

**Dear Customer,**

We have received notice regarding your household's uncertainty about participating in the water meter replacement program currently underway in Red Deer. We are sending you this information package to answer some of the questions you may have about AMR (Automated Meter Reading) technology.

**Smart meters**

AMR meters may be technically considered a type of smart meter, but they don't use all of the capabilities of the conventional smart meter:

- Our AMR water meters transmit information for less than 1.5 minutes per day. A handheld reading device collects the information once a month.
- Our AMR water meters are not connected to a smart grid. Smart grids are used primarily by electrical utilities to manage and automate energy distribution and consumption and analyze patterns of usage.
- Our AMR water meters are capable of only one-way information (to the handheld reading device) instead of two-way (back to the customer).
- There is inconsistency in the industry about the definition of smart meters. Typically, "smart meters" refer to electric meters.

**Safety**

Health Canada has concluded that smart meters do not pose a public health risk. Please see attached Health Canada fact sheet.

**Manufacturer – Itron**

Meters being installed or replaced in Red Deer will be equipped with an Itron ERT module. These radio based, battery-run modules are attached to the water meter and send out water usage information. Like all Itron products, these ERT modules are stringently evaluated for radio frequency (RF) safety and meet all Federal Communication Commission (FCC), Industry Canada (IC) and Institute of Electrical and Electronic Engineers (IEEE) standards. At just eight inches from the meter, RF energy levels from Itron meters are 10 to 16 times lower than the exposure limits allowed by regulatory agencies, including the FCC and Industry Canada. Please see attached Itron fact sheet.

**Radio frequency (RF)**

AMR uses RF energy to signal its meter reading information. Radio frequency is all around us, and refers to energy that is part of the electromagnetic spectrum. AMR meters have a frequency of about 900 MHz, which falls within the 450 MHz to 2.4 GHz range that includes a number of household devices including baby monitors, cell phones, laptops, and wireless Internet routers.

RF energy is governed by Health Canada's Safety Code 6. Under the code, the Maximum Permissible Exposure (MPE) level to RF energy is 0.6 milliwatts per square centimetre (mW/cm<sup>2</sup>) for signals in the 900 MHz range. This puts the energy produced by AMR meters well below the permitted limit, as illustrated in the list below:

Comparison of RF signal strength in mW/cm<sup>2</sup>

- Safety Code 6 MPE Limit 0.6
- FM radio or TV broadcast station signal 0.000005
- Itron AMR device at 10 feet 0.0001
- Cyber cafe (Wi-Fi) 0.010 - .020
- Laptop computer 0.010 - .020
- Cell phone held up to head 0.030 - 10
- Walkie-Talkie at head 0.5 – 42

The RF energy emitted from an AMR meter is several times below that of the highest level of personal exposures from cell phones, and well below existing limits for RF exposure to the public.

The RF signal strength is greatest at the meter and diminishes very quickly as distance from the meter increases:

- @ 20 cm - 0.029 mW/cm<sup>2</sup> 20 times less than Safety Code 6 MPE
- @ 200 cm - 0.00029 mW/cm<sup>2</sup> 2,069 times less than Safety Code 6 MPE
- @ 305 cm - 0.00012 mW/cm<sup>2</sup> 5,000 times less than Safety Code 6 MPE

### **City Bylaw 3514/2016**

#### **SUPPLY AND OWNERSHIP OF FACILITIES AND EQUIPMENT**

4 (1) All meters and metering equipment shall be supplied, owned and maintained by The City unless otherwise provided in this Bylaw.

(2) Notwithstanding the payment by a Customer of any costs incurred by The City, The City shall retain full title to all lines, equipment and apparatus on its side of the point of delivery, and to all meters and metering equipment provided by it.

#### **METER INSTALLATION AND MAINTENANCE**

50 (2) The City may change a Customer's meter(s) with notice given pursuant to Section 24.

