



David M. Aaron

February 23, 2013

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**

Martin Blank has authored the enclosed answers to Information Requests from FortisBC on evidence filed by the Citizens for Safe Technology Society.

We seek leave of the Panel Chair to file the enclosed material late on the basis of the following circumstances. Due to clerical error, Martin Blank was under the impression that he was being asked to answer only the CEC and BCSEA information requests.

We advise that, due to health issues, Karl Maret has not been able to answer any information requests and we cannot confirm at this time that he will be available for cross-examination at the scheduled hearing of this matter. We reserve for argument any position we might take on what weight should be accorded to his written report.

All of which is respectfully submitted.

Yours truly,

DAVID M. AARON
Encl.

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

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FortisBC Inc. (FortisBC or the Company) Application for a Certificate of Public Convenience and Necessity for the Advanced Metering Infrastructure Project	Submission Date: February 7, 2012
Information Request No. 1 to Citizens for Safe Technology (CSTS) Evidence (Exhibit C9-8)	Page 1

1 **1.0 Reference: Exhibit C9-8 – Comments from Martin Blank**

2 Has Dr. Blank previously submitted evidence and/or testified in relation to potential
3 health effects of non-ionising radio frequency emission (“RF”) before courts or regulatory
4 tribunals in Canada or the United States? If so, please submit a list that includes the
5 date the evidence was submitted, the matter/docket under which the evidence was
6 submitted, and the name of the court/regulatory tribunal.

7 **Dr. Blank has already answered no this question. Fortis should refer to my answers to**
8 **the previous set of questions.**

9 Has Dr. Blank ever previously been disqualified from acting as an expert witness before
10 any courts or regulatory tribunals in Canada or the United States? If so, please submit a
11 list of the date Dr. Blank was disqualified, the matter/docket under which the evidence
12 was submitted, and the name of the court/regulatory tribunal.

13 **Dr. Blank has already answered no this question. Fortis should refer to my answers to**
14 **the previous set of questions.**

15 Please confirm that Dr. Blank’s degrees are in Chemistry, Physical Chemistry and
16 Colloid and Interface Science.

17 **Dr. Blank’s degrees are in Chemistry, Physical Chemistry and Colloid and Interface**
18 **Science.**

19 1.1.1 Please confirm that Dr. Blank is not a physician, has never had clinical
20 experience with patients.

21 **Dr. Blank is not a physician.**

22 **1.2** On p. 3 of Dr. Blank’s report at Exhibit C9-8 Attachment 1C (“Dr. Blank’s
23 Report”), Dr. Blank says that “stress protein synthesis in reaction to very weak RF
24 signals is a clear message sent by the affected cells that there has been molecular
25 damage...”. Please provide Dr. Blank’s basis for this conclusion.

26 **Stress protein synthesis was first linked to damage due to an increase in temperature**
27 **(‘heat shock’) and has since been linked to molecular damage due to alcohol, chemical**
28 **oxidation and EMF. Heat shock proteins help repair damaged proteins and aid in their**
29 **transport across cell membranes.**

30 **1.3** On p. 4 of Dr. Blank’s Report, he refers to a 2002 study of Neil Cherry. This
31 study is referenced to www.neilcherry.com. Please confirm:

32 **Confirm**

33 1.3.1 where this study has been published; and
34 **It was published online.**

35 1.3.2 if published, whether it has been in a peer-reviewed journal.
36 **It was published online, and not in a peer-reviewed journal. The data are**
37 **based on 50 years of official records and RF (from TV, FM)**
38 **measurements made in the area. In 2012, a similar study on RF from cell**
39 **towers, with similar results, was published (Dode et al, 2012) in a peer-**



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Information Request No. 1 to Citizens for Safe Technology (CSTS) Evidence (Exhibit C9-8)	Page 2

1 reviewed journal. Both studies showed increases in cancer due to RF,
2 with similar variations in risk with distance from the RF source.

3 1.4 On p. 7 of Dr. Blank’s Report, he says that “different proteins can be induced by
4 changing the frequency of stimulation. This means that the different parts of the DNA
5 can be stimulated at different frequencies and result in different proteins”. Please
6 confirm whether any of the works referenced in Dr. Blank’s Report involve studies of the
7 effects of exposure to:

8 1.4.1 Advanced meters, generally; or
9 No

10 1.4.2 The advanced meters that are the subject of FortisBC’s application at
11 Exhibit B-1 (the “FortisBC advanced meters”), specifically.
12 No

13 1.4.3 Is it Dr. Blank’s opinion that the frequency of stimulation from advanced
14 meters will have a different effect on proteins than the frequency of
15 stimulation from other devices, such as cell phones, radios, etc? Please
16 support this opinion by specific references within published studies.
17 Let us first realize that Fortis is in error in referring to an effect of RF on
18 proteins. It is an effect on DNA. The result of RF exposure is mentioned in
19 the answer to 1.3 above, where the development of cancers from TV/FM
20 (Cherry) and cellphone RF (Dode et al) are comparable despite the
21 different signals. In fact, many frequencies have similar effects on DNA.

