



David M. Aaron

November 23, 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.

Yours truly,

DAVID M. AARON

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

INFORMATION REQUEST #2 OF THE CSTS COALITION

RE: FortisBC Inc. - Advanced Metering Infrastructure Application

1.0 Follow up to response to CSTS IR#1 - 1.1

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?

Response:

FortisBC confirms that the definition of “advanced meter” as provided in the Application encompasses both meters using PLC communications technology as well as meters using RF communications technology.

- 1.1 Would the definition of “advanced meter” as provided in the Application include technology that uses 3rd party telecommunication facilities or fibre optics communication technology?

2.0 Follow up to response to CSTS IR#1 - 2.3, 3.3, 12.3, 12.10, 13.3, 34.6

2.1 At the time of the application, what consideration had FortisBC given to:

- a. the ability to achieve these “immediate benefits” using non-RF communication technologies;
- b. whether RF communication technology is necessary to achieve consistency with the CEA and regulation;
- c. the use of third party telephone lines as an alternative to the RF mesh LAN solution;
- d. 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;
- e. fire risk associated with its prospective AMI Project, that is, the possibility that the proposed AMI meters may increase the risk of fire;
- f. concerns about the potential impact of RF communication technology on pacemakers and other medical equipment;

3.0 Follow up to responses to CEC IR No. 1 Q 50.6

- 3.1 How often will the opt-out customer have to pay the per-manual download fee?

4.0 Follow up to responses to CEC IR No. 1 Q 50.73 & 50.74

FortisBC states:

“Both natural (from earth and even human bodies) and man-made RF signals are constantly present all around us.”

“...considering the multiple sources of natural and man-made RF signals, it is clear that that such a reduction from an AMI meter would not significantly reduce an individual’s total exposure.”

- 4.1 What other source of natural or man-made RF signal incessantly strobos (on/off) an 18 - 125mSec blast of 900 MHz RF radiation 1,268 times per day (about one per minute) on a continuous basis?
- 4.2 What other source of natural or man-made RF signal incessantly strobos of any emission of any duration or any strength on an on/off basis 1,268 times per day?
- 4.3 What studies have been done on the effect on human health of continuous, long-term exposure to strobe flashes (of any emission of any duration or any strength) on an on/off basis 1,268 times per day?
- 4.4 What studies have been done on the effect on birds and/or bees of continuous, long term-exposure to strobe flashes (of any emission of any duration or any strength) on an on/off basis 1,268 times per day?

5.0 Follow up to responses to CEC IR No. 1 Q 96.1

- 5.1 What are the customer fees associated with Nelson Hydro’s opt-out program?
- 5.2 Are the RF emissions from Nelson Hydro’s meters similar to the RF emissions from FortisBC’s proposed AMI meters?

6.0 Follow up to response to CSTS IR#1 - 4.11

- 6.1 How is it that FortisBC’s legal costs relating to negotiation of the Itron contract amount to as much as \$360,000? Please provide particulars in that regard.

7.0 Hydro-Quebec advanced meters

- 7.1 Are the characteristics of RF exposure from the proposed AMI meters the same as the characteristics of RF exposure from the advanced meters proposed / deployed by Hydro Quebec?

8.0 Follow up to response to CSTS IR#1 - 5.1

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

Response:

The Company intends to evaluate voluntary time-based rates as a complement to existing rate structures. There are no current plans to make time-based rates mandatory.

- 8.1 The question has not been answered. FortisBC’s response goes to its future intentions; however, the question goes to whether FortisBC has considered implementing a mandatory time-based rate structure or a mandatory critical peak pricing structure. Please answer the question with particulars as to what considerations FortisBC has undertaken in that regard.

9.0 Follow up to response to CSTS IR#1 - 6.1

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

Response:

The comments FortisBC has received from local governments with respect to the prospective AMI program have been related to the health and privacy concerns of their constituents discussed in Section 8.0 of the Application, as well as the feasibility of an opt-out provision.

- 9.1 Provide a copy of each of “the comments FortisBC has received from local governments with respect to the prospective AMI program”, including those from Osoyoos and Kaslo as referenced in your response to CSTS IR#1 - 6.2.

