

# SMART METERS & GRID: Separating Fact from Fiction

## Commonly-made statements: what's the real story?

### 1 – FICTION? *"Smart meters will not be a security or privacy risk because they will have encryption just like the banks use."*

**FACT:** Banks are now refusing to use wireless in their systems. Encryption is of little comfort when one realizes that the International Monetary Fund, a banking institution, suffered private information losses due to hacking, as recently did a leading computer security firm, Lockheed Martin. Wireless utilities will undoubtedly be attractive to all levels of hackers. Money spent on tracking and protecting against security breaches will be substantial, and paid for by the ratepayer. There is no such risk from a wired or analog system.

<http://ow.ly/638PD>

### 2 – FICTION? *"The recent W.H.O. 2B classification for RFR is the same for coffee and pickled vegetables."*

**FACT:** Dr. Perry Kendall, the chief medical officer of British Columbia, has made this statement many times, even on the Health Ministry's website (<http://ow.ly/638SD>) Science shows that drinking excessive amounts of coffee can lead to increased risk of bladder cancer, which is an extremely serious matter for many people. The WHO classification for pickled vegetables is isolated to Asia, where certain pickling agents caused serious health consequences. The Class 2B possible human cancer risk includes DDT, lead, diesel and fuel oils, chloroform, methylmercury compounds, and many other noxious agents.



Most people want to control the risks and have the freedom to choose, not suffer forced exposure from an agency that decides profit warrants the risk. Comparing radiation from wireless devices such as smart meters to coffee and an Asian pickling agent is minimizing the risks of radiofrequency electromagnetic fields in an attempt to support the exposure of all people and families to a known possible cancer promoting agent. All this in the name of business and profits.

### 3 – FICTION? *BC Hydro States: "BC Hydro's smart meters do not contain mercury."*

Mora Scott, August 23, 2011, e-mail correspondence to H. Karow

**FACT:** Mercury is a known Bio-Hazard and one of the worst neurotoxins on earth. In 2012, imported mercury will be banned by the Federal Government.

According to Itron's manual each smart meter contains a cylinder switch with mercury. The Head of Environment Canada's Mercury Section estimated that the amount of mercury in this switch to be at least 1000 mg. This compares to 3-5mg. in a CFL light bulb. Milt Bowling in Health Action Network quotes US Sen. Mike Enzi as reporting that the mercury from one CFL bulb is enough to contaminate 6000 gallons of water beyond safe drinking levels set by the US Environmental Protection Agency.

BC Hydro will be installing about 2 million meters with a total of more than 1.5 metric tonnes of mercury. Using Sen. Enzi's figures, this would contaminate 6 trillion gallons of drinking water, or enough water to fill the Great Salt Lake in Utah. Just in BC alone, the electrical utility will be faced with disposing of enough mercury to contaminate the annual kitchen and drinking water consumption that 33 million Canadians (the total population) would use over 55 years.

(source [www.hans.org/162-smart-meters-big-brothers-trojan-horse](http://www.hans.org/162-smart-meters-big-brothers-trojan-horse))

As if this weren't enough to cause concerns about the mercury in smart meters! When ignited, as in house fires, mercury vaporizes into a deadly bio-toxin. Fire chiefs have been notified that in the event of a fire involving smart meters, mercury vapors will be present and protocols specific to hazardous materials would apply. Some home insurers do not cover this type of contaminant, so each home owner should check with his company. [www.bclocalnews.com/opinion/127280473.html](http://www.bclocalnews.com/opinion/127280473.html)

### Smart Meter raises concern for children and pregnant women

Published: August 09, 2011

### See Itron's Radio Based Endpoint Disposal Manual

[www.itron.com/na/resourcesAndSupport/Pages/Support-Tools-Documents.aspx](http://www.itron.com/na/resourcesAndSupport/Pages/Support-Tools-Documents.aspx)

*continued*



# SMART METERS: Separating Fact from Fiction

## 4 – FICTION? *“The Smart Meter Program ensures privacy is protected.”*

**FACT:** As reported in “Innovation Canada”, by monitoring your power use, utilities get to know more about your household routines than you’d like them to. An amazing amount of detailed information can be gleaned from simple wattage measurements. Each appliance in your house causes a telltale fluctuation in power, and websites such as PlotWatt and EnerSave can analyze the output of a home power monitor to see how often you run a specific appliance and when it is being used. For example, usage patterns can indicate when the home is vacant or when the occupant is sleeping. Imagine what marketers (let alone burglars) would pay for that information. Currently in the US there are reports of this private information having been sold to marketers, insurance companies and police. The utility company considers this information its property and, therefore, can do with it what it wishes without the consent or knowledge of the individual.

Then there are the systemic threats. As electrical engineer David Nicol warns, the “smart grid”—the networking of control systems of generators and substations—is a veritable playground for mischief-makers. A government cyber war exercise in 2007, shown vividly in footage obtained by CNN, caused a generator to self-destruct. In effect the generator was forced to fight the raw mechanical power of the rest of the grid, and lost.