#### **METER READING**

59 (1) A Customer shall permit The City to perform meter reading using automated monitoring equipment. Additional fees may apply for on-site meter reading and manual account adjustment, as set out in schedule D if a Customer does not allow automated metering infrastructure to be installed within their premises.

#### **Response**

Commencing 30 days from the date of this letter, you will be automatically placed back onto the list of customers for water meter replacement. Our contractor, Metercor, or the City will contact you asking to arrange a replacement appointment at your convenience. If you wish to opt out, of the meter replacement program, please contact the City to discuss.

If you still have questions, please call:

Alex Monkman, P.Eng.  
 Water Superintendent  
 The City of Red Deer  
 403-342-8750



Health  
Canada

Santé  
Canada

Your health and  
safety... our priority.

Votre santé et votre  
sécurité... notre priorité.

Smart Meters

Updated:

December 2011

# IT'S YOUR HEALTH

## Smart Meters



### THE ISSUE

In recent years, utility companies in several provinces have started installing wireless smart meters in Canadian businesses and residences. Some people have expressed concern about the possibility of health effects from exposure to the [radiofrequency \(RF\) energy](#) that these devices emit.

### SMART METERS

Smart meters are relatively new wireless devices that transmit information using RF signals to let utility companies know how much water, gas or electricity a household or business is using. The signals emitted by smart meters are of relatively low power, similar to [cell phones](#) and [wireless internet routers](#). The maximum amount of power that a smart meter device can transmit must comply with [Industry Canada regulations](#).

### HEALTH RISKS

As with any wireless device, some of the RF energy emitted by smart meters will be absorbed by anyone who is nearby. The amount of energy absorbed depends largely on how close your body is to a smart meter. Unlike cellular phones, where the transmitter is held close to the head and much of the RF energy that is absorbed is localised to one specific area, RF energy from smart meters is typically transmitted at a much greater distance from the human body. This results in very low RF exposure levels across the entire body, much like exposure to AM or FM radio broadcast signals.

Survey results have shown that smart meters transmit data in short bursts, and when not transmitting data, the smart meter does not emit RF energy. Furthermore, indoor and outdoor survey measurements of RF energy from smart meters during transmission bursts were found to be far below the human exposure limits specified in Health Canada's [Safety Code 6](#).

Based on this information, Health Canada has concluded that exposure to RF energy from smart meters does not pose a public health risk.

Canada



## REDUCE YOUR RISK

Since RF energy exposure levels are far below Canadian and international safety limits, Health Canada does not consider that any precautionary measures are needed to reduce RF energy exposure from smart meters.

In cases where multiple smart meters are installed together, as in some townhouses or high-rise buildings, the total exposure levels from multiple smart meters will still be far below Health Canada's RF energy exposure limits, due to the infrequent nature of transmissions.

## THE GOVERNMENT OF CANADA'S ROLE

Health Canada has developed guidelines for safe human exposure to RF energy. The current version of these exposure guidelines is specified in a document called *Limits of Human Exposure to Radiofrequency Electromagnetic Energy in the Frequency Range from 3 kHz to 300 GHz* – Safety Code 6 (2009).

The limits specified in these guidelines are based on an ongoing review of published scientific studies on the health impacts of RF energy. Using data from these studies, Health Canada set the general exposure limits far below the threshold for potentially adverse health effects.

Health Canada continues to monitor the science regarding RF exposure and will take action if future research establishes that RF energy exposure poses a health risk to Canadians.

