

The Role of Standards in an Emerging Market

Julie Cairns

CSA Standards



Electric
Mobility
Canada

Mobilité
électrique
Canada

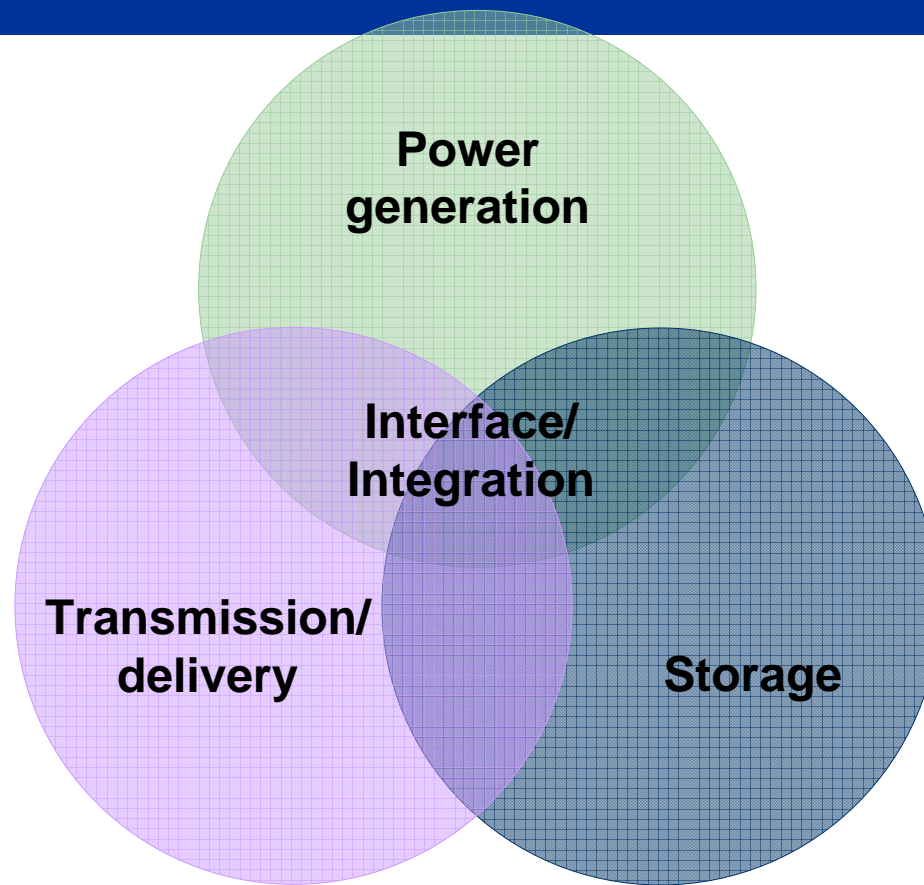
Agenda

- Introduction
- Current Landscape
- Role of Standards, Codes and Regulation
- CSA's role
- Conclusions

