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May 23, 2013

## VIA ELECTRONIC MAIL

British Columbia Utilities Commission  
Sixth Floor, 900 Howe Street  
Vancouver, BC  
V6Z 2N3

**Attention: Erica M. Hamilton,  
Commission Secretary**

Dear Sirs/Mesdames:

**Re: In the Matter of the Utilities Commission Act, R.S.B.C. 1996, Chapter 473 and An Application by FortisBC Inc. for a Certificate of Public Convenience and Necessity for the Advanced Metering Infrastructure Project Citizens for Safe Technology Society Request to Reopen the Evidentiary Record and Amend the Regulatory Timetable**

We are counsel to the Commercial Energy Consumers Association of British Columbia ("CEC").

We write in response to the Commission's letter of May 15, 2013 attaching Order No. G-80-13 requesting comments on whether any new information that may be in the International Agency for Research on Cancer (IARC) Report (the "Report") changes the weight, if any, the Commission should give the other evidence on the record relating to the previously published summary of the views and expert opinions of the IARC Working Group.

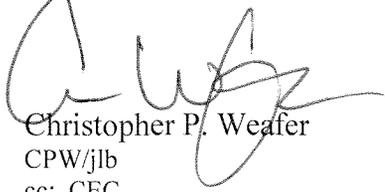
In summary, the CEC submits that there is no material new evidence in the Report which should affect the weight, if any, the Commission should give the other evidence on the record relating to the previously published summary of the views and expert opinions of the IARC Working Group. There is nothing new of a material nature in the Report which was not available to be considered during the course of the hearing or argued in the Final Submissions. That said, a more detailed review of the Report conducted by the CEC is attached to this letter as Schedule "A".

May 23, 2013  
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If you have any questions regarding the foregoing, please do not hesitate to contact the undersigned.

Yours truly,

**OWEN BIRD LAW CORPORATION**

A handwritten signature in black ink, appearing to read 'C. Weafer', is written over the printed name of Christopher P. Weafer.

Christopher P. Weafer  
CPW/jlb  
cc: CEC  
cc: FortisBC Inc.  
cc: Registered Interveners

## **SCHEDULE “A”**

### **In the Matter of the Utilities Commission Act, R.S.B.C. 1996, Chapter 473 and An Application by FortisBC Inc. for a Certificate of Public Convenience and Necessity for the Advanced Metering Infrastructure**

#### **Project Citizens for Safe Technology Society Request to Reopen the Evidentiary Record and Amend the Regulatory Timetable**

#### **CEC Review of the IARC Report 2013 Included Late in Evidence for the FortisBC AMI Meter CPCN Hearings**

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On May 15, 2013 the BC Utilities Commission (BCUC) issued Order-G-80-13 which provided for the admission of the International Agency for Research on Cancer Report “Non-Ionizing Radiation: Part 2 Radiofrequency Electromagnetic Fields Volume 102” (the Report) into the evidentiary record and allowed for Supplemental Submissions by the Applicant and Interveners. Supplemental Submissions are to be “limited to the Report and whether any new information that may be in the Report changes the weight, if any, the Commission should give the other evidence on the record relating to the previously published summary of the views and expert opinions of the IARC Working Group. The Supplemental Submissions must provide specific references to the Report.”

The Report is part of the IARC Monographs which ‘represent the first step in carcinogen risk assessment, which involves examination of all relevant information to assess the strength of the available evidence that an agent could alter the age-specific incidence of cancer in humans’. The objective of the programme is to prepare, with the help of international Working Groups of experts, critical reviews and evaluations of evidence on the carcinogenicity of a wide range of human exposures.<sup>1</sup> The publication “represents the views and expert opinions of an IARC Working Group on the Evaluation of Carcinogenic Risks to Humans”<sup>2</sup> .

