



**Standards Council of Canada**  
**Conseil canadien des normes**

**Canada**

# Canada's Standards Roadmap for the Smart Grid

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Standards **experts**. Accreditation **solutions**.



## Presentation Outline

- Standards Council of Canada
- Standards and Regulations
- Canada's Standards Roadmap for the Smart Grid
- Standardization and GHG Management



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# Standards Council of Canada



## Standards Council of Canada (SCC)

- Federal Crown Corporation established in 1970
- Reports to Parliament through the Minister of Industry
- Mandate to:
  - *Coordinate* standardization activities in Canada (domestic and international)
  - *Accredit* Standards Development Organizations
  - *Advise* federal and provincial governments
  - *Support* strategic priorities of industry and governments
  - *Represent* Canada in international and regional forums



## SCC Accreditation

### Standards Council of Canada (SCC)

- **Accredits**
  - Standards development organizations
  - Conformity assessment bodies
- **Verifies competence**
  - people, expertise, resources and equipment to carry out a specific job
- **Programs based on international guidelines**





# Canadian Standards Development Organizations





## Accreditation Services

- SCC Accredits more than 400 organizations:
  - Calibration and Testing Laboratories
  - Management Systems Certification Bodies
  - Product Certification Bodies
  - Inspection Bodies
  - Personnel Certifiers
  - Greenhouse Gas Verifiers



# Conformity Assessment Clients





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# Standards in Regulations



## Standards in Regulations

- Nearly 900 standards referenced in federal regulations
- More than 640 standards referenced in Canada's model codes
- Almost 7,000 references to standards at provincial level
- Growing number of references to regional and international standards
- Increased recognition that appropriate use of standards can align regulations with trade flows and supply chains



## Facts, Figures and Trends, March 2012

	2011	2012	
<b>Number of Canadian standards</b>	<b>3,482</b>	<b>3,014</b>	↓
<b>Number of standards maintained by key international standardization organizations (ISO, IEC, ITU)</b>	<b>27,958</b>	<b>28,869</b>	↑
<b>Number of active ISO working groups</b>	<b>3,168</b>	<b>3,335</b>	↑
<b>Number of Canadian volunteer members participating to international standardization committees</b>	<b>2,758</b>	<b>2,363</b>	↓
<b>Number of federal government representatives participating to ISO/IEC/ITU international standardization activities</b>	<b>401</b>	<b>371</b>	↓



# Targeted Areas 2010 - 2011

## Energy and the Environment

### CO<sub>2</sub> Capture and Storage

greenhouse gas emission reductions/access to markets

### Fuels Infrastructure

moving to cleaner and renewable fuels

## Health and Life Sciences

### Consumer Product Safety

supporting the Consumer Product Safety Act

### Food Safety

implementing new standards and conformity assessment solutions for robust management systems

### Healthy Enterprises

increasing the productivity of Canadian organizations

## Infrastructure

### Electric Vehicles

establishing infrastructure for a new generation of modes of transportation

### Green Buildings Envelope

improving sustainability and energy efficiency

### North American Smart Grid

fostering the deployment of green energy

## Innovation

### Cloud Computing

standardization framework for new infrastructure and services

### Leading Edge Medical Devices

building on Canada's leading technology platforms

### Nanotechnology

establishing a safe foundation for new industries and products



## North American Vision for Harmonization

- Shared vision for border security and economic cooperation including the establishment of a Regulatory Cooperation Council (RCC) announced by President Obama and Prime Minister Harper (Feb 2011)
- RCC focused on regulatory compatibility and identified 28 sectors where harmonization would increase trade and economic growth
- SCC is supporting this vision through:
  - Standards harmonization
  - Accreditation of organizations engaged in standards development



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## SCC's Regional Standardization Relationships



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# Standards Roadmap for the Smart Grid



## Task Force, Smart Grid Technology and Standards

- Created by the Canadian National Committee of the IEC
- Representatives from generation, transmission and distribution utilities, manufacturers and vendors, building infrastructure experts, regulators and standards development organizations
- Supported the integration of national/international standardization towards IEC standards on Smart Grid Technology having the widest possible acceptance in Canada and its trading partners
- Recommendations aimed at creating a standards framework to:
  - Support the North American Smart Grid
  - Allow Canadian utilities and manufacturers to participate in the emerging global smart grid marketplace



## WG 1: Advanced Metering Systems

- Demarcate between distinct utility-owned and customer-owned equipment/services
- Establish smart meters regulations/policies
- Harmonize processing practices to achieve interoperability
- Facilitate sub-metering/multi-metering applications at the customer's domain
- Allow energy usage retrieval billing and roaming plug-in electric vehicle capabilities covering multi-utility networks
- Create a Canadian harmonized national technical committee (CSC/TC13) on electricity metering standards
- Focus on 15 priority standards



## WG2: Transmission and Distribution

- Recognizes the value of the core IEC TC 57 international reference architecture
- Identifies key standards required to ensure interoperability
- Recommends Canadian deviations from the IEC standards framework
- Allow for a transition period before migrating to the core IEC standards
- Focus on 18 priority standards