## FOR MORE INFORMATION

- World Health Organization, [Electromagnetic fields and public health: base stations and wireless technologies](http://www.who.int/media-centre/factsheets/fs304/en/index.html) at : [www.who.int/media-centre/factsheets/fs304/en/index.html](http://www.who.int/media-centre/factsheets/fs304/en/index.html)
- International Agency for Research on Cancer [electromagnetic fields news release](http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf) at: [www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208\\_E.pdf](http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf)
- World Health Organization, [Electromagnetic Fields](http://www.who.int/peh-emf/en/) at: [www.who.int/peh-emf/en/](http://www.who.int/peh-emf/en/)

## FOR INDUSTRY AND PROFESSIONALS

- Health Canada's [Consumer and Clinical Radiation Protection Bureau](http://www.hc-sc.gc.ca/ahc-asc/branch-dirgen/hecs-dgsec/psp-ppsp/ccrpb-bpcrpsc-eng.php) at: [www.hc-sc.gc.ca/ahc-asc/branch-dirgen/hecs-dgsec/psp-ppsp/ccrpb-bpcrpsc-eng.php](http://www.hc-sc.gc.ca/ahc-asc/branch-dirgen/hecs-dgsec/psp-ppsp/ccrpb-bpcrpsc-eng.php)
- Health Canada's RF exposure guidelines (Safety Code 6) at: [www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radio\\_guide-lignes\\_direct-eng.php](http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radio_guide-lignes_direct-eng.php)
- Industry Canada's [Radio Standards Specification 102](http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01904.html) at: [www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01904.html](http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01904.html)
- Industry Canada's [Client Procedures Circular CPC-2-0-03](http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08777.html) at: [www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08777.html](http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08777.html)
- Industry Canada's [Guidelines for the Protection of the General Public in Compliance with Safety Code 6](http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf05990.html) at: [www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf05990.html](http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf05990.html)

## RELATED RESOURCES

- For safety information about food, health and consumer products, visit the [Healthy Canadians](http://www.healthycanadians.gc.ca) website at: [www.healthycanadians.gc.ca](http://www.healthycanadians.gc.ca)
- For more articles on health and safety issues go to the [It's Your Health](http://www.health.gc.ca/iyh) web section at: [www.health.gc.ca/iyh](http://www.health.gc.ca/iyh)

You can also call toll free at 1-866-225-0709 or TTY at 1-800-267-1245

Original: December 2011

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Cat.: H13-7/117-2011E-PDF

ISBN: 978-1-100-19838-5

## Smart Meters and Your Health

Utility companies in many municipalities in Alberta are transitioning to the use of wireless smart meters in homes and businesses. Once installed, these smart meters transmit information on water, gas or electricity consumption to the utility company, wirelessly.

### **RADIOFREQUENCY (RF) ENERGY**

Radiofrequency (RF) energy is another name for radio waves, which are created by the movement of electrical charges in an antenna.

Smart meters emit radiofrequency (RF) energy. The signals emitted by smart meters are relatively low power and are similar to that emitted by cell phones and wireless internet routers.

Other common sources of RF energy include radio and TV broadcasting, mobile and cordless phones, and pacemakers.

### **YOUR HEALTH**

On average, smart meters generate an RF signal for only one minute per day.

The RF energy emitted during that one minute is far below the human exposure limits specified by Health Canada.

For this reason, Health Canada has concluded that exposure to the RF energy generated by smart meter devices does not pose a risk to your health.

To learn more about smart meters and your health, visit

[http://www.hc-sc.gc.ca/hl-vs/alt\\_formats/pdf/iyh-vsv/prod/meters-compteurs-eng.pdf](http://www.hc-sc.gc.ca/hl-vs/alt_formats/pdf/iyh-vsv/prod/meters-compteurs-eng.pdf)

# 100 Series Radio Frequency

ChoiceConnect™

This document provides general information about radio frequency (RF) electromagnetic fields from ChoiceConnect wireless communication equipment. This information has been provided by Itron which has evaluated the ChoiceConnect equipment for RF emissions. The ChoiceConnect equipment is compliant with Federal Communications Commission (FCC) regulations.