10.0 Follow up to response to CSTS IR#1 - 7.1

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

Response:

FortisBC does not consider that there are health concerns founded on accepted science regardless of whether the AMI system uses RF or non-RF technology.

- 10.1 The question has not been answered. The question is not about the validity of the concerns from the perspective of FortisBC. The question is about the existence of the referenced customer health concerns and whether FortisBC would expect those concerns to exist with respect to non-RF communication technology. Please answer the question.

11.0 Follow up to response to CSTS IR#1 - 10.1

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

Response:

Please refer to the response to BCUC IR No. 1 Q38.3.

11.1 What considerations has Itron given to non-RF communication technologies in the context of the procurement process?

12.0 Follow up to response to CSTS IR#1 - 11.1

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?

Response:

FortisBC believe [sic] that's very few PLC systems have been selected in North America since 2008. FortisBC has monitored the progress of FortisAlberta, which has implemented PLC AMI technology.

12.1 FortisBC's answer to this question is limited to PLC. Please re-answer the question in a manner that addresses the use by other utilities of PLC, third party telecom and/or fibre optic communication technologies, regardless of the scale on which these non-RF communication technologies have been deployed.

13.0 Follow up to response to CSTS IR#1 - 12.1

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?

Response:

FortisBC is not aware of any broadly-deployed AMI solution that uses third-party telephone lines for the LAN, so has not evaluated the cost.

13.1 FortisBC has qualified its response to "broadly-deployed" examples. We request that FortisBC list utilities deploying third party telephone lines as an alternative to the RF mesh LAN solution - regardless of the scale of the deployment.

14.0 Follow up to response to CSTS IR#1 - 12.2

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?

Response:

Please refer to the response to CSTS IR No. 1 Q12.1.

14.1 FortisBC has not answered the question. Is the answer that FortisBC does not know what barriers exist because it has not looked into it?

15.0 Follow up to response to CSTS IR#1 - 12.4

15.1 Where is fibre present and absent within the FortisBC service area, whether such fibre be owned by FortisBC or another company/utility? A map would be of assistance in assimilating the answer to this question.

16.0 Follow up to response to CSTS IR#1 - 12.5

16.1 What is the per kilometer build rate used in calculating the answer to CSTS IR#1 - 12.5?

17.0 Follow up to response to CSTS IR#1 - 12.8

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?

Response:

FortisBC does not consider that there are health concerns founded on accepted science related to AMI systems, regardless of whether they use RF or non-RF technology.

17.1 The question has not been answered. The question is not about the validity of the concerns from the perspective of FortisBC. The question is about the existence of the referenced customer health concerns and whether FortisBC would expect those concerns to exist with respect to fibre optic communication technology. Please answer the question.

18.0 Follow up to response to CSTS IR#1 - 17.2 & 17.3

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?

Response:

Please refer to the response to BCSEA IR No. 1 Q55.5.

18.1 We did not find the answer to all our questions in your response to BCSEA IR No. 1 Q55.5. Please directly answer each of the questions posed in CSTS IR#1 - 17.2 and 17.3; that is, answer the questions without referring us to other materials.

19.0 Follow up to response to CSTS IR#1 - 18.1

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.

Response:

FortisBC considers this request overly broad. Exponent's work for other clients may in any case also be subject to attorney-client privilege.

19.1 At page 133, line 28, of FortisBC's application, FortisBC states:

FortisBC understands these concerns, and has commissioned an **independent study** that reviews the latest scientific research on the health effects of EMF (also known as radiofrequency fields or RF).

[emphasis added]

The information sought by way of CSTS IR#1 - 18.1 goes directly to the claimed independence of the Exponent Report and is therefore not overly broad.

Attorney-client privilege would not apply with respect to the identification of matters where Exponent prepared material that was made public in the context of judicial or quasi-judicial proceedings. We are not seeking documents. Rather, we are seeking particulars as to what matters Exponent has reported on and what their conclusion has been, on health and safety, in each such matter.

Please answer CSTS IR#1 - 18.1. If Exponent is in the business of product defence, making sizeable profits helping polluters and manufacturers of dangerous products (such as asbestos, beryllium and chromium) stymie public health and environmental regulators, we want to know about it.

