BC hydro
REGENERATION

April 27, 2011

Re: BC Hydro Smart Metering Program

Dear Mrs.

Thank you for your inquiry about the BC Hydro Smart Metering Program. As you may know, our electricity grid has changed very little over the past 50 years. The Smart Metering Program is a critical infrastructure upgrade and involves replacing existing meters with a modern, fully integrated, smart metering system. We hold the responsibility for delivering safe, reliable and cost effective electricity to homes and businesses across the province, and the Smart Metering Program is an integral part of meeting that responsibility.

Customer and public safety are top priorities for BC Hydro. BC Hydro has sought the advice of Dr. Perry Kendall, BC's Provincial Health Officer, and he is confident that the selected technology is safe and can be implemented as planned. Additionally, the BC Centre for Disease Control has conducted independent testing on BC Hydro's smart meters at our request, which found the meters to be well below the applicable public limit of power density exposure.

Smart meter signals are short and infrequent. The meters will communicate using radio frequency signals 4 to 6 times a day – for a total average daily transmission of one minute. The cumulative exposure to radio frequency from a BC Hydro smart meter – over its entire 20-year life span – is the equivalent to the exposure during a single 30 minute cell phone call. For more information about Itron's smart meter technology, please see the enclosed information sheet.

This enclosure contains some information relating to your question about the safety of smart meter installation in condominiums:

In high-density residential complexes that use interior meter banks, the meters communicate with each other using a mesh network technology. A recent Electric Power Research Institute report, "An Investigation of Radiofrequency Fields Associated with the Itron Smart Meter," indicates that – regardless of how many meters are co-located in a meter bank – the additive effect peaks at just two times the power density of a single

meter. And, the cumulative communication time of meters in a meter bank, over a year, would be equivalent to four minutes spent in a wireless internet café.

We understand that some customers are uncomfortable with radio frequency based technology. Now that the metering technology has been confirmed, BC Hydro is considering potential options that could be offered to customers and what the cost of those customized options will be.

Again, we thank you for contacting us regarding the Smart Metering Program. We are committed to providing accurate and timely information to you. All current information, including the business case, can be found at bchydro.com/smartmeters.

Sincerely,

Gary Murphy

Gary Murphy, Chief Project Officer

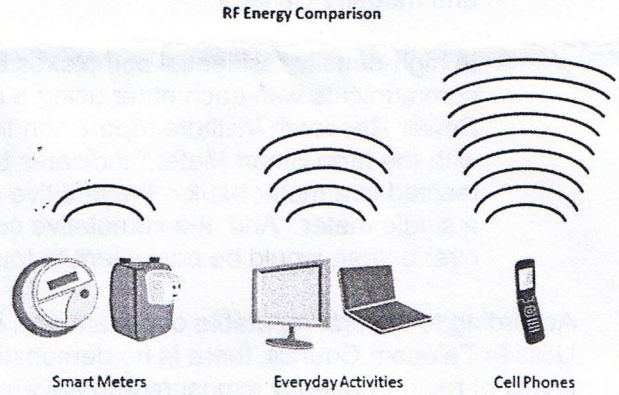
OpenWay® Radio Frequency and Safety Compliance

Overview

OpenWay smart meters use radio frequency signals to create a two-way communication network between customers' meter and the utility, helping to make electricity grids more efficient and reliable, and to optimize our use of limited energy resources.

Radio frequency plays a critical role in many common communications systems that we depend on every day, such as police and fire radio systems, pagers, radio and television broadcasts and cellular telephones. Many of the conveniences we've grown accustomed to in our homes, such as cordless phones and wireless internet, also utilize radio frequency.

The diagram to the right provides a relative comparison of the various sources of radio frequency found in and around typical households.



About Radio Frequency and Smart Meters

Itron's products are subject to a stringent quality assurance and compliance process to meet all Federal Communication Commission (FCC), Industry Canada, and Institute of Electrical and Electronic Engineers (IEEE) safety standards. During the design process, Itron has consistently evaluated three critical factors – how often the meter transmits, the power output from a meter's radio, and the distance from the signal.

- *Limited time on the air*: Itron's OpenWay meter transmits for very short intervals spread throughout the day and thus has a very short duty cycle. On average, a residential meter transmits customer data four to six times a day and has a transmit time of less than a minute per day in total. A relay device actively transmits data for approximately 13 minutes per day in total, which means it's not transmitting data for 99% of the time. The radio frequency energy levels of the OpenWay meters are a small fraction of the exposure limits (approximately 0.5%) specified by regulatory agencies, including the FCC and Industry Canada

- *Low power signals*: Itron's OpenWay meter communicates using very low power signals – less than 2 $\mu W/cm^2$ when standing directly adjacent to the meter. These low level radio frequency signals generate far less radio frequency than common household appliances. In fact, the cumulative exposure from a smart meter *over a year* is equivalent to spending two minutes in a wireless internet café. Table 1 shows the relative power density of smart meters to other common communication systems.

Source: Prepared by Itron, Inc. on behalf of BC Hydro

Itron

Table 1: Relative Power Density in microwatts per square centimeter (μW/cm²)

FM radio or TV broadcast station signal	0.005
SmartMeter™ device at 10 feet	0.1
Cyber cafe (Wi-Fi)	10 - 20
Laptop computer	10 - 20
Cell phone held up to head	30 - 10,000
Walkie-Talkie at head	500 - 42,000

Source: Richard Tell Associates, Inc.

- *Limited proximity to humans*: Radio frequency diminishes rapidly with distance from the meter. Itron's OpenWay meter is installed outside customer homes, where the power density is less than 0.5% of the limit set by Federal Communication Commission (FCC) and Industry Canada.

  In high-density residential complexes that use interior meter banks, the meters communicate with each other using a mesh network technology. A recent Electric Power Research Institute report, "An Investigation of Radiofrequency Fields Associated with the Itron Smart Meter," indicates that – regardless of how many meters are co-located in a meter bank – the additive effect *peaks* at just two times the power density of a single meter. And, the cumulative communication time of meters in a meter bank, over a year, would be equivalent to four minutes spent in a wireless internet café.

According to several reputable organizations, including the World Health Organization and Utilities Telecom Council, there is no demonstrated cause and effect relationship between low levels of radio frequency exposure and adverse human health effects. Itron recognizes that concerns about radio frequency emissions exist. As such, we continue to monitor the regulations and perform extensive testing to actively minimize radio frequency emission levels by all means possible.

Source: Prepared by Itron, Inc. on behalf of BC Hydro