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August 16, 2022

Residential Consumer Intervener Association
c/o Midgard Consulting Inc.
Suite 828 – 1130 W Pender Street
Vancouver, B.C.
V6E 4A4

Attention: Mr. Peter Helland, Director

Dear Mr. Helland:

Re: FortisBC Energy Inc. (FEI)

Project No. 1599211

Application for a Certificate of Public Convenience and Necessity (CPCN) for Approval of the Advanced Metering Infrastructure (AMI) Project (Application)

Response to the Residential Consumer Intervener Association (RCIA) Information Request (IR) No. 4 on Evidentiary Update

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On May 5, 2021, FEI filed the Application referenced above. In accordance with the regulatory timetable as amended in British Columbia Utilities Commission Order G-206-22 for the review of the Application, FEI respectfully submits the attached response to RCIA IR No. 4 on Evidentiary Update.

For convenience and efficiency, FEI has occasionally provided an internet address for referenced reports instead of attaching lengthy documents to its IR responses. FEI intends for the referenced documents to form part of its IR responses and the evidentiary record in this proceeding.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Diane Roy

Attachments

cc (email only): Commission Secretary
Registered Parties

59. Reference: Exhibit B-30 FEI Evidentiary Update pp.3-4 Labour Market Conditions

AMI Project

On page 3 of the evidentiary update, FEI states: "Hourly rates for temporary field employees – to recruit and retain qualified employees, FEI is forecasting higher hourly rates for employees hired to perform meter exchanges for the deployment period. The change…amounts to an estimated increase of approximately 37 percent from the hourly rates originally reflected in the Application."

59.1 Explain how FEI determined the expected increase in hourly rates for temporary field of 37%, showing any calculations made to arrive at 37%.

Response:

Please refer to the response to CEC IR4 13.1.

On page 3 of the evidentiary update, FEI states: "FEI is also expecting a higher turnover rate for temporary field employees than originally forecast. This results in increased hiring and training costs. The ratio of supervisors and gas ticketed installers to internally trained installers has also been increased in the financial model as a result, allowing for additional field support during deployment. As part of this Evidentiary Update, FEI estimated an additional 12 percent of temporary field employees would need to be hired due to turnover, and as a result, increased the ratio of supervisors to temporary field employees by 1 and increased the number of full time managers by 1."

59.2 Explain how FEI determined the expected increases in turnover rate and ratio of supervisors and gas ticketed installers to internally trained installers, showing any calculations.

Response:

Please refer to the responses to CEC IR4 14.1 and 14.2.

On page 3 of the evidentiary update, FEI states: "the productivity rate is the number of advanced meters expected to be installed per employee each day. The productivity rate

has been slightly decreased in the financial analysis to reflect the higher employee turnover rate (resulting in more time recruiting, onboarding and training new employees) and also as a result of changing customer attitudes to field employees entering their homes. FEI's recent experience and feedback it has received suggest that customers are increasingly hesitant to have people in their homes and that it takes longer than traditionally was the case to gain access and conduct the necessary in-home activity (including for employees to don personal protective equipment for the comfort of both residents and employees). This change… amounts to a 5 percent reduction in productivity over the amount originally reflected in the Application."

59.3 Explain whether efficiencies could be achieved if installers could ask the homeowner to shut off all gas appliances and then conduct a dial test from the exterior of the home, avoiding the need to enter the premises unless the customer specifically asks for their equipment to be relit.

59.3.1 If efficiencies could be achieved, explain and quantify how this would affect the meter deployment productivity rate.

Response:

In theory, improved efficiencies could be attained if FEI did not relight customer appliances. However, FEI's experience has confirmed that once gas service has been shut off and FEI has a resource readily available to complete the re-light, only a low percentage of customers choose to relight their appliances themselves. Consequently, FEI has not identified any improved efficiencies due to increased customer-driven relights within the Evidentiary Update.

Baseline

On page 3 of the evidentiary update, FEI states: "At the time of the original Application, the labour rates per meter exchanges were similar between FEI's internal labour and contractors; as such, FEI assumed the same labour rates per meter exchanges at that time. However, since filing the Application, FEI has experienced cost increases for work performed by contractors. Based on current average contractor rates for meter exchanges, the increase over the FEI internal labour rates (i.e., the assumption for the contractor labour rate in the original Application) is approximately 109 percent…"

59.4 Provide further explanation for the contractor labour rates more than doubling in the span of approximately one year.

Response:

Previously, FEI's contractors performed multiple activities, including meter exchanges, under a master services contract. During the last RFP process for a master services contract, a contractor declined to bid on the meter exchange activity and the contractor bids FEI did receive, resulted in a significantly increased meter exchange price. FEI expects the price increase is a combined result of supply shortages within the labour market, increased fuel and vehicle costs, facility lease rate increases and the need to make adequate margins on this activity.

59.5 Explain why FEI is of the view that these contractor labour rates will remain at such an elevated level in the future.

Response:

FEI is not aware of any evidence that would suggest contractor labour rates will reduce in the future. FEI's experience is that contractor labour rates do not typically decrease over the longer term.

59.6 If contractor labour rates remain substantially above internal labour rates in the future, explain why FEI would not seek to increase its internal labour capabilities and achieve savings.

Response:

Please refer to the response to BCUC IR4 49.1.