20.0 Follow up to response to CSTS IR#1 - 19.1

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?

Response:

The exposure characteristics of the RF signals from the FortisBC AMI meters were considered from the perspective of Safety Code 6 compliance and more generally with respect to the relevant scientific literature.

20.1 The question has not been answered. Please answer the question with reference to the specific consideration, in evaluating the nature of RF exposure, that FortisBC and/or Exponent have given to:

1. the extent and amount of fluctuations in RF levels,
2. the frequency with which instances of RF emissions occur; and
3. the speed at which the emissions are flashing on and off.

To be clear, we are not asking for FortisBC to demonstrate a fresh consideration / discussion of these RF characteristics. We are asking about what past considerations have occurred in that regard, prior to the submission of the application and the Exponent Report.

20.2 What is meant by “the relevant scientific literature”? How has relevance been determined?

21.0 Follow up to response to CSTS IR#1 - 19.2

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?

Response:

Exponent is aware of laboratory studies that have involved exposures to RF signals of similar frequencies, on/off ‘speeds’, and generally higher intensities and longer duration duty cycles.

21.1 Please particularize your reference to “laboratory studies” by naming and describing the studies and providing documentation with respect to same.

22.0 Follow up to response to CSTS IR#1 - 20.2

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

Response:

FortisBC is not aware of any science-based, generally accepted “non-thermal standard”.

22.1 The question has not been answered. The standard referred to is referenced by the allusion in the Exponent Report at page 17 to “some studies” that have reported effects occurring with RF exposures below the level that raises the body temperature. The standard referred to is further exemplified in the 2007 Bioinitiative report. It considers adverse health affects as occurring at non-thermal levels of exposure. What consideration has FortisBC given to the assessment of exposure risks according to that standard, regardless of whether FortisBC regards that standard as being science-based or generally accepted?

23.0 Follow up to response to CSTS IR#1 - 21.3, 22.3 & 22.4

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.

Response:

The range of opinions about the adverse effect of RF exposure with the lowest threshold is scattered across the scientific literature. As part of the work towards evaluating and updating the ICNIRP standard, this agency invited scientists from around the world to participate in an international seminar on the topic of non-thermal RF electromagnetic fields (ICNIRP, 1997).

23.1 The question has not been answered. You have provided information as to where the opinions are found (“scattered across the scientific literature”) but you have not set out the range of opinion. Please answer the questions:

1. What is the range of differing 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?
2. 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.
3. 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?

Please answer these questions directly rather than referring us to other answers which in turn make further reference to other answers.

24.0 Follow up to response to CSTS IR#1 - 24.1 & 24.2

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”).

Response:

Please refer to the references on p. 21 of Appendix C-5 of the Application (Exhibit B-1), where studies were noted. Please also refer to the response to CSTS IR No. 1 Q21.3.

24.2 Provide a copy of each of the Nonthermal Studies.

Response:

No compilation of studies based upon just one group of potential mechanisms has been performed. Please also refer to the response to CSTS IR No. 1 Q24.1.

24.1 You have answered question 24.1 by referring us to the references on p. 21 of Appendix C-5 of the Application as well as the response to CSTS IR No. 1 Q21.3. We did not find the answer to our question at these references. Without referring us to another source, please 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”). By asking you to particularize the reference, we are requesting that you name and describe the Nonthermal studies. By way of question 24.2, we have asked you to provide a copy of each of the Nonthermal Studies. Please do so, regardless of whether or not a compilation of such studies exists.

25.0 Follow up to response to CSTS IR#1 - 24.4

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

Response:

No survey of “each and every review” in the scientific literature on RF field has been performed to address this question.

25.1 At page 17 of Appendix C-5, Exponent states:

Some studies have reported effects occurring with RF exposures below the level that raises body temperature, often called non-thermal effects. Non-thermal effects or low level effects refer to effects that occur at levels not believed to cause tissue heating. **These studies have been reviewed by scientific and regulatory agencies, which have not accepted this data as reliable** because the observed biological effects attributed to non-thermal levels were not consistent or reproducible, are not supported by any plausible biological explanation as to how they could occur, and in some studies the biological effects reported are not known to be linked to adverse effects on health (IEEE, 2005; ICNIRP, 2009; HCN, 2009; NRPB, 2004; SCENIHR, 2009; SSM, 2009, 2010).