The CEC has reviewed the Report and finds it to be a detailed discussion of the evidence that was evaluated in the World Health Organization (IARC) classification of electromagnetic

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<sup>1</sup> Non-Ionizing Radiation Part 2: Radiofrequency Electromagnetic Fields Volume 102, Page 10

<sup>2</sup> Non-Ionizing Radiation Part 2: Radiofrequency Electromagnetic Fields Volume 102, Cover

radiation as a class 2B carcinogen in 2011. As such, the CEC submits that the Report does not provide any significant changes into the importance that the BCUC should assign the IARC 2B classification of electromagnetic radiation but that it does provide additional weight to the evidence in favour of there being limited exposure from Smart Meters and suggests that additional weight be afforded to the role of the health authorities and their findings and the regulatory bodies' determinations. The CEC also submits that the detail provided by the Report diminishes some of the evidence cited by the CSTS witnesses and as such should contribute to a lower weighting for those witnesses. The following is the CEC summary position:

1. The Report does not alter the existing WHO IARC evidence, and as such should not provide any additional weighting to the class 2B status of electromagnetic radiation.
  - a. The Report provides a rationale for but does not change the classification of EMR as a whole.
  - b. The Report does not provide access to any additional studies that were not either on the record of this proceeding or available to the participants or witnesses at the time.
  - c. The Report does not affect the integrity of the classification, assessment or the organization.
2. The Report provides further evidence that Smart meters provide minimal radiofrequency exposure and as such lends additional weight to the evidence that smart meters are not a source of hazard.
3. The Report clearly defines the role of the IARC classification as being but one factor in the determinations to be undertaken by the appropriate health authorities and lends further weight to the determinations of the relevant authorities.
4. Additional details in the Report identifies limitations of some of the studies cited without caveat by CSTS witnesses, and as such should result in these studies being accorded less weight and the witness as being identified as less objective and more of an advocate.
5. The Report recognizes the need for ongoing study.

## Discussion

The CEC submits that in weighing the evidence before it the BCUC must consider all the costs and benefits of the AMI program as well as the risks. With respect to this Report, the relevant evidence is related to the potential for adverse health effects to arise from the radiofrequency signal associated with the implementation of smart meters. The CEC submits that the evidence to be weighed on this issue includes the amount of the potential exposure to radiofrequency signals from smart meters, and any health risk that could be associated with those radiofrequency signals.

The CEC finds that although the Report sheds additional light on the types, quantity and interpretation of evidence that was evaluated by the IARC working group and the manner in which the evidence was assessed, it does not provide any additional evidence that would qualitatively change the weight which should be assigned to the IARC classification of electromagnetic radiation and its relevance in the FortisBC Automated Metering Infrastructure program. As indicated in the Report, the IARC designation extends to the type of radiation emitted rather than to the specifics of the devices.

“Although the preparation of this *Monograph* had been scheduled so as to include the results of the large international case–control study INTERPHONE on mobile-phone use (conducted in 2000–2004; published in 2010), it should be emphasized that the evaluations in this volume address the general question of whether RF radiation causes cancer in humans or in experimental animals: it does not specifically or exclusively consider mobile phones, but rather the type of radiation emitted by mobile phones and various other sources. Furthermore, this *Monograph* is focused on the potential for an increased risk of cancer among those exposed to RF radiation, but does not provide a quantitative assessment of any cancer risk, nor does it discuss or evaluate any other potential health effects of RF radiation”<sup>3</sup>.

The CEC submits that the most relevant elements of the IARC determinations were the classification of electromagnetic radiation as a class 2B carcinogen, the integrity of the IARC classification and its role in risk assessment and health planning, all of which were clearly on record and fully canvassed in the BCUC written and oral hearings. The IARC assessment of the carcinogenicity of electromagnetic radiation has been in no way modified on the basis of the Report and the IARC has not considered any additional evidence that was not previously

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<sup>3</sup> Non-Ionizing Radiation Part 2: Radiofrequency Electromagnetic Fields Volume 102, Page 33

considered. Further, the IARC has not varied in its expertise or status with respect to its relevance to other organizations or regulatory bodies based on the report.

