This approach was consistent with the methodology used by BC Hydro in calculating elasticity impacts. The concept reflects the fact that customers facing block 2 will be looking at their overall consumption and will not look at their block 1 and block 2 consumption separately when looking to conserve energy. The customers facing block 2 will also see a higher average rate than for customers facing block 1 only, and higher elasticity values generally are correlated with higher rate levels. As FortisBC has not had RIB rates in the past, it does not have elasticity data specific to its service area for RIB rates. Therefore the level of the elasticity values is uncertain, and the differential between elasticities for block 1 and block 2 is also uncertain.
44.3 Why does FBC present the Percentage of Load Billed in Block 2 in Table 7-2 if the conservation impact is based on the percentage of load facing block 2?

## Response:

Table 7-2 presented the percentage of load billed in block 2 as an indication of examined bill impact, not specifically conservation impact. The percentage of load facing block 2 was also calculated and considered but was not placed in Table 7-2. Table 7-2 does include the percentage of customers facing block 2 at least once.

### 45.0 Topic: Screening criteria

Reference: Exhibit B-5, BCUC IR 1.20.1; Exhibit B-1, pp.23-24
BCUC IR 1.20.1 quotes the Application:
"FortisBC states: "An initial screening of the options was undertaken in order to reduce the number requiring further analysis. The screening was based on the difference between the block rates and the total residential load that would be billed in the second block. Table 8-1 below shows the results of the initial screening." (Emphasis added)"

FortisBC states in its response:
"FortisBC believes that the conservation that may result from the implementation of a RIB rate will stem from customer reaction to the price signals inherent in the rate structure. These price signals are contained in the differential between the block 1 and block 2 rates.

It was felt that for the initial screening, it was sufficient to look at the two criteria and not to preclude any options based on the results of the specific conservation impact assumptions."
45.1 Why did FortisBC screen options based on the difference between the block rates and the total residential load that would be billed in the second block instead of screening on the difference between the conservation impact?

## Response:

Both the block rates and the percentage of load billed in the second block were derived from historical customer and load data and as such the Company believes that they are more reliable than the Conservation Impact estimates which are built from assumed elasticity values.
45.2 Why did FortisBC screen options based on the total residential load that would be billed in the second block when it was calculating the conservation impact based on the load facing the second block?

## Response:

Please see the response to BCOAPO IR2 Q35a.
45.3 What does FortisBC mean by "not to preclude any options based on the results of the specific conservation impact assumptions"? Is the reference to the three pairs of elasticity assumptions? Please confirm that there are few, if any, RIB Rate options that would be screened out instead of screened in due to choosing one or other of the three pairs of elasticity assumptions.

## Response:

The Company was not referring to differences between the results under any of the three elasticity assumptions as compared to each other. The statement means that no RIB rate options were eliminated based on the estimated conservation impacts. Therefore, the Company can confirm that there are no rate options that would be screened out due to choosing one or the other of the three pairs of elasticity assumptions.

### 46.0 Topic: Screening criteria

Reference: Exhibit B-5, BCUC IR 1.20.2
"FortisBC identified the RIB block evaluation criteria early in its development of the RIB options and was consistent in their application throughout. A RIB rate is intended to be a conservation rate so it follows that criteria related to pricing that incents the desired behaviour would be used. ..."
46.1 Given that the RIB block evaluation criteria (block differential and percentage of load billed at block 2) are not consistently correlated with conservation impact over the range of RIB rate options [or is this an observation that has been superseded by errata?], why didn't FortisBC use conservation impact as the screening criterion?

## Response:

Please see the response to BCSEA IR2 Q45.1 above.

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### 47.0 Topic: Pricing principles

Reference: Exhibit B-5, BCUC IR 1.21.1; Exhibit B-6, Table BCOAPO IR1 A16g
47.1 Please confirm that FortisBC's second-preferred option, option A (general and rebalancing increases applied to the block 1 rate, $95 \%$ see $<10 \%$, threshold $=$ $1350 \mathrm{kWh} /$ billing period, customer charge $=\$ 28.93 /$ billing period), shows $0.0 \%$ of customers have any rate impact >10\% in any year from 2012 to 2015.

## Response:

Confirmed.
47.2 Please confirm that FortisBC's first-preferred option, option C (general and rebalancing increases applied to the block 1 rate, $95 \%$ see $<10 \%$, threshold $=$ $1600 \mathrm{kWh} /$ billing period, customer charge $=\$ 28.93 /$ billing period), shows $6.4 \%$ of customers have a rate impact $>10 \%$ in 2012 and $0.0 \%$ have a rate impact $>10 \%$ in any year from 2013 to 2015.

## Response:

Confirmed.
47.3 Please confirm, per Table 7-2, that option $A$ and option $C$ have identical conservation impact estimates, option A has a slightly higher block differential than option C; option A has a slightly higher percentage of load billed in block 2 than option $C$; option $A$ has a slightly higher percentage of customers who have consumption in the second block at least once than option C ; and option A has a slightly lower breakeven point than option C.

## Response:

Confirmed.