[emphasis added]

CSTS IR#1 - 24.4 addresses the studies that have reported effects occurring with RF exposures below the level that raises body temperature (“the Nonthermal Studies”). In particular, CSTS IR#1 - 24.4 addresses the statement by Exponent that the Nonthermal Studies have “been reviewed by scientific and regulatory agencies, which have not accepted this data as reliable”.

CSTS IR#1 - 24.4 queries whether each and every review ever done (“by scientific and regulatory agencies”) of the Nonthermal Studies have found the data in the Nonthermal Studies to be unreliable. Is that really the case? Or is it the case that only some of the reviews done (“by scientific and regulatory agencies”) of the Nonthermal Studies have found the data in the Nonthermal Studies to be unreliable? Please answer these questions as well as CSTS IR#1 - 24.4.

It is FortisBC that is relying on the statement that “these studies have been reviewed by scientific and regulatory agencies, which have not accepted this data as reliable”. This statement has been made by Exponent and relied on by Fortis without the benefit of the non-existent survey referred to in your answer to CSTS IR#1 - 24.4. If you made such a statement without the benefit of such a survey, then you can clarify and elaborate on your statement without the benefit of such a survey. Please do so.

26.0 Follow up to response to CSTS IR#1 - 24.5

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

Response:

No survey of “any review done” in the scientific literature on RF fields has been performed to address this question.

As noted in Appendix C-5 from the Application, known adverse health effects can be caused by high exposures to RF, with the effect that would occur first, given sufficient exposure, being an increase in the body temperature. This is the basis of the applicable public exposure limit.

26.1 Exponent has referred to the Nonthermal Studies and has represented, at page 17 of Appendix C-5, that “these studies have been reviewed by scientific and regulatory agencies, which have not accepted this data as reliable.” Exponent has vaguely alluded to scientific reviews that have allegedly undermined the validity of the Nonthermal Studies (“the Undermining Reviews”).

CSTS IR#1 - 24.5 seeks particulars of the Undermining Reviews and, specifically, asks whether any such review has denied the occurrence of biological effects at nonthermal levels of exposure. We fail to see why FortisBC cannot answer this question. If you can rely on the Undermining Reviews to cast aspersions on the Nonthermal Studies, then why is it that you cannot provide further particulars regarding the findings of the Undermining Reviews? Please answer CSTS IR#1 - 24.5.

If you can rely on the Undermining Reviews (without the benefit of a “survey”) to cast aspersions on the Nonthermal Studies, then you can be expected particularize the findings of the Undermining Reviews without the benefit of such a “survey”.

27.0 Follow up to response to CSTS IR#1 - 26.1

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 signalling phase with respect to the proposed meters?

Response:

The “intensity (strength)” of a RF field is commonly expressed in units of power density defined as Watts per square meter (W/m²) or equivalent units.

The questions regarding RF levels and power during signalling are covered by Safety Code 6. Please also refer to the response to BCSEA IR No. 1 Q55.5.

27.1 Your reference to Safety Code 6 and BCSEA IR No. 1 Q55.5 did not answer our question as to whether there has been consideration by FortisBC of the amount / extent of fluctuation of RF levels with respect to the proposed meters. Kindly answer this question directly without reference to further materials.

28.0 Follow up to response to CSTS IR#1 - 29.1

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

Response:

FortisBC has not committed to any third party provider for cellular service related to the proposed AMI project.

28.1 In your response to BCUC IR1 32.2, you refer to third party cellular providers. Who are these third party cellular providers, whether you have committed to them or not?

29.0 Follow up to response to CSTS IR#1 - 30.1

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

Response:

FortisBC understands that newer PLC technologies (that would have been commercially available during the FortisBC RFP) are capable of hourly consumption reads.

