



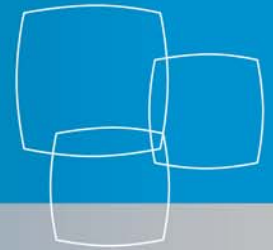
Measurement
Canada

Mesures
Canada

An Agency of
Industry Canada

Un organisme
d'Industrie Canada

Measurement Canada



Presentation to Ontario Smart Grid Working Group

Who is Measurement Canada?

Fair Measure
For All



La mesure juste
pour tous

Canada 



Measurement: A part of our daily lives!





Measurement Canada

- Measurement Canada is an Agency of the Federal Department of Industry (Industry Canada)
- Measurement Canada is responsible for ensuring that businesses and consumers receive fair and accurate measure in transactions involving the trade goods based on measurement





Mandate and Mission

- **Mandate:** to administer and enforce the *Electricity and Gas Inspection Act* and the *Weights and Measures Act*.
- **Mission:** to ensure equity and accuracy where goods and services are bought and sold on the basis of measurement in order to contribute to a fair and competitive marketplace for Canadians.





Electricity and Gas Inspection Act

- Defines units for energy measurement and sale
- Provides for calibration and certification of standards and measuring apparatus
- Requires examination and approval of prototype meters
- Requires verification of meter performance prior to trade use and periodic reverification of performance
- Establishes framework for the accreditation program
- Provides sellers and purchasers with the right to independent investigation and arbitration of disputes
- Encourages marketplace compliance by prescribing penalties for non-compliance





Offences

- Falsifying meters, registers, documents, seals, stamps, and labels.
- Use of an unapproved or unverified meter.
- Not reverifying a meter within prescribed interval (overdue meters).
- Selling gas or electricity where the quantity is less than the purported amount .
- Penalties range to a maximum fine of \$5,000 or five years in prison for serious offence.





Electricity and Gas Inspection Regulations

Regulations address:

- Administrative and record keeping requirements
- Measurement standards certification & traceability
- General metrological control of meters
- Accreditation program application and admin
- Metering dispute initiation and investigation
- Fees and charges





New Electricity and Gas Inspection Act

- Bill C-14 was tabled in the House of Commons by the Minister of Industry.
- Received Royal assent March 23
 - Provides greater protection for consumers from inaccurate measurements
 - Allows for administrative monetary penalties





Programs and Services

- Establish rules and requirements
- Approve devices
- Inspect devices
- Accredit private sector companies
- Perform Dispute investigations
- Certify measurement standards
- Perform ongoing market surveillance



