David M. Aaron

October 29, 2012

BY EMAIL

BC Utilities Commission
Sixth Floor, 900 Howe Street, Box 250
Vancouver, BC V6Z 2N3

Attention: Erica Hamilton, Commission Secretary

Dear Sirs / Mesdames:

Re: FortisBC Inc. Application for a Certificate of Public Convenience and Necessity for the Advanced Metering Infrastructure Project ~ Project No.3698682

On behalf of the CSTS Coalition, I submit the attached information request to FortisBC by copy of this correspondence. We thank the Commission for providing us until today's date to do so.

The CSTS Coalition has formulated this information request without the benefit of interim funding or the benefit of consultants that it would have had in the event that such funding preceded the IR process. As such, the CSTS Coalition files this information request without prejudice to any position it may take with respect to procedural fairness and/or the opportunity to advance further information requests as may be claimed in the future.

All of which is respectfully submitted.

Yours truly,

DAVID M. AARON

cc: clients
cc: FortisBC Inc.
cc: Interested parties

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INFORMATION REQUEST #1 OF THE CSTS COALITION

RE: FortisBC Inc. - Advanced Metering Infrastructure Application

1.0 Reference: Application - Glossary of Terms - page vii

1.1 Would a device that does not emit RF fit within the definition of “advanced meter” as defined?

2.0 Reference: Application - Executive Summary - page 1 - line 6

2.1 Of the “immediate benefits” claimed in relation to the AMI Project, which of them can be achieved using non-RF communication technologies?

2.2 What consideration has FortisBC given to the ability to achieve these “immediate benefits” using non-RF communication technologies?

2.3 Disclose any and all contracts, correspondence, notes, memoranda and/or any other documents and particulars relating to consideration that FortisBC has given to the ability to achieve these “immediate benefits” using non-RF communication technologies.

3.0 Reference: Application - Executive Summary - page 1 - lines 8 - 11

FortisBC refers to the AMI Project as being “consistent” with provincial government policy and “consistent” with the Regulations made pursuant to the Clean Energy Act.

3.1 Where do the Regulations require the use of RF communication technology?

3.2 Has Fortis BC considered whether RF communication technology is necessary to achieve consistency with the CEA and regulation?

3.3 Disclose any and all contracts, correspondence, notes, memoranda and/or any other documents and particulars relating to consideration that FortisBC has given to whether RF communication technology is necessary to achieve consistency with the CEA and regulation?

4.0 Reference: Application - Executive Summary - page 1 - line 18

FortisBC estimates that the AMI Project will be at a capitol cost of $47.7 million.

4.1 Is FortisBC aware that the British Columbia Human Rights Tribunal has accepted a representative complaint against BC Hydro’s smart meter program on behalf of a class consisting of those persons allegedly diagnosed as being electro-hypersensitive who have been advised to avoid wireless technology?

4.2 What consideration has FortisBC given to the prospect of implementing, voluntarily or by order, a program allowing a customer to opt out of having an RF emitting meter at his/her home?

4.3 What would be the cost to FortisBC / opt-out customers of implementing, voluntarily or by order, a program allowing a customer to opt out of having an RF emitting meter at his/her home ("the Cost") ?

4.4 How would that Cost be reflected in rates over a ten year period following the implementation of the opt-out program?

4.5 How would that cost vary as per the number of customer participants?

4.6 Disclose any and all contracts, correspondence, notes, memoranda and/or any other documents and particulars relating to consideration that FortisBC has given to the prospect and cost of implementing, voluntarily or by order, a program allowing a customer to opt out of having an RF emitting meter at his/her home?

4.7 What other electrical utilities have a wireless smart meter program that includes a customer opt out option and what fees, if any, have been charged to the customer in those respects?

4.8 In the view of FortisBC, how have these utilities, referenced in question 4.7 above, rendered their respective opt out options feasible?

4.9 Disclose any and all contracts, correspondence, notes, memoranda and/or any other documents and particulars relating to consideration that FortisBC has given to the approaches and feasibility measures taken by other utilities that have incorporated an opt out option into their respective RF emitting meter programs.

4.10 Provide full financial costs of data management, maintenance, storage and customer relations associated with the AMI project.

4.11 Provide particulars as to legal costs associated with the present application.

5.0 Reference: mandatory time-based rate structure

5.1 Has FortisBC considered implementing a mandatory time-based rate structure or a mandatory critical peak pricing structure?

5.2 Disclose any and all contracts, correspondence, notes, memoranda and/or any other documents and particulars relating to consideration that FortisBC has given to implementing a mandatory time-based rate structure or a mandatory critical peak pricing structure?

6.0 Reference: local government input

6.1 What input has FortisBC received from local governments with respect to the prospective AMI program?

6.2 Which local governments have asked to be spared from all or parts of the AMI program?

6.3 Disclose any and all contracts, correspondence, notes, memoranda and/or any other documents and particulars relating to input that FortisBC has received from local governments with respect to the prospective AMI program.

7.0 Reference: Application - Customer Health Concerns - page 3 - line 15

7.1 Would Fortis BC expect the referenced customer health concerns to exist with respect to non-RF communication technology?

8.0 Reference: Application - Project Description - page 3 - line 21

8.1 What are the various means by which meter data is forwarded from the WAN to the HES? Does this include transmission over wires?

9.0 Reference: Application - Overview of the Project - page 6 - line 11

9.1 Can non-RF communication technology provide the “near real time two-way communication capability” referred to on page 6, line 11?

10.0 Reference: Application - Approach taken- page 12 - line 18

FortisBC says that it retained the services of an experienced consultant to facilitate the AMI system procurement process.

10.1 What considerations has FortisBC and/or its “experienced consultant” given to non-RF communication technologies in the context of the procurement process?

10.2 Disclose any and all contracts, correspondence, notes, memoranda and/or any other documents and particulars relating to consideration that FortisBC and/or its “experienced consultant” have given to non-RF communication technologies in the context of the procurement process.

11.0 Reference: Application - Approach taken- page 13 - lines 9 - 11

11.1 Has FortisBC monitored the progress and results from utilities that have implemented or are in the process of implementing advanced metering projects without the use of RF communication technology?

11.2 What has FortisBC found in that regard, with respect to the success of those programs?

12.0 Reference: Application - Project Alternatives

12.1 What consideration has FortisBC given to the use of third party telephone lines as an alternative to the RF mesh LAN solution? What would the cost be in that regard and how would that cost be reflected in rate increases over a long term period?

12.2 What barriers or show-stoppers would exist to prevent the deployment of non-RF emitting meters along with a third party telephone line LAN communications infrastructure?

12.3 Disclose any and all contracts, correspondence, notes, memoranda and/or any other documents and particulars relating to consideration that FortisBC has given to the use of third party telephone lines as an alternative to the RF mesh LAN solution?

12.4 What consideration has FortisBC given to the expansion of its fibre optic network as an alternative to the RF mesh LAN solution?