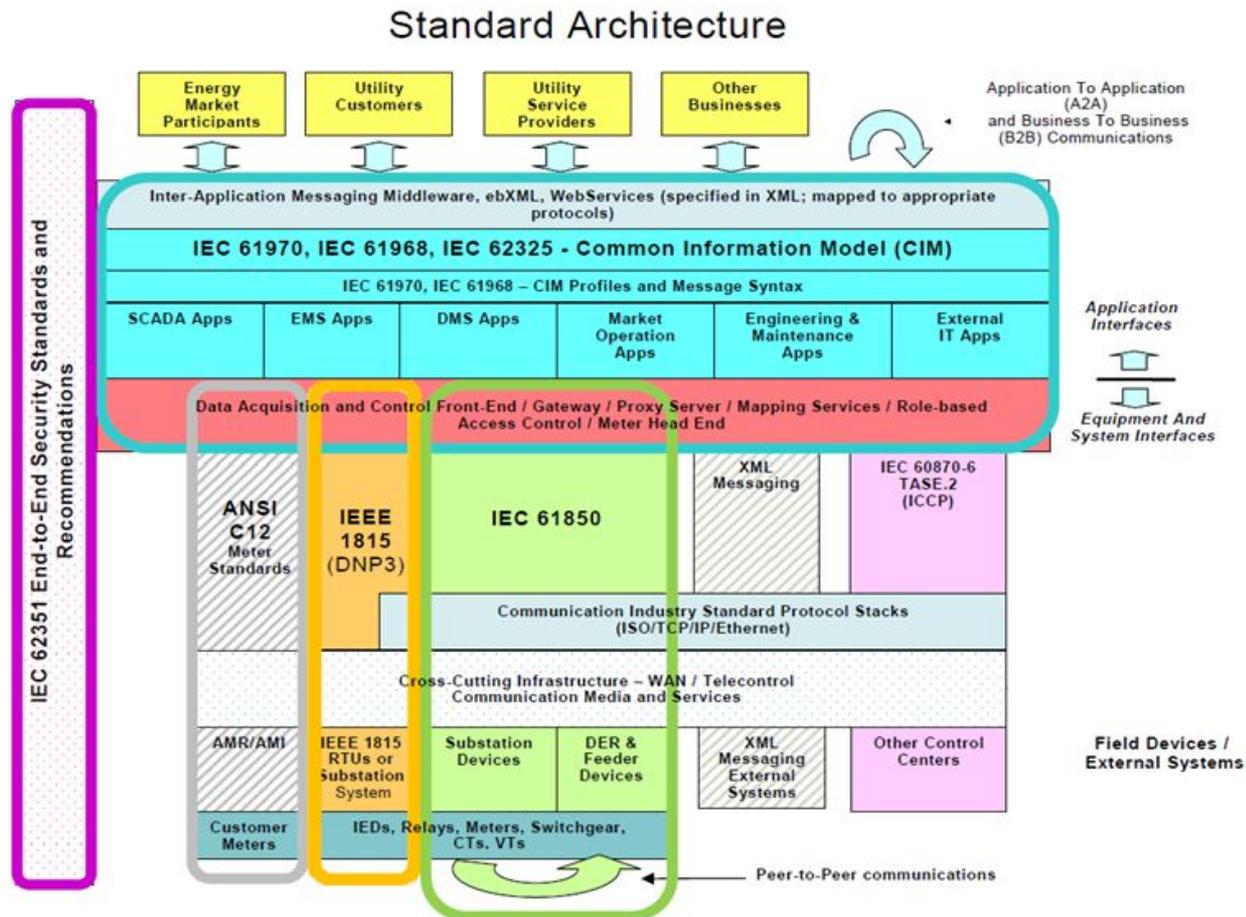


## WG2: Transmission and Distribution (2)

- Areas covered:
  - Energy market communication standards
  - Control centers – energy and distribution management systems
  - Supervisory control and data acquisition (SCADA) systems between control centers and field equipment
  - Field equipment communication for substations and distribution automation
  - Cross-cutting infrastructure – communication media and services
  - Cross-cutting security



# Canadian Architecture adapted from IEC 62357-1





## WG 3: Privacy and Security

- Promote a harmonized North American approach to the greatest extent possible
- Participate in specification of Smart Grid cyber security requirements and standards within NIST's Smart Grid Interoperability Panel (SGIP) and Cyber Security Working Group
- Propose that the National Smart Grid Steering Committee consider where and how Canadian positions on Smart Grid cyber security standards should be developed



## Next Steps

- Roadmap to be published in October of 2012
- New 'Smart Grid Steering Committee' to coordinate and assist with recommendations contained in roadmap
- Working with relevant standards bodies and technical committees regionally and internationally
- Monitoring new standards before incorporating into regulations



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# Standardization and Carbon Management



## ISO TC 207 – Published Standards

- ISO 14001 series - Framework for environmental management systems
- ISO 14020 series - Approaches to environmental labels and declarations
- ISO 14031 - Guidance on how an organization can evaluate its environmental performance
- ISO 14063 - Environmental communication guidelines/examples
- ISO 14064 series - GHG inventories at the organization level; emission reduction projects and validation/verification of assertions
- ISO 14065 - Requirements to accredit or recognize organizational bodies that undertake GHG validation/verification



## Possible New Standards

- Principles and requirements for eco-efficiency assessment
- Guidelines for general principles and framework of material flow cost accounting (MFCA)
- Requirements for the quantification and communication of greenhouse gases (GHGs) associated with products
- Guidance for organizations to calculate the carbon footprint of products, services and supply chains
- Guidelines on eco-design
- New work items under review include - Environmental Technology Verification: Policy, Framework and Procedures
- TC 265 - Carbon capture and storage (twinned secretariat - China)



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Thank you

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