ANSI – ESO Conference
Transatlantic Standardization Partnerships on E-Mobility/Electric Vehicles, Energy, and Security

October 12, 2011

ANSI
American National Standards Institute

Harmonization challenges

in EV standardization

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October 12, 2011

Overview

- Agenda
  - Formula for success
  - Top priority - interoperability
  - Existing regional differences
  - Harmonization – what if we don't

Formula for success

$$\frac{Policy + f(Infrastructure + Reliability + Affordability)}{(Standardization = Interoperability)} = Customer\ Acceptance + Market\ Demand$$

Is it going to work?

Everytime? All the time?

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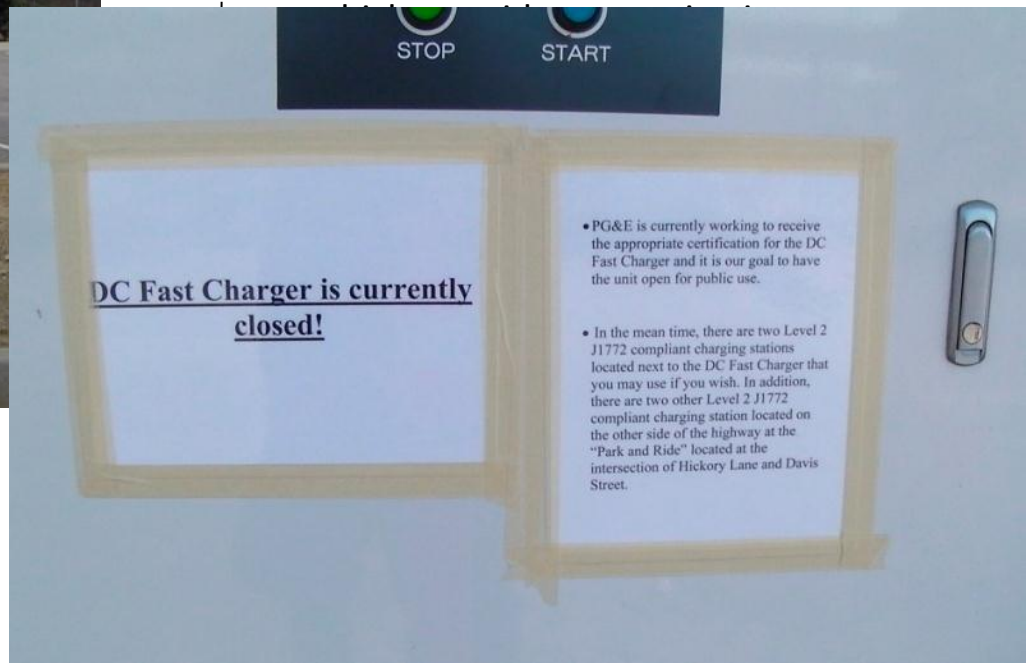
Government/Industry Research Project

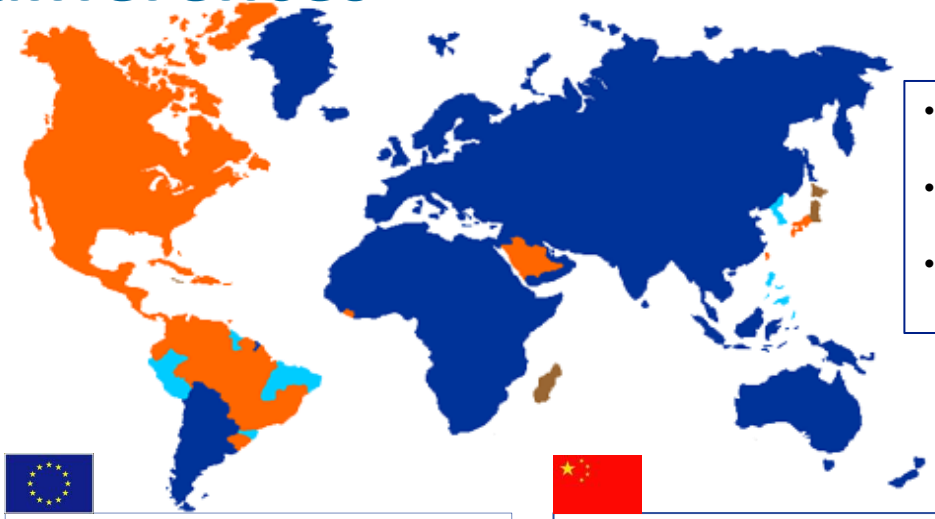
Advanced Vehicle Testing and Evaluation - Infrastructure Test and Evaluation

Testing vehicle and infrastructure interface, operations, and reliability.
-charger efficiency



Regional differences

220-240V/50Hz
220-240V/60Hz
100-127V/60Hz
100-127V/50Hz



- Not every country has the same electrical system
- Charging needs differ for vehicle type (PEV/PHEV)
- Charging needs differ for charging locations

Japan charge power:
- **AC single phase - low to moderate**
- **DC for high power fast charge**

Japan connector:
- **AC J1772™**
- **DC ChaDeMo system and coupler**

EU charge power:
- **AC single phase - low**
- **AC 3 phase - moderate and high power fast charge**
- **DC charge strategy - unclear**

EU connector:
- **AC single phase IEC 62196-2 "Type 1" (J1772™)**
- **AC single/3 phase IEC 62196-2 "Type 2"**
- **AC single/3 phase IEC 62196-2 "Type 3"**
- **DC - IEC 62196-3**

China charge power:
- **AC single phase - low & moderate**
- **DC for high power fast charge**

•China connector:
- **AC - Chinese unique version**
- **DC - Chinese unique version**

Not to scale

US charge power:
- **AC single phase - low & moderate**
- **DC for high power fast charge**

US connector:
- **AC J1772™ for Lev1 and Lev2**
- **DC J1772™ (new revision)**

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CENELEC

ETSI World Class Standards

Harmonization: what if we don't?

Vehicle and infrastructure costs will be higher - with no benefit to customers

Vehicle OEMs will need to package different charge receptacles and have different vehicle controls

Infrastructure cannot be shared

Number of vehicle sheet metal openings will be different for different regions

ANSI Electric Vehicle Standards Panel – SAE contribution

- ANSI Electric Vehicle Standards Panel – a needed effort
- SAE International's Ground Vehicle Standards staff members are chairing three work groups for the vehicle domain:
  - Energy Storage Systems WG
  - Vehicle Components WG
  - Vehicle User Interface WG
- All three work group meetings have been completed.
  - Work to compile existing standards, work in regulations, conformance programs and codes has been finalized by the work groups.
- Will attend November 17-18 Plenary