



# PUBLIC INFORMATION SESSION ON AMR ELECTRICAL METERS

February 22, 2012

# WELCOME



# PUBLIC INFORMATION SESSION ON AMR ELECTRICAL METERS

February 22, 2012

## AGENDA – (SK)

- Welcome– Mayor Ashton.
- Introduction of the moderator – Mayor Ashton
- Explanation of the process – Steve King
- Introduction of City presenters – Mitch Moroziuk
- Introduction of Kevin Proteau presenters – Kevin Proteau
- City Presentation on AMR Electrical Meters
- Kevin Proteau Presentation on RF Energy in the Air
- Questions from the Audience – Steve King
- Closing remarks – Mayor Ashton



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February 22, 2012

WELCOME – MAYOR ASHTON



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February 22, 2012

## INTRODUCTION OF THE MODERATOR – (MA)



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February 22, 2012

## EXPLANATION OF THE PROCESS – (SK)



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February 22, 2012

## INTRODUCTIONS CITY – (MM)

- Mitch Moroziuk, Director of Operations (City)
- Eric Livolsi, Operations Manager Electric Utility (City)
- Tim Wolf, Director of Marketing (ITRON)
- Mike Burns, Senior Product Manager (ITRON)



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February 22, 2012

## INTRODUCTIONS KEVIN PROTEAU – (KP)

- Kevin Proteau
- Curtis Bennett, Thermographics
- Brian Thiesen

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February 22, 2012

### CITY PRESENTATION – METER TYPES - (EL)

#### ELECTRO-MECHANICAL METER

- ⦿ Gear-driven consumption register (75 year old technology)
- ⦿ Speed of disk varies with energy use
- ⦿ Essentially a small electric motor driving a mechanical counter.
- ⦿ Accuracy of +/- 2%
- ⦿ Itron and other leading manufacturers no longer manufacture these meters for the NA market







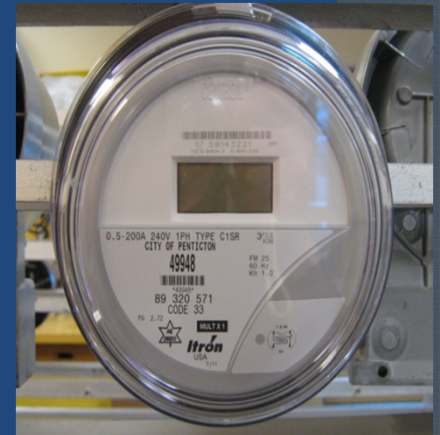
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February 22, 2012

### CITY PRESENTATION – METER TYPES – (EL)

#### AMR (Automated Meter Reading) RESIDENTIAL METER

- No moving parts, solid-state technology
- Accuracy of +/- .5%
- Uses Radio Frequency to transmit
- One radio, no communication into premise
- Transmits consumption register reading every 30 seconds
- Duration of transmission 150 mSec





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February 22, 2012

## CITY PRESENTATION – METER TYPES – (EL)

### AMR COMMERCIAL METER

- Same as residential AMR meter PLUS
- Capable of metering electrical demand for billing purposes





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February 22, 2012

## CITY PRESENTATION – METER TYPES – (EL)

### SMART METER

- No moving parts, solid state technology
- Accuracy of +/- .5%
- Transmits time of use information and peak use at intervals as required by the Utility Company
- Uses Radio Frequency to transmit
- Allows for time of use billing
- Provides two-way communication
- Meter can communicate with smart appliances and thermostats
- Duration of transmission: 32 - 150 mSec
- Total daily transmit time depends on Utility Company data requirements





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February 22, 2012

## CITY PRESENTATION – AMR SPECS – (EL)

- |                               |                          |
|-------------------------------|--------------------------|
| ○ Signal Frequency            | 902-928 Mhz              |
| ○ Transmission Rate           | Every 30 seconds         |
| ○ Transmission Duration       | 150 mSec                 |
| ○ Transmitter Power           | 146 mW                   |
| ○ 2-Way Communication         | No                       |
| ○ Information Transmitted     | Kwh register reading     |
| ○ Meter Cost                  | <\$60 each               |
| ○ RF Signal Strength at 20 cm | 0.029 mW/cm <sup>2</sup> |



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February 22, 2012

### CITY PRESENTATION – HISTORY – (MM) AMR ELECTRIC METERS

- AMR meters have been deployed in the City since 2003
- 85% of meters already converted (14,500)
- 98% deployment planned for the end of 2012



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February 22, 2012

### CITY PRESENTATION – HISTORY – (MM) AMR ELECTRIC METERS

- AMR permits remote reading of electrical consumption
- Reading can be done by walk-by or drive-by
- Walk-by was instituted in 2005
- Drive-by was started in 2010