### 48.0 Topic: CARC + 10\% RIB Rate option

Reference: Exhibit B-5, BCUC IR 1.21.4; Table BCUC IR1 Q21.4
In response to the IR, Table BCUC IR1 Q21.4 provides information on a RIB rate option where "the single most adversely impacted customer would face a bill impact of CARC + 10\%."
48.1 For Table BCUC IR1 Q21.4, please clarify the Threshold and the Customer Charge.

## Response:

The option included in BCUC IR1 Q21.4 is the same as Option 9. The information requested is included in Table 7-2 (Threshold $=1600 \mathrm{kWh}$, Customer Charge $=\$ 28.93$ ). Further information on Option 6 is included in the response to BCOAPO IR2 Q29c.
48.2 Please provide a RIB Rate Options comparison table, like Table 7-2, for the CARC $+10 \%$ option (threshold $=1600 \mathrm{kWh} /$ billing period, customer charge $=$ $\$ 28.93 /$ billing period in 2011), and please specify the assumed pricing principle.

## Response:

Please see the response to BCSEA IR2 Q48.1 above.
48.3 Please confirm that "Percent Customers with Impacts in the Range of:" in Table BCUC IR1 Q21.4 is defined as annual bill impacts due to the RIB Rate plus CARC (cf. all the other bill impact figures that exclude CARC).

## Response:

The "Percent Customers with Impacts in the Range of" for 2011 reflects the change from a flat rate to a block rate without any other rate increases. The other years represent the impact of the CARC. Because the rate components were all escalated equally, there were no further impacts of the RIB rate.
48.4 For 2011 in Table BCUC IR1 Q21.4, what assumption is made about how many months the RIB Rate is in effect for? I.e., confirm that block 1 rate and block 2 rate are set by maximizing the block differential over 12 months.

## Response:

The RIB is assumed to be in place for all 12 months. The block 1 and 2 rates are not set by maximizing the block differential. The block differential is set at a level that both collects the appropriate amount of revenue given the assumed Customer Charge, and meets the criteria of $100 \%$ of customers see $<10 \%$ increase due to the RIB. This could be considered the maximum differential that still meets the criteria, as any number of smaller differentials would also meet the criteria.
48.5 What is FortisBC's view as to whether there is any difference between the Q21.4 option where "the single most adversely impacted customer would face a bill impact of CARC + 10\%" (threshold $=1600 \mathrm{kWh} /$ billing period, customer charge $=$ \$28.93/billing period in 2011) and option 9 in Table 7-2? Please consider the following:

## Response:

Please see the response to BCSEA IR2 Q48.1 above.
48.5.1 The 2011 Block 1 rate and Block 2 rate appear to the same but for rounding differences in "CARC + 10\%" and option 9.

## Response:

These options are the same. Please see to the response to BCSEA IR2 Q48.1 above.
48.5.2 The concept of option 9 is that $100 \%$ of customers see $<10 \%$ annual bill increase not including CARC. This seems to be the same as "the single most adversely impacted customer would face a bill impact of CARC + $10 \%$ " (except for the presumably trivial distinction between 'less than $10 \%$ ' and 'less than or equal to $10 \%$ ').

## Response:

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The Company agrees with this conclusion. Please see the response to BCSEA IR2 Q48.1 above.
48.5.3 In Table BCUC IR1 Q21.4, for 2012 to 2015 the 'percent customers with impacts' appears to reflect CARC exclusively and not the RIB rate.

## Response:

Please see the response to BCSEA IR2 Q48.3 above.
48.6 Please confirm that FortisBC rejected option 9 because "Initial block differential too low," per Table 8.1. Does the same reasoning apply to the "CARC + 10\%" option?

## Response:

The CARC plus $10 \%$ option is equivalent to Option 6, and was rejected as the initial block difference was too low and there was insufficient load billed in the second block.

### 49.0 Topic: CARC + 10\% RIB Rate option

Reference: Exhibit B-5, BCUC IR 1.22.1; Table BCUC IR1 Q22.1
49.1 Please add to Table BCUC IR1 Q22.1 RIB Rate Option comparison columns used in Table 7-2.

## Response:

Please see the table below.
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### 50.0 Reference: Exhibit B-5, BCUC IR 1.23.1; Table BCUC IR1 Q23.1c and Q23.1d

Table BCUC IR1 Q23.1c provides "Average Bill Impact - Option A" by number of bills in Block 2 for 2011 to 2015. Table BCUC IR1 Q23.1d provides the same for Option C.
50.1 What is the "average bill impact" shown as a percentage for years 2012 to 2015 in Table BCUC IR1 Q23.1c and Q23.1d? Is it the average annual bill impact of customers who have the given number of bills in Block 2?

## Response:

Yes, it is the average annual increase or decrease in the bill for those customers that have the given number of bills in Block 2. It is based on the sample data.
50.2 Please confirm that "average bill impact" shown for years 2012 to 2015 includes CARC.

## Response:

Confirmed.

### 51.0 Topic: Elasticities

Reference: Exhibit B-6, Table BCOAPO IR1 Q13c
Table BCOAPO IR1 Q13c shows estimated conservation impact for RIB Rate options 1 to 9 assuming elasticities are the same for load not facing block 2 and for load facing block 2.
51.1 Please confirm that the estimated conservation impact values are negative, meaning increased consumption.