## FREQUENTLY ASKED QUESTIONS

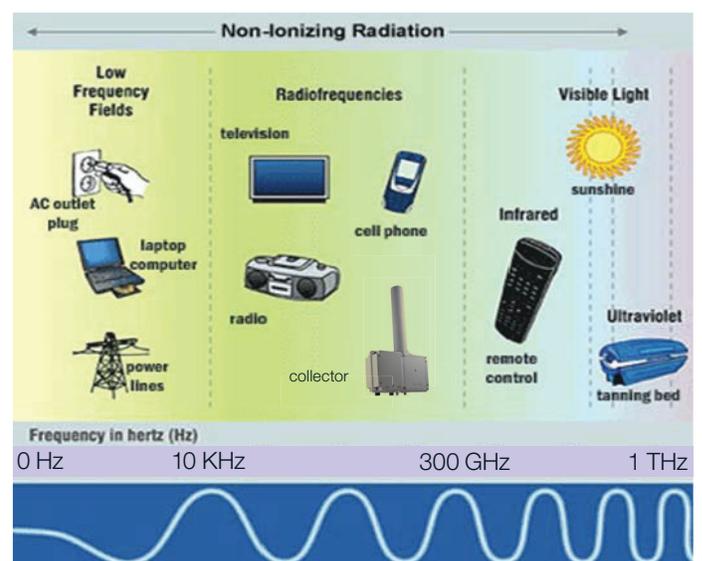
### What is radio frequency?

RF energy is all around us. It plays a critical role in the communications systems that we depend on every day, such as police and fire radio systems and 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 (WiFi), utilize radio frequency.

### What frequencies are used by Itron's ChoiceConnect devices?

ChoiceConnect wireless communication equipment operates in the Industrial, Scientific and Medical (ISM) bands at frequencies from 902 megahertz (MHz) to 928 MHz.

The Food and Drug Administration (FDA) and the FDA's Center for Devices and Radiological Health (CDRH) have classified radiation emitted by devices operating at these RF frequencies as non-ionizing, meaning they cannot ionize atoms or molecules. Other types of nonionizing radiation include visible and infrared light.



### **How often do the ChoiceConnect devices transmit data?**

In mobile mode, the ChoiceConnect endpoint devices transmit data in very short pulses throughout the day for a total transmission time of less than 1.5 minutes per day. In fixed network mode, the devices transmit for a total of less than 15 seconds per day.

### **What is the power output from the ChoiceConnect devices when they are transmitting data?**

The maximum power output for the ChoiceConnect endpoint devices is less than half a watt, while the maximum power output of the collection device is less than 1 watt. In comparison, the average light bulb is 60 watts.

### **Are there any health hazards associated with the ChoiceConnect devices?**

According to several reputable organizations, including the Electric Power Research Institute and Utilities Telecom Council, there is no demonstrated cause and effect relationship between low levels of RF exposure and adverse human health effects.

The World Health Organization (WHO) notes in its Fact Sheet 304:

“[T]o date, the only health effect from RF fields identified in scientific reviews has been related to an increase in body temperature (> 1 °C) from exposure at very high field intensity found only in certain industrial facilities, such as RF heaters. The levels of RF exposure from base stations and wireless networks are so low that the temperature increases are insignificant and do not affect human health.”

See WHO Fact Sheet 304 for more information about RF fields at <http://www.who.int/mediacentre/factsheets/fs304/en/index.html>.

### **Are there RF exposure standards for the ChoiceConnect devices?**

Since 1996, the Federal Communications Commission (FCC) has required all wireless communications devices sold in the United States meet minimum guidelines for safe human exposure to radio frequency energy. In addition, federal health and safety agencies including the EPA, FDA, National Institute for Occupational Safety and Health (NIOSH) and the Occupational Safety and Health Administration (OSHA) consistently monitor and regulate RF safety.

Itron's products are stringently evaluated for RF safety and meet all Federal Communication Commission (FCC), Industry Canada (IC), and Institute of Electrical and Electronic Engineers (IEEE) standards.

### **What are the FCC's exposure guidelines?**

The FCC has established exposure guidelines for RF devices operating in the 300 kilohertz (kHz) – 100 GHz range. These safety guidelines are outlined in the publication, OET Bulletin 65 Edition 97-01, *Evaluating Compliance with FCC guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*.