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February 22, 2012

### CITY PRESENTATION – HISTORY – (MM) AMR ELECTRIC METERS

- AMR installation cost \$1,450,000 to date
- Reduces meter read time from 22 days per month to 4.4 days per month, once full AMR deployment is achieved
- Meter reading cost reduction from \$110,360 to \$24,279 per year



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February 22, 2012

### CITY PRESENTATION – HISTORY – (MM) AMR WATER METERS

- Essentially same technology as electric AMR meters
- Program started in 2004
- 7750 RF water meters deployed to date
- 98% deployment planned for Feb 2013 (8500 meters)
- Total program cost \$1,800,000
- however, \$800,000 - \$1,200,000 would have been spent on required meter upgrades without the AMR technology installed





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February 22, 2012

### CITY PRESENTATION – METER APPROVALS – (TW)

- **CSA Approval** – Not applicable to Revenue Meters. Regulated by Industry Canada and the BC Electrical Safety Regulations
- **Measurement Canada** - All Revenue Meters must be approved by Industry Canada (Measurement Canada branch)
- Meters used in Penticton have received the following Approvals:
  - Itron CENTRON (single phase): Approval # AE-0920
  - Itron CENTRON (polyphase): Approval # AE-1466
  - Itron SENTINEL (polyphase): Approval # AE-1132



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February 22, 2012

### CITY PRESENTATION – METER APPROVALS –(TW)

- **Spectrum IC** - Radio transmitters must be approved by the Spectrum branch of Industry Canada
- Spectrum IC has confirmed that all AMR radio devices deployed in Penticton are approved and certified for use in Canada
- Spectrum IC has confirmed that the RF energy levels produced by these devices fall well below Health Canada's Safety Code 6 limits for the protection of the general public.



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February 22, 2012

### CITY PRESENTATION – METER APPROVALS – (TW)

- **Health Canada Safety Code 6** - Maximum Permissible Exposure (MPE) level to RF energy is  $0.6 \text{ mW/cm}^2$  for signals in the 900 MHz range (General Public, uncontrolled environments)
- **NOTE:** Safety Code 6 MPE level also incorporates a safety factor of 50:1. In other words, the MPE of  $0.6 \text{ mW/cm}^2$  would have to be exceeded by a multiple of 50 before any negative biological effects would be observed



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February 22, 2012

### CITY PRESENTATION – METER APPROVALS –(TW)

- RF Signal Strength of Penticton AMR meters
  - @ 20 cm - 0.029 mW/cm<sup>2</sup> 20 times less than MPE\*
  - @ 200 cm - 0.00029 mW/cm<sup>2</sup> 2,069 times less than MPE\*
  - @ 305 cm - 0.00012 mW/cm<sup>2</sup> 5,000 times less than MPE\*

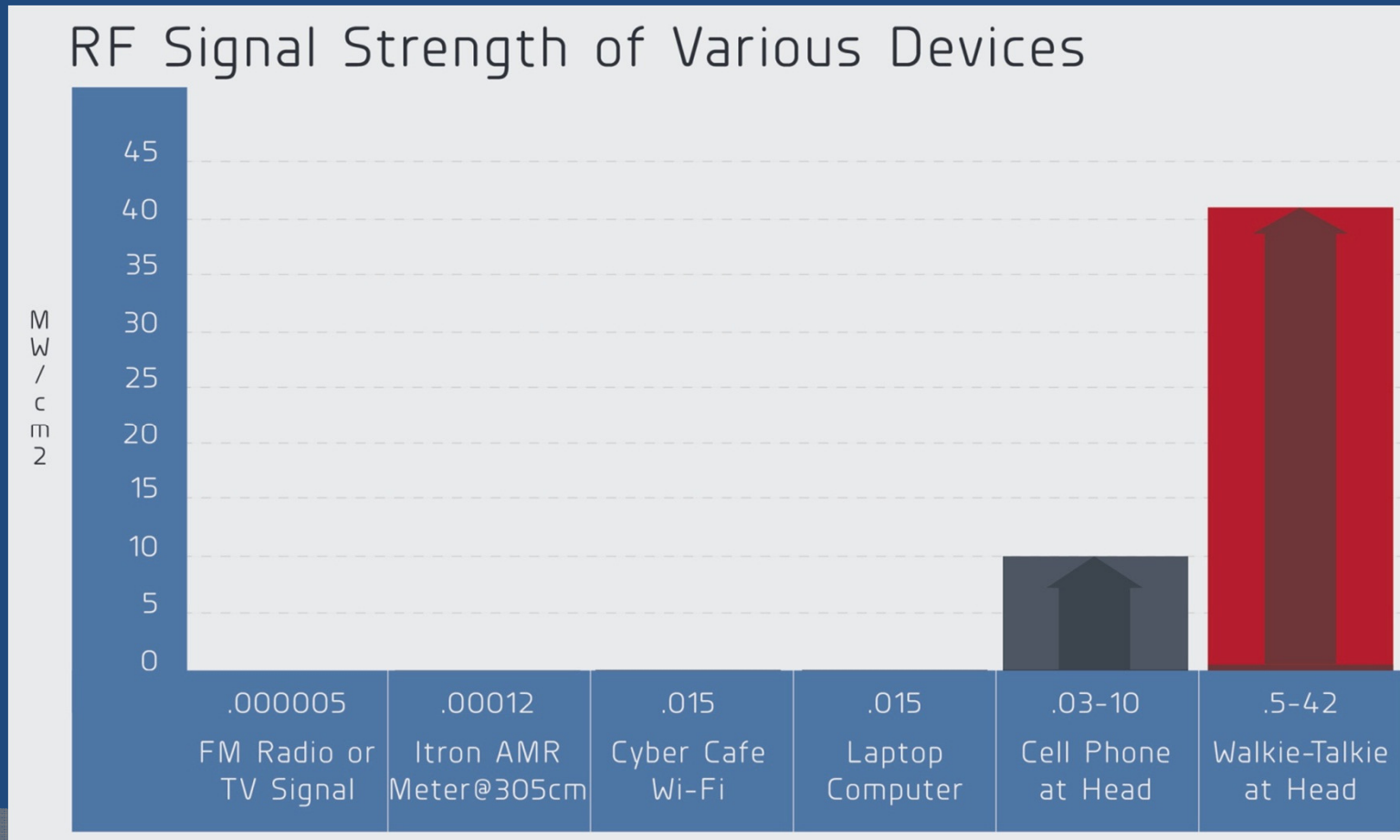
\*MPE – Maximum Permissible Exposure per Health Canada is .6 mW/cm<sup>2</sup>