<http://ow.ly/638Qe>

## 5 – FICTION? *BC Hydro States: “Radio frequency signals from smart meters are much lower than the signal from common every day devices such as radios, baby monitors and even the spark plugs in your car, so it must be safe.”*

[www.bclocalnews.com/kootenay\\_rockies/nelsonstar/opinion/letters/118195894.html](http://www.bclocalnews.com/kootenay_rockies/nelsonstar/opinion/letters/118195894.html) - Mora Scott, BC Hydro

**FACT:** Radios are receivers. They do not radiate. Wireless smart meters are receivers and transmitters. They do radiate. Wireless baby monitors are transmitters and do radiate, but they are optional and can be turned off. Wireless smart meters are not optional and cannot be turned off. They radiate 24/7.

Spark plugs are not receivers or transmitters, and neither do they radiate. They are not in the same realm.

On May 31, 2011, the World Health Organization reclassified all emissions from radiofrequency electromagnetic fields as possibly carcinogenic to humans. (<http://ow.ly/63Bxp>)

Further, new science is exposing a cumulative dose response relationship – the more prolonged exposure received, the greater the risk of developing ill health effects.

[www.springerlink.com/content/387360gh0715nu01/](http://www.springerlink.com/content/387360gh0715nu01/)

Cigarettes used to be everywhere, but they were never safe. The

same situation exists today with regard to wireless devices of all kinds, which also includes cordless phones. The decision to use baby monitors or cordless phones in your home is still under your own care and control. Nobody is forcing you to use these devices, and you can choose to turn them off or replace them with safer, wired models at will any time. Exposure is not forced and involuntary. This is not the case with wireless emissions from smart meters on your home. Once these wireless meters are installed, you are not in control and cannot switch them off or have them removed if you wish to avoid health risks associated with exposure to microwave radiofrequency radiation.

## 6 – FICTION? *“Health Canada and others tell us the weight of evidence shows no indication of harm to health from any low energy wireless devices (microwave radiofrequency radiation).”*

**FACT:** This statement is based on a numerical comparison of how many scientific studies show biological effects and how many studies show no biological effects. Dr. Henry Lai of the University of Washington has analyzed scientific outcomes, and has found that only 25% of industry funded studies find biological effects, while 75% of non-industry funded studies find biological effects. The fact that the weight of evidence is tipped in favour of no biological outcomes is a reflection of how many studies are funded by the wireless industry, which has the most to lose. Dr. Jerry Phillips, University of Colorado, states that using scientific papers to cancel out one another is unscientific and deprives us of the opportunity to learn more about the risks of exposure.

There are now a number of comparative studies that show a correlation between how the research was funded and the results obtained. This situation illuminates the serious conflicts of interest which undermine the integrity and objectivity of all scientific research funded by the wireless industry.

Consideration must be given to the fact that many independent studies show harmful effects. If something is safe, there should be no evidence of harm. Health Canada’s assertion leads one to believe that those studies reporting harm should be ignored merely because they are outnumbered.

## 7 – FICTION? *“Non-Ionizing Radiation doesn’t have the energy required to break or damage DNA.”*

**FACT:** The purpose of science is to increase knowledge and understanding. It is never static. While it is unlikely non-ionizing microwave radiation damages DNA directly, numerous peer reviewed and published scientific studies show damage can be caused indirectly. Here is a quote from the Explanatory section of the Council of Europe Parliamentary Assembly’s resolution dated May 27, 2011:

“A major programme of research into the specific features of these

continued

# SMART METERS: Separating Fact from Fiction

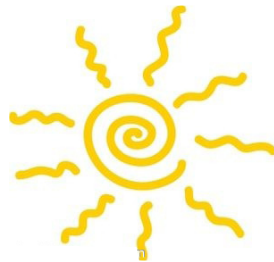
effects such as genotoxicity of waves (REFLEX programme), funded by the European Commission and involving 12 European research teams, was launched and the results were made public in December 2004. The conclusions of the report were disturbing on several counts as the results bore out genotoxic effects of mobile telephone waves, and in particular greater frequency of chromosomal deletions and breakup of DNA molecules in different types of cultivated human and animal cells. In addition, stress protein synthesis was greatly increased and gene expression was modified in various types of cells.”

**8 – FICTION? “Radiofrequency radiation (RFR) is part of the electromagnetic spectrum just like the sun ... In fact, exposure to the sun’s radiation is probably more harmful.”**

**FACT:** The radiation emitted by the sun falls into the categories of visible light, infrared and ultraviolet in the electromagnetic spectrum and is a natural part of our universe, to which human bodies have adapted over eons. Man-made wireless signals in the microwave range of the electromagnetic spectrum are pulsed, ultra-high frequency emissions, released in bursts, at regular intervals, in very rapid succession. Imposed on these pulsed, ultra high frequency microwaves are extremely low frequency (ELF) modulations of the radiofrequency carrier waves. Carrier waves transport data and are also referred to as Information Carrying Radio Waves.

These unnatural microwave radiofrequency radiation emissions cannot be compared to the naturally occurring and biologically compatible radiation produced by the sun.

The sun’s radiation does not penetrate buildings, allowing escape from its heat or damaging effects. Further, we can take many precautions to protect ourselves from the sun, and forced, involuntary exposure is not part of our society. Man-made radiation does penetrate buildings, and bodies, leaving no refuge from its damaging effects. The sun goes down at night, allowing the body time to recover and rest. Man-made radiation from smart meters emits all day and all night.