With respect to the potential for exposure to electromagnetic radiation the CEC finds that the evidence before the BCUC in favour of there being very minimal exposure is significant and includes information from the EPRI report, the Planetworks reports, BC Hydro evidence; BC Centre for Disease Control, FortisBC evidence, Dr. Skolnikov, and the CEC witness aid. The CEC submits that the IARC report supports this evidence and thus mitigates in favour of additional weight being accorded to this evidence. The Report makes the following statement.

“A new source of RF that is currently being introduced and that seems set to enter many homes is the transmitter associated with “smart” metering of electricity consumption and potentially metering for other services such as water and gas. There is no global approach to gathering information from smart meters and relaying it back to the utility companies, but it is clear that radio communications will be involved. Some systems may use mobile-phone networks for this purpose, while others may use dedicated radio infrastructures. Some systems may also involve a home area network (HAN) within which individual electrical devices in the home can relay information about usage to a central collection point, allowing residents to examine the information and make decisions about their energy consumption. Two recent investigations commissioned by the Electric Power Research Institute (available on the EPRI webpage) suggest that the power level of radio transmissions will be similar to that of mobile phones, but that the duty factors will be low (on average, such devices will transmit for a small proportion of time only). Low duty factors, combined with the greater distances of these devices from people compared with mobile phones, imply that exposures will be low when compared with exposure guidelines.”<sup>4</sup>

The Report also discusses several factors that explain how impact of the exposure from the mobile phones studied may be adjusted by current exposure factors.

Typical environmental exposures to the brain from mobile-phone base stations on rooftops and from television and radio stations are several orders of magnitude lower than those from GSM (Global System for Mobile communications) handsets. The average exposure from DECT (Digital Enhanced Cordless Telecommunications) phones is around five times lower than that measured for GSM phones, and third-generation (3G) phones emit, on average, about 100 times less RF energy than second-generation GSM phones, when signals are strong. Similarly, the average output power of Bluetooth wireless hands-free kits is estimated to be around 100 times lower than that of mobile phones. In occupational settings, exposure to high-power sources may involve higher cumulative deposition of RF energy in the body than with exposure to mobile phones, but the energy deposited locally in the brain is generally less.

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<sup>4</sup> Non-Ionizing Radiation Part 2: Radiofrequency Electromagnetic Fields Volume 102, Page 65

Epidemiological evidence of an association between RF radiation and cancer comes from time trend, cohort, and case–control studies. The populations in these studies were exposed to RF radiation in occupational settings, from sources in the general environment, and from use of wireless (mobile and cordless) phones. Two sets of data from case–control studies were considered by the Working Group as the principal and most informative basis for their evaluation of the human evidence, i.e. the INTERPHONE study and the Swedish case–control studies; both sets of data focused on brain tumours among mobile-phone users.

The Working Group recognized not only the rapid increase worldwide in the use of wireless communication systems – both in number of users and in duration of use – but also the considerable technological developments in this area, with the introduction of third- and fourth-generation (3G and 4G) devices during the past decade. It is of interest to note that the key epidemiological studies mentioned above were conducted in the late 1990s and the early 2000s. In the INTERPHONE study, all participating countries in Europe had GSM networks. It is worth mentioning that the 3G and 4G mobile phones commercially available today – equipped with adaptive power control – emit considerably less RF energy than the GSM phones used more than a decade ago.<sup>5</sup>

With respect to the issue of health concerns associated with the radiofrequency signal emitted by smart meters the CEC submits that the evidence in favour of their being little likelihood of adverse health effects includes Health Canada documents, Safety Code 6, the Provincial Health officer’s comments, health authorities in numerous other countries, health guidance from ICNIRP and Dr. Bailey evidence among many others. The CEC submits that the Report fully supports the concept of the IARC classification as being but one factor that should be considered by health authorities and other authoritative bodies in their determinations, and in this regard lends additional weight to this evidence. The report states:

“The *Monographs* are used by national and international authorities to make risk assessments, formulate decisions concerning preventive measures, provide effective cancer control programmes and decide among alternative options for public health decisions. The evaluations of the IARC Working Groups are scientific, qualitative judgments on the evidence for or against carcinogenicity provided by the available data.