12.5 What would be the hard costs for connecting smart meters to fibre optics when a) fibre optic cabling is already in place; and b) when fibre optic cable is not in place? What would be the cost of using of a fibre optic network as an alternative to the RF mesh LAN solution and how would that cost be reflected in rate increases over a long term period? Provide cost analysis of connecting all Fortis BC AMI meters in the province to fibre optic versus the cost of continually replacing wireless components every 7 to 10 years.

12.6 What communities are not supplied by fibre optics?

12.7 Has an agreement with Telus regarding shared used of fibre optics been considered?

12.8 Would the use of a fibre optic network as an alternative to the RF mesh LAN solution eliminate health and environmental concerns with respect to the AMI Project?

12.9 What barriers or show-stoppers would exist to prevent the deployment of non-RF emitting meters along with a fibre-optic LAN communications infrastructure?

12.10 Disclose any and all contracts, correspondence, notes, memoranda and/or any other documents and particulars relating to consideration that FortisBC has given to the expansion of its fibre optic network (and/or the use of a third party fibre optic network) as an alternative to the RF mesh LAN solution?

12.11 If satellite communication technology is utilized with AMI meters, does this eliminate the mesh network and synchronization management RF signals?

13.0 Reference: Fire risk

13.1 Is FortisBC aware that there has been concern over the fire risk associated with smart meters?

13.2 What consideration has FortisBC given to fire risk associated with its prospective AMI Project?

13.3 Disclose any and all contracts, correspondence, notes, memoranda and/or any other documents and particulars relating to consideration that FortisBC has given to fire risk associated with its prospective AMI Project.

14.0 Reference: Application - Decision deadline of 7/20/2013 - page 8, line 28

14.1 How does the prospect of reconsideration and appeal (to the British Columbia Court of Appeal) factor into FortisBC's need for a timely decision on this application and how might FortisBC's contract pricing be affected by the prospect of such an appeal?

15.0 Reference - Application - Environment - page 126

15.1 What communications technology is the basis for Manitoba Hydro's business case for the deployment of electric smart meters?

15.2 What communications technologies have been employed by the meter programs in Quebec, Ontario and Saskatchewan?

16.0 Reference - Application - Environment - page 134, lines 19 - 20

FortisBC states "as meters are intentionally installed outside the home, it is unlikely for customers to be in close proximity to a meter for prolonged periods of time."

16.1 On what basis has FortisBC assessed the likeliness that customers will be in close proximity to a meter for prolonged periods of time?

16.2 How does the installation of a meter outside the home factor into the likeliness that a customer may be in close proximity to a meter for prolonged periods of time?

16.3 Has FortisBC considered that a meter (or a bank of meters in the case of an apartment complex) may be located on the exterior wall of a bedroom? How

does this consideration affect the likeliness that a customer may be in close proximity to a meter for prolonged periods of time?

17.0 Reference - Application - Environment - page 134, line 24

17.1 In evaluating the EMF risks posted by the proposed meters, does FortisBC consider it important to consider the following specifics?

A. The frequency and extent of fluctuation of RF levels?

B. The duration of each instance of an RF emission?

C. The frequency with which an RF emission occurs?

17.2 What is the frequency and extent of fluctuation of RF levels with respect to the proposed meters? Is the on/off manner in which emissions occur analogous to the fluctuating emission levels of a strobe light? At what speed are the emissions flashing on and off? How often? What is the frequency with which an RF emission occurs? What is the duration of each transmission?

17.3 What is the duration of each instance of an RF emission with respect to the proposed meters?

18.0 Reference - Application - Appendix C-5

18.1 Disclose all the projects that Exponent has provided an opinion or report on, with respect to matters of health, safety and/or environment, and briefly summarize the conclusions on the opinion / report provided by Exponent in each instance.

19.0 Reference - Application - Appendix C-5 - pages 7 and 8 (of 47)

Exponent says the *exposure assessment* evaluates the amount and nature of human exposure from the agent being studied.

19.1 In evaluating the nature of RF exposure, what consideration has FortisBC and/or Exponent given to the extent and amount of fluctuations in RF levels, the frequency with which instances of RF emissions occur and the speed at which the emissions are flashing on and off?

19.2 Have there been studies or tests of exposure risk in relation to exposure to RF emissions that replicate the actual pattern of emissions that are expected to occur from the proposed meters, i.e. replicating the extent and amount of fluctuations in RF levels, the frequency with which instances of RF emissions occur and the speed at which the emissions are flashing on and off?

20.0 Reference - Application - Appendix C-5 - page 7

Exponent says the final step in the analysis is to compare the specific exposure to the relevant standard.

20.1 On what basis has FortisBC and/or Exponent assumed that standard to be correct, i.e. the thermal standard.

20.2 What consideration has FortisBC given to the assessment of exposure risks according to alternative standards such as the non-thermal standard?

20.3 Whereas the Safety Code 6 standard measures the thermal condition of the body after six minutes of exposure to microwave radiation, how will FortisBC assess the cumulative effect(s) of the frequencies regularly transmitted by the smart meters over a long term period?

21.0 Reference - Application - Appendix C-5 - page 15

Exponent says:

> "The effect that would occur first, given sufficient RF exposure, is that of raising the body temperature"

21.1 On what basis has the author assumed that raising the body temperature is the effect that would occur first?

21.2 Is there controversy as to whether raising the body temperature is the effect that would occur first?

21.3 Set out the range of opinion amongst scientists and medical professionals who have expressed an opinion on the matter of whether raising the body temperature is the effect that would occur first?

21.4 Particularize the position of those scientists and medical professionals who have expressed an opinion (contrary to that of Exponent) on the matter of whether raising the body temperature is the effect that would occur first?

22.0 Reference - Application - Appendix C-5 - page 15

22.1 On what basis has the author assumed that an adequate approach to protection is achieved by setting exposure limits according to the point of tissue warming?

22.2 Is there controversy as to whether an adequate approach to protection is achieved by setting exposure limits according to the point of tissue warming?

22.3 Set out the range of opinion amongst scientists and medical professionals who have expressed an opinion on the matter of whether an adequate approach to protection is achieved by setting exposure limits according to the point of tissue warming.

22.4 Particularize the position of those scientists and medical professionals who have expressed an opinion (contrary to that of Exponent) on the matter of whether an adequate approach to protection is achieved by setting exposure limits according to the point of tissue warming?

23.0 Reference - Application - Appendix C-5

23.1 Who is/are the author(s) of the Exponent report?

23.2 Set out the qualifications of the author(s) of the Exponent report.

23.3 Are these authors being held out as experts in a field? If so, what is the alleged scope of their expertise?

23.4 Provide a copy of the cv of each author of the Exponent report.

23.5 On what other projects or reports have these authors participated on behalf of Exponent or otherwise.

23.6 Disclose any and all contracts, correspondence, emails, notes, memoranda and/or any other documents (including previous drafts of the Exponent Report) exchanged as between FortisBC (or its subcontractors including Util-Assist Inc.) and Exponent.

24.0 Reference - Application - Appendix C-5 - non-thermal effects - p.17

24.1 Particularize the reference to “some studies” that have reported effects occurring with RF exposures below the level that raises the body temperature (“the Nonthermal Studies”).