**9 – FICTION? “Power density of summer sunlight at the earth’s surface is 100,000 microwatts compared to 0.01 microwatts, a smart meter’s power density at 10 feet.”**

**FACT:** This statement in BC Hydro’s Business Case is intended to make us believe that the sun is more dangerous than the smart meter. This is incorrect and misleading. The 100,000 microwatt figure actually refers to the total solar

radiation at our latitude for frequencies between near infrared and ultraviolet radiation, the so-called optical window. The actual levels of the solar emissions in the radiofrequency range reaching the earth used in scientific literature are somewhere between 0.000000001 microwatts (stormy sun) to 0.00000000001 microwatts (quiet sun). If the smart meter’s radiation figure given by BC Hydro can be believed, the smart meter’s radiation is at least 10 million times higher than the natural level of radiation that all life evolved in and which our bodies are used to.

( Barnes FS, Greenebaum B, editors. 2006. Bioengineering and biophysical aspects of electromagnetic fields. 3rd ed. Boca Raton: CRC Press; p. 3.)

**10 – FICTION? “The radiation from wireless devices doesn’t penetrate the skin.”**

**FACT:** Dr. John Blatherwick, BC Hydro’s medical advisor and former provincial medical officer, has said this repeatedly. This statement is totally incorrect, as microwave radiofrequency radiation penetrates all living things and most inanimate objects. If radiation cannot penetrate skin, how does the signal go through concrete to your cell phone in buildings or to your wireless computer at work? How could your smart meter send messages through your neighbours’ homes to the receiver perhaps many blocks away? Given that human bodies are largely water and are highly receptive to microwaves, we make ideal antennas.

<http://ow.ly/63CmA>

**11 – FICTION? “A wired meter on your house will cost \$35,000”** <http://www.youtube.com/watch?v=8qRLwDfGPQo>

**Fact:** Various choices are available from different utility companies, but most offer a wired option. The Itron Smart Meter is used in Ontario. Toronto Hydro will provide a wired smart meter that uses a land line free of charge. The only cost to the customer is the monthly charge for a dedicated phone line (\$25.90 from Bell Canada). Ontario Norfolk Power set up & shop-tested three wired meters at no cost for a local sufferer of electrohypersensitivity, awaiting their purchase of line splitters so existing phone lines could be used. In Illinois, there is a one time cost of \$68.35 and a monthly fee of \$24.75 for manual meter reading. Maine has two choices for wired meters: A smart meter with the transmitter off is an initial charge of \$20 and monthly charge of \$10.50, or the customer can keep the existing analogue meter for a one time charge of \$40 and a monthly charge of \$12.00.

Idaho Power’s Smart Meter standards are for all hard wired costing approximately \$200 each. These meters are hooked up to the home power lines. The same lines that bring the power in are the same lines that send the information to Idaho Power. This is a simple system that has none of the risks of wireless exposure and there is no meter to meter communication, or wireless infrastructure required.

# SMART METERS: Separating Fact from Fiction

Homeowners in Idaho feel safe and secure with this system, and Idaho Power is not wasting time or money dealing with people trying to protect their rights.

This is the kind of system that would work well in British Columbia and immediately halt the costly and time consuming challenges in rolling out the Smart Meter program as well as protecting people, homes and the environment.

In California, Pacific Gas and Electric have an opt out program for those who refuse wireless Smart Meters. Customers costs include an upfront fee of \$135 with a monthly charge of \$20, or a one time fee of \$270 and monthly fee of \$14. This is now being legally challenged and the California Public Utilities Commission is discussing details of “no cost opt out” proposals.

**Itron Sentinel on a home in Ontario** <http://emrabc.ca/?p=2936>

**Phone Line Connections** [http://emrabc.ca/?page\\_id=3496](http://emrabc.ca/?page_id=3496)

## 12 – FICTION? *“The radiation from a “smart meter” over the course of one year will be less harmful than using a cell phone for half an hour.”*

**FACT:** BC Hydro has estimated that exposure to the head from using a cell phone is up to 10,000 microwatts per cm<sup>2</sup> (BC Hydro Smart Meter Business Case). This is 10 times higher than that allowed by our outdated Safety Code 6 which protects against thermal effects only and has no provision to protect against non-thermal biological effects known to occur.



Comparing close head exposure, which is far above our own safety regulations, with whole body exposure is like comparing apples to oranges. Daniel Hirsch,

senior lecturer and expert on nuclear policy at UCSC, explains that he has analyzed the exposure comparison and he concludes that smart meter exposure is actually 100 times greater than that of a cell phone.

