FortisBC Advance Metering Infrastructure

FortisBC response to Karow IR #1

Source: <http://www.bcuc.com/Documents/Proceedings/2008/DOC_18058_B-2_FBC-Resp-IR1.pdf>

[**B-2**](http://www.bcuc.com/Documents/Proceedings/2008/DOC_18058_B-2_FBC-Resp-IR1.pdf)  Submitted: 26/02/2008 6:32:00 PM
Letter dated February 26, 2008, filing response to Information Request No. 1 with attached excel worksheet

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**I kindly ask the Applicant to inform for each metering option:**

**Q1 please provide specifications about the meter reading device with re:**

**a brand/make of reader,**

**b when patented**

**c please provide patent #,**

**d actual patent paper’s claim and description**

**e where manufactured and distributed by whom**

A1 This information is not available until such time that an AMI technology solution is

selected through the RFP process. However, one of the requirements listed in

Table 7.1 in the CPCN Application (Exhibit B-1), is that the selected AMI

technology provide the ability to work with several meter brands and that the

meters must be compatible with Measurement Canada regulations.

**Q2 please provide several pictures (from different site of device)**

A2 This information is not available until such time that a vendor is chosen through

the RFP process.

**Q3 please provide pictures of typical mounting locations and provide distance**

**from ground level**

A3 The mounting locations of the AMI meters will not generally change from existing

locations, but if they do, the installations will adhere to the standards found in the

British Columbia Service and Metering Guide which may be viewed at:

 http://www.fortisbc.com/downloads/about\_us/projects/BC%20Service%20and%2

 0Metering%20Guide-April-07.pdf.

**Q4 please state minimum possible usage period without replacement**

A4 Please refer to the response to BCUC IR No. 1 Q29.1

**Q5 all frequencies range applied (also meaning whether each individual**

**ratepayer meter will have different frequency/ies)**

A5 This information is not available until such time that a vendor is chosen through

the RFP process. Some of the frequencies used by different vendors are shown

in the response to Karow IR No. 1 Q13.

**Q6 interval of transmitted frequencies: state all the intervals and duration of**

**transmissions day round and year round**

A6 This information is not available until such time that a vendor is chosen through

the RFP process.

**Q7 direction of transmission: please state area of transmitting and which area**

**is not being radiated**

A7 This information is not available until such time that an AMI technology solution is

chosen through the RFP process.

**Q8 strength: please state strength of transmitted RF and whether strength of**

**individual ratepayer’s meter can be adjusted (lowered)**

A8 This information is not available until such time that an AMI technology solution is

chosen through the RFP process. If an RF AMI technology solution is selected,

the RF transmission strength of the meter will not be adjustable by customers.

All metering technologies under consideration during the RFP process must be

compliant with all applicable regulations governing RF emitting devices.

**Q9 please state the power usage of the new meter itself per day and year, and**

**whether the power usage will appear separately on the power bill**

A9 By design, any consumption for the operation of the AMI meter is not reflected in

the customer’s usage. The precise power usage of the AMI meters will not be

available until such time that an AMI technology is selected through the RFP

process.

**Q10 please state of all possible other RF frequencies occurring in the**

**distribution and service drop system other than caused by the actual meter**

**reading**

A10 FortisBC does not use radio frequency (RF) equipment for communications on

the distribution system. The only RF signals that might be present on distribution

feeders would be induced by nearby signal radiators such as radio or television

transmitters.

**Q11 please state whether any of these (section 11) or other foreign frequencies**

**could have an adverse impact of any nature on the meter reading system, if**

**so, please state in details the impacts.**

A11 Interference and data corruption is an expected occurrence in all

communications systems. AMI communications equipment is designed to filter

and reject foreign interference. Received data is validated by the use of error

correction algorithms to ensure data is received correctly prior to acceptance by

the system.

**Q12 Please state whether any of the metering (data sending, data demanding)**

**system’s frequency can enter and be received and transmitted/ transferred**

**via house wiring, gas and water house-pipe system**

A12 While technically it is possible for the radio frequency (RF) signal from AMI to be

received by the house wiring and gas and water heat-pipe system, the signal

levels are going to be of extremely small magnitude. AMI transmitters typically

operate at a very low average power of a few hundredths to a few tenths of a

watt, with a maximum of 1 watt in very short bursts. This signal is then strongly

reduced by the house walls and shielding on the house wires and pipes and the

distance from the AMI transmitter and pipes and wires. Moreover, there are

already multiple sources of RF already present in residential areas. These

devices, which operate at similar frequencies and power levels, include cell

phones, cordless phones, WiFi networks, and AMI / AMR systems for water and

gas metering applications.