24.2 Provide a copy of each of the Nonthermal Studies.

24.3 Provide a copy of each and every review of the Nonthermal Studies.

24.4 Has each and every review ever done of the Nonthermal Studies found the data in the Nonthermal Studies to be unreliable?

24.5 Has any review done of the Nonthermal Studies denied the occurrence of biological effects at nonthermal levels of exposure?

25.0 Reference - Application - Appendix C-5

25.1 Produce a digital PDF copy of each and every report, review and/or study referenced and/or discussed in the Exponent report.

26.0 Reference - Application - Appendix C-5 - page 22

26.1 How is “intensity (strength)” defined. Has there been consideration of the amount / extent of fluctuation of RF levels with respect to the proposed meters? Has there been consideration of the power of emissions during the signaling phase with respect to the proposed meters?

27.0 Reference - Application - pollinating insects

27.1 Is FortisBC aware that there has been concern over the potential impact of the AMI Project on pollinating insects and/or birds?

27.2 Has there been any consideration as to the potential impact of the AMI Project on pollinating insects and/or birds?

27.3 Disclose any and all contracts, correspondence, notes, memoranda and/or any other documents and particulars relating to consideration as to the potential impact of the AMI Project on pollinating insects and/or birds.

28.0 Reference - Application - page 47 - lines 2 & 3

28.1 What is the basis for FortisBC’s statement that there is long-term certainty with respect to fibre-optic cable technology?

29.0 Reference - Response to BCUC IR1 32.2

29.1 Who are the referenced third party cellular providers that will provide backhaul service for the AMI Project?

30.0 Reference - Response to BCUC IR1 38.2

30.1 What wired technologies are “perfectly capable” of meeting the requirement of hourly consumption reads?

31.0 Reference - Util-Assist Inc.

31.1 Do Util-Assist Inc. and Itron have any shareholders, officers and/or directors in common?

32.0 Reference - Response to BCUC IR1 119.4

32.1 Disclose a copy of FortisBC's letter in response to customer concerns over health issues, redacted to eliminate disclosure of personal information.

33.0 Reference - Response to BCUC IR1 117.0

33.1 Does the electrical utility in the U.S. state of Maine allow opt-out for no fee?

33.2 Does Nelson Hydro allow an opt-out for fee in relation to its RF emitting drive-by meters?

33.3 Where does FortisBC consider that the Clean Energy Act and/or Regulation require the installment of a wireless RF emitting smart meter (as opposed to a meter based on a non-RF communication system)?

34.0 Reference - Response to BCUC IR1 117.4

34.1 Will FortisBC suspend service for those customers refusing installation of an AMI meter until such time that an AMI meter is installed?

34.2 Particularize the reference to the provisions in the Terms and Conditions of the Electric Tariff on which FortisBC relies for its asserted right to suspend service for those customers refusing installation of an AMI meter until such time that an AMI meter is installed.

34.3 On what basis does FortisBC claim that RF emitting meters are "the standard metering technology? Where in the Clean Energy Act and Regulation are RF emitting meters required?

34.4 Has FortisBC considered providing hard-wired communication technology solutions for those customers who refuse an RF emitting meter on the basis of health concerns or disability requiring accommodation?

34.5 Is FortisBC aware that there have been concerns about the potential impact of RF communication technology on pacemakers and other medical equipment?

34.6 Disclose any and all contracts, correspondence, notes, memoranda and/or any other documents and particulars relating to consideration regarding concerns about the potential impact of RF communication technology on pacemakers and other medical equipment?

34.7 Will FortisBC enter private property of a customer for the purpose of installing an RF emitting AMI meter where the customer has posted signage explicitly denying FortisBC access to the private property for the purpose of installing an RF emitting AMI meter?

34.8 Produce a copy of the California Utility Commission's decision with respect to PG&E's application regarding an opt-out program.

35.0 Reference - Spectrum Analysis

35.1 What spectrum analysis field studies has FortisBC used to assess the AMI meter technology in relation to a) local radon levels; and b) proximate hydroelectric dams in the Kootenays?

35.2 What initiatives has FortisBC taken to work cooperatively with other service providers (who rely on microwave technology) to gather and compare data and take steps to ensure public safety from the potential crosstalk of their various frequencies? The other service providers referenced in this question would include hydroelectric dam operations, broadband over power lines, TV and radio stations, emergency services, gas providers, WiFi networks, radar and cell towers.

35.3 Given that most environments affected by the transmissions of the AMI meters are uncontrolled environments, what steps has FortisBC taken to:

a) measure the RF field intensities in the areas where the meters are to be installed;

b) make the local population aware of the intensity of that field; and

c) inform the public of i) the health risks they are exposed to; and ii) strategies that could be employed by individuals to mitigate risk.

36.0 Reference - Executive Summary (CPCN Application) Page 2 Lines 3-6

Green house gas (GHG) emissions will be reduced as well. FortisBC meter reading vehicles drive approximately 500,000 kilometres per year and consume approximately 80,000 litres of gasoline. The associated 191 tonnes of resulting GHG emissions will be reduced with the reduction in meter reading vehicles.

36.1 Provide evidence that GHG smog is less hazardous than electromagnetic (RF) smog since both have been classified as 2b carcinogens by the World Health Organization.

36.2 Explain how the environment is better served by producing layers of RF smog rather than having the meter readers drive electric cars?

37.0 E.S.2.0 EXECUTIVE SUMMARY Page 2 Lines 24-29

NEW AMI METERS WILL IMPROVE BILLING ACCURACY AND FREQUENCY

Bill estimates will be virtually eliminated since meter readings will be available when they are required. As well, new Measurement Canada regulations have decreased the error tolerances for calibrating and testing meters, requiring greater accuracy from meters. The AMI Project will result in the accelerated replacement of the electro-mechanical meters with more accurate meters that meet the new Measurement Canada regulations.

37.1 What are the new Measurement Canada regulations (S-S-06) and what provisions of those regulations require wireless meters? In what way are the proposed AMI meters more accurate than FortisBC's present mechanical meters?

38.0 PROJECT NEED

3.1 Description of Existing System Page 17 Lines 12-15

Solid-state (or digital) meters (non-AMI) for the remaining meter population in the Company's service territory. This includes several hundred interval Timeof-Use meters, as well as wireless Encoder/Receiver/Transmitter (ERT)meters used for hard-to-access meter locations;

38.1 Explain what type of time-of-use metering is in use by FortisBC now.

38.2 Explain how the ITRON AMI will be an improvement over the time-of-use metering presently in use by FortisBC.

39.0 PROJECT NEED

3.2 Advanced Metering Infrastructure Page 18 Lines 21-32
Page 19 lines 1-8

FortisBC is committed to making improvements that positively impact the safety, efficiency and reliability of its electric service. FortisBC has determined that the implementation of AMI technology is a prudent decision when the number of available benefits is considered. The AMI Project will address two customer priorities: mitigating rate increases, and a desire for better information regarding energy use. Given customer concerns regarding rising electricity rates, the rate-mitigating effect of AMI

underscores that the Project is in the public interest. Further, AMI will provide better information about electrical consumption, allowing the Company and its customers to more efficiently manage electricity usage and the associated costs. Benefits attributable to the AMI Project are summarized as follows:

1. Provides better and more energy consumption information allowing customers and the Company to efficiently manage electricity usage and the associated costs;

2. Consistency with British 1 Columbia's energy objectives;

3. Is a prerequisite step in the evolution of the Company's long-term smart grid vision;

4. Provides numerous non-financial benefits to the Company's customers; and

5. Results in approximately $19 million in savings (on a net present value basis) as evaluated over a 20 year period (associated rate reduction of approximately 1 percent). Each of these benefits is discussed in further detail below.