[www.youtube.com/watch?v=sNJ3BriSaE&feature=share](http://www.youtube.com/watch?v=sNJ3BriSaE&feature=share)

Current evidence is still limited and must be further investigated

<http://www.magdahavas.com/2011/06/05/whos-new-classification-of-rfr-what-does-this-mean-for-canada/>

[http://assembly.coe.int/ASP/Doc/ATListingDetails\\_E.asp?ATID=11332](http://assembly.coe.int/ASP/Doc/ATListingDetails_E.asp?ATID=11332)

## 13 – FICTION?

*“People affected by RFR, if indeed there are any, are part of a very small minority.”*

**FACT:** Increased numbers of people who are hyper-sensitive to electromagnetic fields are being documented worldwide. Drs. Hallberg and Oberfeld released a report documenting this increase, and, based on steadily increasing rates, they project that 50% of the population will be electrohypersensitive by 2017. (“Electromagnetic Biology and Medicine”, 25:189-191, 2006: 190 Hallberg and Oberfeld) Given that Canada has no public health surveillance and monitoring system for those reporting electrohypersensitivity, (EHS) there is no reliable method of determining actual numbers of those affected. People suffering from EHS present a confusing set of symptoms to health care providers such as headaches/migraines, vertigo, heart irregularities, joint & muscle pains, sleep disturbances, concentration and memory difficulties, anxiety and depression. They are most often misdiagnosed and prescribed medications to treat these symptoms without any full understanding of cause. Until proper reporting and investigation procedures are put in place, there is no way of knowing the current situation in Canada. However, it is clear that a growing number of individuals in British Columbia have reduced or eliminated ill health by avoiding exposure to wireless devices.

Science is showing ill health effects are possible as a result of a cumulative, dose response relationship to microwave radiofrequency radiation.

([www.springerlink.com/content/387360gh0715nu01/](http://www.springerlink.com/content/387360gh0715nu01/))

This means that the more people are exposed to all manner of wireless emissions, the greater the likelihood of adverse health effects. For those with EHS, the stakes are highest. Mandatory exposure will represent a significant denial of their human rights as they will be essentially exiled from society, and possibly our province, if the wireless meter plan proceeds. Even for those who have not developed EHS (which can happen to anyone at any time), ‘smart’ meter emissions would still cause health suppression for our society, as well as a potential loss of productivity and efficiency because of their impacts on energy, behaviour and cognitive health.

BC Hydro is not allowing anyone to opt out of the wireless smart meter program, even those diagnosed with EHS, or those with health problems, such as impaired immune systems.

## 14 – FICTION? *“Current evidence is still limited and must be further investigated.”*

**FACT:** This is a trick of industry to allow the continued rollout of risky technology without any precautionary measures or warnings to the public. Many scientists are convinced we don’t need any more studies because there is enough evidence to justify immediate action to protect the public, as is now being recommended by the 47 member states of the European Council Parliamentary Assembly.

continued



# SMART METERS: Separating Fact from Fiction

## 15 – FICTION? *“There is no way to provide a wired smart meter option to residential customers.”*

**FACT:** There is a growing list of international areas providing wired smart meters to residential customers. One state in the US, Idaho, is installing only wired meters in response to concerns regarding health, fires and privacy. <http://ow.ly/638Ve>

BC Hydro’s chief smart meter project officer was quoted as saying that they considered it, but it was too costly. The manufacturer of the Itron Openway smart meter clearly states in all promotional and patent information that the Itron Smart Meter can be wired, and the utility is free to choose the method of connection.

## 16 – FICTION? *“Hydro says that Smart Meters will only transmit for several seconds or a few minutes a day.”*

**FACT:** “While the period during which a smart meter transmits data back to BC Hydro will vary depending on the specific metering system use, transmission is expected to last for only a few minutes per day.” (BC Hydro’s Smart Metering & Infrastructure Business Case).

“BC Hydro said the meters will transmit information ... for an average of only one minute per day.” (Times Colonist, June 3, 2011)

The truth is we don’t know for how many minutes per day information will be transmitted. BC Hydro tells us that the signals are very short (only milliseconds long). It sounds insignificant, but there are 1,000 milliseconds in a second, and 60,000 in a minute. If each signal is 2 milliseconds long, and the total time each day is only for 1 minute, there will be 30,000 signals, or one every 3 seconds. If the total time each day is 3 minutes instead of 1, there will be 90,000 signals a day, or one every second. The important thing to know is that each of these signals is very powerful, sending out spikes of radiation. These spikes cause harm to cells in our bodies, as researched by scientists such as Dr. Henry Lai of the University of Washington and Dr. Martin Blank of Columbia University.

**We don’t know how many signals will be sent each day, but each one will produce dangerous spikes of radiation.**



Other locations to receive smart meters were also told transmissions would be short and infrequent. Independent testing of the radiofrequency radiation smart meter emissions show that the signals are continuous and constant.

BC Hydro has not provided testing from an active, fully operational system, which would include two-way communication with a smart meter collector device located some distance from the home, as well as the possibility of

other houses communicating through smart meter devices to reach the collector unit. No testing is done of exposure from the collector device, nor combined exposure from all wireless devices in the home, as well as exposure from smart meters located on neighbouring homes.