These evaluations represent only one part of the body of information on which public health decisions may be based. Public health options vary from one situation to another and from country to country and relate to many factors, including different socioeconomic and national priorities. Therefore, no recommendation is given with

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<sup>5</sup> Non-Ionizing Radiation Part 2: Radiofrequency Electromagnetic Fields Volume 102, Pages 34 and 35

regard to regulation or legislation, which are the responsibility of individual governments or other international organizations.”<sup>6</sup>

Conversely, the CEC submits that some of the evidence provided by the Report could serve to diminish relevance of electromagnetic radiation as a potential risk of the AMI project. The CEC submits that some of the evidence cited by the CSTS witnesses is belied by the information contained in the Report and should thus be provided with a lesser weight.

For instance, Dr. Carpenter cites Lehrer S, Green S, Stock RG. 2010. (sic) as evidence of an association between cell phones and brain tumors and recommends limiting exposure to all sources of electromagnetic radiation. He states “Association between number of cell phone contracts and brain tumor incidence in nineteen U.S. states. *J Neuro-Oncol* 101:505-507. “The effect of cell phone subscriptions was significant ( $P = 0.017$ ), and independent of effect of mean family income ( $P = 0.894$ ), population ( $P = 0.003$ ) and age (0.499). The very linear relationship between cell phone usage and brain tumor incidence is disturbing and certainly needs further epidemiological evaluation. In the meantime, it would be prudent to limit exposure to all source of electro-magnetic radiation.”<sup>7</sup> In contrast the IARC examined the same information but noted the following:

[The geographical correlation study carried out in several states of the USA (Lehrer *et al.*, 2011) failed to adequately account for population size and composition.]<sup>8</sup>

A similar discrepancy is found in Dr. Carpenter’s treatment of another study. He stated:

c. De Vocht F, Burstyn I, Cherrie JW. 2011. Time trends (1998-2007) in brain cancer incidence rates in relation to mobile phone use in England. *Bioelectromagnetics* 32:334-339. “There were no time trends in overall incidence of brain cancers for either gender, or any specific age groups. Systematic increases in rates for cancer of the temporal lobe in men... and women... were observed, along with decreases in the rates of cancer of the parietal lobe... and cerebellum...”<sup>9</sup>

The IARC noted the following with respect to the same study:

[The Working Group noted that time-trend analyses did not provide any indication that the rapid increase in use of mobile phones had been followed by a parallel increase in

<sup>6</sup> Non-Ionizing Radiation Part 2: Radiofrequency Electromagnetic Fields Volume 102, Page 11

<sup>7</sup> Exhibit C 9-8, 2C Carpenter, Page 11 (not paginated)

<sup>8</sup> Non-Ionizing Radiation Part 2: Radiofrequency Electromagnetic Fields Volume 102, Page 190

<sup>9</sup> Exhibit C 9-8, 2C Carpenter, Page 11 (not paginated)

incidence rates of cancer of the brain. Increases in rates of brain tumours in the 1970s and 1980s had paralleled the introduction and distribution of new diagnostic tools, namely CT and MRI. The Working Group further noted that these descriptive analyses would be null if an excess in cancer risk from mobile-phone use became manifest only decades after phone use began, or if an increase affected only a small proportion of the cases by location.]

The CEC submits that the above discrepancies indicate that the CSTS witness Dr. David Carpenter has not provided the BCUC with certain appropriate caveats with respect to at least some of the evidence he has cited and as such has acted in the role of advocate rather than the role of unbiased expert. The CEC submits that the BCUC should therefore assign a lower weighting to Dr. Carpenter's evidence.