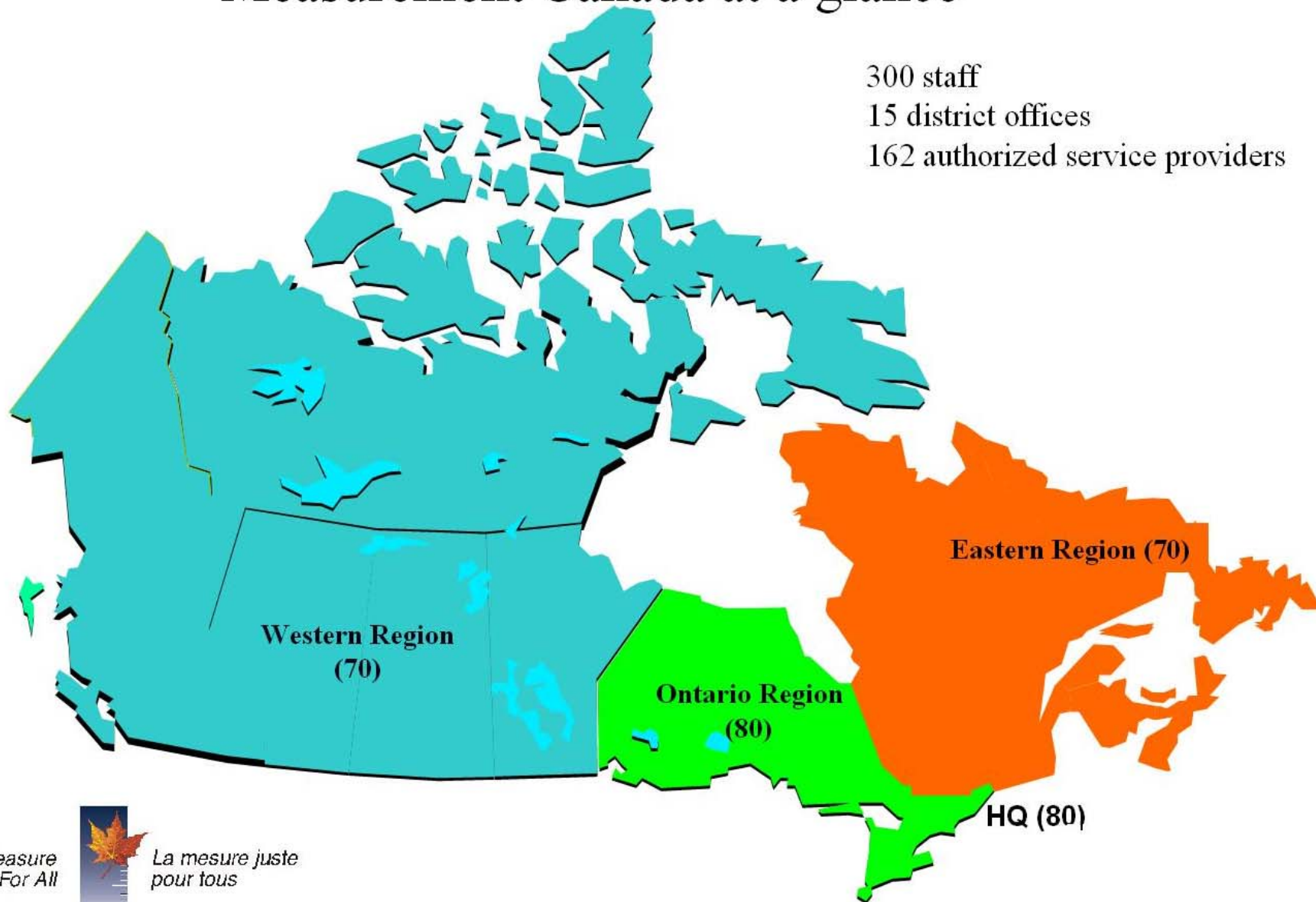


Measurement Canada at a glance

300 staff

15 district offices

162 authorized service providers





Standards and Specifications

- MC policy is to harmonize with international standards when they exist
- MC Specifications usually based on an international standard - plus MC specific requirements established pursuant to the Act and Regulations
- If a standard is not available for a specific need MC may develop its own specifications or look to others such as ANSI, IEEE, IEC or CSA





Meter Approval

- All meters must be approved in accordance with LMB-EG-07 *Specifications for Approval of Type of Electricity Meters, Instrument Transformers and Auxiliary Devices*
 - Based on CSA C17: Alternating-Current Electricity Metering
 - Amendments via S-E-06
- MC intends to harmonize with OIML IR46 (active energy electricity meters) once it is completed, and is actively participating on OIML Technical Committee TC-12





Meter Verification

- Electricity meters must be verified in accordance with S-E-02: *Specifications for the Verification and Re-verification of Electricity Meters*
- Meters subject to fixed initial verification and re-verification periods which are mandatory under the legislation





Installation of Electricity Meters

- S-E-08: *Specifications for the Installation of Electricity Meters - Measurement Canada Standard Drawings for Electricity Metering Installations*
- S-E-03 (Input Connection Ratings)
- S-E-04 (MCMS)
- PS-E-08 (2-Element Metering)





Certification - Measuring Apparatus and Standards

- Meter test consoles are certified in accordance with S-E-01: *Specifications for the Calibration, Certification and Use of Electricity Calibration Consoles*
- Reference standards are certified by MC lab and are traceable to NRC (National Research Council of Canada) INMS





Communication Protocol and Data Transportation

- Development (by ANSI) of communication protocol and data transportation standards are ongoing. (C12 series).
- MC had been actively involved in the development of this series of standards.
- MC will review ANSI standards when finalized to identify the aspects that can be applied to the Canadian marketplace.