## 17 – FICTION?

### *“Smart Meters and wireless devices are green.”*

**FACT:** Anything “green”, if truly so, cannot also be of risk to the environment. There is now sufficient scientific literature demonstrating that electromagnetic fields are harmful to the environment. The Parliamentary Assembly of the Council of Europe on May 27, 2011 specifically identified stress reactions and genetic risks to plants, trees, animals and insects, and has this to say:

*“Dr Warnke highlighted the innate magnetic compass used by certain animals or insects to orient themselves in time and space and which dictates the internal functioning of their organism, before going on to demonstrate how extremely weak artificial fields or waves could adversely affect the sense of direction, navigation and communication of certain animals or insects: migratory birds, pigeons, certain kinds of fish (sharks, whales, rays) or certain insects (ants, butterflies and especially bees). He suggested that malfunctions induced by artificial electromagnetic waves might be one of the major causes – besides problems of exposure to chemicals – of repeated incidents of whales being washed up on beaches or the death or disappearance of bee colonies (colony collapse disorder) observed in past years.*

*After analysing the scientific studies available to date, and also following the hearings for expert opinions organised in the context of the Committee on the Environment, Agriculture and Local and Regional Affairs, there is sufficient evidence of potentially harmful effects of electromagnetic fields on fauna, flora and human health to react and to guard against potentially serious environmental and health hazards.”*

A single smart meter contains the mercury of about 500 CFL bulbs and the mercury in all the meters being installed in B.C. is about one metric tonne. That is equivalent to half a billion CFL bulbs. Mercury tilt switches have been banned in automobiles since 2003. BC Hydro is bringing in these meters just before they are banned in Canada next year, which is definitely not protective of our environment. Regarding mercury see here: [www.itron.com/na/resourcesAndSupport/Documents/Radio-Based\\_Endpoint\\_Disposal\\_Manual.pdf](http://www.itron.com/na/resourcesAndSupport/Documents/Radio-Based_Endpoint_Disposal_Manual.pdf).

“Greenwashing” masquerading as “green,” is dangerous to all aspects of the environment, sabotaging long-term solutions for short term profitability. All wireless devices throw away electrical energy, and have a far larger carbon footprint than most of us can imagine. Did you know that one hour of talking on a cell phone every day for a year has the same carbon footprint as a trans-Atlantic flight from New York to London?

# SMART METERS: Separating Fact from Fiction

## 18 – FICTION? *“Get Lights on Safer, Faster.”*

**Fact:** Wireless Smart Grids and Smart Meters cannot fix power outages. This still requires real people. BC Hydro employees still have to physically drive to areas in bad weather conditions, and this does not change with a wireless smart meter or grid. In fact, BC Hydro employees are known for repairing the system as quickly and safely as humanly possible. A wireless Smart Grid will not speed up the human factor. The big question is, “Do we want to risk human and environmental health for the convenience of defining the location of the power outage a few minutes faster?” Decisions of this magnitude demand public input and hearings.

## 19 – FICTION?

### *“Smart Meters will help us conserve Energy.”*

**FACT:** Smart Meters do nothing to conserve energy. What they are trying to do is change patterns of behaviour. External control of appliances and heating & cooling systems would allow the utility company to conserve energy by turning off your smart-enabled appliances at their choice. This would create conservation and diversion of energy to allow BC Hydro to sell more of our energy to the U.S. at peak hours.

Another way is to change usage pattern by charging more for energy used during the day, thus penalizing people for utilization during peak hours. No place where smart meters have been in use (e.g. Ontario, Australia, California) has energy usage been reduced, yet the associated monthly bills have increased because people need to use power during the day. That is the fact.



Retrofits, such as energy-efficient furnaces and windows, would reduce the amount of energy needed and thereby truly conserve.

## 20 – FICTION? *“Smart Meters can’t be wired through telephone lines.”*

**FACT:** The Itron smart meter installer’s handbook has protocols and instructions to do just that. It is accurate to state that BC Hydro doesn’t want to wire the meters through the phone lines.

<http://ow.ly/638Ux> On page 7 ( page 4 number at footer ) explains that Ethernet and PSTN ( Telephone Lines) can be used :” The OPENWAY system can utilize a variety of public communication platforms to transfer data, including GPRS, Ethernet, PSTN, BPL, WiFi, WiMax and others.”

## 21 – FICTION? *“Fibre Optic technology can’t be installed in BC due to the expense of burying the cable in difficult terrain.”*

**FACT:** It is an interesting fact that most areas already have full fibre optic cabling. Further, no drilling or digging is necessary where impractical, as fibre optic cable can be installed just as easily above ground whenever buried cable is not feasible. European countries with varying topography, such as France, have employed fibre optics as their main infrastructure, opting for a fully secured, ultra high speed, no health risk system.

<http://ow.ly/638W4>

## 22 – FICTION? *“Smart meters cannot detect how someone uses electricity or which appliances are being used – they only measure how much energy a home used or generated in total. This is the same electricity consumption data we always have collected, just more frequently – up to three or four times per day rather than once every two months.”*

Greg Reimer, BC Hydro <http://ow.ly/638WQ>

**FACT:** BC Hydro has chosen to install the ‘Openway Centron’ wireless meter manufactured by ITRON Inc. According to the company website: “each OpenWay CENTRON meter comes factory-equipped with a ZigBee® radio chip to provide a built-in communications pathway into the home for data presentation, load control and demand response.”