## Response:

In that particular case the negative numbers reflected a negative impact on consumption, which means that consumption would decline.

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51.2 In FortisBC's view, is it valid to assume that the same elasticity applies to load not facing block 2 and to load facing block 2 ?

## Response:

Please see the response to BCSEA IR2 Q44.2.

### 52.0 Topic: Relationship between Initial Block Differential and Conservation Impact

 Reference: Exhibit B-6, Table BCSEA IR 1 Q7. 2Table BCSEA IR 1 Q7.2 provides Block Differential and Conservation Impact by Option number. The following table sorts Table BCSEA IR 1 Q7.2 by Block Differential.

| Option | Criterion |  |  | Block <br> Differential | Conservation Impact |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | .05/.010 | .10/.20 | .20/.30 |
| 4 | 90\% | see | <10\% | 83.00\% | 3.30\% | 6.60\% | 9.70\% |
| 1 | 90\% | see | <10\% | 82.00\% | 2.80\% | 5.60\% | 8.30\% |
| 7 | 90\% | see | <10\% | 78.00\% | 3.00\% | 6.00\% | 8.80\% |
| 13 | 90\% | see | <10\% | 66.00\% | 3.20\% | 6.40\% | 9.40\% |
| 10 | 90\% | see | <10\% | 64.00\% | 2.80\% | 5.60\% | 8.20\% |
| 16 | 90\% | see | <10\% | 61.00\% | 2.90\% | 5.80\% | 8.60\% |
| 2 | 95\% | see | <10\% | 48.00\% | 1.90\% | 3.70\% | 5.50\% |
| 8 | 95\% | see | <10\% | 44.00\% | 1.90\% | 3.70\% | 5.50\% |
| 5 | 95\% | see | <10\% | 42.00\% | 1.80\% | 3.70\% | 5.40\% |
| 11 | 95\% | see | <10\% | 35.00\% | 1.80\% | 3.70\% | 5.40\% |
| 17 | 95\% | see | <10\% | 33.00\% | 1.80\% | 3.60\% | 5.40\% |
| 14 | 95\% | see | <10\% | 32.00\% | 1.80\% | 3.60\% | 5.40\% |
| 3 | 100\% | see | <10\% | 20.00\% | 0.90\% | 1.70\% | 2.50\% |
| 9 | 100\% | see | <10\% | 17.00\% | 0.80\% | 1.60\% | 2.30\% |
| 6 | 100\% | see | <10\% | 15.00\% | 0.70\% | 1.40\% | 2.10\% |
| 12 | 100\% | see | <10\% | 11.00\% | 0.90\% | 1.70\% | 2.60\% |
| 18 | 100\% | see | <10\% | 10.00\% | 0.80\% | 1.70\% | 2.50\% |
| 15 | 100\% | see | <10\% | 9.00\% | 0.80\% | 1.50\% | 2.30\% |

52.1 Please confirm that the above table sorts Table BCSEA IR 1 Q7.2 by Block Differential.

## Response:

Confirmed.

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52.2 Please confirm that with one exception Conservation Impact declines with declining Block Differential; the exception being Option 12 (100\% see <10\%; 1350 kWh threshold; $\$ 21.50$ customer charge).

## Response:

The Company notes that options 12, 18, and 15 all have a higher Conservation Impact and higher Block Differential than option 6. The Company considers that option 6 is the anomaly rather than option 12. If option 6 is removed from the analysis, results are consistent with the observation that Block Differential and Consumption Impact move in the same direction.

In most cases the options grouped together all have the same customer charge and differ by threshold. This occurs for options 3,9 and 6 as well as for 12,18 and 15 . When comparing option 12 to option 6 , there is a change in the customer charge. That will have an impact on the level of the block 1 and 2 rates and therefore on the conservation impact.
52.3 Why is Option 12 different than the other 17 options in having a higher, rather than lower, Conservation Impact than the option with the next higher Block Differential?

## Response:

Please refer to the response to BCSEA IR2 Q52.2 above.

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## Preamble Intervenor Information Request \#2

Our household has been a residential customer of FortisBC and its corporate predecessors since August of 1987, and over the years we have become increasingly concerned by the divergence between how BC Hydro and FortisBC bill their respective customers.

When we first became residential customers it was BC Hydro that billed the higher electrical rates. Today that is not the case. We therefore believe that the Commission Panel has a special responsibility to recognize that FortisBC has an absolute monopoly over the customers it serves.

In a true free market our household could choose where we buy our electrical power from. Under the present circumstances we cannot, and yet less than 15 km to the north of us the same power produced by FortisBC is sold to residential customers at a lower retail rate by BC Hydro. In this context I am struggling, in this hearing, to understand why FortisBC bills such a different rate for its Basic Charge, and I would ask the Commission panel to consider the attached bills as part of our conundrum.

During the August 3 procedural hearing Ms Herbst, representing FortisBC, undertook, at page 63 , line 17 and at page 64 , line 3 and 4 , that the applicant would answer numerical questions. I trust that the spirit of her answer will continue into this round of Intervenor Information Requests.