22 1.5 On p. 2 of Dr. Blank’s Report, he refers to the BioInitiative Report (2012). Please
23 confirm Dr. Blank was a contributing author to the BioInitiative Reports (2007) and
24 (2012). Please submit a list of works Dr. Blank authored or co-authored that are
25 referenced in the BioInitiative Reports (2007) and (2012).
26 The two BioInitiative Reports, (2007) and (2012), are online, and Fortis is free to
27 download the reference lists from both reports.

28 1.6 A copy of the Public Utility Commission of Texas (PUC) staff *Report on Health*
29 *and Radiofrequency Electromagnetic Fields from Advanced Meters* dated December 12,
30 2012 has been requested in CSTS IR1 2.4.3 to Dr. Carpenter. The report may be found
31 at
32 [http://www.puc.texas.gov/industry/electric/reports/smartmeter/SmartMeter_RF_EMF_He](http://www.puc.texas.gov/industry/electric/reports/smartmeter/SmartMeter_RF_EMF_Health_12-14-2012.pdf)
33 [alth_12-14-2012.pdf](http://www.puc.texas.gov/industry/electric/reports/smartmeter/SmartMeter_RF_EMF_Health_12-14-2012.pdf).

34 Please confirm that the PUCT staff report states the following on p. 17:

35 “The ‘BioInitiative Report’ is an example of a report that received
36 notoriety despite being viewed negatively by the research
37 community. ...

38 The report is often cited by opponents of wireless technology, but
39 it was widely criticized by government research agencies and

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Information Request No. 1 to Citizens for Safe Technology (CSTS) Evidence (Exhibit C9-8)	Page 3

1 subject matter experts in Australia, Belgium, the European
 2 Commission, France, Germany, and the Netherlands. It was also
 3 criticized by EPRI and the IEEE. The overall opinion of these
 4 institutions was that the report had many shortcomings. Some of
 5 the stated criticisms were that the report:

- 6 • Provided views that were not consistent with the
 7 consensus of science;
- 8 • Recommended safety limits that were not supported by the
 9 weight of scientific evidence;
- 10 • Included selection bias in several research areas;
- 11 • Lacked objectivity and balance; and
- 12 • Suffered from uneven editing quality.”

13 **The question fails to mention the professional qualifications of the authors**
 14 **of the PUCT report or if the PUCT report was peer reviewed prior to**
 15 **publication. I am almost certain that it was not peer reviewed.**

16 1.6.1 Does Dr. Blank agree that the RF safety limits recommended in the
 17 Biolinitiative Report (2012) are not supported by the weight of scientific
 18 evidence? If not, please submit evidence that the recommended RF
 19 safety limits are supported by the weight of scientific evidence.
 20 **In my paper on stress proteins, I reported evidence that the RF safety**
 21 **limits were much too high (off by several orders of magnitude), and that**
 22 **they should be lowered in line with the biological evidence. I did not**
 23 **specify a value since I believe that the ALARA principle should provide**
 24 **guidance.**

25 1.7 On pp. 4 and 6 of Dr. Blank’s Report, the RF safety advice of Health Canada is
 26 questioned and it is stated that there is a long-overdue need to revise Health Canada
 27 Safety Code 6. Please confirm that Health Canada has updated Safety Code 6 several
 28 times with the most recent revision in 2009.
 29 **A review is only valuable when it includes all the relevant scientific information. These**
 30 **reviews ignored the data on non-thermal effects.**

31 1.7.1 Please review and submit a copy of Health Canada’s document *Research*
 32 *on Radiofrequency Energy and Health*. The document is available at:
 33 <http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/radiofreq/research->
 34 [recherche-eng.php](http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/radiofreq/research-recherche-eng.php)

35 1.7.2 Please confirm Health Canada states the following in that document:
 36 “For more than two decades, Health Canada has conducted its
 37 own research on the biological effects of radiofrequency (RF)

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Information Request No. 1 to Citizens for Safe Technology (CSTS) Evidence (Exhibit C9-8)	Page 4

1 energy. This research has increased the scientific knowledge
 2 regarding the intensity of RF energy in our environment and has
 3 helped to establish the human exposure threshold where
 4 potentially adverse health effects can occur. This important
 5 information, along with other Canadian and international studies,
 6 form the basis for establishing safety standards for RF energy that
 7 protects the health of Canadians.” (Reference: paragraph 1)