Even a quick glance at the Zigbee corporate website ([www.zigbee.org](http://www.zigbee.org)) reveals that these radio chips are specifically designed and intended to communicate directly with a wide range of home appliances for the purpose of two-way wireless monitoring and control. Consequently, it would appear that BC Hydro is knowingly installing a device on every home and business in the province that has the capability to invade the security and privacy of the residents and occupants without their consent.

A recent announcement from chipmaker NXP says that 2011 and 2012 will see a rush of devices that can measure and report their own power use. Consumers, utility companies and industrial users will be able to monitor energy consumption in real time in smart appliances, consumer electronics, etc. (<http://ow.ly/638Xl>) These chips will be put into every new appliance and will be able to communicate with the Zigbee chip in the smart meter to gather specific and personal utilization info.

If the smart meters are only gathering consumption data that has always been gathered, why did Hydro select this meter, which comes with the Zigbee chip, with the capability to gather much more private usage data, especially when smart chips are on new appliances? And why multiple readings each day?

continued

# SMART METERS: Separating Fact from Fiction

## 23 – FICTION?

***“Smart Meters for a Sustainable BC.”***

**FACT:** There is nothing sustainable about using a technology that peer reviewed scientific evidence demonstrates risk to humans, animals and the environment. BC Hydro wishes to ignore that the World Health Organization has reclassified radiofrequency electromagnetic fields as a possible human carcinogen, as well as the growing body of quality science showing damage to wildlife and the environment.

BC Hydro is forcing people against their will to be exposed not only to a meter on their private property, but to the full radiating of their neighbourhood – a place where people want, and have a right, to feel safe and secure. Has BC Hydro developed a risk analysis for costs to remove all wireless smart meters and infrastructure, and replace with a fully wired system when British Columbians demand safety and reduction of risk and damage for themselves and the environment? “Sustainable” is not a word that can be used so easily for wireless technology. – look to the European Council Parliamentary Assembly resolution of May 27, 2011 to see that sustainable practices need to be rooted in safety. A precautionary approach reducing risk must be taken before it is too late to reverse damage. A sustainable system needs to protect people and environment, not increase risks. Anything that has potential to damage human health, risk agriculture production, and affect insects, birds and plants, cannot be called sustainable. Creating mutual agreement with all parties involved on strategies to reduce energy use is a sustainable human practice. Forcing actions on people against their will with the potential of penalties for non-conformance is unsustainable in the long term.

See the following links:

<http://ow.ly/63ERk> • <http://ow.ly/63FcP> • <http://ow.ly/63Ffs> • <http://ow.ly/63M7x>

## 24 – FICTION? ***“Meter sockets have metal backing” aka “The metal plate behind the Smart Meter will protect you from emissions.”***

– statements made by BC Hydro employees both verbally and in written material

**FACT:** The wireless Smart Meter system is based on two way communication with a collector hub, and potentially other smart meters, which can use a daisy chain system to reach the collector hub. The metal backing will provide no protection from the microwave radiation from your neighbours’ meters or from the collector hub. This radiation could and mostly likely will be coming from all directions, and will not be diminished by the metal backing of the individual

smart meter. A third key element of Smart Meter wireless communication functionality, is the Home Area Network (HAN) and is a Wi-Fi communication system controlled and emanating from the wireless smart meter (this gives the wireless smart meter ability to act as a home wi-fi router). This wireless HAN communication system is designed to interact with appliances and heating/cooling systems, which are further enabled with their own microwave radiofrequency radiation communication systems. If the metal backing plate were actually able to limit exposure, this would also limit one of the most important functions of the wireless smart meter program – the ability to communicate and control appliances and home systems remotely, either by the utility or the homeowner. Radiofrequency electromagnetic fields (microwave radiofrequency radiation) are impossible to contain without complete containment procedures, such as using radiation protection paint on all walls and covering windows with radiation protection fabric. This full containment procedure is used to protect those with electrohypersensitivity in other countries, most notably Sweden. Any small gap would allow wireless signals to penetrate. The metal plates are not large enough to stop or in any way impede the flow of wireless signals.

## 25 – FICTION?

***“In-Home Feedback tools will conserve energy.”***

(BC Hydro, Gary Murphy presentation)

**FACT:** Trying to change people’s habits by providing them with computerized information on use will not necessarily change daily human behaviour and needs such as making meals, doing laundry and other household chores, or continuing to use life support or electrical medical equipment at all times of the day. Elderly people who need more consistent heating and cooling to maintain their health should not be expected to face the strain of worrying about penalties for peak time usage – or if they should be heating their homes only after midnight. The evidence that homeowners will actually use these “tools” to change power use remains to be seen. When people need to eat, they need to eat, and when there are no clean clothes, the laundry needs to be done. This is an expensive and uncertain way to try to change behaviour, when simple education and opt in reward programs for energy savings could accomplish more without the need for very expensive and risky wireless smart meters and grid infrastructure. BC Hydro states they aren’t going to charge for time of use, but all of this information infrastructure is designed to educate the ratepayer on time of use and hopefully become aware of ways to change behaviour. The most vulnerable in our society will be the ones most penalized by time of use billing, and the ones least likely to be poring over computerized information on rates and billing.