## Intervenor Information Request \#2: Andy Shadrack

1. According to the attached FortisBC bill for the period of June 13 to August 12, 2011, the Basic Charge was $\$ 28.93$. If one adds together the cost of the charge for energy used and the interim rate increase, the 622 kWh used cost our household $\$ 57.74$. By dividing the 57.74 by 622 this comes to a unit cost of 9.283 cents per kWh.

Does FortisBC agree, from a simple statistical point of view, that the blended price of electricity per kWh (Basic Charge plus energy charge), for this billing period, is as follows:

500 kWh 15.069 cents
$1,000 \mathrm{kWh} 12.176$ cents
1,500 kWh 11.212 cents
2,000 kWh 10.730 cents
$3,000 \mathrm{kWh} 10.2473$ cents
$4,000 \mathrm{kWh} 10.006$ cents

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## Response:

Please refer to Table Shadrack IR 2.1 below.
Note that the $\$ 1.20$ identified as the "Interim Rate Increase" on Mr. Shadrack's August 12, 2011 bill (attached to Shadrack IR 2) results from an increase in both the Customer Charge and the per-unit Energy Charge. It cannot therefore only be added to the total energy charges in order arrive at the blended energy rate as done in the preamble to the information request. Correcting for this, the cost per kWh is 9.217 cents per kwh as shown in line 7 of the table below as opposed to 9.283 cents per kWh as cited by Mr. Shadrack. ( $9.217 \phi / \mathrm{kWh}$ is the approved rate under Rate Schedule 1)

Using the rates in effect during the billing period in question and the consumption levels provided, the blended price of electricity is shown in the table below.

Table Shadrack IR2 Q1

|  | Consumption <br> $(\mathrm{kWh})$ | Rate <br> $(\$ / \mathrm{kWh})$ | Customer <br> Charge | Total <br> Cost | Blended Cost <br> (cents) |
| :---: | ---: | :---: | :---: | :---: | ---: |
|  | a | b | c | $\mathrm{d}=(\mathrm{a} * \mathrm{~b})+\mathrm{c}$ | $\mathrm{e}=\mathrm{d} / \mathrm{a}$ |
|  |  |  |  |  |  |
| 1 | 500 | 0.09217 | $\$ 29.34$ | $\$ 75.43$ | 15.085 |
| 2 | 1,000 | 0.09217 | $\$ 29.34$ | $\$ 121.51$ | 12.151 |
| 3 | 1,500 | 0.09217 | $\$ 29.34$ | $\$ 167.60$ | 11.173 |
| 4 | 2,000 | 0.09217 | $\$ 29.34$ | $\$ 213.68$ | 10.684 |
| 5 | 3,000 | 0.09217 | $\$ 29.34$ | $\$ 305.85$ | 10.195 |
| 6 | 4,000 | 0.09217 | $\$ 29.34$ | $\$ 398.02$ | 9.951 |
|  |  |  |  |  |  |
| 7 | 622 | 0.09217 | $\$$ | - | $\$ 57.33$ |

2. According to the attached October 8 to December 9, 2009 FortisBC bill, the Basic Charge was $\$ 24.26$ and the energy charge 7.627 cents per kWh. What was the cost per kWh of delivering each unit of energy to a residential customer? Was it 9.35 cents per kWh? Or was it a different numerical price altogether?

## Response:

The Company assumes that the 9.35 cent figure comes from the 2009 COSA materials, Schedule 1.1 (Appendix C to Exhibit B-11 in this proceeding).

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This figure represents the blended delivery cost per kWh for the residential customer group and includes a fixed cost component.

The COSA derived cost to deliver power to residential customers contains both a fixed component that does not vary with the amount of power consumed, plus a variable component that varies with the amount of energy consumed by the customer.

Therefore, for the 2-month period in question, the cost to deliver the power covered by the attached bill is $\$ 57.48$ in fixed costs plus 6.63 cents per kWh consumed.

As FortisBC does not collect the full amount of the fixed costs in its Customer Charge, a portion of the fixed costs must be collected in the kWh charges. This is why the tariff energy rate must be higher that the COSA derived variable cost.

As stated in Exhibit B-11, the use of a "blended cost" value does not recognize that customers place a fixed cost on the utility regardless of the level of consumption.
3. If the Basic Charge has risen from $\$ 24.26$ between October 8 and December 9, 2009, to $\$ 28.93$ between June 13 and August 12, 2011, and the energy charge from 7.627 cents to 9.283 cents per kWh, what has the cost of delivering that energy risen to per kWh? Can it be assumed that the cost has risen by the same percentage as that billed by the company for the Basic Charge and the per kWh energy charge - between $21.71 \%$ and $19.25 \%$ ?

## Response:

On August 12, 2011, the approved residential rate includes a Customer Charge of $\$ 29.34$ per two-month billing period and an energy charge of $\$ .09217 \mathrm{per} \mathrm{kWh}$. Both of these rate components have been increased by the same approved general rate increases since December of 2009 - totaling a cumulative increase of $20.8 \%$. (with minor differences due to rounding)

While the actual cost to serve cannot be determined without updating the COSA study, and recognizing that some costs incurred in the intervening period may impact certain classes of customers more than others, it is likely that costs will have risen in a manner generally consistent with the revenue requirement.