The general population exposure limits set by the FCC for the frequency range utilized by the endpoint and other devices like cordless phones and baby monitors, is 0.6 milliwatts per centimeter squared (mW/cm<sup>2</sup>) at 902 MHz.

When a typical endpoint device is transmitting at its maximum power level, the exposure to radio frequency energy at a distance of 20 centimeters from the endpoint is 0.315 mW/cm<sup>2</sup> at 902 MHz, or almost 50 percent of the exposure limit set by the FCC.

When the collection device is transmitting at its maximum power level, the exposure to radio frequency energy at a distance of 20 feet from the collector is 0.0014 mW/cm<sup>2</sup>. This calculation is for radio frequency energy radiated outward from the high gain antenna attached to the ChoiceConnect collector.

### **Where can I go to learn more about regulatory compliance?**

The FCC's document OET Bulletin 65 Edition 97-01, *Evaluating Compliance with FCC guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, details how to measure or calculate levels of RF radiation and determine compliance with exposure limits.

Additionally, FCC OET Bulletin 65 Supplement C Edition 01-01 (known as OET-65C), provides further guidance on determining compliance for portable and mobile devices.

These documents may be found at [www.fcc.gov/encyclopedia/radio-frequency-safety](http://www.fcc.gov/encyclopedia/radio-frequency-safety)

**FOR MORE INFORMATION ON THE EFFECTS OF RF ENERGY EXPOSURE, PLEASE VISIT THE FOLLOWING SITES:**

**FCC:** Questions regarding potential RF hazards from FCC-regulated transmitters can be directed to the Federal Communications Commission, Consumer & Governmental Affairs Bureau, 445 12th Street, S.W., Washington, D.C. 20554; Phone: 1.888.225.5322; E-mail: [rfsafety@fcc.gov](mailto:rfsafety@fcc.gov); or go to: [www.fcc.gov/encyclopedia/radio-frequency-safety](http://www.fcc.gov/encyclopedia/radio-frequency-safety)

**FDA:** For information about radiation from microwave ovens and other consumer and industrial products contact: Center for Devices and Radiological Health (CDRH), Food and Drug Administration. [www.fda.gov/Radiation-EmittingProducts](http://www.fda.gov/Radiation-EmittingProducts)

**OSHA:** The Occupational Safety and Health Administration's (OSHA) Health Response Team has been involved in studies related to occupational exposure to RF radiation. [www.osha.gov/SLTC/radiation\\_nonionizing/index.html](http://www.osha.gov/SLTC/radiation_nonionizing/index.html)

**WHO:** The WHO's Electromagnetic Fields information page is located at: [www.who.int/peh-emf/en/](http://www.who.int/peh-emf/en/)

For Canada-specific RF regulation information, visit the following sites:

**Industry Canada – Safety Codes**

RSS-102, Radio Standards Specification 102, Radio Frequency Exposure Compliance of Radio communication Apparatus (All Frequency Bands).

[www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01904.html](http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01904.html)

CPC-2-0-03 - Radio communication and Broadcasting Antenna Systems [www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08991.html](http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08991.html)

**Health Canada – Safety Codes**

Radiofrequency Fields and Safety Code 6

[www.hc-sc.gc.ca/ewh-semt/radiation/cons/radiofreq/index-eng.php](http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/radiofreq/index-eng.php)

Smart Meter Information

[www.hc-sc.gc.ca/hl-vs/iyh-vsv/prod/meters-compteurs-eng.php](http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/prod/meters-compteurs-eng.php)



At Itron, we're dedicated to delivering end-to-end smart grid and smart distribution solutions to electric, gas and water utilities around the globe. Our company is the world's leading provider of smart metering, data collection and utility software systems, with over 8,000 utilities worldwide relying on our technology to optimize the delivery and use of energy and water.

To realize your smarter energy and water future, start here: [www.itron.com](http://www.itron.com)

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