39.1 What measures would be taken by third party testing organizations to ensure safety as well as measures for early identification and reporting of potential problems in AMI Meters.

39.2 What safety precautions will be implemented by FortisBC during the court of AMI meter installation? Will installation be done under full load?

39.3 What installation measures, from a process and testing perspective, will FortisBC be undertaking to identify risks and to manage them effectively?

39.4 What training and/or qualifications will be required of personnel conducting AMI meter installations?

39.5 What active measures will FortisBC take to monitor and respond so as to minimize potential risks following installation?

39.6 Would FortisBC commit to record and publicly report any and all post-installation incidents involving damage to AMI meters, home owner appliances, overheating and/or fire. What systems will FortisBC have in place for analyzing such postincident events for the purpose of identifying associations and/or trends.

39.7 In the event of a post-installation customer complaint regarding power quality, how will such a complaint be dealt with in relation to the customer's meter installation history? Would such a complaint necessarily result in the immediate dispatch of a technician to the customer's address?

39.8 What material will be included in each of the proposed AMI meters?

39.9 Do the proposed AMI meters have a mechanism to automatically shut-off power in the event of a problem?

40.0 PROJECT NEED

3.2.2. Clean Energy Act Page 22&23 Lines 29-31 & 1-3

While IHDs, as described above, will be one future DSM measure available to customers (with appropriate DSM incentives provided), the simple provision of customer consumption information via the proposed online customer information portal is expected to have an immediate impact on customer decisions regarding the timing and amount of energy consumption**.**

40.1 What incentives will be provided to customers to encourage use of IHD?

40.2 Will IHD use require activation of the Zigbee transmitter?

40.3 What are the costs of these incentives and have they been included in the business case?

40.4 Explain and substantiate the expectation that the online portal will have an immediate impact on timing and amount of energy consumption.

40.5 Where has the experience of use of this portal resulted in significant changes in customer habits and use?

40.6 Explain if this incentive and expected results is dependent upon time of use billing.

41.0 PROJECT NEED

3.2.3 Historical Perspective Page 25 Lines 25-29

Detailed monitoring and control has been possible for some time, particularly as enabled by FortisBC's recently completed Distribution Substation Automation Program (DSAP). FortisBC's CPCN Application for DSAP described its legacy electro-mechanical protection and metering equipment as antiquated and obsolete.

41.1 Provide particulars with respect to the information being gathered by the current monitoring system.

41.2 Explain what was being controlled and the circumstances under which this control has been utilized with the current system.

41.3 Explain on what basis the current electro-mechanical protection and metering equipment was determined to be antiquated and obsolete, with details about who made this determination.

42.0 PROJECT NEED

3.2.3 FORTISBC SMART GRID VISION Page 26

Figure 3.2.3.a - Timeline of Historical Technology Deployments at FortisBC
Fibre-optic backbone network between the Kootenay and Okanagan communications system

42.1 Explain and provide basis for the decision not to use this fibre-optic backbone for the grid.

43.0 PROJECT NEED

3.2.3 FORTISBC 1 **SMART GRID VISION Page 28 Lines 1-5**

The largest opportunity yet to be attributed to system improvements such as DSAP includes the measurement and confirmation of current system losses and identification of future system loss reductions. This opportunity requires the implementation of an advanced metering system in conjunction with the already implemented DSAP as an essential component of the smart grid.

43.1 Why are RF emitting AMI meters required to detect losses?

43.2 Particularize the losses that are incurred with the current system?

44.0 PROJECT NEED

3.2.3(2) FORTISBC SMART GRID VISION

THE KEY ROLE OF AMI IN THE SMART GRID Page 29 Lines 18-23

An important step toward the deployment of the smart grid is the installation of technology capable of providing the communication required to ensure information is available from all devices on the distribution grid. The AMI Project will enable the

Company to better understand power consumption trends, and reduce power theft through an improved ability to identify and locate unmetered consumption. The ability of an advanced metering system to provide comprehensive information regarding consumption at the customer endpoint.

44.1 Provide the names and providers of all the potential devices on the distribution grid.

44.2 Explain in detail how the AMI project will improve ability to identify and locate unmetered consumption when the vast majority of stolen electricity occurs at places other than at the meter.

44.3 Provide the comprehensive information regarding customer consumption that will be gathered and transmitted wirelessly.

45.0 PROJECT NEED

3.2.3(3) FORTISBC 1 **SMART GRID VISION Page 29 lines 24-27**

THE KEY ROLE OF AMI IN THE SMART GRID

The ability of an advanced metering system to provide comprehensive information regarding consumption at the customer endpoint, in conjunction with the information available from the advanced distribution metering already deployed at the substation level, would allow the Company to accurately measure actual losses on a near-instantaneous and annual basis.

45.1 What measures are being taken to ensure security of comprehensive data at the customer end point?

46.0 PROJECT NEED

3.2.4 FINANCIAL BENEFITS TO CUSTOMERS Page 30 lines 14-19

The main cost savings include:

1. Reductions in costs related to manual meter reading function;

2. Reduction of revenue loss associated with electricity theft;

3. Avoided cost of accelerated replacement of existing meters associated with the new Measurement Canada sampling plan (S-S-06);

4. Reductions in costs related to meter exchanges and meter compliance testing;

46.1 Substantiate the statement that the smart meter program will reduce the testing of meters for accuracy and meter exchanges.

47.0 PROJECT NEED

3.2.5(2) CONSERVATION RATE STRUCTURES

Page 32 lines 4-7

AMI will provide flexibility in administering any future time based rates, including changes to on peak/off peak rate periods or time buckets. As well, AMI will allow FortisBC customers to move from a consumption based rate (like RIB) to a time-based rate (like TOU) without requiring a change in the metering.

47.1 Would smart meters require re-programming for rate adjustments?

47.2 If so, what would be the cost for this re-programming?

47.3 If so, have these costs been included in the business plan?

47.4 Would this be done remotely?

47.5 Would customers be informed of, or give approval for this re-programming in advance?

48.0 PROJECT NEED

3.2.5.(3) CONSERVATION RATE STRUCTURES Page 32, lines 17-22

Increased awareness and access to more information has proven an effective tool that allows customers to modify their usage habits in an effort to lower their bills and save energy as detailed in the Navigant report provided as Appendix C-1. As part of its 2012 Long Term Resource Plan, FortisBC has included estimated savings of 2.3 GWh beginning in 2015 and increasing to 8.9 GWh by 2025 related to the behavioural changes enabled by the FortisBC online web portal.