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4. The total cost, including taxes, for 622 kWh of residential electricity provided by FortisBC between June 13 and August 12, 2011 is $\$ 91$. Do you agree, as per the attached bill, that the same power provided by BC Hydro to residential customers would have cost $\$$ :
Basic Charge - 60 days @ \$0.14480/day: $\$ 8.69$
Usage Charge -
Step 1: 622 kWh @ \$0.06670 /kWh: \$41.49
Step 2: 0 kWh @ $\$ 0.09620 / k W h:$ 0.00

Rate Rider at 2.5\%:
\$1.25
HST:
\$6.17
BC HST Residential Energy Credit:
$\$ 3.60 \mathrm{CR}$
$\$ 54.00$

## Response:

The Company confirms the calculations.
5. Do you also agree, from a numerical standpoint, that BC Hydro would have charged the following amounts per kWh, before taxes?
$500 \mathrm{kWh}-8.62$ cents
$1,000 \mathrm{kWh}-7.73$ cents
$1,500 \mathrm{kWh}-7.68$ cents
$2,000 \mathrm{kWh}-8.23$ cents
$3,000 \mathrm{kWh}-8.77$ cents
4,000 kWh - 8.98 cents

## Response:

The Company has calculated the charges in the table below. The figures are consistent with those provided in the question with the exception of the 1500 kWh level.

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Table Shadrack IR2 Q5

| Consumption <br> (kWh) | Tier 1 <br> Charges | Tier 2 <br> Charges | Customer <br> Charge | Total before <br> Additional <br> Charges and <br> Credits | 2.5\% Rate <br> Rider | HST | Residential <br> Energy <br> Credit | Total Bill | Blended <br> Cost <br> (cents/kWh) |  |  |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
|  |  |  |  |  |  |  |  |  |  |  |  |
| 622 |  | 41.49 | - | 8.69 | 50.18 | 1.25 | 6.17 | $(3.60)$ | 54.00 | 0.08268 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| 500 | 33.35 | - | 8.69 | 42.04 | 1.05 | 5.17 | $(3.02)$ | 45.24 | 0.08618 |  |  |
| 1000 |  | 66.70 | - | 8.69 | 75.39 | 1.88 | 9.27 | $(5.41)$ | 81.14 | 0.07727 |  |
| 1500 | 90.05 | 14.43 | 8.69 | 113.16 | 2.83 | 13.92 | $(8.12)$ | 121.79 | 0.07733 |  |  |
| 2000 | 90.05 | 62.53 | 8.69 | 161.26 | 4.03 | 19.84 | $(11.57)$ | 173.56 | 0.08265 |  |  |
| 3000 | 90.05 | 158.73 | 8.69 | 257.46 | 6.44 | 31.67 | $(18.47)$ | 277.09 | 0.08797 |  |  |
| 4000 |  | 90.05 | 254.93 | 8.69 | 353.66 | 8.84 | 43.50 | $(25.38)$ | 380.63 |  | 0.09063 |

6. In May of 2003 the then Minister of Energy and Mines promised, as found in Exhibit A2-1 of the 2009 FortisBC Rate Design and Cost of Service Application:
"Electricity rates will be set on a postage stamp basis. This means all customers within a particular customer class will receive the same rate, regardless of their location in the Province."

Further, in their decision the Commission Panel noted in G-156-10 at page 69:
"The Commission Panel further notes that the current policy, supporting same rates to all members of a customer class regardless of their location in the Province, can also be interpreted to support the idea that the FortisBC residential customer rate structure should more closely resemble the BC Hydro residential rate structure."

Currently, for example, a residential customer purchasing 500 kWh (if the prices in 1 and 5 above are accurate) would pay $42.7 \%$ less to BC Hydro than to FortisBC. In contrast someone purchasing $4,000 \mathrm{kWh}$ in a billing period would only pay $10.3 \%$ less to FortisBC than BC Hydro. In relation to the answer Filing of Additional Evidence pursuant to Commission Order G-142-11: 1. Revenue Stability, page 1 to page 5 , line 3 , can FortisBC please explain why they should be allowed to apply the principles of James Bonbright and/or the applicable BC legislation and regulations so that their "sales revenue volatility" is markedly different from that apparently required by BC Hydro?

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## Response:

The principle of Revenue Stability is a generic concept in the setting of rates that is viewed as a desirable outcome of the rate setting process. In the opinion of the Company, Revenue Stability should be considered by the Commission in balance with other objectives of rate design. FortisBC considers that cost causation is also in important consideration. Ultimately, the Commission will determine the relative importance that it places on the various, and often competing elements inherent in the design of the RIB rate that it may approve. The Company cannot speculate on either the Commission's relative weighting of the importance of these factors, or on the importance of revenue stability to BC Hydro.
7. Can FortisBC please explain, from a conservation perspective, why it is necessary for them to propose a higher threshold between Step 1 and Step 2 than BC Hydro? Has FortisBC, for example, discussed with BC Hydro its current RIB rate, in terms of conservation impact data found to date, and if not why not?