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February 22, 2012

## CITY PRESENTATION – RF COMPARISONS – (EL)

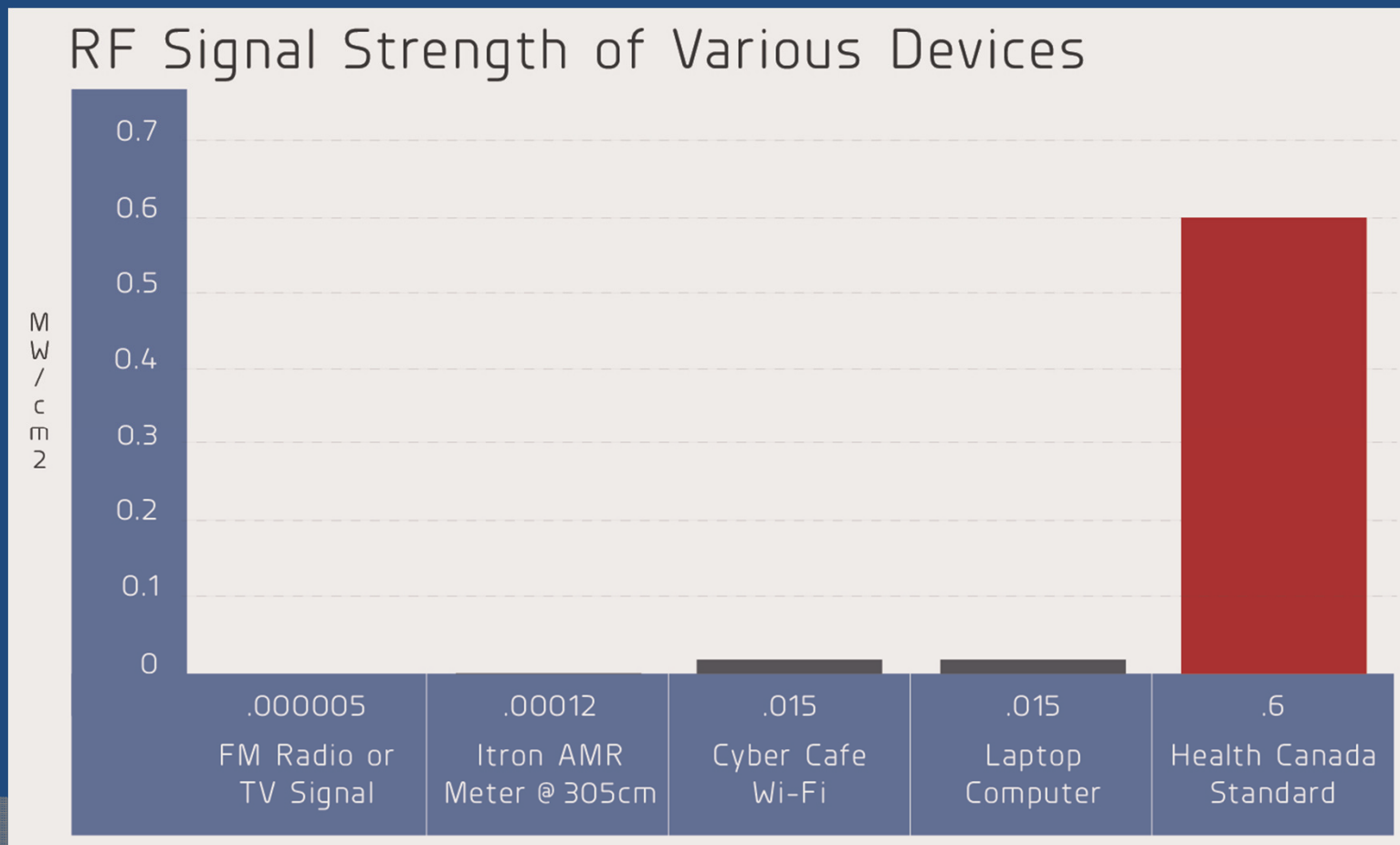




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February 22, 2012

## CITY PRESENTATION – RF COMPARISONS – (EL)





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February 22, 2012

### CITY PRESENTATION – RF COMPARISONS – (EL)

What do the foregoing charts mean?

- The RF signal strength of the AMR meters being installed by the Utility is only two one-hundredths of a percent (0.02%) of the allowable standard established by Health Canada. And that standard has a 50X safety factor built into it.



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February 22, 2012

### CITY PRESENTATION – EXCERPTS – (TW)

#### Health Canada Safety Code 6 Excerpts –

- “Health Canada scientists consider all peer-reviewed scientific studies, on an ongoing basis, and employ a weight-of-evidence approach when evaluating the possible health risks of RF energy”
- “...the basic restrictions in Safety Code 6 are similar to those adopted by most other nations, since all recognized standard-setting bodies use the same scientific data”
- “At present, there is no scientific basis for the premise of chronic and/or cumulative health risks from RF energy at levels below the limits outlined in Safety Code 6”





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February 22, 2012

### CITY PRESENTATION – EXCERPTS - (TW)

#### Health Canada Safety Code 6 Excerpts –

- **“A safety margin of 50 has been incorporated for exposures in uncontrolled environments to protect the general public”**
- **“This code has been adopted as the scientific basis for the equipment certification specifications outlined in Industry Canada’s regulatory compliance documents(1–3), that govern the use of wireless devices in Canada”**



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February 22, 2012

### CITY PRESENTATION – EXCERPTS – (TW)

#### Health Canada Safety Code 6 Excerpts –

- **“The safety limits in this code are based on an ongoing review of published scientific studies on the health impacts of radiofrequency electromagnetic energy”**
