

Sent: June 2, 2014

To: Patrick.Wruck@bcuc.com; Commission.Secretary@bcuc.com; michael.abraham@ic.gc.ca; [MC.E &G.Western@ic.gc.ca](mailto:MC.E&G.Western@ic.gc.ca)

Subject: Electricity metering - Complaint against BC Hydro

Sirs/Madam,

I am writing to the British Columbia Utilities Commission and to Measurement Canada as a deeply concerned BC homeowner who believes that BC Hydro, through its smart meter program, has implemented a significant, unapproved, and therefore illegal, rate increase.

The existing residential electrical analogue meters measure root-mean-square (RMS) values of electrical current and voltage, and the resultant kWh consumed is calculated from these RMS values.

There continue to be numerous complaints in British Columbia about the higher billing after the installation of smart meters.

What we now know from the documented statements (see below and the attachments) by the meter Manufacturer Itron, is that the smart meter

measures higher values of the power consumed than does the analogue meter. The same issue may apply to the digital, non-smart meter.

Exhibit 1: Itron's smart meter specification sheet documentation for the C1S meter: "*Captures energy that was not monitored in the past by electromechanical meters*", [Itron Specification Sheet C1S Centron Meter, 100188SP-06 C1S CENTRON.pdf]

Exhibit 2: From another Itron Publication: "*After one month, the CENTRON meters proved their ability to measure energy usage not measured by the electromechanical meters. This accuracy showed ... kilowatt hours more than the electromechanical meters. That does not sound like much of a difference, but when it is multiplied by 10,000 end points, it adds up,*" said Hastings. "City gains efficiency and additional revenues", [Itron Publication 100374CS-02.pdf]

I am not disputing the requirement to improve the efficiency of the power grid by extracting additional data from the users' meter.

What I am deeply offended by is the secretive method of introducing different measurement techniques, without advising the homeowners who

have a contractual relationship with BC Hydro. The Utility has stated the following to me in writing on 15th January 2014: *“BC Hydro has been collecting electricity consumption information for 50 years through a safe, secure and regulated process. The Smart Metering Program does not change this.”* This would suggest that BC Hydro is assuring me that smart meter measures the same as the analogue meter.

If the meters do in fact capture the instantaneous values of Current and Voltage using high sampling rates, then the power used in Watts would be (1.414 times Volts times 1.414 times Amperes) to equal a maximum value of 1.999 times Volts times Amperes, which is ***twice*** the RMS watts value recorded by Analogue meters. (the relationship between Peak value is root 2 times the RMS value).

Homeowners have a contractual relationship with BC Hydro for the Utility to not only measure and to invoice for energy consumed, but to do so at the BCUC approved and announced rates and using established methods. Any fundamental change must be approved by the BCUC, Measurement Canada and the parties named in the contract must be advised prior to implementation.

Since we now have documented proof from the

meter Manufacturer that the meters measure and calculate higher values of the power consumed, as compared with the analogue meter, I need an immediate answer from BCUC and from Measurement Canada to each of these questions:

1. What values of current and voltage are being measured by these smart meters?
2. What is the sampling rate for each cycle of the 60 Hz sine wave in the meter circuitry? (see below).
3. What is the accuracy of the analogue-to-digital current and voltage converters in the meters?
4. How does the smart meter measure voltage and current waveforms that include transients and harmonics?
5. What is the resultant power quantity amount calculated by the smart meter when compared to the same current, voltage, power factor and resultant power measured by an analogue meter?
6. Why was this obvious difference in the measuring technique not investigated prior to BCUC approval and the implementation of this different technology?
7. What is the Canadian Standard which governs the method of measuring varying, sinusoidal quantities in an electrically noisy environment?
8. Please confirm that the BCUC is willing to conduct immediately independent tests of smart

meters versus analogue meters, supervised by a Professional Engineer with appropriate qualifications and agreed to by user groups, to ensure that the BCUC mandate of “safe and economic delivery..” is assured.

9. How will the BCUC advise the B.C. Public of this unadvertised add-on to their invoices since the start of the smart meter implementation?

No doubt Itron, BC Hydro and Measurement Canada can claim adequate meter accuracy, but what specific characteristics of the variables are the meters measuring?

If the meter measures the instantaneous values of current, power factor and voltage using high sampling rates, then these meters are using very different measuring techniques, and in addition to measuring peak values, will also be capturing harmonics, transients, fridge motors starting inrush etc. that were never captured by the analogue meter.

This new measuring technique violates the contract between the Utility and the homeowner, and if, as suspected, was done without advising the homeowner, then it would certainly appear to constitute a deception, if not an actual fraud, and results in a huge financial gain for the Utility.

By changing the method for measuring energy used, to a more “accurate” one they say, without adjusting the rates to reflect that, is fraud and theft. It amounts to an unapproved rate increase.

Please advise me as soon as possible of your response and your proposed action.

Attachments:

1. [Itron Specification Sheet C1S Centron Meter, 100188SP-06 C1S CENTRON.pdf] https://s3.amazonaws.com/codirect_docs/ITRON/C1S-CENTRON.pdf

2. [Camden_Pairs_Itron_Meters,_Automated_Meter_Reading_for_Impressive_Results_-_City_gains_efficiency_and_additional_revenues] (Itron Publication 100374CS-02.pdf) [http://www.m2mpremier.com/UploadFiles/Camden_Pairs_Itron_Meters,_Automated_Meter_Reading_for_Impressive_Results_-_City_gains_efficiency_and_additional_revenues\[1\].pdf](http://www.m2mpremier.com/UploadFiles/Camden_Pairs_Itron_Meters,_Automated_Meter_Reading_for_Impressive_Results_-_City_gains_efficiency_and_additional_revenues[1].pdf)