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February 17, 2022

British Columbia Public Interest Advocacy Centre
Suite 803 470 Granville Street
Vancouver, B.C.
V6C 1V5

Attention: Ms. Leigha Worth, Executive Director

Dear Ms. Worth:

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 British Columbia Public Interest Advocacy Centre representing the British Columbia Old Age Pensioners' Organization, Active Support Against Poverty, Disability Alliance BC, Council of Senior Citizens' Organizations of BC, and the Tenant Resource and Advisory Centre (BCOAPO) Information Request (IR) No. 2

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-389-21 for the review of the Application, FEI respectfully submits the attached response to BCOAPO IR No. 2.

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

1.0 Reference: General Question

Preamble: FortisAlberta Inc (FAI) is also proposing an AMI project before the Alberta Utilities Commission.

1.1 Please confirm that the FEI AMI project is solely based on FEI needs and that the originating decision to institute this project was not, in part, made or guided by larger Fortis Inc. corporate direction.

Response:

FEI confirms that the Project is required to address the need to automate the meter reading process for FEI customers as described in Section 3 of the Application.

Regarding the preamble to this question, FEI notes that FortisAlberta submitted an application as part of its 2023 Cost of Service Application for the replacement of its AMI system, which is approaching end of life. Like the majority of electric utilities in Canada, FortisAlberta already has an AMI system in place.

1.2 If not confirmed, please fully explain how larger Fortis Inc. corporate direction contributed to the decision to pursue this project.

Response:

Please refer to the response to BCOAPO IR2 1.1.

2.0 Reference: Exhibit B-7-1, Response to IR 5.1

Preamble: At lines 29-32, FEI states:

> The other two suppliers of residential meters in North America either have, or are developing, ultrasonic meters that FEI expects may replace diaphragm meters in the future, further decreasing market supply. However, FEI has not received communication from either of them on any plans to cease manufacturing of diaphragm meters at this time.

2.1 Please provide the basis of the FEI expectations that the two other suppliers will replace diaphragm meters in the future. In the response, please discuss all communications with other suppliers.

Response:

As noted in the preamble, to date, FEI is not aware of any public communication by the two remaining suppliers regarding their long-term plans for diaphragm meters. As discussed in the response to CEC IR1 24.1, FEI's understanding is that one of the remaining two suppliers continues to work toward developing an ultrasonic meter (USM) for supply to the North American market. In December 2021, the other remaining supplier, Sensus, opened a full-scale manufacturing facility located in Dubois, Pennsylvania dedicated to the production of USMs. Sensus has been offering the Sonix IQ meter for sale in limited quantities to the US market since 2020 while awaiting construction of its USM manufacturing facility. Both vendors continue to offer residential diaphragm meters that are compatible with existing AMR/AMI modules.

There are a number of indicators within the market that signal growing demand for gas AMI within North America. In the response to BCUC IR1 26.7, FEI referenced the Util-Assist Report included in Appendix A of the Application which provides four major AMI deployments by gas utilities within the US in the past 10 years. Additionally, a gas utility survey conducted in 2020 by Insights Matter (provided in Appendix A of the Application) indicates that two gas utilities within Canada have already adopted AMI technology. This survey also indicates that, including FEI, there are four major utilities in Canada planning to move to AMI technology. In total, according to the survey and FEI's own asset records, these utilities operate meter fleets that represent approximately seventy-seven percent of the gas meters in Canada.

As utilities move to AMI technology, FEI expects USM will replace diaphragm meters due to the advanced capabilities that USMs equipped with AMI technology have in comparison to diaphragm meters. As described in Sections 4.2 and 4.3 and Appendix A of the Application, USMs incorporate more advanced features such as onboard diagnostics, communications modules, and remotely operable shut-off valves compared with today's mechanical diaphragm meters retrofitted with an AMI module, which do not include any of these advanced features. Finally, as stated in the response to BCSEA IR1 12.1, the price of advanced metering technology has dropped in

recent years, allowing USMs to be a realistic option for gas utilities, as diaphragm meters do not allow utilities to capture the full benefits of AMI.

2.2 Please provide FEI's best estimate of when the other two suppliers expect to cease production of diaphragm meters, with the source of the FEI estimate.

Response:

Please refer to the response to BCOAPO IR2 2.1.