8 1.7.3 Health Canada has provided insight into its processes for on-going study
 9 of RF fields and its continuous program of literature surveillance. Please
 10 review and submit a copy of Health Canada’s response dated June 19,
 11 2008 to a petition filed by Dr. M. Havas *Request that first generation*
 12 *DECT phones be banned in Canada*. The document is available at:
 13 http://www.oag-bvg.gc.ca/internet/english/pet_253_e_31629.html

14 1.7.4 Please confirm Health Canada states the following in that document:

15 “Health Canada scientists continue to carry out internally funded
 16 studies on RF fields and to review the scientific literature on an
 17 ongoing basis either as participants in standard-setting bodies and
 18 international scientific meetings, as academic or peer reviewers
 19 for publications, or as part of a continuous program of literature
 20 surveillance. Based on information to date and the weight-of-
 21 evidence from this ongoing scientific review, the exposure limits
 22 specified in Safety Code 6 remain current and valid.” (Reference:
 23 Answer to Questions 1 & 3, underlining added)

24 1.8 “A weight-of-evidence approach is employed when considering peer-reviewed
 25 scientific publications and assessing the possible health risks of RF fields. This method
 26 takes into account both the quantity of studies on a particular endpoint (whether adverse
 27 or no effect), and also the quality of those studies. Poorly conducted studies (e.g.
 28 incomplete dosimetry or inadequate control samples) receive relatively little weight while
 29 properly conducted studies (e.g. all controls included, appropriate statistics, complete
 30 dosimetry, and reproducibility) will receive more weight. There are numerous concerns
 31 with the studies referenced by the petitioner; therefore, these studies have lower weight
 32 in the risk assessment process.” (Reference: Answer to Questions 1 & 3)

33 **A review is only valuable when it includes all the relevant scientific information. The**
 34 **reviews ignored the data on non-thermal effects.**

35 1.8.1 Please confirm Health Canada states the following in the above-noted
 36 document Research on Radiofrequency Energy and Health:

37 1.9 “In addition to its own research activities, Health Canada continuously monitors
 38 the peer-reviewed scientific literature as it is published.”

39 **A review is only valuable when it includes all the relevant scientific**
 40 **information. These reviews ignored the data on non-thermal effects. No flow of words**
 41 **with pious sounding qualifiers can overlook ignoring data on non-thermal effects.**
 42

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Information Request No. 1 to Citizens for Safe Technology (CSTS) Evidence (Exhibit C9-8)	Page 5

1 1.9.1 Please confirm that in Safety Code 6 (2009), Health Canada states at p.
 2 7:

3 “The exposure limits specified in Safety Code 6 have been
 4 established based upon a thorough evaluation of the scientific
 5 literature related to the thermal and possible non-thermal effects
 6 of RF energy on biological systems. Health Canada scientists
 7 consider all peer-reviewed scientific studies, on an ongoing basis,
 8 and employ a weight-of-evidence approach when evaluating the
 9 possible health risks of RF energy.” (underlining added)

10 1.9.2 Please confirm that in Safety Code 6 (2009), Health Canada states at p.
 11 9:

12 “The scientific literature with respect to possible biological effects
 13 of RF energy has been monitored by Health Canada scientists on
 14 an ongoing basis since the last version of Safety Code 6 was
 15 published in 1999. During this time, a significant number of new
 16 studies have evaluated the potential for acute and chronic RF
 17 energy exposures to elicit possible effects on a wide range of
 18 biological endpoints including: human cancers (epidemiology);
 19 rodent lifetime mortality; tumor initiation, promotion and co-
 20 promotion; mutagenicity and DNA damage; EEG activity; memory,
 21 behaviour and cognitive functions; gene and protein expression;
 22 cardiovascular function; immune response; reproductive
 23 outcomes; and perceived electromagnetic hypersensitivity (EHS)
 24 among others. Numerous authoritative reviews have summarized
 25 this literature.

26 Despite the advent of thousands of additional research studies on
 27 RF energy and health, the predominant adverse health effects
 28 associated with RF energy exposures in the frequency range from
 29 3 kHz to 300 GHz still relate to the occurrence of tissue heating
 30 and excitable tissue stimulation from short-term (acute)
 31 exposures. At present, there is no scientific basis for the premise
 32 of chronic and/or cumulative health risks from RF energy at levels
 33 below the limits outlined in Safety Code 6. Proposed effects from
 34 RF energy exposures in the frequency range between 100 kHz
 35 and 300 GHz, at levels below the threshold to produce thermal
 36 effects, have been reviewed. At present, these effects have not
 37 been scientifically established, nor are their implications for human
 38 health sufficiently well understood. Additionally, a lack of evidence
 39 of causality, biological plausibility and reproducibility greatly
 40 weaken the support for the hypothesis for such effects. Thus,
 41 these proposed outcomes do not provide a credible foundation for
 42 making science-based recommendations for limiting human
 43 exposures to low-intensity RF energy.” (underlining added)

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Information Request No. 1 to Citizens for Safe Technology (CSTS) Evidence (Exhibit C9-8)	Page 6

1 1.9.3 Based on the Health Canada statements referenced above, does Dr.
2 Blank agree it is reasonable to assume that Health Canada has not acted
3 on the evidence cited in the BioInitiative Report (2007) or (2012) because
4 Health Canada considers that such evidence does not credibly
5 demonstrate that RF exposure below the Safety Code 6 standards poses
6 a public health risk? If not, why in Dr. Blank's opinion would Health
7 Canada decline to change its standards given that evidence?

