The European Standardization System in support of e-mobility

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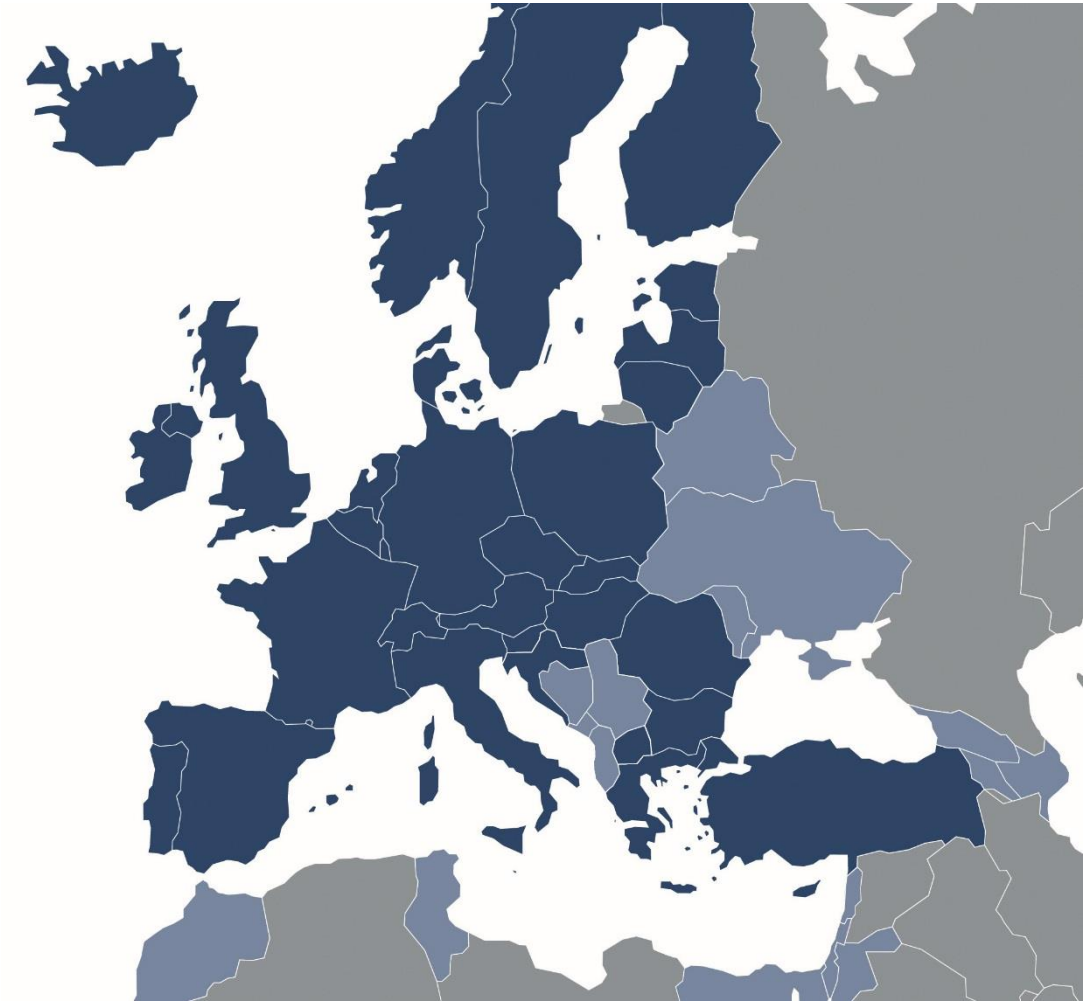
EUROPEAN STANDARDIZATION SYSTEM

CEN – European Committee for Standardization

CENELEC – European Committee for Electrotechnical Standardization

ETSI – European Telecommunications Standards Institute

CEN & CENELEC GEOGRAPHY



CEN & CENELEC

- 33 National Members
  - These are the NSB/NC of 28 EU Members, plus 3 EFTA countries and 2 applicant countries

STANDARDIZATION PRINCIPLES

- Consensus
- Open to all parties concerned
- Transparency
- Market driven
- Coherence: no conflicting standards
- Preference for international standards

EUROPEAN CONTEXT

- Strengthening EU internal market for products and services
- Opening global markets for European business
- Reducing regulatory burden through smarter regulation
- Fostering impactful innovation through scale up and market acceptance
- Addressing societal challenges

CEN & CENELEC AMBITIONS 2020

Global Influence	**Regional Relevance**	Network of excellence	Wider Recognition	**Innovation & Growth**	Sustainable System

Addressing eMobility challenges

David DOSSETT
International Symposium 'Towards a Transatlantic E-Mobility Market' (2015-10-28)

KEY ISSUES

- Interactions between automotive industry and electricity networks (connectors, wiring rules, electromagnetic compatibility aspects, safety issues)

  ➔ interoperability issues

- Different needs for home charging, fast charging, types of vehicle, etc..