3.0 Reference: Exhibit B-7-1, Response to IR 6.1

Preamble: On lines 8-16, FEI states:

> FEI is unable to break out the specific cost of each of the benefits or changes listed in Table 3-11 from the overall Project cost. Each of the benefits and changes will be provided by the proposed AMI technology as a whole, and removing a benefit or change does not result in a commensurate decrease in Project costs.
>
> FEI has not conducted a specific analysis or surveyed customers for their willingness to pay for each benefit. However, FEI notes that the Project is expected to be effectively rate neutral over the 26-year analysis period, with the incremental levelized delivery rate impact estimated to be 0.125
>
> percent. Therefore, FEI concludes that the additional benefits and changes provided by the AMI Project will come at a minimal cost for customers.

3.1 Please confirm that the difference in the capital cost of the AMR and AMI option represents, in aggregate, the cost of the additional benefits. If not confirmed, please fully explain.

Response:

The additional benefits and operational opportunities realized from AMI as shown in Table 3-11 of the Application were central to FEI's selection of the AMI option. However, the makeup of the capital costs is different between AMR and AMI; therefore, FEI cannot conclude the difference in capital costs between AMR and AMI is solely a result of the items in Table 3-11. In other words, there is a fundamental difference in the underlying work required between AMR and AMI and it is not just because of the additional benefits and operational opportunities.

For example, as discussed in Section 4 of the Application, the nature of work required, as well as the actual equipment, is different between AMR and AMI. For AMR, the capital cost includes retrofitting each existing diaphragm meter with a battery powered electronic module while the existing meter, bypass valve, and regulator will continue to be replaced/exchanged under the existing sustainment capital program (i.e., same as status quo). For AMI, the capital cost includes replacing each existing diaphragm meter with a new advanced meter. Furthermore, the existing programs to replace regulators and install bypass valves will be accelerated and completed during the AMI deployment phase.

3.2 Please provide the annual rate impact for each of the 26 years that result in the levelized rate increase of 0.125% over the 26 years of the analysis.

Response:

Please refer to the table below for the annual delivery rate impacts (when compared to the approved 2021 delivery rates) for each year of the 26-year analysis period. FEI notes the annual delivery rate impacts were summarized as part of the detailed financial model in Confidential Appendix G-5, Financial Schedule 10, Line 28.

Year	1	2	3	4	5	6	7	8	9	10	11	12	13
Incremental Delivery Rate Impact (compared to 2021)	0.00%	-0.55%	0.17%	1.49%	3.54%	4.75%	4.79%	4.16%	3.13%	1.77%	0.72%	0.17%	-0.26%
Year	14	15	16	17	18	19	20	21	22	23	24	25	26
Incremental Delivery Rate Impact (compared to 2021)	-0.91%	-1.67%	-2.23%	-2.54%	-2.72%	-2.95%	-3.32%	-3.67%	-4.12%	-4.28%	-4.77%	-5.70%	-6.63%
Levelized Incremental Delivery Rate Impact (compared to 2021)	0.125%												

4.0 Reference: Exhibit B-7-1, Response to IR 7.1

Preamble: In the response, FEI states:

> Not confirmed. AMI will support the first three drivers listed; however, AMR only partially supports two of the drivers. Please refer to Table 4-1 in the Application, as well as Section 4.2.2, for further detail and discussion of these conclusions.
>
> In table 4-1, the first three drivers listed are:
>
> - Automation is more accurate and convenient for customers than FEI's current meter reading practices, which are highly manual, are vulnerable to errors and can be inconvenient for customers
> - Automation is becoming the industry standard, thereby changing both market conditions and customer expectations
> - Automation alleviates the cost and service risks of manual reading and provides a long term cost effective alternative

4.1 Please confirm that both the AMI and AMR solutions provide equal accuracy as to meter reading. If not confirmed, please fully explain.

Response:

FEI is not aware of any differences in meter reading accuracy between the equipment (e.g., meters, collectors, etc.) used for AMI and AMR solutions. Both technologies meet Measurement Canada requirements, as does FEI's current customer metering equipment.

However, as described in Section 4.2.2.1 of the Application, AMR is not a fully automated solution and deployment of this technology would leave FEI with ongoing challenges associated with billing accuracy. By deploying AMR, meter reading would continue to be dependent on meter readers, and therefore impacted by inclement weather and other access challenges, as well as incomplete meter reading routes resulting from safety incidents or recruitment and retention difficulties. Deploying AMI would fully address the challenges related to access, safety, and recruitment/retention, and therefore, avoid the need for estimates in most cases, resulting in increased accuracy in billing as compared to AMR.