48.1 Since the projected dramatic reduction in energy consumption by 2025 is based on the new billing method, substantiate the statement that time-of-use and critical peak pricing reduce consumption.

48.2 In what other countries, states or provinces has this result been realized? Provide substantiation.

49.0 PROJECT NEED

3.2.5(4) NON-FINANCIAL CUSTOMER SERVICE AND OPERATIONAL BENEFITS

ENHANCED BILLING INFORMATION Page 32 Lines 23-32

In 2011, 25 percent of all calls to the FortisBC Contact Centre were related to billing queries. The AMI system allows customers to access billing information through the online customer information portal or an IHD, providing them with more detailed information about their energy consumption, including both the timing and amount of energy consumed. If a customer does not choose to access this additional information themselves, they can continue to contact FortisBC by fax, telephone or email where agents will have access to the same detailed meter reading information and will be better able to assist customers with their billing enquiries. This improved service is expected to result in increased customer satisfaction.

49.1 Support the claim that enhanced billing will reduce the need for FortisBC to provide supports to its customers.

49.2 What information will be available that is not already available online?

49.3 What consumption data will be provided that cannot be provided by devices already on the market that are compatible with analog meters?

50.0 PROJECT NEED

3.2.5(6) Non-Financial Customer Service and Operational Benefits

Immediate Notification of Power Outages and Restoration Page 38 Lines 23-27

The AMI system will provide FortisBC with visibility down to the point of delivery at the customer's meter. This capability will provide detailed power outage information, including the time duration of the outage and the number and location of customers affected by the outage.

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50.1 Is it not true that the current system provides much of the information given above, e.g. the number of customers affected?

50.2 What information will be provided by the new system that is not available today? Provide substantiation.

50.3 What is the current average delay between the occurrence of the outage and the time FortisBC is aware of it?

50.4 What will be the average delay between the occurrence of the outage and the time FortisBC is aware of it? Substantiate.

50.5 Provide documentation of performances in other jurisdictions, e.g. Ontario, California, Florida to substantiate your expectations.

51.0 PROJECT NEED

27.0 (7) Reference: Project Need IR#1 Responses Page 42 & 43
Lines 9-28 & 1-2
Exhibit No. B-1, Tab 3.0, Section 3.2.5, pp. 38-39
Improved Power Quality Monitoring

BCUC IR1 27.1 Explain how AMI meters will report electric service and wiring errors?

Response:
AMI meters can detect a variety of conditions that are indicative of electric service or wiring errors. All AMI meters can detect inversion, removal and reverse power flow. Polyphase meters also have the ability to continuously monitor the electric service for metering installation or tampering problems through the system and installation diagnostic checks. The following programmable diagnostic checks can be enabled in the HES data collection engine: Diagnostic 1: Cross-Phase, Polarity and Energy Flow Check – This diagnostic verifies that all meter elements are sensing and receiving the correct voltage and current angles for each phase of a specific polyphase electric service. The current tolerance is +/- 90 degrees.

Diagnostic 2: Phase Voltage Deviation Check – This diagnostic verifies that each individual phase maintains an acceptable voltage level with respect to the other phases. Problems such as shorted potential transformer windings, incorrect phase voltage, and loss of phase potential among others may be indicated. The phase voltage deviation can be set to 1% -25%. Diagnostic 3: Inactive Phase Current Check – This diagnostic verifies that each individual current phase maintains an acceptable current level. It may indicate problems such as current diversion and open or shorted circuits, among others. The inactive phase current can be set for 2 0.05 amps to 200 amps. the meter and service. FortisBC expects this functionality to be enabled (at no additional cost) prior to meter deployment.

51.1 Explain and substantiate why a AMI meter that has a plastic cover and plastic components is no more susceptible to overheating and catching on fire than a meter with a glass cover and metal components.

51.2 Explain, in detail, and substantiate, how the plastic covers and plastic components of the AMI are an improvement over the glass covers and metal components of the current analogue meters.

51.3 If the plastic covers and plastic components of the AMI meter are not an improvement over the glass covers and metal components of the analogue meters, explain, in detail, and substantiate, in what way they are of comparable quality and why, if of comparable quality, they are in need of being replaced.

51.4 If the plastic covers and plastic components of the AMI are of a lesser quality than the glass covers and metal components of the analogue meters, explain, in detail, and justify, why you are using substandard materials in the AMI meters.

51.5 Will FortisBC accept responsibility for a meter fire that is attributable to the use of a plastic rather than a glass meter cover?

51.6 Explain and substantiate why wireless smart meters do not have surge protectors.

52.0 PROJECT DESCRIPTION

4.1 AMI Project Components Page 41 Lines 14-22

The network architecture of FortisBC's proposed AMI system provides an Internet Protocol (IP)-based platform that enables advanced security measures, interoperability with other systems, and streamlined operation, including capability to support potential future advanced metering applications. The AMI solution will be capable of collecting electrical consumption information from all customer meters, and will have the additional capacity required for future collection of information on distribution devices on the power system. The system will also allow customers to access their consumption information through a secure and private online customer information portal.

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52.1 Give examples of the smart meter grid functioning with other IP systems and future applications.

52.2 Give examples of the type of information that might be gathered in the future by the AMI meter grid.

52.3 Give specific examples of the specific type of information regarding electrical consumption from individual meters that will be gathered by the AMI meters.

52.4 How is FortisBC ensuring the integrity and security of this and all data that is being gathered and transmitted wirelessly?

53.0 PROJECT DESCRIPTION

4.1 (1) AMI Project Components Page 43 Lines 1-5

The AMI system proposed by FortisBC is scalable for customer growth, and therefore will support the same services and functions for a higher meter population in the future. Further, the AMI system proposed is capable of supporting gas and water meters within the Company's service area, which may create revenue opportunities for the utility and its customers in the future as explained in section 8.3.

53.1 Please explain what is meant by "scalable".

53.2 Who is the customer who would benefit from this?

53.3 Will this model of ITRON meter support water and gas measurements?

53.4 What modification to the meter will be required for water and gas measurement and what costs will be associated with such modification?

53.5 What costs, if any, that are associated with this "scalable" feature are included in the business plan?

54.0 PROJECT DESCRIPTION

4.1 AMI Project Components

4.1.1 (2) HOME-AREA NETWORK Page 43 Lines 14-16

The selected meters also support Zigbee Smart Energy v2.0, which is being developed by the ZigBee Alliance specifically to provide additional functionality related to the delivery and use of energy and water.

54.1 What is the additional functionality the Zigbee transmitter will bring to the delivery and use of energy and water?

54.2 What is meant by “demand response”?

54.3 Who has control of the Zigbee transmitter’s functionality, e.g. who turns it off and on?

54.4 What is FortisBC’s view as to owns the data that is gathered?

54.5 With whom or what (agency, company, network etc.) will the Zigbee application interface?

54.6 How often will data gathered by Zigbee be transmitted to FortisBC?

54.7 Where will the data be sent, e.g. with what agencies, companies, networks, etc, will it be shared?

54.8 Can the Zigbee’s remote functionality be used to reduce or to turn power off to a home or to an individual appliance?

