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Sent: Friday, October 26, 2012 5:28 PM
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Subject: Intervenor Information Request No #1: Andy Shadrack

FORTISBC INC ADVANCED METERING INFRASTRUCTURE CPCN
EXHIBITC13-3

Kaslo

Friday, October 26th

Attention: Erica M. Hamilton, Commission Secretary

Given the indepth nature of answers given by FortisBC representatives at a meeting with myself and the then President of Kaslo InfoNetwork in Kaslo on August 7, 2012, I am extremely disappointed in the responses given by FortisBC to BCUC IR No 1 31.2 through 33.1. The whole purpose of obtaining forthright answers is so that appropriate regulatory decisions can be made. First I want to ask some questions of my own and then intersperse follow-up and additional questions to earlier answers given.

1. Can FortisBC please explain, given that a number of Public Utility Districts in the United States Pacific Northwest are using a wired smart meter technology, why they have opted to use a former military version of wireless technology that was first designed and developed in the 1940's - for secure communications, not data collection?
2. Further, can FortisBC please explain why, if they and BC Hydro are using wired data transmission for commercial clients, they would not expand this to include all their customers?
3. In addition, is it not true that wired back-haul could use IPv6 IP addressing at 20% of the cost of using IPv4 addressing?
4. Currently the Columbia Broadband Corporation, the Village of Kaslo and Kaslo InfoNetwork, for example, are teaming up to look at developing a fiber optic network. Can FortisBC, given development of similar fibre optic networks in South East Asia, the Middle East and Europe (for example Portugal), please explain why they are not teaming up with Telus and other large communication corporations to develop a single common carrier fibre optic network?
5. Can FortisBC please explain why it will be cheaper for their current customers, from a capital investment and operational cost point of view, to develop an isolated wireless network for themselves only, and specifically for their electrical customers, instead of paying an operational tariff for use of a common carrier fibre optic network?
6. Has FortisBC compared the cost for utilities which have opted to collect smart meter information through such a common carrier operational tariff versus their decision to invest capital and operate a wireless network in isolation from other entities that are collecting and disseminating information?
7. In preparing its application, did FortisBC hold any discussions in British Columbia with Telus or any

other communication corporation about co-sharing fiber optic cable to collect their smart meter information? If not, why was this not considered?

8. If FortisBC obtains approval from the Commission to build and operate a wireless network for its electrical customers, will it then be applying to build a separate wireless network for its natural gas customers, or will it use the same wireless network and just double up the collection of information?

9. Has FortisBC had any discussions about co-sharing or working with BC Hydro around the development of its wireless network?

10. What specific advantage is there for FortisBC customers (residential, commercial and industrial) to have FortisBC adopt a wireless versus a wired smart meter technology?

11. The following URL contains an article that discusses how easy it is to hack wireless heart pacemakers:

<http://www.techhive.com/article/2012779/pacemaker-hack-can-kill-via-laptop.html>

Computer graph printouts of a BC Hydro smart meter being monitored from a home computer in real time on a minute-by-minute basis, with a readout and log of everything the meter was detecting, indicate that anyone has the ability to use an IR reader and capture data from the IR port. With the understanding that FortisBC is going to use the same meter from the same company, can FortisBC please explain, given that even a layman's eyes can detect when an appliance is turning on and off, why they think wireless smart meters are secure and will respect the personal right to privacy in the home?

12. Further, can FortisBC please explain why, if the signals emitted from a smart meter are intermittent, the program collecting information on a home computer from a smart meter shows a continuous flow of information on the graph printouts? Am I misunderstanding something here?

13. FortisBC has stated that the amount of Electromagnetic Radiation (EMR) emitted by its smart meters are well within the Canada Health guidelines, and that other devices used by the public have higher EMR emissions. Has FortisBC found any studies that have looked at whether or not the cumulative amount of EMR from a cell phone and wi-fi, with a smart meter added in, still meet Canada Health guidelines?

14. How many studies in total has FortisBC looked at that discussed the potential health impacts of EMR created by wireless devices, and over how long a time frame were these studies undertaken and at what concentration among the population were the devices in circulation studied?