AMR Alternative

On page 4 of the evidentiary update, FEI states: "The AMR Alternative requires the deployment of AMR modules to existing meters and therefore faces the same deployment labour challenges (i.e., hourly rates for temporary field employees, higher turnover rate, and decreased meter deployment productivity rate) as described above in relation to the AMI Project scenario… The change… amounts to an overall increase of approximately 48 percent over the amount originally reflected in the Application."

59.7 Explain how FEI determined the expected increase in AMR deployment labour of 48%, showing any calculations made to arrive at 48 percent.

Response:

As explained on page 4 of the Evidentiary Update and as cited in the preamble, the AMR alternative faces the same deployment labour challenges as the AMI Project, which includes the hourly rate increase for temporary field employees, higher turnover rate, and decreased meter deployment productivity rate. FEI applied the same overall deployment labour increase of 48 percent in the AMI Project financial analysis to the AMR alternative. The overall increase of approximately 48 percent to the AMI deployment labour (i.e., the aggregate of temporary field employees, higher turnover rate, and decreased meter deployment productivity rate) is reflected in the difference of AMI Cost Inputs, Schedule 2.1, Line 35 between the Confidential Appendix G-1 included in the Application and in Confidential Appendix C of the Evidentiary Update, and is reconciled in Table 1 below. The same 48 percent increase is also applied to the AMR alternative, which is reflected in the difference of AMR installation costs shown in the Confidential Appendix of Table 4-2 AMR Cost Inputs, Schedule 3, Line 8 between the Application as filed and in the Evidentiary Update (as included in Confidential Appendix C of the Evidentiary Update).

Table 1: Reconciliation of the 48 percent Increase in AMI Deployment Labour (also applied to AMR) from the Application to the Evidentiary Update

Line	AMI Incremental Deployment Labour, excl. Contingency	Amount ($millions)	Reference (Conf. App. G-1, AMI Cost Inputs, Sch. 2.1)
1	Application As-Filed	127.121	Schedule 2.1 (Application); Sum of Line 35 - Sum of Line 34
2	Evidentiary Update	187.712	Schedule 2.1 (Evidentiary Update); Sum of Line 35 - Sum of Line 34
3	Percent Increase (%)	48%	(Line 2 / Line 1) - 1

59.8 Reconcile the increase in AMR deployment labour of 48% with the increase in AMI deployment labour of 37%.

Response:

As discussed in the response to RCIA IR4 59.7, the 48 percent increase in the AMI Project deployment labour (which is also applied to AMR deployment labour) is the aggregate of the increases in temporary field employees, higher turnover rate, and decreased meter deployment productivity rate. In contrast, the 37 percent increase as referenced in this information request is the increase for temporary field employees *only* as explained on page 3 of the Evidentiary Update; it does not include the increase related to the higher turnover rate and the decreased meter deployment productivity rate.

As highlighted on page 3 of the Evidentiary Update, the increase is reflected in the difference of Distribution Mechanic (DM) and Customer Service Technicians (CSTs) hourly rates as provided

1 in Confidential Appendix G-1, AMI Cost Inputs, Schedule 2.1, Lines 7 and 8 between the
2 Application and Confidential Appendix C of the Evidentiary Update.

60. Reference: Exhibit B-30 FEI Evidentiary Update pp.4-5 Materials Market Conditions

AMI Project

On page 4 of the evidentiary update, FEI states: "Bypass Valves and Regulators – As a result of the challenges noted above for manufacturing industries, FEI is experiencing increased costs for bypass valves and regulators, which need to be installed under all scenarios. The increased costs… amount to an increase of approximately 24 percent for the regulators and approximately 10 percent for the bypass valves during the AMI deployment years over the respective amounts originally reflected in the Application."

60.1 Explain how FEI determined the expected increase in bypass vales and regulators of 24% and 10%, respectively, showing any calculations made to arrive at these increases.

Response:

Please refer to the response to CEC IR4 19.1.

Baseline

On page 5 of the evidentiary update, FEI states: "**Meters** – FEI has experienced increased costs for diaphragm meters, and therefore meter costs have increased in the Baseline financial analysis in the Evidentiary Update… For the purposes of this analysis FEI has assumed the continued viability of the Baseline scenario, and as such the increased diaphragm meter costs...for the residential type diaphragm meters and Line 17 for the commercial type diaphragm meters with the increases of approximately 26 percent and 6 percent, respectively over the amount originally reflected in the Application, which was based on costs from 2020."

60.2 Explain how FEI determined the expected increases in meter costs.

Response:

The meter cost increases were provided by vendors through the procurement process for meters to support the annual sustainment meter exchange program.

60.3 Provide the percentage increase in costs for diaphragm meters experienced by FEI in 2020 and 2021 relative to 2019 diaphragm meter costs.

Response:

FEI did not experience major increases for diaphragm meter costs until 2022. In 2020, FEI experienced price increases of 4 percent for residential diaphragm meters and 2 percent for commercial diaphragm meters over 2019 prices. In 2021, there were no increases for diaphragm meters as 2021 prices remained the same as 2020 pricing.

60.3.1 Explain whether the increases in diaphragm meter costs experienced by FEI are related to factors such as number of meters purchased (i.e., loss of bulk purchase savings) or the expiration of a legacy meter supply contract.

Response:

FEI confirms that the diaphragm meter unit costs have not increased because of a reduction in meter volume purchased by the Company or the expiration of a legacy meter supply contract offering preferential pricing. FEI believes increases in diaphragm meter costs are associated with global supply chain pressures combined with the evolving shift in the meter manufacturing market toward ultrasonic meters described in Section 3 of the Application.