4.2 Please explain how AMR is not an industry standard.

Response:

AMR has been the prevalent technology used by natural gas utilities as an alternative to manual meter reading. However, advances in AMI technology and adoption of this technology by large utilities are indicators that the gas industry will continue to evolve towards AMI. Please also refer to the Util-Assist Report filed as Appendix A to the Application.

4.3 Please explain how AMR does not fully alleviate the cost and service risks of manual reading.

Response:

As explained below, AMR is not a fully automated solution. As such, AMR would address some of the challenges encountered by manually reading meters as described in Section 3 of the Application, but not all of them. Please refer to Section 4.2.2.1 of the Application for an explanation regarding which challenges AMR would meet and which would remain (and why) with an AMR solution.

As noted in Section 4.2.2.3, and with respect to cost and service risks and AMR, FEI would still be faced with the challenge of sourcing cost-effective service for driving the meter reading routes to gather readings using wireless collection devices. Similarly, FEI would be left with the challenge of sourcing diaphragm meters from a market with a decreasing number of diaphragm meter suppliers as these suppliers shift toward USMs. Finally, the deployment of AMR would preclude customers and FEI from benefiting from innovations that are developed over the next couple of decades by meter manufacturers.

5.0 Reference: Exhibit B-7-1, Response to IR 8.2

Preamble: On lines 31-35, FEI states

> For the base station to data centre communication, FEI will be reliant on third-party communications networks for backhaul of the data. A widespread failure of these third-party systems would interrupt communication. Both the Sensus and FEI data centres are redundant and located in different geographical areas, so natural disasters are not expected to have an impact on them.

5.1 Please explain how FEI will mitigate cyber security risks of unwarranted attacks and unauthorized application of features such as remote disconnect, particularly as FEI will be using third party communications.

Response:

Please refer to Sections 5.8.2 and 5.8.3 of the Application for a discussion of how FEI intends to secure and protect private and confidential information. Additionally, please refer to the responses to BCUC IR1 19.3, BCUC IR2 43.1, CEC IR1 66.2, and RCIA IR1 43.2.

6.0 Reference: Exhibit B-7-1, Response to IR 9.1

Preamble: In the response starting at line 16, FEI states:

AMR is limited by its one-way communications protocol and by its communication frequency, which is typically monthly or bi-monthly on walk or drive by reading. There is very little that can be developed for AMR in terms of new functionality because functions beyond basic meter read collection require the ability to send and receive data or commands to or from the meter on demand (i.e., requires two-way communication over a fixed network like AMI). Recent advances in gas module functionality are only available if the module is communicating on an AMI network as an AMI module, and these advances only offer some of the basic functions that would be available as standard in full AMI meters.

For example, the latest features in Itron's gas module, the Riva 500G, are only possible if it is functioning as an AMI module communicating on an AMI network, and not if the module is in AMR walk-by or drive-by reading mode. These features include firmware download, high flow alarms, sub hourly interval data, the ability to hop to a neighboring module for hard to read applications, and extended data storage. All of these features are only available if the module is deployed as an AMI module using the OpenWay Riva AMI Network mode, as described in the data sheet available at the following link:
https://www.itron.com/-/media/feature/products/documents/specsheet/500g-ert-module.pdf.

In terms of what is offered by the meter manufacturer Sensus, the "Solutions" section of its homepage (sensus.com) lists the sixteen solution offerings/categories listed below:

- Advanced Metering Infrastructure (AMI)
- Automatic Meter Reading (AMR)
- Cathodic Protection
- Conservation Voltage Reduction (CVR)
- Customer Portal
- Data Analytics
- Demand Response (DR)
- Distributed Energy Resources (DER)
- Distribution Automation (DA)
- ERT Meter Reading
- Leak Management

- Lighting Control
- Non-Revenue Water
- Outage Management
- Power Line Carrier (PLC) Migration
- Pressure Regulation

Of these sixteen solutions, fourteen rely on AMI data and/or two-way communications on an AMI or cellular network (two of these, ERT Meter Reading and PLC Migration, are specifically focused on migrating to AMI from older reading methods). Of the remaining two, Customer Portal is dependent on AMI data if the portal is to display any information beyond past monthly usage, and the remainder is the Automatic Meter Reading (AMR) solution, the description for which ends with the following selling feature describing the upgrade to AMI: "And when you're ready to upgrade to Advanced Metering Infrastructure (AMI), our solutions allow you to easily migrate your Automatic Meter Reading infrastructure to our fixed- base FlexNet® communication network."