- **“The exposure limits specified in Safety Code 6 have been established based upon a thorough evaluation of the scientific literature related to the thermal and possible non-thermal effects of RF energy on biological systems”**



# PUBLIC INFORMATION SESSION ON AMR ELECTRICAL METERS

February 22, 2012

## CITY PRESENTATION – EXCERPTS – (MM)

Vancouver Coastal Health Authority Report Excerpt, 2011 12 20 –

- “In conclusion, the public may be opposed to the BC Hydro Smart Meter Program for a number of reasons. That these Smart Meters are health hazards should not be one of them. These devices are active only for an extremely short amount of time each day. They add so little to the existing background radio-frequency fields that it is very difficult to separate them apart from our everyday environment. We recognize that some may disagree with our assessment. We respectfully differ. We are confident however that our assessment is in agreement with the overall scientific understanding regarding radio frequency electromagnetic fields.”



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February 22, 2012

## CITY PRESENTATION – EXCERPTS – (MM)

### Vancouver Coastal Health Authority Excerpt, 2011 12 20 –

- The authors of the report are as follows:
  - Dr. James Lu, Medical Health Officer (Vancouver Coastal Health)
  - Dr. Patricia Daly, Chief Medical Health Officer (Vancouver Coastal Health)
  - P.R.W. Kendall, Provincial Health Officer (OBC, MBBS, MHSc, FRCPC)
- <http://www.health.gov.bc.ca/pho/pdf/vch-response-to-richmond-city-council-re-investigation-into-smart-meters.pdf>



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February 22, 2012

## KEVIN PROTEAU PRESENTATION – (KP)



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February 22, 2012

### QUESTIONS FROM THE AUDIENCE –(SK)

- Please come to the front and sit in the front row
- The Moderator will keep track of your place in line and call you to the microphone



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## CLOSING REMARKS - (MA)