61. Reference: Exhibit B-30 FEI Evidentiary Update pp.2-7

Changes in NPV Capital and O&M

Measurement Canada Meter Exchange Dispensation

On page 2 of the evidentiary update, FEI states: "The two areas where changes have occurred that materially impact the costs set out in the Application are in the labour market and in the materials market."

On page 5 of the evidentiary update, FEI states: "The impact of the cost increases in the two categories of labour and materials discussed above results in an increase of approximately $92 million to the total capital cost for the AMI Project (over the pre-deployment and deployment period from 2021 to 2026), from $638.4 million in the Application to $730.8 million."

On page 6 of the evidentiary update, FEI states: "As, pursuant to this new policy, FEI must continue exchanging meters under its MC compliance sampling program until the year of mass deployment, the benefit contemplated in the Application of avoiding meter exchange costs in 2022 or 2023 will not be experienced. The loss of this benefit is now factored into the Evidentiary Update financial analysis. FEI notes that this lost benefit adds 0.204 percent to the levelized delivery rate impact of the AMI Project reflected in this Evidentiary Update, which is approximately 64 percent of the total increase as shown in Section 3 below."

61.1 Separately identify the changes in capital NPV and O&M NPV for each of the AMI, AMR, and Baseline alternatives from each the individual items identified in the Evidentiary Update (i.e., show the NPV impact from each of the changes identified in the Evidentiary Update, such as the increase in cost of diaphragm meters, the cost of bypasses and valves, temporary hourly field labour, employee turnover, Measurement Canada dispensation, etc.)

Response:

Please refer to Table 1 below which shows the changes in capital NPV and O&M NPV for the AMI, AMR, and Baseline scenarios, with a breakdown of the individual drivers of the cost increases as identified in the Evidentiary Update.

Table 1: Summary of Changes in Capital and O&M NPVs ($ millions)

	AMI NPV ($millions)	AMR NPV ($millions)	Baseline NPV ($millions)
Total Capital (Original Application)	**558.9**	**496.7**	**372.8**
MC Dispensation Policy Change	6.4	-	-
Deployment Schedule Change	1.3	(5.2)	-
Material Cost Impact - Diaphragm Unit Cost	2.8	25.6	25.6
Material Cost Impact - Bypass Unit Cost	7.4	3.3	3.3
Material Cost Impact - Regulator Unit Cost	9.9	6.3	6.3
Labour Cost Impact - Current Contractor Rates	4.9	24.7	26.1
Labour Cost Impact - Temporary Employees Hourly Rate Changes	27.6	27.4	-
Labour Cost Impact - Higher Turnover Rate	15.4	-	-
Labour Cost Impact - Reduced Deployment Productivity Rate	6.5	-	-
Total Capital (Evidentiary Update)	**641.1**	**578.8**	**434.1**
Total O&M, incl. CapOH (Original Application)	**189.0**	**164.7**	**323.5**
MC Dispensation Policy Change	0.8	-	-
Deployment Schedule Change	1.1	(0.9)	-
Material Cost Impact - Diaphragm Unit Cost	-	-	-
Material Cost Impact - Bypass Unit Cost	-	-	-
Material Cost Impact - Regulator Unit Cost	-	-	-
Labour Cost Impact - Current Contractor Rates	0.7	3.4	3.6
Labour Cost Impact - Temporary Employees Hourly Rate Changes	-	1.2	-
Labour Cost Impact - Higher Turnover Rate	-	-	-
Labour Cost Impact - Reduced Deployment Productivity Rate	-	-	-
Total O&M, incl. CapOH (Evidentiary Update)	**191.6**	**168.4**	**327.1**

62. Reference: Exhibit B-30 FEI Evidentiary Update Appendix A p.107 (pdf 30 of 66)

Meter Reading Costs

At the above-noted location FEI provides the following table:

Table 6-6: Meter Reading O&M Summary

Meter Reading O&M[1] As-Spent in $Millions		Pre Deployment	Deployment	Subtotal (1+2)	Post Deployment	Total (3+4)
Line	Item	2021 - 2023 (1)	2024 - 2026 (2)	2021 - 2026 (3)	2027 - 2046 (4)	2021 - 2046 (5)
1	Meter Reading	38.7	21.8	60.5	29.1	89.6
2	Large Commercial / Industrial Cellular	1.5	0.9	2.4	1.1	3.5
3	AMI Meter Reading O&M	40.2	22.7	62.9	30.3	93.1
4	Meter Reading	38.7	42.2	80.9	432.5	513.4
5	Large Commercial / Industrial Cellular	1.5	1.6	3.1	2.1	5.2
6	Baseline Meter Reading O&M	40.2	43.8	84.0	434.6	518.6
7	Meter Reading	-	(20.4)	(20.4)	(403.4)	(423.8)
8	Large Commercial / Industrial Cellular	-	(0.7)	(0.7)	(1.0)	(1.7)
9	Incremental Meter Reading O&M	-	(21.1)	(21.1)	(404.4)	(425.5)

62.1 Explain why the Post Deployment meter reading costs for the AMI and Baseline alternatives are not affected by the labour cost increases proposed in the Evidentiary Update.