Time-of-Use and Interval Billing

- Measurement Canada approves TOU registers but not TOU switching criteria
- TOU switching is a “rate” related functionality not a “measurement” functionality
 - Disputes investigated by MC which relate to the time at which energy is consumed or the price charged for consumed energy, are referred to the provincial regulator responsible for energy rates and TOU billing
- Legislation requires that trade transactions are conducted based on accurate measurement – (within meters as well as systems)





Recent MC initiatives of interest for the electricity market:

- Outcomes of JWG on the standardization of the Volt-Ampere
- Outcomes of the JWG on electricity legal units of measure (LUM) outside approved meter





Recent MC initiatives of interest for the electricity market:

- Software Security JWG
 - Review OIML D31: *"General Requirements for Software Controlled Measuring Instruments"*.
 - Develop specifications for electronic security of electricity and gas meters in a manner that provides equivalent confidence to a physical seal with no added risk.
 - Allows for software upgrades under certain conditions.





Key elements for standardization of the Smart Grid

- In Canada a meter must be sealed.
- In Canada a meter must have a primary indicating device (display).
- Modifications to AMI must not impact the meter's accuracy or integrity, (nor that of meter data).
- Separating metrology from AMI applications and communication is a pragmatic strategy which is recognized and allowed for in OIML D31.





Key elements for standardization of the Smart Grid

- MC is represented on the SCC CNC/IEC Task Force on Smart Grid Technology and standards.
- Four sub-working groups
 - WG1 - Metering (MC represented by Luc Tessier)
 - WG2 - T&D coordination
 - WG3 - Network communications
 - WG4 - Compliance
- WG1 lead by Dr. Avygdor Moise (Future DOS R&D)
 - Good information contact for Ontario SGWG





Task Force on Smart Grid Technology and Standards



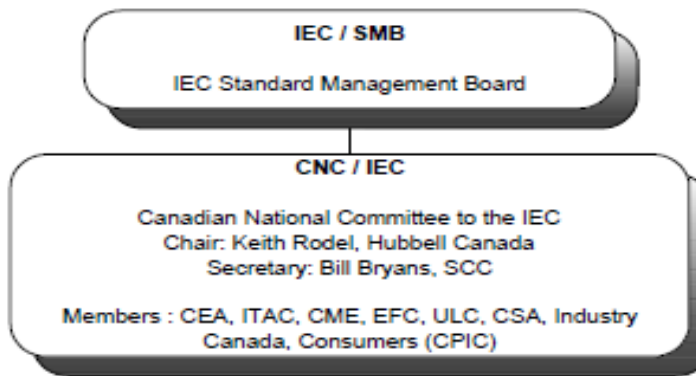
Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Организация Стандартов в области Электрических Технологий



Standards Council of Canada
Conseil canadien des normes



Natural Resources Canada
Ressources naturelles Canada



SCC TF-SGTS

Co-Chairs : Lisa Dignard-Bailey, Natural Resources Canada
Bill Bryans, Standards Council of Canada

BUILDING INFRASTRUCTURE

Members:

Jason Crossman
Hubbell Canada
Ludo Bertsch
CABA
Tony Capel
Comgate Eng.

Resources:

Luc Tessier
Measur. Canada
Alexandre Prieur
NRCan

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CYME Internat.
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Hydro Ottawa

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Manitoba Hydro

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Joseph Neu
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Microsoft Canada
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IBM

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John Lawton
NB E.U. Board
Brian Hewson
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Colman Ho/D. Gibson
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Michael Christensen
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Eric McWhinney
BC Hydro
Avygdor Moise
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Ericson
Keith Jansa
CEA

SDO

Members:

John O'Neil
CSA
Mike Prasad
ULC
Paul Molitor
NEMA

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Resources :

James Robbins
EWA Canada
Rob Walters
EWA Canada
Rose Coelho
Public Safety Can.





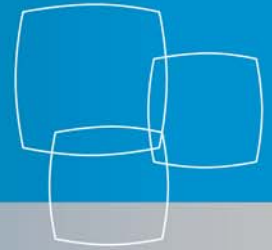
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Questions ?

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