54.9 Has FortisBC considered requiring customers to have the Zigbee transmitter turned on? When might this requirement take effect?

54.10 What will be the ramifications to the customer if she/he refuses activation of the Zigbee transmitter?

54.11 How often will the data gathered by the Zigbee transmitter be transmitted to FortisBC?

54.12 What is the minimum interval between Zigbee data relays?

54.13 Is the Zigbee transmitter required for time-of-use billing?

54.14 What RF frequency will be used to transmit Zigbee data?

54.15 What is the peak (not average) power density of Zigbee transmissions?

54.16 Disclose any and all contracts, correspondence, notes, memoranda and/or any other documents and particulars relating to FortisBC’s consideration as to requiring customers to have the Zigbee transmitter turned on.

55.0 PROJECT DESCRIPTION

4.1.1 (3) Local Area Network. Page 44 Lines 5-9

When the customers purchase a compatible IHD, they will be required to contact FortisBC in order to securely enable the communications path between the AMI meter and their IHD. The communications path is secured by encryption keys specific to the AMI meter at the customer's premises and their IHD.

55.1 By what means is the data being transferred between the AMI meter and the IHD?

55.2 If wirelessly, what frequency is used?

55.3 If wirelessly, how often will the signal be sent?

55.4 How is this data being made secure from hackers beyond use of encryption keys?

56.0 PROJECT DESCRIPTION

4.1.1 (4) Local Area Network Page 44 Lines10-12

It is expected that when customers have accurate and timely energy use and cost information upon which to base decisions, they will choose to conserve electricity and change when they consume electricity.

56.1 If significant reduction in energy use is associated with IHDs, why aren't these being provided to every customer as part of the program?

56.2 How does having an IHD, without time of day usage billing, cause customers to "change when they consume electricity"?

56.3 Do IHDs alone (without TOU billing) contribute to conservation?

56.4 If so, is this conservation permanent or is it a transitory factor, the result of having a new "gadget".

57.0 PROJECT DESCRIPTION

4.1.2 (5) LOCAL AREA NETWORK Page 45 Lines 15 & 16

The AMI meters will communicate via a 900 MHz radio frequency RF mesh solution, and will transmit, on average, for less than a minute a day.

57.1 What other types of signals are there other than data signals?

57.2 Considering all signal types, not just data signals, on average how many signals per day will an AMI meter transmit?

57.3 Considering all signal types, not just data signals, what is the maximum number of signals an AMI meter will transmit per day?

57.4 How many times per day on average will an AMI meter transmit billing data?

57.5 How long will each data signal last?

57.6 How long will each non-data signal last?

57.7 What is the peak power density of the data signals?

57.8 What is the peak power density of the non-data signals?

57.9 What will be the interval between each data signal?

57.10 What will be the interval between each non-data signal?

58.0 PROJECT DESCRIPTION

4.1.2 (6) LOCAL AREA NETWORK Page 45 Lines 23-27

• The RF spectrum used by the LAN does not require a license (similar to most home wireless devices such as wireless routers and cordless telephones). Therefore, there is no capital or recurring cost to use the spectrum. In addition, the solution is designed to function in the modern RF environment, ensuring minimal interference with other devices using the same band.

58.1 What is Fortis doing to prevent the wireless meters from interfering with other electrical appliances?

58.2 If interference is caused by the AMI meters, what will Fortis or ITRON do to resolve the problem?

58.3 What is the expected capital outlay when technological development calls for changes in equipment and spectrum and where will that capital come from?

59.0 PROJECT DESCRIPTION

4.1.2 (7) LOCAL AREA NETWORK Page 45 Lines 28-29

All data is ultimately transmitted to a collector through the LAN. The collector in turn transmits the data back to the utility, via the WAN.

59.1 How is the data made secure for transmission from the AMI meter to the collector?

59.2 How is the data made secure for transmission from the collector to the utility?

59.3 How many RF transmitters does a collector have?

59.4 What are the frequencies and power of each transmitter?

59.5 How far, on average, does a collector transmit?

59.6 What is the maximum distance a collector can transmit?

59.7 How many transmitters are in collector units?

59.8 Will there be any AMI relay transmitters?

59.9 If so, under what circumstances?

59.10 If so, how many transmitters will be in each relay transmitter and what will be their frequencies and power?

59.11 Will these collectors be placed on private and/or public property?

59.12 What consideration has FortisBC made regarding obtaining permission to use such property?

60.0 PROJECT DESCRIPTION

4.1.2 (8) LOCAL AREA NETWORK Page 45 Lines 30-32

The network will use an IPv6 stack. This will enable additional Company applications to access the LAN network using the same RF mesh technology and equipment.

60.1 What are the additional applications that will access the LAN network?

61.0 PROJECT DESCRIPTION

4.1.2 (9) LOCAL AREA NETWORK Page 46 Lines 15-20

Advanced meters will transmit consumption data back to FortisBC through the LAN andWAN. The meters will record consumption information hourly and transmit those readings approximately 4 to 6 times a day in order to provide customers who choose to access their consumption information through the secure customer information portal with near real-time data. High-priority operational data, such as outage information, will be transmitted immediately.

61.1 How will data which is available 4 to 6 times a day help control consumption which is needed on a minute to minute time frame?

62.0 PROJECT DESCRIPTION

4.1.3 (10) Pages 46-47 Lines 29-3 Direct Network Connected -- In locations where collectors are located on infrastructure where FortisBC already has installed long haul fibre optic cable and where spare capacity exists, connecting directly to this fibre is the best long term solution as it provides sufficient bandwidth for immediate and future needs, with medium capital outlays and no monthly service fees. In addition, there is a long term certainty with respect to the technology.

62.1 Is fibre optic technology more efficient than wireless, capable of carrying more data?

62.2 Is fibre optic cable more secure than wireless?

63.0 PROJECT DESCRIPTION

4.1.3 (11) WIDE AREA NETWORK Page 47 Lines 4-13

• **WiMAX** – Using1.8 GHz WiMAX point to multipoint (PtMP) technology is a good option when a single base station located near existing FortisBC network infrastructure can be used to provide service to a large number of collectors, or when a radio system can be employed or already exists to service other FortisBC assets….The technology can be expected to be available for approximately 7-10 years but FortisBC can mitigate this risk by purchasing spares.

63.1 How far will an AMI meter transmit?

63.2 On average, how far will collectors be from the smart meters?

63.3 What is the maximum distance collectors will be from smart meters?

63.4 On what structure will collectors be placed?

63.5 How many transmitters are in collector units?

63.6 What are their specifications? Please provide all.

63.7 What is the shortest distance between collectors and residences?

63.8 In areas where homes are distant from each other, how will data be sent to the collector?

63.9 How much money is being spent to mitigate the expected change in technology in 7-10 years?

63.10 Is this cost included in the business case?

63.12 How often is it expected that software will change and upgrades will be needed to AMI meters, collectors and other infrastructure components?