## Response:

The Company notes that in its original RIB Rate Application, BC Hydro proposed the same 1600 kWh threshold proposed by FortisBC. The 1350 kWh threshold was established by Commission directive in order to increase the number of customers being billed under the Tier 2 rate and to reduce the number of customers receiving absolute bill decreases.

In terms of conservation considerations, FortisBC notes that in Table 1 of Appendix A to Exhibit B-11 in this proceeding RIB rates featuring thresholds of both 1350 kWh and 1600 kWh (lines 2.1 and 8.1) were presented. While the differences are minute, the rate with the 1600 kWh threshold provides conservation impacts at least as great as, or larger than the rate with the 1350 kWh threshold.

The Company has not discussed RIB related conservation with BC Hydro and in any case does not believe that such a conversation would be helpful. Unless BC Hydro had comparable actual experience with different threshold levels, no reliable conclusions could be drawn regarding the effect of raising or lowering the threshold consumption.

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8. Exhibit A2-2 - Ministry of Energy, Mines and Petroleum Resources - Ministerial Order No. M 271 dated November 6, 2008 - Demand-Side Measures, at section 4, Cost Effectiveness, states:
"(3) In determining whether a demand-side measure of a bulk electricity purchaser is cost-effective, the commission must consider the benefit of the avoided supply cost to be the authority's long-term marginal cost of acquiring new electricity to replace the electricity sold to the bulk electricity purchaser and not the bulk electricity purchaser's cost of purchasing electricity from the authority."
"(6) The commission may not determine that a proposed demand-side measure is not cost effective on the basis of the result obtained by using a ratepayer impact measure test to assess the demand-side measure."

Would FortisBC agree with our layperson's interpretation of section 4, clauses 3 and 6 that the regulation requires the Commission Panel to consider the cost effectiveness of reducing the number of kWh consumed rather than the cost to either FortisBC itself and/or FortisBC's own rate payers?

## Response:

Section 4 Clause 3 means that savings resulting from a reduction in kWh consumed (which in turn results in power purchase savings), must be valued partly at the BC Hydro long-term marginal cost of acquiring new electricity.

FortisBC agrees that the DSM regulation mean that cost-effectiveness test is based on the savings resulting from a reduction in kWh consumed (which in turn results in power purchase savings). Power purchase savings are a cost to FortisBC which are, in turn, a flow-through cost to FortisBC ratepayers.

The Section 4 Clause 6 means, in lay-terms, that the cost-effectiveness of DSM measures cannot be determined only by assessing the impact of the DSM measure on all ratepayers (including those that do not participate in demand-reduction measures).

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9a. In their Final Argument in the 2009 Rate Design Hearing the BC Municipal Electrical Utilities made the following observation at page 29:
"...once these Wholesale customers are saddled with the contract demand for purpose of cost allocation, the customers will actually minimize their unit cost by using more kilowatt hours so as to spread these fixed costs over a larger base" and in footnote 69 attached to this argument Dr Rosenberg is quoted as saying from earlier in cross examination (Transcript, Volume 6, Page 1051, Lines 8 to Page 1052, Line 2):
"Well, a contract demand is of benefit to the utility in the sense that it gives them a more predictable flow of income, because you're not being - your billing determinants are not being based on your contract demand. On the other hand, it also is contrary to conservation because - for two reasons. One, you're not getting any benefit when you shift your demand. You're still going to be paying based on your contract demand. And the other is, if you're going to have a contract demand that's a fixed cost, the more energy you sell, so you'll use a higher load factor, will spread those fixed costs over more kilowatt hours and reduce your cost per kilowatt hour."

If Dr Rosenberg is accurate in his observation, and here I note the Commission Panel sided with BCMEU and not FortisBC in its argument, then why does the same rationale not apply to residential customers?

## Response:

The Company interprets the question to be seeking an examination of the trade-off between the cost-recovery and revenue stability objectives supported by a fixed charge and the conservation objective that may be supported by collecting a higher percentage of total revenue through variable charges.

FortisBC has not refuted the claim that for customers who actively conserve energy (or simply have low consumption due to past conservation efforts or circumstance), a lower Customer Charge is more attractive. The Company has only maintained that a balance between the competing objectives of rate designed should be balanced.

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9b. To paraphrase Dr Rosenberg above:
A high Basic Charge..."is contrary to conservation because...you're not getting any benefit when you shift your demand, and..."if you're to have a contract demand that's a fixed cost"...you will not spread..."those fixed costs over"...fewer..."kilowatt hours and reduce your cost per kilowatt hour."

Why then should residential customers have a rate design that was rejected for wholesale customers and other FortisBC customers? Surely this is discriminatory to one class of customers and contrary to sections 59 and 60 of the Utilities Commission Act.

## Response:

Please see the response to Question 9a above. The element of the COSA decision that was rejected by the Commission in Order G-156-10 was the allocation of some costs to Wholesale and Transmission customer using the Contractual Obligations contained in their supply agreements, and the use of these Contract Demand amounts as a billing determinant. In effect, this would have fixed a portion of these customers bills that was largely variable (subject to a ratchet) in the past.