6.1 Please explain how Conservation Voltage Reduction (CVR) relates to a natural gas utility.

Response:

This response addresses BCOAPO IR2 6.1 through 6.7.

BCOAPO IR1 9.1 requested an analysis showing that AMI vendors are focusing on development and delivery of AMI as opposed to AMR. The list of solutions from the Sensus website demonstrates this, as all but one are AMI-focused, but not all the items are related to natural gas.

The following categories listed in the preamble are not applicable to a natural gas utility:

- Conservation Voltage Reduction (CVR);
- Demand Response (DR);
- Distributed Energy Resources (DER);
- Lighting control;
- Non-Revenue Water;
- Power Line Carrier (PLC) Migration; and
- Outage Management.

6.2 Please explain how Demand Response (DR) relates to a natural gas utility.

Response:

Please refer to the response to BCOAPO IR2 6.1.

6.3 Please explain how Distributed Energy Resources (DER) relates to a natural gas utility.

Response:

Please refer to the response to BCOAPO IR2 6.1.

6.4 Please explain how Lighting Control relates to a natural gas utility.

Response:

Please refer to the response to BCOAPO IR2 6.1.

6.5 Please explain how Non-Revenue Water relates to a natural gas utility.

Response:

Please refer to the response to BCOAPO IR2 6.1.

6.6 Please explain how Outage Management relates to a natural gas utility.

Response:

Please refer to the response to BCOAPO IR2 6.1.

6.7 Please explain how Power Line Carrier (PLC) Migration relates to a natural gas utility.

Response:

Please refer to the response to BCOAPO IR2 6.1.

6.8 In the paragraph leading up to the list of functions, FEI discusses sub hourly readings.

6.8.1 Please fully discuss any plans FEI has to introduce time of use billing, or any other kind of billing, that would require more frequent meter reads.

Response:

FEI does not have plans to introduce time of use billing with its AMI Project.

6.8.2 Please confirm that with the current monthly meter reading, each site will have 12 data points per year. If not confirmed, please fully explain.

Response:

FEI confirms that for a customer on a monthly meter reading schedule, not requiring any off-cycle reads or billing estimates, it is expected that 12 data points would be manually collected per year.

6.8.3 Please confirm that if FEI were to move to four reads per hour, this would result in 35,040 (365*24*4) data points per year per site. If not confirmed, please fully explain.

Response:

FEI confirms that if FEI were to move to 4 reads per hour (i.e., 15 minute interval readings), this would result in 35,040 consumption data points per year, with the caveat that this would increase to 35,136 if the year was a leap year.

6.8.4 Please fully discuss the ability of the FEI meter data management and billing systems to accommodate the additional data, including an estimate of the costs to modify such systems to accommodate the increased volume of data.

Response:

While FEI's meters will be able to collect on demand reads, they will not be enabled to download sub-hourly interval data, as this would require Sensus to make a change to the firmware in the advanced meter.

7.0 Reference: Exhibit B-7-1, Response to IR 11.1

Preamble: In the response, FEI provides incremental capital related to the AMR project

7.1 Please provide similar data for the AMI project.

Response:

Please refer to the table below and Attachment 7.1 for the data in Excel format.

Financial Summary	AMI	Baseline	AMI less Baseline
Capital Costs ($millions)			
Meter Capital	481.2	361.2	120.0
Project Management	35.2	-	35.2
Software Capital	9.1	-	9.1
Network Capital	17.1	-	17.1
Non-Meter Capital	3.6	4.6	(1.0)
In House Meter Reading Capital	-	7.0	(7.0)
AFUDC	12.7	-	12.7
Total Capital ($millions)	**558.9**	**372.8**	**186.1**
O&M Costs ($millions)			
Meter Reading Costs	78.3	298.4	(220.1)
Operations, Contact Centre and Meter Shop O&M	12.9	25.1	(12.3)
New O&M	97.9	-	97.9
Total O&M (incl. Capitalized Overhead) ($millions)	**189.0**	**323.5**	**(134.5)**

7.2 Please provide the data in Excel format.

Response:

Please refer to the response to BCOAPO IR2 7.1.