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

30.0 Follow up to response to CSTS IR#1 - 34.1

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

Response:

As stated in the Application (Exhibit B-1) at page 142:

Regardless of FortisBC's efforts, some customers may continue to refuse the installation of an advanced meter. In these cases, FortisBC intends to follow the following process:

- Continue productive dialogue with the customer where possible, making an effort to address concerns and ensuring the customer is aware that they have the option of relocating the meter on their property at their expense.*
- Continue to provide billing using estimated readings for up to six months.*
- After three months of refusal to provide access to exchange the meter, and in absence of extenuating circumstances, suspension of the customer's service until the advanced meter is installed.*

FortisBC does not take suspension of an individual customer's service lightly, but also cannot support ongoing manual meter reading or estimating once advanced metering has been deployed.

30.1 What would constitute "extenuating circumstances"?

30.2 Why is it that FortisBC "cannot support" ongoing manual meter reading or estimating via a customer-funded opt-out regime as is in place with various utilities as cited? What are the show-stoppers and/or obstacles associated with the implementation of such an opt-out program?

31.0 Follow up to response to CSTS IR#1 - 34.2

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.

31.1 What specific phrase, clause or language within Article 8.2 of the Tariff does FortisBC rely on 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?

32.0 Follow up to response to CSTS IR#1 - 34.4

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?

Response:

In matters related to health, FortisBC relies on the expertise of the Provincial Health Officer, Health Canada, and World Health Organization, who have all confirmed that wireless meters pose no known health risk or reason for concern.

In situations requiring accommodation, FortisBC will assess extenuating circumstances for individual customers on a case-by-case basis.

- 32.1 What factors, guidelines or policy principles will apply to FortisBC's assessment of extenuating circumstances?

33.0 Follow up to response to CSTS IR#1 - 34.5

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

Response:

Medical equipment such as pacemakers are [sic] designed to operate in 900 MHz and 2.4 GHz RF environments since these are common frequencies for baby monitors, cordless phones and WiFi routers for example. These are the same frequencies on which advanced meters transmit and receive, so FortisBC believes any concerns would be unfounded.

Please also refer to the response to WKCC IR No. 1 Q7.

- 33.1 The question has not been answered. The question goes to FortisBC's awareness that such concerns exist. The question does not go to the validity of such concerns, from the perspective of FortisBC. Was FortisBC, at the time of the application, aware that there have been concerns about the potential impact of RF communication technology on pacemakers and other medical equipment?

34.0 Follow up to response to CSTS IR#1 - 34.7

- 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?

Response:

The FortisBC process for customers refusing the installation of an advanced meter is described in Exhibit B-1 Section 8.5. It may not be possible for an installer to assess the intent of the customer without accessing private property.

- 34.1 FortisBC's reference to Exhibit B-1 Section 8.5 does not answer the question. Assuming it is possible, by way of a visible sign, for FortisBC to assess the intent of the customer without accessing private property, 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?

35.0 Follow up to response to CSTS IR#1 - 57.4

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

Response:

FortisBC will determine this during the Define/Design phase of the proposed AMI Project. However, typical deployments return consumption interval data 2 or 3 times per day.

35.1 If billing data will transmit only 2 or 3 times per day, then why do the proposed AMI meters emit RF once every minute or so on a 24/7 basis? Can RF emissions be suspended overnight while residents are sleeping?

36.0 Follow up to response to CSTS IR#1 - 13.1

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

Response:

Yes. Please refer to the response to Tatangelo IR No. 1 Q59 [which refers to a report prepared by Len Garis, Fire Chief for the City of Surrey, BC].

36.1 Can FortisBC confirm that BC Hydro commissioned Mr. Garis' report and paid Mr. Garis \$15,000 to prepare his report?

36.2 Is it true that there are no fire designation codes specific to smart meters? Is it true that there is a general fire designation code for "electric" fires?

36.3 Has Fortis reviewed incidents of alleged smart meter fires that have occurred elsewhere (e.g. California, Florida, Texas, Ontario) as well as those associated with BC Hydro's smart meters that have been reported in the BC media?

37.0 Follow up to response to CSTS IR#1 - 13.2

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

Response:

FortisBC considered the risk of fire from energy theft, and the reduction of this risk resulting from AMI, in Section 5.3.2 of Exhibit B-1.

Please also refer to response to BCUC IR No. 1 Q47.3.