# SMART METERS: Separating Fact from Fiction

**There is no place where the smart meter program has been implemented where energy usage has been reduced. Ontario Premier McGuinty admitted to the Toronto Sun, Sept. 18, 2010, that the expensive program had resulted in no energy conservation. Why should the program have different results here?**

## 26 – FICTION?

### *“Program Benefits – Reduced power theft.”*

**FACT:** To justify the cost of the program, BC Hydro has depended upon the reduction in power theft for marijuana grow ops. No proof of the amount of loss has been provided, yet various estimates have been given, ranging from \$12 million to \$125 million. <http://ow.ly/63H22>

How can unknown power theft be quantified? And if it can, where is the documented evidence? BC Hydro claims that wireless smart meters will eliminate this theft, but according to the Ontario Energy Board’s “Smart Meter Initiative Working Group,” this is not true. Smart metering can also help reduce tampering at the meter, but when it comes to a straight electrical bypass of electricity, the Smart Meter cannot identify this theft remotely. \*Numerous Smart Metering companies are promoting this technology as a means of reducing theft, while upon closer scrutiny the reductions are very limited.

The Smart Meter can determine if there is tampering at the meter or if the meter is reversed (upside down) and it can measure substantial voltage drops (depending on model & Utility Infrastructure), but a service crew still has to attend the area, and further, the voltage drop has to be measured against something, namely a separate meter at the transformer.

The extreme costs associated with placing a separate meter at every transformer and associated installation, maintenance, and communication costs are prohibitive for any Utility.



The CEO and Founder of dTechs has extensive experience dealing with Organized Crime. He has instructed and lectured on this issue throughout North America and the United Kingdom. In his policing career he has observed over 700 electrical bypasses or tampering incidents. In these 700, he has seen one inverted meter and approximately 30 meter tamperings where the criminal went into the back of the meter and jumped the meter posts. The remaining 96% of electricity theft was obtained with a bypass prior to the meter, and thus would not be detected by a Smart Meter. Whatever crime groups might tamper with the meter (4%) would simply

learn to switch to a full bypass. Smart Metering coupled with the dTechs Meter Suite will give Utilities 100% grid surveillance, allowing the dTechs Meter Suite to quickly lead Utilities to bypasses, which would otherwise go undetected. \*Theft of power may be detected more easily if it involves meter tampering. However, theft accomplished by tapping conductors before they reach the meter would not be detected by smart metering. The benefit may not be significant if most power is stolen by this latter method. However, aggregated load data by transformer would facilitate comparison with transformer capacity and help an LDC (Local Distribution Company) determine if meter bypass would likely cause overloading leading to failure.”

\*Ontario Energy Boards ‘Smart Meter Initiative’ Working Group

## 27 – FICTION?

### *“We need to modernize our Grid.”*

**FACT:** Our electrical grid has always needed and received constant maintenance and upgrades. Regular modernization to current infrastructure continues to be of high priority, especially when power lines are vulnerable enough to fall into the Fraser River, supposedly as a result of weather changes. Spending \$1 billion on a new wireless communication infrastructure and meters will not address any of the ongoing and urgent requirements to upgrade parts of the existing grid.

The meters are some of the smallest parts of the current infrastructure; BC Hydro states that the analogue meters haven’t been upgraded in 50 years, which is testament to the reliability and durability of this analogue technology over long periods of time. It is reported that the new smart meters will most likely require replacement within 20 years.

BC Hydro and the Liberals have made a unilateral decision to modernize the system using a wireless communications infrastructure with serious questions of security, privacy, health and cost. This new wireless system will not replace current infrastructure maintenance and upgrading requirements. Protection of the ratepayer has been eliminated by denial of the BC Utilities Commission to conduct normal oversight procedures and public hearings. This affords no outside monitoring or control of this expensive program and leaves the public unprotected.

The new wireless Smart Grid will require its own maintenance, management and upgrades and all associated costs for the new system will be passed on to the ratepayer, in addition to costs for current infrastructure maintenance and modernization.

Quote from an industry document, Cellular Communications and the Future of Smart Metering: “Low maintenance: During the 10- to 20-year life span of a Smart Meter communication device, the communication module’s firmware will likely be upgraded – for example, to add new features, enhance security,



# SMART METERS: Separating Fact from Fiction

or maintain compliance with the latest wireless communication standards.” Setting up systems for data collection, analysis and further handling is another layer of associated costs that has not yet been added to the \$1 billion price tag of the new wireless system.

BC Hydro is presenting wireless communication grid modernization of infrastructure as a power saving measure, in line with electric cars and off-grid power production. These new innovations are already underway and not dependent upon BC Hydro implementing a wireless Smart Grid. The wireless system itself is not a prior requirement for the development of new independent power producers or electric cars.

---

## 28 – FICTION?

***“Enable long term distribution system planning.”***

**FACT:** BC Hydro already has information and historical data on consumer use and behaviour patterns, to which they have referred for decades to predict use. Major changes are most commonly tied to weather patterns, creating predictability. BC Hydro already knows how much power we are using and continues to be able to predict requirements for new households. Long term distribution planning is not about making things better for BC ratepayers; rather it is about setting up distribution systems to sell our clean energy to the US as their demand for more power increases in the future. This is yet another major change to our electricity supply that requires proper independent oversight protection from the BC Utilities Commission.