8.0 Reference: Exhibit B-7-1, Response to IR 1.1

Preamble: In the response, FEI states:

> Not confirmed. The cost of service analysis projects future cash flows and calculates what the increase or decrease would be to future revenue requirements. Based on the forecast capital, O&M, and deferred non-AMI meter write off costs included in the Application over the 26 year analysis period the levelized delivery rate impact is 0.125 percent. The 26 year analysis period should not be misinterpreted as a payback period.
>
> Payback period usually determines the amount of time it takes to recover the initial investment. The forecast cost of the Project through deployment is $476 million. FEI has forecast incremental savings in capital and O&M as part of the cost of service analysis. Based on the incremental savings in capital and O&M included in the cost of service analysis the simple payback period would be 12 years post deployment.
>
> **In the preamble to IR 1, BCOAPO cites lines 3-16 of page 7 of the FEI Application, where FEI states that it provides a 26 year analysis with a 0.125% reduction in rates**.

8.1 Please provide a detailed analysis that compares the determination of a 12 year payback and also supports the 0.125% rate reduction over a 26 year period.

Response:

FEI clarifies the AMI Project is estimated to have an incremental levelized delivery rate impact of 0.125 percent over the 26-year analysis period, not a reduction as BCOAPO stated in the preamble to this information request. FEI notes lines 3-16 of page 7 of the Application referenced in the preamble stated the incremental levelized delivery rate impact for the AMI Project is 0.125 percent (i.e., not a reduction). This agrees with Table 6-11 of Section 6.3.3 of the Application as well as Confidential Appendix G-5, Schedule 10, Line 32.

Please refer to Table 1 below for the calculation for the payback period of 12 years, and Table 2 for the calculations for the 0.125 percent incremental levelized delivery rate impact over the 26-year analysis period.

Table 1: Calculation for the 12-year payback period of the AMI Project

			Post-Deployment Phase																			
Line	Particular	Reference	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
1	Post-Deployment Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2																						
3	**AMI Incremental Total Project Costs (**	**Table 6-2, Line 17, Col 3**	**476**																			
4																						
5	AMI Capital Savings ($000s)	Conf. App. G-5, Sch. 6, Ln 37	(34)	(27)	(28)	(27)	(26)	(28)	(28)	(31)	(23)	(21)	(17)	(20)	(21)	(21)	0	(0)	0	0	(4)	0
6	AMI O&M Savings ($000s)	Conf. App. G-5, Sch. 2, Ln 14	(12)	(12)	(13)	(13)	(14)	(14)	(15)	(15)	(15)	(15)	(16)	(16)	(17)	(17)	(17)	(17)	(18)	(18)	(19)	(19)
7	Total AMI Savings ($000s)	Line 5 + Line 6	(46)	(39)	(41)	(41)	(40)	(42)	(43)	(46)	(39)	(36)	(32)	(36)	(38)	(39)	(17)	(17)	(18)	(18)	(23)	(19)
8	Cumulative Savings ($000s)	Cumulative Sum of Line 7	(46)	(85)	(125)	(166)	(206)	(248)	(291)	(337)	(375)	(411)	(444)	(480)	(519)	(557)	(574)	(592)	(609)	(627)	(650)	(669)
9																						
10	Payback Period (Yr)	Yr -Line 8 > Line 3	12																			

Table 2: Calculation for the 0.125 percent incremental levelized delivery rate impact for the AMI Project

Line	Particular	Reference	Amount
1	NPV of AMI Incremental Revenue Requirement - 26 years ($000s)	Table 4-5 of Application	15,043
2			
3	2021 Approved Delivery Margin, non-bypass	G-319-20	879,479
4	NPV of 2021 Approved Delivery Margin, non-bypass (26 Years)	Excel Formula: PV(Discount Rate = 5.47%, 26 years, Line 3)	12,051,984
5			
6	Incremental Levelized Delivery Rate Increase - 26 years (%)	Line 1 / Line 4	0.125%

9.0 Reference: Exhibit B-7-1, Response to IR 3.1

Preamble: In the response, FEI provides a table 3-5 that excludes the impact of COVID-19. In the updated table, the largest single reason for estimated meter reads is Supervisory Estimates (Lack of Available Readers)

9.1 Please confirm that this as a result of the meter reading contractor not having sufficient resources. If not confirmed, please fully explain.