63.13 If the wireless technology's future is so uncertain, why was it selected instead of fibre optics?

63.14 Was a cost comparison done between wireless technology which requires ongoing upgrades and secure, certain fibre optics? If so, please provide. Was one done over 20 years to compare long term costs, given the acknowledged short lifespan of the wireless technology? If so, please provide. If not, why not?

64.0 PROJECT DESCRIPTION

4.1.4(12) HEAD END SYSTEM Page 50 Lines 8-9

These systems are designed to seamlessly integrate with numerous upstream and

downstream systems.*****AND*****

4.2.1 PROCUREMENT PROCESS Page 53 Lines 8-11

Requirements included in the RFPs ensured that the selected system would be able toprovide meter reading services for other utilities (electric, gas, water) within the Company's service area. The proposed AMI system is capable of integrating to existing and future FortisBC systems and is also scalable to accommodate future customer growth.

64.1 What other types of systems is the Grid designed to integrate with? Give examples please.

65.0 PROJECT DESCRIPTION

IR#1 (8) Responses Page 51 Lines 20-29

BCUC IR1 - 31.2.3 Would the use of PLC in these areas eliminate these issues on the 900 MHz band? If not, please explain why not.

Response: The use of PLC in the areas where rural WISPs or amateur radio operators are operating in the 900-928 MHz band would likely eliminate the specific issues alluded to in the previous questions. However, as discussed in section 7.5 of the Application, PLC would not provide all the functionality FortisBC has specified, in addition to being significantly more expensive.

Furthermore, though PLC may mitigate specific issues for the frequency band in question, it can potentially cause interference in other bands where the equipment is not capable of rejecting and minimizing it.

65.1 Explain and substantiate why electromagnetic radiation that is transmitted and received by a wireless smart meter is not responsible for creating harmonics on the electrical lines.

65.2 Explain and substantiate why harmonics on electrical lines do not cause corrosion and interference with

a) Household electrical appliances and devices;

b) Personal wireless devices;

c) Other smart meters.

65.3 Explain and substantiate how corrosion in meters and electrical lines do not result in fires in meters and on electrical lines.

66.0 PROJECT DESCRIPTION

4.2.2 PROCUREMENT RESULTS Page 55 Lines 9 & 10

No proposals were received for AMI systems using other forms of communication technology.

66.1 Why didn't Fortis ask for quotes for a non RF emitting system?

67.0 PROJECT DESCRIPTION

4.2.2(14) PROCUREMENT RESULTS Page 56 Lines 8-10

METER DISPOSAL

Meter disposal is included in the Itron-managed deployment activities. FortisBC will conduct random audits of the recycling / disposal process to ensure compliance with all applicable environmental regulations.

67.1 Why are analogs being destroyed?

67.2 How many unused analogs are in your inventory? Will these be destroyed?

67.3 What is the cost of the destruction of used and unused analogs?

67.4 Why aren't some analogues being saved in the event that accommodation is required for disabled persons or an opt-out program is implemented?

67.5 What is the current availability of new analogue meters on the global market?

68.0 PROJECT DESCRIPTION

4.3(15) Project Management Page 56 Lines 12-16

The project management approach will follow standard project management practices and methodologies including the use of applicable project templates and tools. Working together with Itron, FortisBC has been able to outline clear objectives and a project timeline and milestones. This allows the scope to be focused and controlled, and budgeted resources can be closely managed.

68.1 What model of ITRON meter is being considered?

68.2 What is the design of the Itron Meter chosen?

68.3 Does the meter chosen have a plastic cover or plastic components?

68.4 Does the meter chosen have a glass cover and metal components?

68.5 Provide the Manufacturers documentation of the anticipated life expectancy of the wireless smart meter.

69.0 PROJECT COSTS AND BENEFITS

Table 5.0 (1) - AMI Cost and Benefit Summary Page 69 Line 13

Theft Reduction (38,386)

69.1 Please substantiate the $38.4 million in theft?

70.0 PROJECT COSTS AND BENEFITS

Table 5.1.b(2) – Summary of All Incremental 1 **Non-Project Costs and Benefits**

Page 72 Lines 1

Measurement Canada Compliance (146) (909) (903) (1,478) (15,119) (18,555)

70.1 Please substantiate the $18.5 million in savings due to Measurement Canada.

71.0 PROJECT COSTS AND BENEFITS

Table 5.1.b(3) – Summary of All Incremental 1 **Non-Project Costs and Benefits**
Page 72 Lines 1

Meter Reading - - (998) (2,544) (54,574) (58,116)

Disconnect/Reconnect - (133) (414) (544) (12,176) (13,267)

Contact Centre - 20 7 (20) (1,163) (1,157)

71.1 Explain increases in Meter Readers' costs $998,000 (2014) to $2.5 million (2015), and an average increase of $3.6 million over 15 years?

71.2 Explain the increase of $13.3 million in connect/disconnect costs?

71.3 What is the current cost for the contact centre?

72.0 PROJECT COSTS AND BENEFITS

Table 5.1.b(4) – Summary of All Incremental 1 **Non-Project Costs and Benefits**
Page 72 Lines 1

Table 5.1.b below provides a breakdown of the net sustaining capital and operating costs as well as benefits resulting from the implementation of AMI. The costs and benefits presented in this table are not included in the capital expenditure request of $47.7 million related to the AMI Project, but will be included in future revenue requirement and capital expenditure applications.

72.1 The initial costs of $47 million were for 115,000 meters pro-rated at $409/meter. What additional costs will be incurred that are not included in the

cost projections above? Why is this cost so much higher than what is being paid in Ontario and Quebec?

73.0 PROJECT COSTS AND BENEFITS5.1.1(5) CPCN DEVELOPMENT/APPROVAL COSTS Page 73 Lines 5-21

In the event that the proposed Project is not approved, FortisBC intends to apply, as part of its next revenue requirement, for recovery of the Project development costs incurred. FortisBC submits that these costs have been prudently incurred, particularly in consideration of the following:

• Section 17 of the CEA, which includes the government's goal of having smart metres, other advanced meters and a smart gird in use with respect to customers other than those of the authority;

• The Commission's Reasons for Decision accompanying Order G-168-08, and in particular the Commission Panel's encouragement to FortisBC to continue its efforts to develop and, in due course, reapply for approval of a comprehensive and complete program for the installation and implementation of Advanced Metering Infrastructure and related technologies; and

• Recognition that a majority of Canadian utilities are transitioning to the use of advanced metering systems as the industry standard in metering. Based on FortisBC's submission regarding the prudence of the incurred Project development costs, the recovery of these costs has been included as part of the proposed AMI Project, as well as in all alternative scenarios as discussed in Section 7.0.

73.1 On what basis does FortisBC claim the entitlement to recover the Project development costs incurred if this CPCN was denied.