The CEC also finds that the Report provides additional evidence that the understanding of radiofrequency signals and any potential associated health effects is undergoing continuous review and thus suggests that the BCUC consider the information as it is before it and weigh it according to the current literature. The Report states:

"IARC may schedule other agents for review as it becomes aware of new scientific information or as national health agencies identify an urgent public health need related to cancer. As significant new data become available on an agent for which a *Monograph* exists, a re-evaluation may be made at a subsequent meeting, and a new *Monograph* published."<sup>10</sup>

The CEC recommends that the BCUC find the additional information provided in the Report to be generally supportive of the evidence which minimizes the assessment of any potential health effect.

The CEC notes that the Report contains explicit recognition of the benefits of wireless communication as follows.

The Working Group recognized that mobile-phone technology has transformed the world, making wireless communication rapidly available, especially in less developed countries, with important benefits to society. With this, an increasingly large population will be exposed, and for longer and longer periods of time. Undoubtedly, questions will

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<sup>10</sup> Non-Ionizing Radiation Part 2: Radiofrequency Electromagnetic Fields Volume 102, Page 11

continue to arise about the health risks of mobilephone use and possibly other emerging sources of exposure to RF radiation. This *Monograph* is a comprehensive review of the currently published evidence that also identifies gaps in the available information. These gaps should be resolved with further research if ongoing concerns about the health risks of mobile-phone use are to be addressed with greater certainty.<sup>11</sup>

The CEC submits that this lends weight to the wider public interest responsibility of the Health Authorities setting standards in the public interest.

The CEC notes that the report confirms that tissue heating is the most established health effect of RF radiation from which humans need to be protected and offers that perhaps not all of the effects have been discovered.

Tissue heating is the most firmly established mechanism for effects of RF radiation in biological systems. Although it has been argued that RF radiation cannot induce physiological effects at exposure intensities that do not cause a detectable increase in tissue temperature, except for reactions mediated by free radical pairs, it is likely that not all mechanisms of interaction between weak RF fields, with the various signal modulations used in wireless communications, and biological structures have yet been discovered or fully characterized<sup>12</sup>.

The CEC submits that this is consistent with the evidence on the record and given the extremely low exposure from smart meters makes it highly unlikely that there is any hazard to be associated with smart meters and certainly not an established one.

The conclusions of the Report contain the following.

There is *limited evidence* in humans for the carcinogenicity of radiofrequency radiation. Positive associations have been observed between exposure to radiofrequency radiation from wireless phones and glioma, and acoustic neuroma.<sup>13</sup>

The CEC submits that this lends weight to the evidence already on the record that the focus of IARC concerns with the 2B classification is cell phones and brain cancers. The CEC believes this lends weight to the fact that smart meters are subset of a concern where there is limited evidence and in fact that they are so low in exposure that there is virtually no chance that the FortisBC AMI meters pose a risk to public health. This evidence and focus of concern by IARC is reflected and confirmed in the confusing emphasis of CSTS witnesses on cell phones and the

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<sup>11</sup> Non-Ionizing Radiation Part 2: Radiofrequency Electromagnetic Fields Volume 102, Pages 33 and 34

<sup>12</sup> Non-Ionizing Radiation Part 2: Radiofrequency Electromagnetic Fields Volume 102, Page 409

<sup>13</sup> Non-Ionizing Radiation Part 2: Radiofrequency Electromagnetic Fields Volume 102, Page 421

studies related to these exposures while focusing little attention on the real issue before the Commission of the FortisBC AMI meters.

In conclusion the Report provides no new information sufficient to warrant any significant changes to the weight of evidence on the record and if anything simply underscores the elements of the evidence on the record assuring the Commission that the Health Authorities are in the best position to assess the health issues, have the responsibility to do so and have made the correct assessment with respect to Smart Meters and by implication FortisBC's proposed AMI meters that they are not a public health risk.

The CEC recommends that the Commission simply weight this evidence as it would all of the other evidence and avoid recent information bias and special focus of attention bias, which could be a risk associated with the process of inclusion of the Report in the record. The volume of other evidence on the record is conclusive in its own right and this Report does not change that but may be used to confirm the weightings of evidence available to the Commission.