8 **As a scientist who has contributed to the research in this field for many**
9 **years, I cannot explain the actions of Health Canada, nor its motivation.**
10 **The interactions with DNA, the report of an EMF-sensitive section of DNA**
11 **that could trigger EMF activation of a gene, etc. should have been**
12 **enough to cause some recognition from Health Canada. All I can say, is**
13 **that in my opinion, the people of Canada are not being adequately**
14 **protected by Health Canada.**

15 **1.10** To Dr. Blank's knowledge, has any governmental health authority with jurisdiction
16 to set binding RF exposure standards changed their standards for RF exposure in
17 response to Dr. Blank's opinions or in response to the BioInitiative Report (2007) or
18 (2012)? If so, please submit evidence to support the response.

19 **When the Parliament of the European voted in 2009 to review its safety standards, it**
20 **cited the BioInitiative report.**

21 1.11 Please confirm that Dr. Blank was the guest editor for the 2009 issue of
22 Pathophysiology that Dr. Blank has cited as evidence that papers in the BioInitiative
23 Report have been "peer-reviewed".

24 1.11.1 Please confirm that it was the 2007 version of the papers in the
25 BioInitiative Report that were published in the 2009 issue of
26 Pathophysiology.

27 **This is not correct. It was a 2009 update of the original papers, plus**
28 **several additional papers, e.g., Balmori on effects on animal populations.**

29 1.12 Please confirm that of the thirty-one works referenced in Dr. Blank's Report, nine
30 of them were authored or co-authored by Dr. Blank.

31 1.12.1 Did Dr. Blank self-cite to such an extent because there is a lack of
32 scientific work by others that supports Dr. Blank's theories?
33 **Citations are to the most relevant references.**

34 1.13 At p. 4 of Dr. Blank's Report, he states:

35 Among the better designed and executed RF epidemiology
36 studies, a recent long term study of cell phone base stations in
37 Belo Horizonte, Brazil (Dode et al., 2011), showed a **13 fold**
38 **increase in RF power density from 2003 to 2008 along with a**
39 **35% increase in cancer deaths** near the center of the city where
40 the RF exposure is greatest.

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Information Request No. 1 to Citizens for Safe Technology (CSTS) Evidence (Exhibit C9-8)	Page 7

1 Based on this increase in cancer deaths in just 5 years, what would Dr. Blank
2 expect the Interphone or Hardell studies to show as odds ratios?

3 **The two studies are not comparable. Dode is of cancers from ambient RF from**
4 **towers, while Hardell is of cancers in the head from cell phone use.**

5 1.13.1 What should have been the increase in cancer rate over the last decade
6 due to the much larger exposure values from cell phones?

7 **This is not my research area. I am not an epidemiologist.**

8 1.14 At p. 8 of Dr. Blank's Report, he says:

9 DNA resembles the classic metal antenna in showing electronic
10 conduction within the molecule, and its unusual compact coiled-
11 coil structure in the nucleus enables it to respond to many different
12 frequencies (i.e., different size coils respond to different
13 frequencies). Studies show EMF interactions with DNA over a
14 range of non- ionising frequencies, extremely low frequency (ELF)
15 and radio frequency (RF) ranges. The wide frequency range of
16 interaction of DNA with EMF is characteristic of a fractal antenna.

17 What is the conductivity of DNA?

18 1.14.1 What is the difference between the conductivity of DNA and that of the
19 surrounding media?

20 1.14.2 Is Dr. Blank familiar with the Chu-Wheeler theory?

21 **I have heard of it, but I am not a theoretical physicist or electrical**
22 **engineer. I learned about fractals from Benoit Mandelbrot's book on**
23 **fractals in Nature. He was a world famous mathematician, who gave**
24 **many examples of fractals in Nature and stimulated me to see the self-**
25 **similarity in DNA structures that could account for the reactions of DNA**
26 **with many frequencies.**

27 1.14.3 What is the minimum Q of the antenna of the DNA molecule?

28 1.14.4 For such values of Q, what would be the expected bandwidth of the
29 fractal antenna?

30 1.14.5 What tuning circuitry is available to DNA molecules to shift the resonance
31 frequency to react to different exposure frequencies?