CSA GROUP Operating Divisions

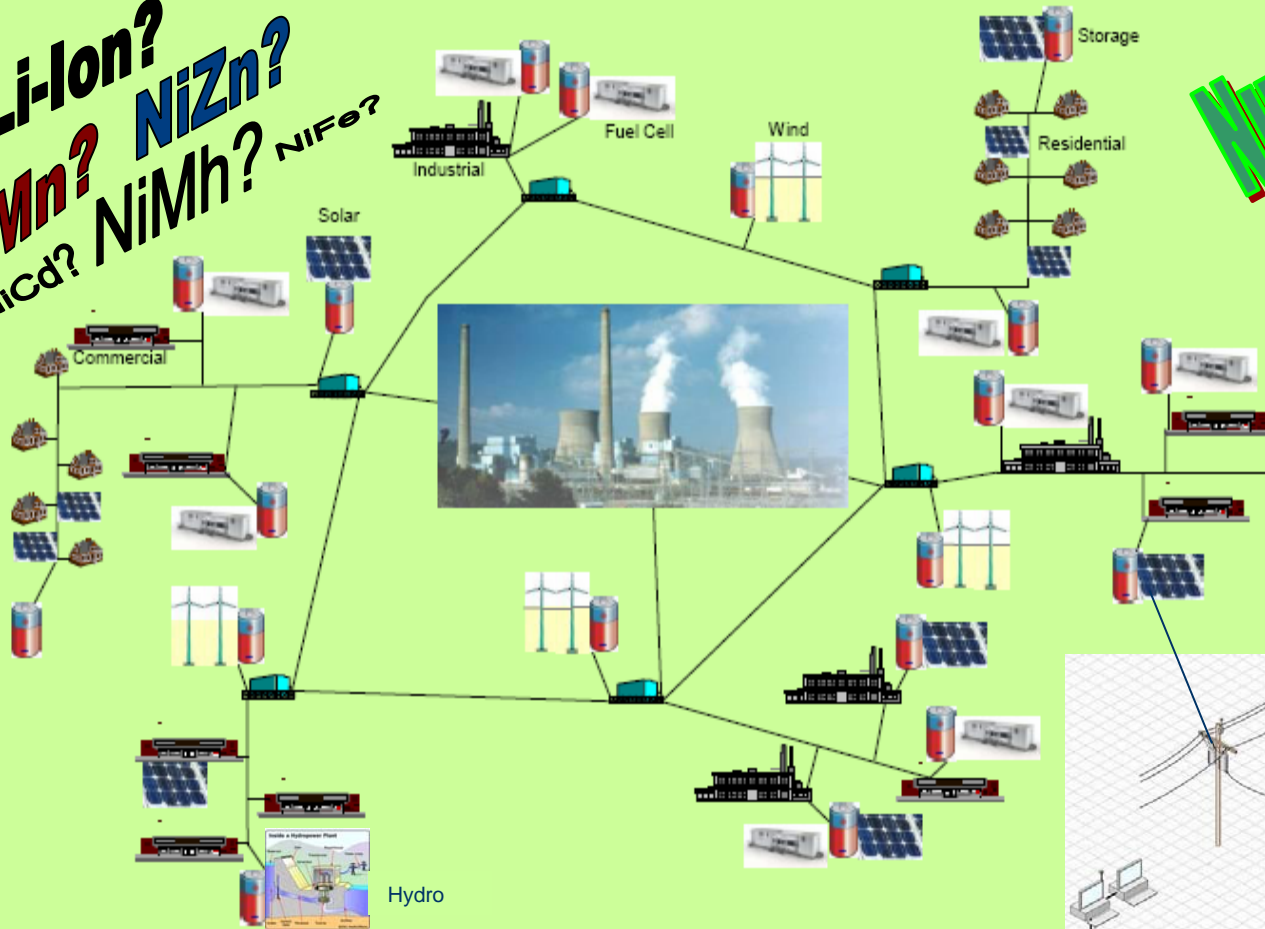


What are the basic issues?



...the Grid of the Future?

Li-Ion?
Mn? NiZn?
NiCd? NiMh? NIFe?



Nuclear?

CNG?

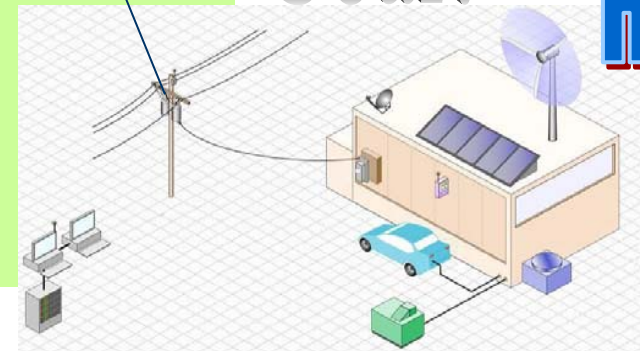
Hydro?

Solar?

WIND?

Coal?

H2?



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Role of Standards and Regulations

- The creation of an electrical supply chain from generation to smart grid to electric vehicle – and back – will need standards and regulations that encompass more than product and components.
- To ensure a future where EVs can drive across continent and can be shipped from one side of the planet to the other, standards and regulation will have to work together developing standards requirements concurrent to technology innovation.

Role of Standards and Regulations

- Enable technology transfer for manufacturers by creating performance and safety standards
- Facilitate the introduction of renewable energy sources and smart grid technologies
- Ensure safe, consistent implementation between jurisdictions

Role of Standards and Regulations

CSA	SAE	IEEE	ISO/IEC	UL	NFPA
Interconnection of Production Sources and Components					
CAN/CSA-C22.3 No. 9 Interconnection of Distributed Resources and Electricity Supply Systems CEC Part I Section 84 - Interconnection of Electric Power Production Sources Section 86: Electric Vehicle Charging Systems	J2836: 1-3 Use Cases for Communication between Plug-in Vehicles and (1) the Utility Grid, 2) Supply Equipment (EVSE) and 3) Utility Grid for Reverse Power Flow J2847: 1-3 Communication between Plug-in Vehicles and (1) the Utility Grid, 2) Supply Equipment (EVSE) and 3) Utility Grid for Reverse Power Flow	IEEE 1547 Interconnecting Distributed Resources with Electric Power Systems IEEE 2030 -Draft Guide for Smart Grid Interoperability of Energy Technology and Information Technology Operation with Electric Power System (EPS) and End-Use Applications and Loads			NFPA 70 National Electrical Code

Occupational Health and Safety

- Standards for safety need to be set in place to minimize potential injury
 - Power transfer and repair technicians will need safety standards for installation
 - First responders will need special training to handle hazards from damaged vehicles and building fires

Vocational Standards

- Standards for training, safety and repair need to be reviewed and expanded to address potential dangers of the electric vehicle power system.
- This training will also need to be generally available to allow for the “home mechanic” to gain the information necessary to prevent injury and death.

Role of Standards and Regulations

Harmonize-Harmonize-Harmonize Standards, Regulations, Codes and Guidelines North America-Provincial

Initial industry meeting Monday, September 28, 2009

- Form task group to complete gap analysis
- Develop detail priority list and time line
- Establish an action plan incorporating EMC and NIST roadmap

Conclusions

- There are many gaps to be covered to ensure a market that is strong, safe and world wide
- Co-ordination and harmonization of standards, codes and regulations is required
- All affected appliances/components will need to be reviewed
- Codes, standards and regulation must keep pace with industry

A journey of a thousand miles begins with a single step..... Lao Tzu



Making standards work
for people
and business

to create a *better, safer,
more sustainable world*