74.0 PROJECT COSTS AND BENEFITS

5.1.2(6) ONGOING SUSTAINING CAPITAL AND OPERATING COSTS

Page 74 Lines 17-28
Page 75 Lines 1 - 8

For staffing, FortisBC has anticipated adding an additional 9.5 FTEs to support the AMI system and new processes. The breakdown of these resources is as follows:

• Business Analyst – 2 additional resources to work the billing process, review reports, work queues and dashboards on a daily basis and respond to any alerts and alarms;

• Technical Analyst – 2 additional resources required for the day to day support of AMI-related network infrastructure including servers, security appliances, routers and firewalls. This role includes the planning and implementing of firmware and application upgrades and providing help desk support;

• System Analyst – 2 additional resources required for the day to day support of AMI software applications, including planning and implementing upgrades as well as developing and testing new enhancements for the new applications;

• Communications Technician – 1 additional field resource 1 required to troubleshoot, fix, replace and/or install AMI-related network devices;

• Communication Structures and Equipment – 8.05 percent depreciation rate based on the 2011 Depreciation Study.

5.2.4 COMPOSITE CCA RATE

The Project composite CCA rate of 15.72 percent was calculated based on the followingCCA rate of each asset class as below:

• Computer Hardware and Software associated with AMI – 30 percent declining balance per CCA Class 46; and

• Meters – 8 percent declining balance per CCA Class 50.

74.1 Explain Composite Depreciation vs. CCA rate?

75.0 PROJECT COSTS AND BENEFITS

5.3.1 (9) METER READING Page 79 Lines 4-7

Meter readers take manual readings using a handheld device, and at the end of each day the meter reader must return to the field office and upload the reads into the Customer Information System (CIS) for billing. The majority of customer meters, residential and small commercial, are read on a bimonthly cycle (approximately 60 days).

75.1 Currently the meter readers have to drive back to the office to upload readings. Why can this not be done from the readers' home or other designated network more conveniently (and more cheaply)?

76.0 PROJECT COSTS AND BENEFITS

5.3.1(10) METER READING **Pg. 80** Table 5.3.1.a below provides a summary of meter reading costs for thepast four years.

76.1 Salaried meter readers will be made redundant and according to the figures presented, represent a savings to FortisBC of $2,421,063. These positions will be replaced with IT personnel to manage the AMI project which will offset these figures. What are these costs? What positions will be created for IT and what will be the net difference?What consideration has FortisBC given to the impact of the loss of these meter readers jobs and the lost revenues and taxes to the province? What will be cost to the taxpayer issuing employment insurance cheques to these unemployed people?

76.2 Why does FortisBC require additional consumption data beyond bimonthly readings?

76.3 Has FortisBC considered a program whereby customers send meter readings in by way of transmission of digital photographs?

77.0 PROJECT COSTS AND BENEFITS

5.3.2 (11) THEFT REDUCTION **p.80-81** **Lines 2-8**

The calculation detailed in the table above is based upon the following inputs. A 2011 study prepared by Dr. Darryl Plecas, RCMP University Research Chair at the University of the Fraser Valley, estimates that 13,206 indoor marijuana grow premises existed province wide n 2010. As FortisBC serves approximately 6 percent of residential electric customers in BC, 792 sites were calculated to exist in the Company's service area. This figure is assumed to increase at 2 percent annually in the status quo model, resulting in an overall figure of 824 grow sites in FortisBC's service territory in 2012.

77.1 Particularize how FortisBC proposes to use the AMI Program data to eliminate theft once theft is discovered.

77.2 In the event that theft is discovered by use of the AMI Program, what is FortisBC going to do that is not doing now?

77.3 What percent of theft, that FortisBC is currently aware of, has been eliminated?

77.4 If 93 kWh per day per residence is the ceiling at which an investigation is warranted, why have these investigations not been carried out on a regular basis on every one of these residents to confirm theft or not?

77.5 If 13,740 BC addresses are suspected as per the 'Plecas Report", why have these not been investigated or shut down already?

77.6 Provide the source of the Plecas Report figures.

77.7 Never on a utility bill has a customer been shown a breakout of savings from the reduction of energy theft. Will FortisBC be introducing this as a customer credit in their billing systems in the future if this is a relevant feature of the AMI?How will the stated 'reduction in safety hazards' of a grow-op affect the consumer?Explain what evidence exists that can be presented that will confirm that this is even a relevant issue to anyone other than an insurance company?

77.8 If approximately 6% or 792 sites been identified in the FortisBC region, why have these not been investigated or shut down?Explain making the assumption on an increase of 2% a year? If FortisBC and law enforcement were doing an adequate job of identifying these sites the numbers of grow-ops should be declining and thus producing a credit to the customers account?Will FortisBC allow an independent cyber security expert to demonstrate the ease of hacking the AMI?

78.0 PROJECT COSTS AND BENEFITS5.3.4 (14) MEASUREMENT CANADA COMPLIANCE Pg. 93 lines 27-33, Pg. 94 lines 1-3

An AMI deployment would replace these meters, incurring only the incremental capital costs of approximately $68.86 per meter to replace the existing meters with AMI enabled meters. The proposed AMI Project would avoid the cost of replacing these meters in the future, and eliminate the meter exchange and compliance sampling costs required to manage the electro-mechanical meter population to its projected end of life under Measurement Canada’s revised sampling plan (S-S-06). Subsequently, when compliance and meter exchange activities resume approximately six years after the conclusion of the project, FortisBC expects significant compliance test savings 1 due to the larger compliance groups that would be created. A much smaller percentage of the

meter population would need to be exchanged and tested compared with the status quo.

78.1 Why are new AMR meters exempt of S-S-06 testing for accuracy for six years?

78.2 Nowhere is there any certification to be found that the AMI are structurally safe; neither the housing or the internal components. Explain why not?

78.3 Is there is any Canadian recognized certification that FortisBC has on file that verifies structural and component compliance safety?

78.4 Will FortisBC allow these units to be inspected by independent, qualified, independent third parties to ensure that their structural housing and component parts meet acceptable safety standards?

78.5 Explain why the AMI should be exempt from immediate inspection.

79.0 PROJECT COSTS AND BENEFITS

5.3.5 (15) METER EXCHANGES Pg. 94 lines 18-22

The AMI Project will result in the replacement of nearly all existing meters with new AMI enabled meters. This will avoid operating costs that would have been incurred sampling and retesting meters for six years after meter deployment. After year six, the cost of meter exchanges is expected to begin returning to the pre-AMI deployment levels.

79.1 What failure rate is assumed for each new AMI meter?Explain how the failure rate is determined if these new meters have not been tested?If these new metres have been properly tested for the failure rates, not just power consumption metering, will FortisBC provide the written report and the qualifications of the company doing the testing? Is the testing done by an independent body?

79.2 What is the basis for the life expectancy used in the business case? Explain the position FortisBC takes with the 'hot' installation of these AMI meters.Will the contracted installers be journeyman electricians?Explain why FortisBC does not allow CSA or UL testing as an act of good faith. Would it not be in their best interest to placate public concerns as well as verify their own position?What will be the additional cost to implement an OMS enhancement system? Table 6.3.a shows ‘potential savings’ from an OMS. Will FortisBC provide the study showing the calculation of these figures?