15. Of these studies how many of them looked at the cumulative health impacts for individuals and households using multi-numbers of these EMR emitting devices?

16. Am I correct in understanding that FortisBC is proposing to use a "Frequency Hopping Spread Spectrum" (FHSS), originally created in 1942?

17. In contrast is not true that the later developed "Direct Sequence Spread Spectrum" (DSSS), used in the original 802.11 and 802.11b versions of wireless, and the "Orthogonal Frequency Division Multiplexing (OFDM)", as used in the 802.11g versions of wireless, can work together?

18. The FHSS system, as originally designed (and up into the 1970s) will not share the bandwidth spectrum with any of the Spread Spectrum systems designed, because FHSS is an inefficient frequency hog, using 30Mhz to move less data than current systems which use 1.6Mhz. In short, is it not true that FHSS is not compatible with two later versions of wireless used by more recent applications (Wi-Fi, amateur radio, cordless phones, baby crib monitors, etc) and that FHSS will completely block those two newer versions for the duration of a FHSS transmission?

19. Why should FortisBC be allowed to use this older FHSS technology that disrupts two newer versions found in other home products and services?
20. When a FHSS-based smart-meter begins to transmit, it monitors the spectrum to determine if another system is transmitting. That being the case, smart-meters must have receivers built into them which can monitor the spectrum, or receive signals which would allow the hydro supplier to "cut-off" the customer, or vary smart-meter parameters while in use. Thus is it not true that the primary purpose for using this former military technology is so that utilities can eventually control the amount of power going to a particular customer and set time-of-use rates?
21. In its answer to 31.2 BCUC IR#1, FortisBC states that it: "anticipates very minor impact". Would FortisBC agree that where a smart meter disrupts one of their customer's ability to communicate using Wi-Fi, a ham radio, cordless phone, baby crib monitor, etc, that that disruption has a major impact on that customer's ability to use products that they had previously bought, installed and used?
22. In relation to its answer in 31.2.1 BCUC IR#1, does FortisBC know the number of Wi-Fi service providers in its service area using the 900 MHz communication band, and to how many customers in total these providers deliver service?
23. Is FortisBC aware of any disruptions caused by other pieces of equipment using the 900 MHz communication band, to, for example, Wi-Fi and ham radio, and/or cordless phones, and/or baby crib monitors, or is it just the introduction of wireless smart meters by FortisBC that is going to disrupt all these other devices because it is not compatible, noting that all these devices are compatible with each other?
24. Has FortisBC yet come up with any estimate of what it is going to cost to resolve the interference with Wi-Fi services and who is going to pay to fix it?
25. In relation to its answer in 31.2.3 BCUC IR#1, it has been explained to me that the disruption to a ham radio by a smart meter comes in the form of a continuous pop, pop, popping sound. Does FortisBC agree that, for those who are slightly hearing impaired and/or aging, any disruption that causes the quality of sound to diminish or interrupts the continuous flow of sound is more than "minimal"?
26. In relation to its answer in 31.2.3 and 31.2.4, how will FortisBC deal with customers who discover that devices that they own and operate are being disrupted by installation of FortisBC smart meters?
27. In relation to its answer in 31.2.5, could FortisBC please explain why another company operating a device in the 900-928 MHz band prior to the arrival of FortisBC should have anticipated that FortisBC would use a device that is not compatible with other wireless devices currently being used in that band range?
28. In relation to questions 16 through 20 above, should not the onus be on FortisBC to purchase a wireless technology that is compatible with the other wireless products currently on the market and not vice versa?
29. If these other devices are compatible with each other because they have been developed from more modern versions of wireless technology, why should FortisBC be allowed to use an earlier version of wireless technology that is so primitive it does not have compatibility with other wireless products?
30. Section 2(a) of Part 1, Canadian Constitution Act, 1982, Canadian Charter of Rights and Freedoms, explicitly states that:

"Everyone has the following fundamental freedoms:

...freedom of thought, belief, opinion and expression, including freedom of the press and other media of communication"

Does FortisBC agree that its customers have a constitutional right to use previously installed Wi-Fi services, amateur radios, cordless phones and "*other media of communication*" that are not subsequently disrupted by installation of FortisBC's primitive smart meter technology?