These Wholesale and Industrial customers also have a fixed Customer Charge that was maintained by the Commission at the conclusion of the COSA and Rate Design Process.
10. In Filing of Additional Evidence pursuant to Commission Order G-142-11 at page 7, line 4, to page 8, line 57 FortisBC lists a number of options in declining sequential order of the Basic Charge cost. Can you please list, in the same sequential order, for each option, the kWh threshold at which cost would increase above $5 \%, 10 \%$ and $20 \%$, where applicable? To be very clear, for example, at what kWh consumption threshold in Option 28 would cost increase exceed $5 \%$, $10 \%$ or $20 \%$ for a particular residential customer?

## Response:

As the Tier 1 and Tier 2 rates for each option are derived using the threshold value as an input, the threshold value cannot be varied while holding the rates constant. Doing so would violate the revenue neutrality criteria.

In the table below, the Company shows the level of consumption at which the particular RIB rate would produce a bill that exceeds the amount of the flat rate by $5 \%, 10 \%$, and $20 \%$ at the same consumption
level.

For example, for Option 2, the RIB rate will produce a bill that is $5 \%$ larger than the flat rate at a consumption level of 3151 kWh in a 2 -month billing period.

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|  |  |  |  | Consumption (kWh) where RIB Rate exceeds existing flat Rate by: |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Option | Threshold |  |  | 5\% | 10\% | 20\% |
| Continued Flat Rate | 1350 | Customer Charge | 28.93 |  |  |  |
|  |  | Block 1 Rate | 0.09090 |  |  |  |
|  |  | Block 2 Rate | 0.09090 |  |  |  |
| 2 | 1350 | Customer Charge | 28.93 | 3151 | 4534 | 23725 |
|  |  | Block 1 Rate | 0.07526 |  |  |  |
|  |  | Block 2 Rate | 0.11138 |  |  |  |
| 4 | 2100 | Customer Charge | 28.93 | 3207 | 3647 | 4965 |
|  |  | Block 1 Rate | 0.07454 |  |  |  |
|  |  | Block 2 Rate | 0.13641 |  |  |  |
| 7 | 1600 | Customer Charge | 28.93 | 2951 | 3525 | 5609 |
|  |  | Block 1 Rate | 0.07069 |  |  |  |
|  |  | Block 2 Rate | 0.12584 |  |  |  |
| 8 | 1600 | Customer Charge | 28.93 | 3273 | 4554 | 16720 |
|  |  | Block 1 Rate | 0.07828 |  |  |  |
|  |  | Block 2 Rate | 0.11272 |  |  |  |
| 31 | 1500 | Customer Charge | 28.93 | 2905 | 3509 | 5799 |
|  |  | Block 1 Rate | 0.06942 |  |  |  |
|  |  | Block 2 Rate | 0.12426 |  |  |  |
| 11 | 1350 | Customer Charge | 21.50 | 3129 | 4597 | 32940 |
|  |  | Block 1 Rate | 0.08197 |  |  |  |
|  |  | Block 2 Rate | 0.11066 |  |  |  |
| 13 | 2100 | Customer Charge | 21.50 | 3168 | 3642 | 5121 |
|  |  | Block 1 Rate | 0.08037 |  |  |  |
|  |  | Block 2 Rate | 0.13341 |  |  |  |
| 16 | 1600 | Customer Charge | 21.50 | 2926 | 3535 | 5849 |
|  |  | Block 1 Rate | 0.07715 |  |  |  |
|  |  | Block 2 Rate | 0.12421 |  |  |  |
| 17 | 1600 | Customer Charge | 21.50 | 3242 | 4645 | 23130 |
|  |  | Block 1 Rate | 0.08449 |  |  |  |
|  |  | Block 2 Rate | 0.11152 |  |  |  |
| 32 | 1500 | Customer Charge | 21.50 | 2876 | 3496 | 5914 |
|  |  | Block 1 Rate | 0.07571 |  |  |  |
|  |  | Block 2 Rate | 0.12341 |  |  |  |
| 28 | 2100 | Customer Charge | 15.00 | 3122 | 3621 | 5228 |
|  |  | Block 1 Rate | 0.08529 |  |  |  |
|  |  | Block 2 Rate | 0.13135 |  |  |  |
| 66 | 1350 | Customer Charge | 15.00 | 2804 | 3494 | 6520 |
|  |  | Block 1 Rate | 0.07982 |  |  |  |
|  |  | Block 2 Rate | 0.12053 |  |  |  |
| 69 | 1600 | Customer Charge | 15.00 | 2891 | 3510 | 5911 |
|  |  | Block 1 Rate | 0.08237 |  |  |  |
|  |  | Block 2 Rate | 0.12356 |  |  |  |
| 60 | 1350 | Customer Charge | 10.00 | 2784 | 3477 | 6547 |
|  |  | Block 1 Rate | 0.08413 |  |  |  |
|  |  | Block 2 Rate | 0.12031 |  |  |  |
| 61 | 1350 | Customer Charge | 10.00 | 3058 | 4559 | 43670 |
|  |  | Block 1 Rate | 0.09184 |  |  |  |
|  |  | Block 2 Rate | 0.11021 |  |  |  |
| 63 | 1600 | Customer Charge | 10.00 | 2867 | 3500 | 6023 |
|  |  | Block 1 Rate | 0.08650 |  |  |  |
|  |  | Block 2 Rate | 0.12283 |  |  |  |
| 19 | 1350 | Customer Charge | 7.50 | 2782 | 3498 | 6774 |
|  |  | Block 1 Rate | 0.08671 |  |  |  |
|  |  | Block 2 Rate | 0.11966 |  |  |  |
| 22 | 2100 | Customer Charge | 7.50 | 3068 | 3609 | 5449 |
|  |  | Block 1 Rate | 0.09111 |  |  |  |
|  |  | Block 2 Rate | 0.12847 |  |  |  |
| 25 | 1600 | Customer Charge | 7.50 | 2862 | 3524 | 6261 |
|  |  | Block 1 Rate | 0.08893 |  |  |  |
|  |  | Block 2 Rate | 0.12183 |  |  |  |
| 51 | 1350 | Customer Charge | 0.00 | 2750 | 3472 | 6842 |
|  |  | Block 1 Rate | 0.09320 |  |  |  |
|  |  | Block 2 Rate | 0.11930 |  |  |  |
| 54 | 2100 | Customer Charge | 0.00 | 3003 | 3585 | 5697 |
|  |  | Block 1 Rate | 0.09683 |  |  |  |
|  |  | Block 2 Rate | 0.12588 |  |  |  |
| 57 | 1600 | Customer Charge | 0.00 | 2821 | 3507 | 6477 |
|  |  | Block 1 Rate | 0.09510 |  |  |  |
|  |  | Block 2 Rate | 0.12078 |  |  |  |