Response:

Post Deployment meter reading costs for the AMI and Baseline alternatives are longer term in nature and as such, may not necessarily be impacted by the near term increases and market changes reflected in the Evidentiary Update. Thus, FEI did not update the Post Deployment meter reading costs for the AMI or Baseline alternatives as part of the Evidentiary Update. FEI has not conducted the analysis necessary to project long-term labour rates, because given the current uncertainty in market conditions, FEI would be unable to estimate the future meter reading costs beyond 2027 with any degree of accuracy.

Further, FEI completed sensitivity analysis on Post Deployment meter reading costs as part of the Application to provide context on the varying impacts of different scenarios for Post Deployment meter reading costs. FEI notes that Section 6.3.3.1 and Table 6-12 of the Application (updated as part of the Evidentiary Update) provide a sensitivity analysis on the incremental levelized delivery rate impact of the AMI Project assuming different levels of future meter reading costs under the Baseline scenario,[1] including: 1) a continuation of current outsourced meter reading costs with two percent annual escalation, 2) a low case of in-house meter reading costs starting in 2027, which is currently used in the Baseline scenario, and 3) a high case for in-house meter reading costs starting in 2027. Although the scenario of continuing current outsourced meter reading is included to Table 6-12, as discussed in Section 3.3.3 of the Application, this is

[1] Future meter reading costs also impact the AMI scenario; however, as discussed in Section 6.2.2.3 of the Application, FEI assumed approximately 1.5 percent of the AMI meters will require a manual read, which is approximately 15 thousand meters assuming there are total of 1 million meters. Any impact in future meter reading costs to the AMI Project for the approximately 15 thousand meters will be minimal when compared to the Baseline Scenario which requires manual reading of over 1 million meters.

an unlikely scenario to compare with the AMI Project. In contrast, based on the recent cost pressures experienced in the labour market conditions, FEI expects future meter reading costs will likely be further increased if it is brought in-house post-2027, thus making the scenario of the high case for in-house meter reading costs more probable. As reflected in the updated Table 6-12 of the Evidentiary Update, increased labour rates for in-house meter reading would serve to reduce the levelized delivery rate impact of the AMI Project over the 26-year analysis period from 0.442 percent to a levelized delivery rate benefit of 0.153 percent when compared to the Baseline scenario.

63. Reference: Exhibit B-30 FEI Evidentiary Update Appendix A p.114 (pdf 33 of 66);
Exhibit B-1 Application p.114
US Dollar Exposure

At page 114 of the Application FEI provides the following update:

Table 6-9: US Dollar Exposure

US Dollar Exposure ($millions)	2021	2022	2023	2024	2025	2026	Total
Total US Dollar Exposure included in costs	6.9	3.2	50.8	89.9	84.4	44.1	279.2

In the evidentiary update FEI provides the following table:

Table 6-9: US Dollar Exposure

US Dollar Exposure ($millions)	2021	2022	2023	2024	2025	2026	Total
Total US Dollar Exposure included in costs	6.6	8.3	22.0	85.7	80.6	80.6	283.8

On page 114 of Appendix A to the Evidentiary Update, FEI states: "FEI may mitigate a portion of the risk by locking in foreign exchange rate exposure using FX Contracts to mitigate the risk of fluctuations in the value of USD/CAD currency exchange rate. The extent of currency risk mitigation will be based on FEI's risk assessment of the overall exposure as well as the cost and effectiveness of the FX Contracts."

63.1 Provide the actual and forecasted exchange rates used to prepare Table 6-9.

Response:

FEI did not change its assumption for the USD/CAD exchange rate between the Application and the Evidentiary Update. As discussed in Section 6.3.1.4 of the Application, FEI conservatively used the spot exchange rate of 1.33 USD/CAD at October 31, 2020 for the financial analysis while the spot USD/CAD rate at the time of filing the Application was 1.23. FEI notes the current spot USD/CAD exchange rate is 1.28 at August 10, 2022[2] and has ranged from 1.21 to 1.29 between January 2021 and July 2022.[3] The difference between the 1.33 USD/CAD exchange rate used in the financial analysis and the current USD/CAD exchange rate of 1.28 is small; therefore, FEI continues to use the more conservative USD/CAD exchange rate of 1.33.

63.2 Please explain the changes in US dollar exposure for each year, indicating whether the changes from the Application are due to changes in forecasted exchange rates, changes in the proportion of US dollar exposure that FEI has locked in, or changes in the timing of purchases of AMI meters and other US-denominated expenditures.

[2] https://www.bankofcanada.ca/rates/exchange/daily-exchange-rates/.
[3] https://www.bankofcanada.ca/rates/exchange/monthly-exchange-rates/.

Response:

As discussed in the response to RCIA IR4 63.1, FEI's exchange rate assumption did not change between the Application and the Evidentiary Update. The changes in US dollar exposure as reflected in Table 6-9 of the Evidentiary Update when compared to the Application, and as referenced in the preamble above, are primarily due to:

- The delay in the 36-month deployment schedule from the originally planned period of mid-2023 through to mid-2026 to instead ranging from the beginning of 2024 to the end of 2026. This results in reduced exposure in 2023, but increased exposure in 2026 when comparing Table 6-9 of the Application and the Evidentiary Update as shown in the preamble above;
- The new MC dispensation policy resulting in an increased number of meter exchanges in 2022. Although the costs of the diaphragm meters are not subject to US dollar exposure, the regulators and bypass valves (that are priced in US dollars) will be, as these are installed at the same time as the meter exchanges. This is reflected by the increased exposure in 2022 due to the increased numbers of regulators and bypasses needed when comparing Table 6-9 between the Application and the Evidentiary Update as shown in the preamble above; and
- The increase in the cost of regulators and bypass valves as discussed in the Evidentiary Update which are priced in US currency.