**Q13 Please state whether there are other means than wireless meter readings,**

**i.e. via land-lined telephone/ cable system to a central reader office with a**

**multiplexor system**

A13 Technology options available for the Local Area Network (LAN) portion of the

AMI system (between the meter and the central collection point) are:

• Spread Spectrum (900 MHz, 2.4 GHz, 802.11b, Zigbee);

• Licensed frequencies (928 MHz, 450 MHz, 220 MHz); and

• Power line carrier (PLC).

Technology options available for the Wide Area Network (WAN) portion of the

AMI system (between the central collection point and the office) are:

• Plain old telephone service (POTS);

• Fiber;

• Microwave;

• Wimax;

• Pagenet / Supernet;

• T1 line;

• Interexchange Radio Transmission Technologies (IXRTT); and

• General packet radio service (GPRS).

**Q14 please state whether meter reader could remotely be controlled, i.e.**

**artificially increase the usage than actually power used. If not, please state**

**how this is not possible**

A14 The meter only records actual consumption used and will be under seal and

within Measurement Canada regulation guidelines. The meter itself could not be

remotely controlled to increase or decrease the amount of power measured.

FortisBC has included within the scope of the RFP a requirement for secure

encryption of the meter data file to prevent unauthorized access and/or

modification of the data when being transmitted from the meter to the collector

station.

**Q15 please state whether FortisBC is aware of any already in any other country**

**existing systems that are being used for sending utility usage data over**

**telephone lines, if so please state country and detailed specs about that**

**system**

A15 FortisBC is not aware if other countries are using a POTS line to transmit AMI

data but is aware that this is an option for the WAN portion of the AMI solution.

**Q16 Please state whether there are any meters in FortisBC service area, that will**

 **not be fitted with the new AMI system. If so, please state reason why.**

A16 Meters currently being read with the MV90 system (primarily large industrial

accounts) will not be replaced with AMI enabled meters. The MV90 system

functions similarly to an AMI system while the cost to replace the MV90 meters is

significant with no operational gain.

**Q17 Please state, if on special individual customer’s demand the conventional**

**metering system not to be changed over to the new AMI system, under**

**what conditions may FortisBC allow so.**

A17 No, the installation of AMI-enabled meters will not be optional. Allowing

customers to remain on the legacy system would increase the cost to service

those customers and limit the benefits offered by AMI.

**Q18 Please comment on the attached paper FortisBC”s position, and please**

**state whether FortisBC can guarantee that no corrosion whatsoever in**

**privately owned building will be caused via the applied meter data**

**transmitting frequencies.**

A18 There is no scientifically accepted theory of corrosion for such low levels of high

frequency RF fields. The only plausible mechanism by which low level of RF

energy could increase corrosion rates is by increasing the temperature of the

pipes, which would accelerate corrosion from other sources that would

necessarily need to be present; RF energy by itself cannot cause corrosion. The

emitted power from an AMI system, however, is too low to appreciably increase

the temperature of the pipes, wires, and other structures in the house. The

effects of water and house temperatures and solar radiation greatly overwhelm

any temperature change that could be attributed to an AMI system. Again, as

indicated in the response to Karow IR No. 1 Q12, there are already multiple

sources of RF at similar frequencies and power levels already present in the

residential areas.

The conference presentation by Michrowski referenced in the question focuses

primarily on power frequency currents, not RF, and does not indicate that RF

causes corrosion, just that it can enter through the electric power

transmission/distribution systems and grounding wires. Moreover, the attached paper does not even propose how any RF electromagnetic fields would induce

corrosion in the water pipes. In fact, RF electromagnetic waves have been

proposed as a method for continuous monitoring of corrosion due to other

causes.

**Q19 Please indicate whether any shielding of RF frequencies in /for any**

**direction is provided, if so please give details.**

A19 Please refer to the response to Karow IR No. 1 Q2.

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