Response:

FEI does not have detailed information to conclude that this is a result of the contractor not having sufficient resources. However, FEI can confirm that the number of supervisory estimates is a result of the meter reading contractor not having an available meter reader to read the meter during the billing cycle.

It is FEI's understanding that meter reader availability is affected by the total pool of resources as well as the resources available on a given day. Thus, it may be a combination of insufficient resources due to recruitment and retention challenges as well as other challenges that the contractor may be facing, such as daily absence rates or meter reader efficiency.

10.0 Reference: Exhibit B-6, BCUC IR 16.4

Preamble: In the response to BCUC IR 16.4, FEI states that the customer portal will not be available until half way through the project.

10.1 Please confirm that FEI has no information that customers desire or find value in such a customer portal. If not confirmed, please provide all research, reports, studies, analysis or other information that clearly demonstrates that FEI customers want a portal and find value in it.

Response:

Not confirmed. FEI believes that customers find value in being able to access timely gas usage information through a customer portal. This is based on information from a variety of sources, as summarized below:

Customer Survey about AMI

In the response to BCUC IR1 7.1, FEI describes a customer survey it conducted in 2019 to understand the perceived benefits and drawbacks of a gas AMI system. The survey asked participating customers two specific questions regarding how useful it would be to have consumption information. Survey results showed that 65 percent of residential customers and 60 percent of small commercial customers responded that the "Ability to access more accurate, daily updates to better understand and manage your gas use" was a "Very" or "Somewhat Useful" advanced meter feature. In addition, 64 percent of residential customers and 56 percent of small commercial customers responded that the "Ability to access more accurate, daily updates to inspire more mindful choices such as upgrading to higher efficiency appliances" was a "Very" or "Somewhat Useful" advanced meter feature. A summary of the survey results is included with the Application as Appendix H-5 – Advanced Gas Meters Research Summary.

MyVoice Panel

In the response to RCIA IR1 12.1, FEI describes a poll of FortisBC's MyVoice panel, where respondents were asked to evaluate the importance of eight of FortisBC's services, including "providing comprehensive online information about your home's energy use". Approximately 75 percent of respondents to this poll rated having comprehensive online information about home energy use as "very important."

Existing Portal Use & Comparisons to Electric AMI Information

There are two sections of the Application where FEI describes information it has that customers find value in. Please refer to Section 3.4.1 and Figure 3-3 where FEI provides the number of transactions in the FortisBC customer portal in 2020 specific to views of their energy use, and the difference in use of the customer portal between electric customers who already have AMI meters, and gas customers who do not. FEI believes that because of the increased level of granularity of

consumption information available to electric customers, electric customers may be accessing the portal more frequently than gas customers because the information provides more useful insights into their energy consumption

Post Interaction Survey Comments

Also in Section 3.4.1 of the Application, FEI notes that it also collects information through post-interaction surveys that apply to the customer portal. FEI included a number of comments in this section regarding consumption within the last year, specifically as to how FEI could improve in relation to the information customers may receive from other providers, like BC Hydro.

10.2 Please provide all research, reports, studies, analysis or other information that clearly demonstrates the value or price that FEI customers would place on having access to a portal.

Response:

FEI does not have research regarding the price that FEI customers would place on having access to the portal; however, and as noted in the response to BCOAPO IR2 10.1, research as well as analysis of the use of similar information available for electric customers confirms that customers place value on having access to and the use of a portal that provides their unique energy use information.

Please also refer to the responses to BCUC IR1 7.1 and RCIA IR1 12.3.

11.0 Reference: Exhibit B-6, BCUC IR 13.3, 19.5, 19.6

Preamble: In the responses, FEI discusses Cyber Security.

11.1 Please fully explain the impact of a cyber security breach if the proposed solution is implemented. In the response, please fully discuss loss of customer personal data, loss of corporate data, unauthorized access to corporate systems and networks, unauthorized access to customer systems and networks, unauthorized shut off of customers from the FEI system, or any other potential risks.

Response:

A cybersecurity breach is very unlikely based on the layered security configuration of FEI's systems and infrastructure. This is confirmed regularly by third-party experts. The impacts of a cyber security breach, should one occur, would vary depending on the type of the breach and could range from minor to severe.