64. Reference: Exhibit B-30 FEI Evidentiary Update p.2;

Exhibit B-13 RCIA IR1, IR 3.2

Bypass Valves and Regulators

On page 2 of the evidentiary update, FEI states:

> "***Bypass Valves and Regulators*** *– As a result of the challenges noted above for manufacturing industries, FEI is experiencing increased costs for bypass valves and regulators, which need to be installed under all scenarios. The increased costs… amount to an increase of approximately 24 percent for the regulators and approximately 10 percent for the bypass valves during the AMI deployment years over the respective amounts originally reflected in the Application.""*

In response to RCIA IR 3.2, FEI states:

> *"The installation of bypass valves in conjunction with residential meter exchanges has numerous benefits including:*
>
> - *Increased customer satisfaction by eliminating the inconvenience and disruption associated with having to schedule meter exchange appointments and requiring the customer to be present during a meter exchange in relation to appliance relights;*
> - *Decreased future contact centre costs by removing the requirement to schedule meter exchange appointments;*
> - *Improved employee safety associated with eliminating the occasion to access customer homes and relight appliances; and*
> - *Increased operational efficiencies by reducing the time to complete individual meter exchanges, as well as allowing meter exchange activities to be geographically clustered (reducing the associated time and travel).*
>
> *With these benefits, the most appropriate long-term decision was to begin installation of bypass valves, and further, to include them in the scope of the AMI Project so that the program's full benefits could be realized sooner."*

In response to RCIA IR 3.6, FEI states:

> "The total number of AMI meter exchanges and tests over the 20-year period post-deployment is expected to be 28,000 meters.
>
> For diaphragm meters, as shown in Schedule 1 of Confidential Appendix G, FEI would expect to exchange an average of 58,800 meters each year from 2023 to 2043. The total number of diaphragm meter exchanges and tests over the 20-year period is forecast to be approximately 1.2 million meters."

64.1 Considering the increased costs of bypass valve and regulator installations indicated in the Evidentiary Update and the substantially reduced frequency and numbers of AMI meters that must be exchanged compared to diaphragm meters, explain whether the benefits of installing bypasses and regulators on AMI meters mentioned in RCIA IR 3.2 still outweigh the costs.

Response:

FEI has been installing bypass valves on residential meter sets since 2015. This initiative has positive societal benefits by greatly reducing the inconvenience to FEI's customers associated with work on their meter sets. The avoided disruptive activities include customers having to contact FEI to schedule a meter exchange appointment (and potentially having to take time away from work) to be present for a meter exchange or other necessary work on the meter set that requires gas service to be shut off. It also avoids the need for FEI technicians to enter premises to relight appliances following work on the customer meter set. Further, the bypass valve program enhances employee safety, increases maintenance flexibility, and reduces meter exchange durations.

Regulators are an independent component of the gas meter set and are required to ensure the safe delivery of appropriate gas pressure to customers. The costs for replacing these devices have been included in FEI's meter exchange sustainment capital budget since 2002.

The most cost-effective and efficient time to conduct a regulator replacement and bypass valve installation is during a meter exchange. The alternative course of action (i.e., returning to the recently exchanged meter to complete this work at a later date) would be both more costly and unnecessarily disruptive for customers. As such, replacing regulators and installing bypass valves during the AMI Project meter mass deployment are reasonable and prudent activities. Including the installation of bypass valves in the scope of the AMI Project will allow the substantial benefits described above to be realized earlier than originally anticipated, irrespective of the increased cost of bypass valves which will continue to be installed on customer meter sets even in the Baseline scenario.

64.2 Has FEI considered not installing bypasses and regulators on AMI meters in order to reduce the delivery rate impact of the AMI project?

Response:

Please refer to the response to RCIA IR4 64.1.

64.3 Under the updated AMI project scenario, are the costs and benefits of bypasses and regulators still within the parameters considered or approved by the BCUC when the bypass installation program was initiated?

Response:

Please refer to the response to RCIA IR4 64.1.

64.3.1 If FEI previously developed a cost-benefit analysis, NPV analysis, or other financial analysis in support of installing bypasses and regulators, please provide it along with an updated analysis reflecting the labour and material cost changes in the Evidentiary Update.

Response:

The decisions to install bypass valves (societal benefits) and replace regulators (to maintain a safe operating system) were not purely financial and therefore an NPV analysis, or other financial analysis was not relied on for these decisions.

64.4 Please provide the incremental capital NPV, O&M NPV, and incremental delivery rate impact if bypasses and regulators are not included in the AMI project (but are still included in the Baseline, as the Baseline still requires exchange or replacement of 1.2 million meters over the analysis period).

Response:

Please refer to the response to RCIA IR4 64.1 which describes why FEI will only consider alternatives that include the installation of by-pass valves and the replacement of regulators.