37.1 Measurement Canada's LMB-EG-07 requires that meter construction shall be mechanically and electrically sound, and materials, finish, etc. shall be such as to provide assurance of long life and sustained accuracy. Has FortisBC received confirmation that a plastic meter with no ground neutral meets Measurement Canada's standards with regard to construction, electrical soundness and long life?

38.0 Determining power density

38.1 Does Fortis BC accept U.S. FCC computer modelling as the standard used for determining power density for transmitters in Canada?

39.0 Time of use (“TOU”) billing

39.1 Could TOU billing become mandatory?

39.2 Will FortisBC guarantee that the pre-TOU rate will remain in place to those customers who wish not to use TOU rates?

39.3 Will customers be surcharged if they do not accept TOU billing?

39.4 Will pre-pay customers be given preference in any way over non-TOU customers?

39.5 Can FortisBC provide verifiable statistics to show that customers in an established AMI grid have saved money as a general outcome of the enhanced features of TOU billing?

40.0 Application - Power Line Carrier AMI Systems - pg. 112 - lines 8-13

40.1 Please explain the problems with PLC volume.

41.0 Application - Alternatives - pg. 113-114 - Tables 7.3.a and 7.3.b

41.1 Please explain why projections for wired meters are \$20 million dollars higher than wireless.

41.2 Explain the relatively high cost of the meter (\$576.00).

42.0 Application - AMI PROJECTS IN CANADA - pg. 126 lines 9-15

42.1 How much has energy consumption been reduced since Smart Meters were introduced in Ontario?

43.0 Application - Electro Magnetic Fields - pages 133-135

43.1 Has FortisBC studied any independent, peer reviewed, non-industry funded studies of the research on non-ionizing RF radiation and its biological effects? If so, which studies?

43.2 Please clarify, explain and elaborate on the statement on page 134, line 26, regarding frequencies.

43.3 Does FortisBC know how many meters will be placed on bedroom walls, mere inches from heads of the beds of the occupants?

- 43.4 Please explain duty cycle. Who or what controls the duration the meter is signalling?
- 43.5 Disregarding the average, what are the peak power densities during signalling?
- 43.6 Explain how accurate, timely information can be available to FortisBC and to clients if the mean duty cycle is 0.06%.
- 43.7 Explain the meaning of “maximum supported duty cycle”.
- 43.8 Will FortisBC provide documentation to support the information in Table 8.4.2.a regarding RF exposure at 902 MHz to 928 MHz?

44.0 Application - Exponent Report

- 44.1 In vitro studies are plentiful and are considered expert means of performing research. Please explain further why Exponent is discounting them and substantiate the statement that epidemiological studies and in vivo studies provide more direct information on human health.
- 44.2 Does dose response assessment take into consideration length of time of the exposure to lower doses?
- 44.3 Does dose response assessment take into consideration cumulative effects of prolonged exposure to low doses?
- 44.4 Does exposure assessment, as discussed in the Exponent Report at pages 8, 9 & 47, take into consideration cumulative effects of prolonged exposure to low doses?
- 44.5 Several studies have been performed showing that funding source is a relevant and important consideration in scientific assessment. Was funding source one of the criteria used in your evaluation of scientific evidence? If not, why not?
- 44.6 Given that microwave radiation has not been at the current levels for very many years, (e.g. even 10 years ago the numbers of cell phones and cell transmitters were mere fractions of what they are today); and given that cancers can take 20-30 years to develop, explain why you believe cohort studies are more credible than in vitro studies.
- 44.7 Are some persons more vulnerable to RF exposures than others?
- 44.8 Are children more vulnerable to RF exposures than adults?
- 44.9 Do the exposure limits accepted by FortisBC take cumulative exposure into consideration? If yes, please substantiate.
- 44.10 Most exposure to cell transmitters, cell phones and radio transmitters occurs while the object of exposure is moving, during the day. Most exposure to smart meters will be while people are at home sleeping. What studies were reviewed that would pertain to the latter pattern and circumstance of exposure? What consideration is being given to people who are in one location, e.g. their home, all day every day, e.g. mothers with young children, the elderly and the disabled?