31. In relation to FortisBC's answers to 31.2.6 and 31.2.61 BCUC IR#1, as it relates to RSS-210 and RSS 210, Annex 8.1.b, is FortisBC aware that the Supreme Court of Canada has consistently struck down legislation and regulations, and administrative protocols, that fail to uphold a citizen's constitutional rights, especially where that legislation, and those regulations and administrative protocols fail to protect vulnerable citizens, such as those who are aging or have perceived handicaps?

32. Why is FortisBC not using the designated International Telegraph Union channels previously accepted by Industry Canada for wireless smart meters?

33. In relation to FortisBC's answer to question 33.1 BCUC IR#1, FortisBC explains that, prior to the introduction of Advanced Metering Infrastructure (AMI), the annual cost per customer of manually reading a meter is approximately \$23 and will rise to \$193 after AMI introduction. My 70 year old brother reads his own meter in England and phones it in to the company on a designated date. This is common practice for many utilities world wide. Why has FortisBC not previously considered introducing a self-read phone-in or Internet portal response meter program?

34. Can you please produce a modified Table BCUC IR1 Q33.1b as if the meters were self-read by the customer?

35. The Pine Ridge Water Utility Society uses a hand held device that reads a digital meter remotely. Has FortisBC ever considered using this technology?

36. What frequency will FortisBC be using for its Radio Frequency (RF) Mesh collection system, and have they checked to make sure that this will not disrupt other previously installed "*media of communication*"?

37. On August 7th, 2012, FortisBC advised that Itron has stated that it had never come across disruption of Wi-Fi services by their smart meter. Given that the Itron meter is disrupting certain Wi-Fi services across BC, has FortisBC considered asking its own engineers to do independent testing of this meter, and if not why not?

38. Section 2(d) of the Canadian Constitution Act also guarantees "*freedom of association*". Has FortisBC considered granting any customer the right not to have a wireless smart meter placed on their residential and/or business property?

39. In one community in Area D the equivalent of all permanent residents in that community signed a petition opposing installation of smart meters. When the installers later showed up to install the meters in this same community, it is claimed that they threatened customers, some in their mid-80's, with disconnection of the utility service. In a number of rural communities around BC residents have simply blocked access to the community and refused to allow installers to enter. In larger urban centres citizens who have placed signs on their existing meters requesting that they not be swapped for smart meters have come home from school or work to find the sign crumpled up and lying on the ground and a smart meter installed.

Can FortisBC please explain in exact detail how it intends to handle customers who refuse to accept installation of a smart meter on their property, and whether or not they will instruct the installer to replace the meter if the customer is away from their property at the time?

40. Will FortisBC instruct the installer to inform customers of the possibility of disconnection of service, and/or will FortisBC allow the installer to threaten customers with disconnection of service if they refuse to

accept installation of a smart meter on their property?

41. It is understood that the existing meters will have to eventually be replaced due to old age, malfunction and claims by other regulators that they are not accurate enough, and that FortisBC does not intend to purchase or install new meters of the existing type. However, is it not also equally true that the new digital meters comply with accuracy requirements?

42. Over the last six months I have received a number of phone calls from persons concerned about the health effects of wireless smart meters, including some who have moved to rural BC precisely to avoid coming into contact with EMR. Section 7 of the Canadian Constitution Act explicitly states:

Everyone has the right to life, liberty and security of the person and the right not to be deprived thereof except in accordance with the principles of fundamental justice

And, Section 15(1) also explicitly states:

"Every individual is equal before and under the law and has the right to equal protection and equal benefit of the law without discrimination and, in particular, without discrimination based on...disability"

Can FortisBC please explain, in detail, what provisions it has made for customers who have specific health issues, ie. allergic reactions, to devices that emit EMR?

Respectfully submitted,
Andy Shadrack
Director Area D
Regional District Central Kootenay

(President, Association of Kootenay Boundary Local Governments and,
Member, Union of BC Municipalities Executive Board)