65. Reference: Exhibit B-30 FEI Evidentiary Update p.117 (pdf p.36 of 66);
Exhibit B-13 RCIA IR1, IR 28.1
Exhibit B-6 BCUC IR1, IR 31.3
Annual Delivery Rate Changes

On pdf page 36 of the Evidentiary Update, FEI states: "The estimated incremental delivery rate impact expected over the 26-year analysis period for the AMI Project is 0.442 percent when compared to 2021 rates. In 2027, the year after full AMI deployment, the cumulative delivery rate impact would be at its highest level of 6.27 percent, resulting in a cumulative annual average bill increase of $28.5 dollars for a residential customer consuming 90 GJs per year. Each year thereafter, the cumulative delivery rate impact would decrease resulting in an overall average of 0.442 percent per year over the 26-year analysis period."

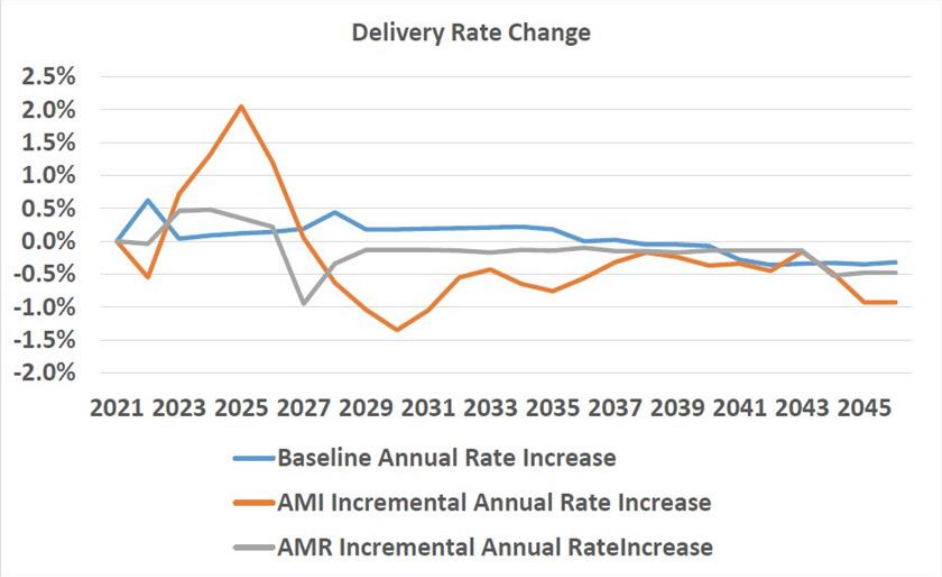
In response to RCIA IR 28.1, FEI provided the following table of annual delivery rate changes:

Scenario	2022	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Baseline[1]	0.00%	0.61%	0.04%	0.09%	0.12%	0.13%	0.20%	0.44%	0.18%	0.19%	0.19%	0.20%	0.21%
AMI Compared to Baseline[2]	0.00%	-0.55%	0.72%	1.33%	2.04%	1.21%	0.04%	-0.63%	-1.03%	-1.36%	-1.05%	-0.55%	-0.42%
Baseline Unlikely[3]	0.00%	0.60%	0.04%	0.08%	0.12%	0.13%	0.15%	0.22%	0.16%	0.17%	0.18%	0.19%	0.20%
AMI Compared to Baseline Unlikely[4]	0.00%	-0.54%	0.72%	1.33%	2.05%	1.21%	0.09%	-0.41%	-1.02%	-1.34%	-1.04%	-0.54%	-0.42%

Scenario	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Baseline[1]	0.22%	0.18%	0.00%	0.01%	-0.05%	-0.05%	-0.07%	-0.27%	-0.36%	-0.34%	-0.33%	-0.35%	-0.32%
AMI Compared to Baseline[2]	-0.65%	-0.76%	-0.56%	-0.32%	-0.17%	-0.23%	-0.37%	-0.35%	-0.45%	-0.16%	-0.49%	-0.93%	-0.93%
Baseline Unlikely[3]	0.21%	0.16%	0.03%	0.00%	-0.03%	-0.05%	-0.03%	-0.25%	-0.36%	-0.34%	-0.34%	-0.34%	-0.33%
AMI Compared to Baseline Unlikely[4]	-0.65%	-0.75%	-0.59%	-0.31%	-0.19%	-0.24%	-0.40%	-0.37%	-0.45%	-0.15%	-0.48%	-0.94%	-0.92%

In response to BCUC IR 31.3, FEI provided the following table and graph of annual delivery rate changes:

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Baseline Annual Rate Impact	0.00%	0.62%	0.04%	0.09%	0.12%	0.14%	0.19%	0.44%	0.18%	0.18%	0.19%	0.20%	0.21%
AMI Incremental Annual Rate Impact	0.00%	-0.55%	0.72%	1.32%	2.05%	1.20%	0.05%	-0.63%	-1.04%	-1.35%	-1.05%	-0.55%	-0.43%
AMR Incremental Annual Rate Impact	0.00%	-0.04%	0.46%	0.48%	0.35%	0.22%	-0.95%	-0.34%	-0.13%	-0.13%	-0.13%	-0.14%	-0.17%
	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Baseline Annual Rate Impact	0.22%	0.18%	0.00%	0.02%	-0.05%	-0.05%	-0.07%	-0.28%	-0.36%	-0.34%	-0.33%	-0.35%	-0.32%
AMI Incremental Annual Rate Impact	-0.65%	-0.76%	-0.56%	-0.32%	-0.17%	-0.24%	-0.37%	-0.34%	-0.45%	-0.16%	-0.49%	-0.93%	-0.93%
AMR Incremental Annual Rate Impact	-0.13%	-0.14%	-0.10%	-0.15%	-0.15%	-0.17%	-0.14%	-0.14%	-0.14%	-0.14%	-0.52%	-0.48%	-0.48%



65.1 Please update RCIA IR 28.1 with the information from the Evidentiary Update and provide the annual delivery rate increases resulting from the AMI project for each year from 2022 through 2046, and compare with the annual delivery rate increases under the Baseline scenario and the "unlikely" scenario where there is a continuation of the current embedded costs of meter reading.

