A list of some of the requests made by professional engineeers to BC Hydro for information regarding testing/certification

1. Between the start of the SMI program in July 2011 and the present day there has been no independent supervision, nor monitoring of the SMI program for safety by any organization.

2. In response to a consumer complaint July 16, 2015 to BCUC: Decision July 28, 2016, relies heavily on Garis report.
3. According to the BC Safety Standards Act Electrical Safety Regulation [am. B.C. Reg. 327/2005, Sch. 1, s. 6.]:

   "21 (4) Electrical equipment that has not been approved under subsection (1) may:
   (b) be used by a utility in its capacity as a utility ***if a professional engineer has certified that the use of the equipment is safe."***

   Many requests were made to BC Hydro for the documents signed by a professional engineer, certifying that the ITRON Centron II smart meters are safe and meet the requirements of the Canadian Electrical Codes and Safety Standards for electrical equipment.

   a) 13 December 2013 to BC Hydro requests disconnect switch testing data
   b) 17 December 2013 to the BC Safety Authority
   c) Dec, 20, 2013 asking BC Hydro (CC:BCUC,CSA,BCSA) and ITRON to provide test results and certification documentation for the disconnect switch.

   d) Feb 27, 2014 asking BCUC to intervene Correspondence #16 and BC Hydro statement: "*BC Hydro has no certification documentation."*
   e) June 11, 2014 Letter asking BC Hydro for documentation showing that the disconnect switch has been certified by a professional BC engineer to meet BC Safety Standards.
   f) July 18, 2014 response from BC Hydro delaying response to Sept. 2, 2014.
   g) Sept. 15, 2014 response from BC Hydro stating that there is no documentation as there is no need for BC Hydro to have its equipment certified, but "the disconnect switches have been through several rounds of testing".
   h) In response to Freedom of Information requests, BC Hydro stated in January 2014 that there are no such documents in its files.

4. There is **no effective electrical power system device coordination**. The arcing fault at the meter and its base cannot be effectively detected by the Utility's primary fuse. BCHydro's own data (see PDF file: "LV Fault Level.pdf" and Fuse clearing graph.jpg) proves that for a single line-to-ground/neutral high-impedance arcing fault, the fuse might not operate at all. Even for a bolted line-to-ground/neutral fault, BCHydro states it will take at least 10 seconds for the fuse to operate and to disconnect the more than 2,000 amperes of fault current.

   Note: The Manufacturer's data curves for the fuse show that for a low-voltage arcing fault at the meter, the fuse can take an unacceptable **several minutes** before it operates to cut off the fault current. Do you know how long the arc may sustain for a particular situation? You don't. **IEEE 1584 suggests a maximum reaction time of two seconds.**

   Response from BCHydro 12 Jun 2017:

   Regarding your questions with the Fault Level information our responses are as follows:

Q. The stated 2,018 ampere Line-to-Neutral fault current at 120 Volts translates to 29.13 Amperes of primary current (8,300:120) = 2018/69.28 = 29.13 Amperes? Please confirm.

A. The primary side voltage is 14400V line-ground so the turns ratio for 120V is 120:1. This translates to 16.82A of primary current during the 2018A line-to-ground fault at the meter base.

Q. How long does the Primary 3 Ampere HV fuse take to operate and clear the fault when it is carrying 29.13 amperes? Is it 10.7 Seconds as you have stated? If not then what will be the total clearing time at this value of current. I am asking this to determine the duration of a sustained low-voltage fault before being switched-off or extinguishing itself through burn-through.

A. Correct, the 3A HV transformer fuse takes 10.7s to clear the 16.82A of primary current.

Q. Please also comment on how the primary fuse reacts to a low-voltage line-to-ground arcing fault, as I do not see that mentioned in your data. I assume that an arcing fault is more likely during and after disturbing a meter-to-base connection

A. The unknown arc impedance would drop the fault current to an unknown value. The fault current would be cleared by the HV fuse within the fuse's inverse time-current characteristic.

Estimated fuse operating time during a LV arcing fault for 3A HV fuse is <u>150 seconds</u>, shown on graph "Cooper HV Fuse fault times.pdf".

See the BCHydro PDF file "LV Fault Level.pdf" showing data for an actual BC site, and "Cooper HV Fuse fault times.pdf" for fuse operating times.

Attached:

"LV Fault Level.pdf"
http://www.stopsmartmetersbc.com/wp-content/uploads/2019/09/BC-Hydro-LV-Fault-Level-Info-for-Secondary-Customers.pdf

"Cooper HV Fuse fault times.PDF"
http://www.stopsmartmetersbc.com/wp-content/uploads/2019/09/Cooper-Power-Systems-HV-Fuse-Fault-Times.pdf