---

## 29 – FICTION? ***“Automated meter reading will save costs” and “Create Green Jobs and Economic Opportunities.”***

**FACT:** Approximately 300 meter readers will lose their jobs, which is supposed to save costs passed on to the customer. However, the true costs of rolling out the full wireless Smart Grid program, along with support systems, data collection, analysis and handling, plus regular security testing and upgrades, have not been presented to the public. How do we evaluate the costs of employing 300 people against the undetermined costs, unexpected overruns and massive security risks of this system?

Managing a wireless infrastructure which puts risks and stresses on all living things cannot be called a “Green Job.” What are these Green Jobs and Economic Opportunities? Is the Economic Opportunity selling power to the US? Is the Economic Opportunity money that will be made by companies and their investors from the replacement of household appliances with new radiofrequency enabled models, which can be remotely controlled through the wireless Smart Meter? Who will be making money on reconfiguring heating and cooling systems so that they can also be remotely controlled?

Is the Economic Opportunity the massive amount of money being made by the manufacturers of smart meters (ITRON) and their investors?

**Yet more reasons why BC Hydro customers must demand BC Utilities Commission full oversight and public hearings.**

---

## 30 – FICTION?

***“BC Hydro in business case says that microwave oven at 2 inches radiation 5000 uW/cm<sup>2</sup>.”***

**FACT:** Microwave radiation is measured as power density in units of microwatts per square centimetre (uW/cm<sup>2</sup>) which is essentially the rate of energy flow per unit area. One needs special equipment for the detection and measurement of the leakage. Typical levels of radiation leakage from microwave ovens is about 200 uW/cm<sup>2</sup> which is far below the limit set by the national safety standard Safety Code 6: Limits of Exposure to Radiofrequency Fields at Frequencies from 10 kHz-300 GHz (1994, 60 p., Health Canada pub. 91-EHD-160). This level of leakage cannot be sensed by the body.

---

## 31 – FICTION? ***Why is BC Safety Authority making this statement? “It’s highly unlikely [that changing the meter would blow the fridge] because the removal and installation involves opening and closing a circuit—much like using a switch. It doesn’t generate voltage on its own.”***

As stated by Ariela Friedmann of BC Safety Authority

**FACT:** Highly experienced electronic technicians state it is possible to create high voltages capable of damaging equipment when changing the meter. Changing the meter is not at all like flipping a switch. If the installer makes a momentary connection with slightly shaky hands and draws an arc from the contacts it can induce thousands of volts in the wiring when the arc collapses. Hydro is perfectly aware of this since it is something they must deal with constantly when they switch power on their circuits. It is not only possible but very probable that an arc will occur when switching a 230 volt circuit by hand under load. To avoid this the main breaker should be turned off before changing the meter and then turned back on after it is changed. Breakers are designed to prevent damaging arcs when they are switched on or off. The meter contacts are not designed to act as a switch. This event is most definitely the fault of the installer and the company for which he works.

### **Fridge blows after smart meter installed**

[www.bclocalnews.com/richmond\\_southdelta/richmondreview/news/128323478.html](http://www.bclocalnews.com/richmond_southdelta/richmondreview/news/128323478.html)

*continued*

# SMART METERS: Separating Fact from Fiction

---

**32 – FICTION?** *“BC Hydro’s smart meters are not high current devices that results in any magnetic fields.”* August 18, 2011 written statement by Natyelli De Anda

Bonnabel, BC Hydro Smart Meter Program

**FACT:** Wireless Smart Meters produce both electromagnetic fields and radiofrequency electromagnetic radiation fields as they are electrical devices with radiofrequency communication capabilities. Magnetic fields are always produced by electrical devices and wireless devices.

---

**33 – FICTION?** *“Radio technology has been in place since before World War 2 and all of us have grown up with radio. In fact, our life expectancy has increased over the last decade – evidence of no cumulative harm for those growing up listening to radios.”* August 18, 2011 part of written statements by Natyelli De AndaBonnabel,

BC Hydro Smart Meter Program

**FACT:** People are living longer, thanks to improved healthcare, hygiene and nutrition among other things. Without radio technology, we might be living even longer.

Wireless technology is relatively new, especially in terms of human existence, with radio transmitters being widely dispersed for only the last 60 years or so. In fact, radio transmitters have been shown to be harmful especially to populations living in close proximity. In May, 2011, the Vatican was found guilty of causing increased incidence of leukemia by having FM transmitters in a populated area.

<http://spectrum.ieee.org/energy/the-smarter-grid/sins-of-transmission>

Cellular transmitters have been common in North America for only the last 10-15 years. Evidence shows that it can take years for health effects to become evident. Recently there have been several important studies showing cancer clusters within 500 meters of a cell transmitter.

Effects from prolonged exposure to radiation, even at low levels, are cumulative. Once a cell is damaged, it does not repair itself. Should DNA become damaged, this could be passed on to future generations.

People smoked for many years before lung cancers occurred, and even longer before doctors realized the cigarettes were the cause. Many scientist have called radiation from wireless devices the next cigarette.