Response:

Please refer to Table 1 below which provides the table from the response to RCIA IR1 28.1 with updated information from the Evidentiary Update.

Table 1: Updated Annual Delivery Rate Changes with Evidentiary Update

Scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Baseline[1]	0.00%	0.72%	0.09%	0.14%	0.18%	0.20%	0.26%	0.50%	0.23%	0.24%	0.24%	0.25%	0.25%
AMI Compared to Baseline[2]	0.00%	-0.49%	0.87%	0.34%	2.45%	1.51%	1.59%	-0.74%	-0.73%	-1.62%	-1.32%	-1.03%	-0.52%
Baseline Unlikely[3]	0.00%	0.72%	0.09%	0.14%	0.18%	0.20%	0.22%	0.29%	0.23%	0.23%	0.24%	0.24%	0.25%
AMI Compared to Baseline Unlikely[4]	0.00%	-0.49%	0.87%	0.34%	2.45%	1.51%	1.63%	-0.52%	-0.72%	-1.61%	-1.32%	-1.03%	-0.51%

Scenario	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Baseline[1]	0.27%	0.24%	0.06%	0.07%	0.04%	0.03%	0.01%	-0.30%	-0.38%	-0.36%	-0.35%	-0.37%	-0.34%
AMI Compared to Baseline[2]	-0.60%	-0.86%	-0.65%	-0.59%	-0.30%	-0.43%	-0.39%	-0.40%	-0.51%	-0.37%	-0.10%	-1.16%	-1.15%
Baseline Unlikely[3]	0.26%	0.23%	0.09%	0.06%	0.03%	0.00%	0.02%	-0.30%	-0.39%	-0.37%	-0.36%	-0.36%	-0.36%
AMI Compared to Baseline Unlikely[4]	-0.60%	-0.85%	-0.68%	-0.59%	-0.29%	-0.40%	-0.40%	-0.39%	-0.50%	-0.36%	-0.09%	-1.17%	-1.14%

Notes to Table 1:

1. Confidential Appendix G-4, Schedule 10, Line 28 (Confidential Appendix C of Evidentiary Update), current year less prior year.
2. Confidential Appendix G-5, Schedule 10, Line 28 (Confidential Appendix C of Evidentiary Update), current year less prior year.
3. Confidential Table 6-12 Baseline Model with unlikely case (Confidential Appendix C of Evidentiary Update), Schedule 10, Line 28, current year less prior year.
4. Confidential Appendix G-3, Schedule 10, Line 28 (Confidential Appendix C of Evidentiary Update) less Confidential Table 6-12 Baseline Model with unlikely case (Confidential Appendix C of Evidentiary Update), Schedule 10, Line 28, current year less prior year.

65.2 Please update BCUC IR 31.3 with the information from the Evidentiary Update and provide the annual incremental delivery rate percentage change as compared to the preceding year for each year of the 26-year financial analysis and for each analysis (i.e. AMI, AMR, baseline and incremental).

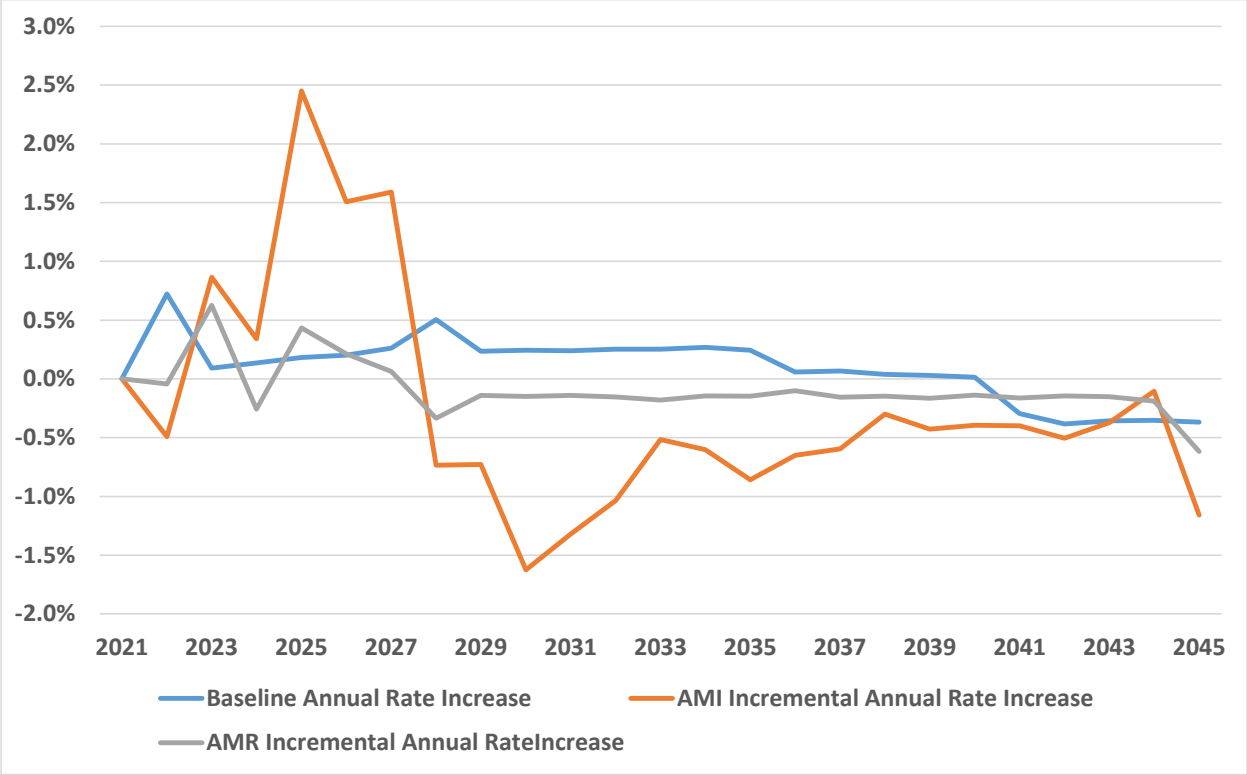
Response:

