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VIA ELECTRONIC EMAIL

May 23, 2013

British Columbia Utilities Commission
6th Floor, 900 Howe Street
Vancouver, B.C. V6Z 2N3

Attention: Erica Hamilton

Re: FortisBC Inc – CPCN
Application for a Certificate of Public Convenience and Necessity
for the Advanced Metering Infrastructure Project
BCSI Supplemental Submission as per Commission Order G-80-13

I would like to thank the Commission for its decision to allow the IARC Monograph *NON-IONIZING RADIATION, PART 2: RADIOFREQUENCY ELECTROMAGNETIC FIELDS* Volume 102, to be entered into evidence. Commission Order G-80-13. It is somewhat reassuring to know that the Commission will consider the scientific analyses which led to the IARC classification of radiofrequency (RF) electromagnetic fields (EMF), in the range (30 kHz to 300 GHz) of the electromagnetic spectrum, as a Group 2B possible carcinogen to humans. I would draw the Commission to carefully consider what is not known about the non-thermal biological effects of low-level RF EMF, which seems to be very little compared to the known thermal effects.

I note that the evaluations in this Monograph addressed *"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."* The Monograph also recognized that *"an increasingly large population will be exposed for longer and longer periods of time,"* and recommends that identified gaps in information be studied further. *IARC Monograph Volume 102 - General Remarks (p 33, 34).*

The Monograph notes the WHO recommendation for improved exposure assessments in epidemiologic studies as a high-priority need and lists the following problems with personal exposure assessments:

- *Compliance tests versus real-life exposure;*
- *Assessment of incident versus induced fields;*



- *Appropriate dosimetric quantities;*
- *Combination of exposure from multiple sources operating at different distances and frequencies;*
- *Strong temporal, geographical and usage dependence of the exposure, especially in relation to the exposure period relevant to the epidemiological data;*
- *Technology dependence of exposure and rapid technological changes; and*
- *Selection and, even more importantly, exclusion of potential exposure proxies*

It appears "the worst-case levels of exposure determined during compliance testing of, e.g. mobile phones or base stations are in many cases not representative of actual real-life and everyday exposure." (IARC Monograph Volume 102 – p 95, 96) This begs the question: If industry and scientists can't even overcome the difficulty in accurately measuring real-life exposure to the multitude of various frequencies and types of exposures how will we ever ascertain or be able to study the full gamut of RF interactions that could be impacting human health, especially children and vulnerable citizens, at some point over a life-time of exposure?

"The Working Group reviewed a large number of studies with end-points relevant to mechanisms of carcinogenesis, including genotoxicity, effects on immune function, gene and protein expression, cell signalling, oxidative stress, and apoptosis. Studies on the possible effects of RF radiation on the blood-brain barrier, and on a variety of effects in the brain itself were also considered. The Working Group found several studies inadequately controlled for the thermal effects of RF radiation, but also noted well conducted studies showing aneuploidy, spindle disturbances, altered microtubule structures or induction of DNA damage. While RF radiation has insufficient energy to directly produce genetic damage, other changes such as induction of oxidative stress and production of reactive oxygen species may explain these results. Indeed, several studies in vitro evaluated the possible role of RF radiation in altering levels of intracellular oxidants or activities of antioxidant enzymes. While the overall evidence was inconclusive, the Working Group expressed concern about the results from several of these studies." IARC Monograph Volume 102 – p 35

The Commission, in approving the FBC application, would have to completely dismiss the aforementioned concerns expressed by the Working Group.

Of particular interest are the studies involving children:

"Consequently, there has been intense interest in the development and outcome of this IARC Monograph. This interest reflects the high prevalence of exposure (which increasingly extends to children), the vast scope of the telecommunications industry, the findings of some epidemiological studies that suggest an increased risk of cancer, and a high level of media coverage of the topic of mobile phones and cancer." IARC Monograph Volume 102 – p 33

"In children using mobile phones, the average deposition of RF energy may be two times higher in the brain and up to ten times higher in the bone marrow of the skull than in adult users. The use of hands-free kits lowers exposure of the brain to less than 10% of the exposure from use at the ear, but it may increase exposure to other parts of the body." IARC Monograph Volume 102 – p 34

Given the increased sensitivity of children to RF EMFs, any responsible parent would be entirely justified in any efforts they undertook to protect their children from unnecessary exposure, a right which would be removed from them in the event of a Commission decision in favour of the FBC application.

It seems obvious that we cannot look at the RF EMF emissions from one smart meter in isolation from all the other sources of these emissions that are becoming more ubiquitous with each passing day. The wireless smart meter program under consideration would add another layer, an arguably unnecessary one, of emissions that would blanket entire communities and enable the industrial growth of an untold number of other appliances and applications. Science cannot even tell us for sure exactly in what ways we and our children are being impacted at the current levels of emissions. It seems foolish in the extreme to allow the deployment of a widespread technology, such as smart meters, without a broader and more comprehensive understanding of all the possible biological impacts from RF emissions. Forcing people to accept the installation of smart meters on their homes against their wishes is indefensible.

Given the existence of equally viable, less controversial and more affordable alternatives to wireless smart meters, I continue to maintain that the Commission must deny outright the Fortis BC application for a Certificate of Public Convenience for its Advanced Metering Project as not in the public interest.

Respectfully,



Alex Atamanenko, MP
BC Southern Interior

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