  ➔ technical details

- Automotive sector: large market and large producers

  ➔ no need to re-invent the wheel

- Lack of standards may deter roll-out, implementation may be needed to standardize

  ➔ "chicken and egg" situation

CHALLENGES

- Domestic installations adequate for charging?
- Need to reduce options in charger/connector standards
- Smart charging – potential needs to be fulfilled; maturity of work on smart charging and on vehicle-to-grid communication?
- New standards needed - detailed adjustments needed for EMC

POLITICAL CONTEXT

- Standardization request M/468 'Charging of electric vehicles' (2010)
- Objectives: to develop and/or review existing standards in order to
  - Ensure interoperability and connectivity between the electricity supply and on-board chargers of electric vehicles
  - Ensure interoperability and connectivity between 'off-board' chargers and the electric vehicle and removable batteries
  - Consider any smart-charging issues
  - Consider safety risks and electromagnetic compatibility of the charger of electric vehicles

WAY FORWARD

- CEN-CENELEC eMobility Coordination Group (2012)
- Participation of automotive industry, battery manufacturers, electric infrastructure suppliers, EC, etc.
- CEN and CENELEC Technical Committees involved
  - CEN/TC 301 'Road vehicles'
  - CLC/TC 69X 'Electric systems for electric road vehicles'
  - CLC/TC 23BX 'Switches, boxes and enclosures for household and similar purposes, plugs and socket outlets for d.c. and for the charging of electrical vehicles including their connectors'
  - CLC/TC 64 'Electrical installations and protection against electric shock'

ACHIEVEMENTS

- Work Programme and set of available standards available
  - Covering the following aspects: charging systems, connection to the grid and electrical safety
  - Few new standards → adjustments to existing ones
  - No single solution for couplers → options
- Report on Smart Charging available online
  - Defining generic role models and reference architecture for different actors in the domains of E-mobility and power system (Smart Grid)
- Standards in this domain are – and have to be – international

LOOKING AT THE FUTURE

- European Commission 'Clean Power for Transport' package (January 2013)
  - incl. a directive on the deployment of alternative fuels infrastructure (2014/94/EU)
  - fuels considered: electricity, hydrogen, natural gas
- Standardization request (M/533)
  - Objective: to develop standards: wireless recharging of passenger cars, light duty vehicles and electric busses; battery swapping for passenger cars, electric busses connectors and socket outlet, A normal recharging points for L-category vehicles
  - Coordination: CEN-CENELEC eMobility Coordination Group

Addressing Smart Grid challenges

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International Symposium 'Towards a Transatlantic E-Mobility Market' (2015-10-28)

KEY ISSUES

- Convergence utilities/ICT
- Better integration of renewables
- European's power network must be flexible, accessible and reliable
- Solutions must be scalable, increase capacity for power transfers, reduce energy losses, heighten efficiency and security of supply and be backward compatible
- Developments in communications, metering and business systems open up new opportunities to enable technical improvements and energy efficiency

POLITICAL CONTEXT

- Standardization request M/490 'Charging of electric vehicles' (2011)
- Objectives:
  - To develop a technical reference architecture (functional information data flows between the main domains and integrate many systems and subsystems architectures)
  - A set of consistent standards
  - Sustainable standardization processes

WAY FORWARD

- CEN-CENELEC-ETSI Smart Grid Coordination Group (2011)
- Participation of Utilities, IT, Consumers, EC, etc.
- Main CEN and CENELEC Technical Committees involved
  - CLC/TC 8X 'System aspects of electrical energy supply '
  - CLC/TC 57 'Power systems management and associated information exchange '
  - CLC/TC 205 'Home and Building Electronic Systems (HBES) '
  - CEN/TC 247 'Building Automation, Controls and Building Management '

ACHIEVEMENTS

- The requested methodology and the Smart Grid Reference Architecture developed
- Work Programme and set of available standards supporting smart grid deployment is available
  - Description of 'available' and 'coming' standards for each specific system
  - 23 Smart Grid systems (e.g. eMobility)
  - 8 Cross-Cutting technologies are identified/investigated
  - + 500 Standards listed

Conclusion

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CRUCIAL ROLE FOR STANDARDS

- Standards provide a basis for the integration of technologies into complex, innovative systems and solutions, and assist in ensuring interoperability
- Codifying and spreading the state of the art
- Giving access to new knowledge
- Standards are essential to help electric vehicles and smart grids to achieve their potential

Many thanks for your attention!

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