Please refer to Table 1 and Figure 1 below as provided in the response to BCUC IR1 31.3 with updated information from the Evidentiary Update.

Table 1: Updated Forecast Annual Incremental Delivery Rate Impacts for the Baseline, AMI and AMR Scenarios with Evidentiary Update

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Baseline Annual Rate Impact	0.00%	0.72%	0.09%	0.14%	0.18%	0.20%	0.26%	0.50%	0.23%	0.24%	0.24%	0.25%	0.25%
AMI Incremental Annual Rate Impact	0.00%	-0.49%	0.87%	0.34%	2.45%	1.51%	1.59%	-0.74%	-0.73%	-1.62%	-1.32%	-1.03%	-0.52%
AMR Incremental Annual Rate Impact	0.00%	-0.04%	0.63%	-0.26%	0.43%	0.21%	0.06%	-0.34%	-0.14%	-0.15%	-0.14%	-0.15%	-0.18%
	2034	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**
Baseline Annual Rate Impact	0.27%	0.24%	0.06%	0.07%	0.04%	0.03%	0.01%	-0.30%	-0.38%	-0.36%	-0.35%	-0.37%	-0.34%
AMI Incremental Annual Rate Impact	-0.60%	-0.86%	-0.65%	-0.59%	-0.30%	-0.43%	-0.39%	-0.40%	-0.51%	-0.37%	-0.10%	-1.16%	-1.15%
AMR Incremental Annual Rate Impact	-0.14%	-0.15%	-0.10%	-0.15%	-0.15%	-0.16%	-0.14%	-0.16%	-0.14%	-0.15%	-0.19%	-0.62%	-0.61%

Figure 1: Updated Forecast Annual Incremental Delivery Rate Impacts for the Baseline, AMI and AMR Scenarios with Evidentiary Update



66. Reference: Exhibit B-30 FEI Evidentiary Update p.7; Exhibit B-6 BCUC IR1, IR 22.5

Outsourced Meter Reading

In its response to BCUC IR1 22.5, FEI stated: "As stated in the responses to BCUC IR1 22.1 and 22.4, FEI is unable to estimate the future cost of outsourced manual meter reading post 2026 with any degree of accuracy. However, to provide a directional estimate of the continuation of an outsourced model to 2031 and to 2036, in this response FEI has assumed an annual 2 percent inflation applied to the outsourced meter reading costs. FEI also escalated the cost estimates for in-house meter reading by 2 percent with in-house meter reading then starting in 2032 and 2037. The following table summarizes the resulting impact to the incremental levelized delivery rate."

Levelized Delivery Rate Increase Over 26-Year Analysis Period	Outsourced Meter Reading Until 2027 (As Proposed)	Outsourced Meter Reading Until 2031	Outsourced Meter Reading Until 2036
Baseline	10.223%	10.154%	10.091%
AMI	10.348%	10.348%	10.348%
Incremental	**0.125%**	**0.194%**	**0.257%**
Bill Impact Average Residential Customer consuming 90GJs per Year	$ 0.56	$ 0.88	$ 1.16

66.1 Please update the response to BCUC IR1 22.5 for the updated information in the Evidentiary Update.

Response:

Please refer to Table 1 below as provided in the response to BCUC IR1 22.5 with updated information from the Evidentiary Update.

Table 1: Comparison of Levelized Delivery Rate Impact with Outsourced Meter Reading until 2027, 2031, and 2036

Levelized Delivery Rate Increase Over 26-Year Analysis Period	Outsourced Meter Reading Until 2027 (As Proposed)	Outsourced Meter Reading Until 2031	Outsourced Meter Reading Until 2036
Baseline	10.814%	10.745%	10.682%
AMI	11.256%	11.256%	11.256%
Incremental	**0.442%**	**0.511%**	**0.574%**
Bill Impact Average Residential Customer consuming 90GJs per Year	$ 2.00	$ 2.31	$ 2.59

As discussed in the response to RCIA IR4 62.1, FEI did not update the meter reading costs for the Baseline scenario as part of the Evidentiary Update. As such, the assumptions for the outsourced meter reading costs remain the same as provided in BCUC IR1 22.5, which is based on an annual two percent inflation applied to the outsourced meter costs from 2027 (as proposed) to 2031 or 2036, depending on the scenario.