FEI has an existing and comprehensive incident response plan to respond to any material cyber breach. The plan is designed to respond appropriately according to type of breach that has occurred, whether it be customer, financial, or other sensitive information, or a breach of corporate or operational infrastructure. The response team includes internal technical, regulatory, and legal representatives, as well as third-party incident response experts. Incident response plans address all facets of a response, including analysis, communications, forensics and recovery. The plan is exercised on a regular basis and reviewed by independent third-party experts to ensure its effectiveness.

The proposed AMI solution will be added to the existing incident response plan. All information and infrastructure related to the proposed AMI solution will be added to the plan to ensure an effective response to a cybersecurity breach if one were to occur.

11.2 Please confirm that the AMR solution has none of the cyber security risks discussed in response to 11.1 above.

Response:

Not confirmed. These same risks exist for an AMR system; however, FEI notes that remote shut-offs would not be a capability of an AMR system.

12.0 Reference: Exhibit B-7-1, Response to IR 17.1

Preamble: In the IR, FEI discusses the ATCO Gas documentation that was relied upon. It is the understanding of BCOAPO that for ATCO Gas (AG), the AMR device was installed in the field with no need to remove the meter.

12.1 Please confirm that, in the AMR solution, FEI assumed that the AMR devices were installed in the field for all meters.

Response:

FEI confirms that in the AMR alternative discussed in the Application, installation of AMR meters would occur in the field without a requirement to remove the existing meters. New installations and compliance exchanges may have the AMR module outfitted prior to the meter installation in the field.

12.2 If 12.1 above is not confirmed, please fully explain and provide the estimated cost reductions that would apply if the installation of AMR devices was installed in the field.

Response:

Please refer to the response to BCOAPO IR2 12.1.

12.3 In the response, there is reference to an ITRON news release that asserts that the AG AMR installation was the largest in Canada as of 2013. Is it FEI's understanding that the AG AMR installation remains the largest in Canada?

Response:

It remains FEI's understanding that the ATCO Gas AMR installation remains the largest gas AMR installation in Canada.

12.4 If it is not FEI's understanding that the AG AMR installation remains the largest in Canada, please provide a list of subsequent AMR meter installations in Canada that are larger than the AG installation.

Response:

Please refer to the response to BCOAPO IR2 12.3.

13.0 Reference: Exhibit B-7-1, Response to IR 18.2

Preamble: In the response, FEI discusses remote disconnects and reconnections. FEI asserts that there are "limited differences" between the current manual process and any automated method.

13.1 Please fully explain each of the limited differences.

Response:

FEI clarifies that in its response to BCOAPO IR1 18.2, it referenced limited differences in the process and policy considerations around remote disconnections compared to those that are present today with manual disconnections. The key difference is explained in that response. The other (and very limited) difference relates to how the actual disconnection would be performed (i.e., remotely versus on-site at the gas meter).

13.2 Please fully explain how the confirmation of the site safety could be conducted on a remote basis as opposed to a site visit.

Response:

The safety considerations are different for an on-site disconnect than for a remote disconnect. On-site, a technician would have to consider their own safety in relation to meter access. These safety considerations do not exist when a gas service is disconnected remotely. A gas meter may be safely disconnected remotely without an assessment of the site; however, additional site-specific information as described in the response to BCOAPO IR2 13.3 may be available in the case of remote disconnections enabled by AMI.

13.3 Please identify and explain each individual aspect of the "more information specific to that meter and location on the system" that will now be available referenced in response to BCOAPO IR 18.2.

Response:

In the case of a planned remote disconnect for nonpayment, FEI could use the premises' AMI hourly reads to determine if gas is continuing to be consumed. If the premises has stopped consuming gas, FEI could use this information to not proceed with a remote disconnect. Also, FEI could access the meter's self-diagnostic information to determine if the meter is working properly

before attempting to remotely disconnect a meter. FEI could also review if the premises' meter had recently issued any alarms which could provide some helpful information prior to remotely disconnecting a customer.

During a gas emergency and before remotely disconnecting a meter for safety reasons, an FEI operator could easily cross-reference the meter's unique identifier against a database that shows where on FEI's gas system the meter is connected. This confirmation would ensure only the meters that are connected to the affected system are disconnected.

Attachment 7.1

REFER TO LIVE SPREADSHEET MODEL

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)