## Ref. FortisBC Additional Evidence Filing 1.b

1. In quoting Bonbright's Principle number 7 and in referring to the likely impacts of RIB rates on demand, FortisBC seems to be equating volatility from unexpected causes such as weather and sudden economic changes with more or less predictable changes such as reduced demand from implementing RIB rates. Is this the case, or does FortisBC see any fundamental difference between these two situations?

## Response:

Any circumstance that causes a variance from forecast to actual load will have a similar impact on revenue and in this respect can be equated. The Company agrees that certain factors such as weather and economic stressors are largely unpredictable and unavoidable. The impact of customer reaction to a RIB rate is avoidable if no rate is in place, or can be mitigated through a higher fixed Customer Charge.
2. In their scenarios, FortisBC estimates the reduction in demand and therefore revenue from different combinations of charges. Does this constitute revenue volatility?

## Response:

In the context of the Additional Evidence, Revenue volatility refers to variation in revenue that occurs due to variance between the forecast and actual load. It is really only useful to compare the relative volatility between options, (and specifically for the fixed portion of the rate) and not in examining a single rate option. Each of the options assumes some conservation related load reduction and this is not what is described as revenue volatility. It is the composition of the rate and the relative manner in which revenues are impacted by fluctuations in load that is useful in an analysis.

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## Ref. FortisBC Additional Evidence Filing 1.c

3. FortisBC suggests access to capital markets can be affected by revenue instability. They state that in 2006 variation from forecast residential sales was approximately $5 \%$. Could you please provide the impact of this variation on your access to capital markets and the resulting cost to the company.

## Response:

The Company is not aware of any impact on the ability of the Company to attract capital caused by the actual load shortfall compared to forecast levels in 2006.
4. Please provide any other evidence of specific costs to the company from past variations in revenue.

## Response:

While the Company cannot specifically attribute costs as a result of past variations in revenue, the lack of prospective revenue stability could create incremental costs, such as increased cost of debt. Revenue instability and profile would be included in a pool of factors that could potentially affect a company's credit rating which directly influences the cost of debt. Additionally, revenue stability can increase the difficulty in managing cash flows for financing purposes which could also increase the cost of debt.

## Ref. FortisBC Additional Evidence Filing 1.d

5. FortisBC states that it needs revenue stability to ensure it receives its required revenue and rate of return. Did FortisBC fail to receive its required revenue and rate of return in 2006 when sales were off by $5 \%$ ?

## Response:

In 2006, FortisBC received its required revenue and rate of return.

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## Ref. FortisBC Additional Evidence Filing 8.a

6. Please explain why the customer costs used to calculate the basic charge only include a share of the fixed costs of the distribution system and not a share of the generation and transmission assets which are also needed to provide residential service.

## Response:

The customer-related costs used to evaluate the level of the basic charge include those costs from the COSA that are allocated on the basis of the number of customers. The fixed distribution system is partially allocated on the basis of customers because the system is designed, in part, on the fact that a customer is connected to the distribution system, regardless of the size of the customer. The fixed transmission and generation assets are allocated on the basis of peak demand. Those assets are not designed and located on the basis of the number of customers but rather on the peak hour demand on the system. Some customer classes are billed on the basis of demand, however, the residential class is not. The demand of a residential customer is more closely tied to their annual use as opposed to being the same for every customer. For that reason, the demand-related costs are generally included in the energy charge rather than the basic charge.

