



“EU-India Workshop on EV Charging Technology”

In the Framework of EU-India TTC Working Group 2 on Green and Clean Energy Technologies

Topic: EU-India Partnership Instrument for Electrifying Road Vehicles through harmonised Standards

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- ✓ SESEI: Structural Cooperation
- ✓ Benefits of Collaborative Research & Harmonised Standards in Enabling e-Mobility
- ✓ EU-India Partnership
- ✓ Smart Mobility: ITS – V2X update from India
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SESEI: Local Representative of EU Standardisation Bodies in India

SESEI (Seconded European Standardization Expert in India) *is a local face for the European standardization community in India: Dinesh Chand Sharma*

Launched in Jan'13, currently in its sixth phase (Aug'24 to July'27)



Priority Sectors/topics: Aligned with EU-INDIA TTC & Connectivity Partnership

Digitization: Strategic technologies, digital governance, and digital connectivity

- Smart Cities, ITS, Quantum Technologies, Smart Grid/Meter, AI, 5G/6G, Open RAN, M2M/IoT, DECT, Data Privacy, Satellite Communication, Blockchain, Digital Signature, Smart Manufacturing, e-Accessibility, cybersecurity, digital skills and R&I etc.

Green & Clean Technologies:

- Clean Energy, Energy Efficiency (Green ICT), Environment, Circular Economy including Resource Efficiency, Waste Management, Energy storage technologies, **Electric mobility**, Green Hydrogen, Advanced biofuels including R&I etc.

Market access & Other topics of mutual interests:

- Rail, Ropeways, Machinery Safety etc.

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SESEI: Structural Cooperation

MoU / Cooperation Agreement / License Agreement

- MoU between BIS -CEN-CENELEC => Framework Copyright License Agreement under finalization with BIS
- Co-operation agreement including copyright license agreement between BIS – ETSI
- MoU with ISGF-CENELEC , BIF-ETSI , COAI-ETSI, ETSI-TSDSI etc.

Information flow (both ways)

- Monthly Newsletter for both EU/EFTA and Indian stakeholders
- Industry Sector Profile [Report](#) & [Presentation](#) on “Digitization and Green & Clean Technologies: India
- Other Reports on Demand covering European Standardisation Initiatives:
 - ✓ [eCall: European Initiative](#) , [Intelligent Transport System – Europe](#), [Smart Manufacturing/Industry 4.0 – Europe](#), [Smart City in Europe](#)
- Thematic Webinars (Consumer IoT Security and Circular Economy and Eco Design, Eco Labelling, etc)

Adoption of EN's by Indian SDO's :

- Adoption of EN-115 standards as Indian Standard: BIS
- Adoption of EN 301 549 (Accessibility requirements suitable for public procurement of ICT products and services): BIS
- Adoption of E/Digital – Signatures: plans to adopt entire ETSI library
 - ✓ Total = 76 , Published = 3, Under Publication = 4, Preliminary Draft Stage = 2, Working Draft Stage = 1, Next Transposition: 3
- Standard for “Energy Consumption Rating and Energy Passport” for Telecommunications at TEC are based on ETSI Standards
 - ✓ EN 303 215, EN 202 706-1, EN 102 706-2, EN 303 470, ES 201 554 etc.
- Adoption of EN 303 645 - cyber security standard for consumer IoT devices: TEC Code of Practice



Benefits of Collaborative Research & Harmonised Standards in Enabling e-Mobility 1(2)

- **Faster Innovation through Collaborative Research**

- Joint R&D between partners, industry, academia, and governments accelerates development of **EV technologies, batteries, charging systems, and smart grid integration.**
- Shared testbeds and pilot projects reduce duplication of efforts and costs.
- Enables faster commercialization of **next-generation charging solutions and battery technologies.**

- **Interoperability Across EV Ecosystems**

- Harmonised standards ensure **EVs, charging infrastructure, grid systems, and digital platforms to work seamlessly together.**
- Supports cross-border compatibility of charging networks and EV components.
- Prevents market fragmentation and vendor lock-in.

- **Improved Safety, Reliability & Cybersecurity**

- Common technical standards enable **uniform safety requirements for batteries, charging systems, and grid interfaces.**
- Standardized cybersecurity protocols protect **smart charging, connected vehicles, and energy systems.**
- Facilitates reliable integration of EV charging with the power grid.



Benefits of Collaborative Research & Harmonised Standards in Enabling e-Mobility 2(2)

- **Accelerated Market Deployment**

- Clear and harmonized standards simplify **testing, certification, and regulatory approvals.**
- Reduces uncertainty for manufacturers and infrastructure providers.
- Encourages private investment and large-scale EV infrastructure rollout.

- **Global Market Access & Industrial Competitiveness**

- Harmonised standards enable manufacturers to **design once and access multiple markets.**
- Promotes global value chains for EVs, batteries, and charging equipment.
- Supports SMEs and startups through standardized interfaces and open ecosystems.

- **Supporting Sustainable Energy Integration**

- Standardized communication between **EV chargers and smart grids** enables demand response and load balancing.
- Facilitates integration of **renewable energy with EV charging infrastructure.**
- Contributes to **decarbonization and net-zero mobility goals.**



Enabling Europe-India Cooperation on Standards

EU-India Partnership



EU-India Partnership

New Strategic EU-India Agenda towards 2030

- Building on the EU's Joint Communication in 2025 '[New Strategic EU-India Agenda](#)', Cooperation on research and innovation is a cross-cutting and integral part of [Joint EU-India Comprehensive Strategic Agenda Towards 2030](#), adopted on 27 January 2026 at 16th EU-India Summit
 - Agenda will strengthen the cooperation on sustainability, technology and innovation, security and defence, connectivity, global issues, and people-to-people cooperation.

EU-India Trade and Technology Council (TTC), launched in May 2023:

- **EU-India TTC** serves as the main framework for cooperation, with a strong focus on **e-mobility, including EV battery recycling technologies** and circular economy solutions as part of WG-2.
 - A project to be selected under the call for proposals to be launched in May 2026, which should start work in 2027.

EU-India connectivity partnership, adopted in May 2021:

- **EU and India** have also **signed a [connectivity partnership](#)** to support sustainable digital, **transport** and energy networks, and the flow of people, goods, services, data and capital centred on equity and inclusivity for the benefit of both India and the EU and assisting in global development efforts, based on Sustainable Development Goal principles that no one is left behind.



India: V2X Communication - ITS

MoRTH Task Force for development and Implementation of ITS

- **MoRTH established a Task Force for the development and Implementation of Intelligent Transportation Systems (ITS) in country, with specific focus on Vehicle to Everything (V2X) communications - September 2024. The mandate of the Task Force was to prepare:**
 - i. Recommendations of Automotive Industry Standards and regulations related to Intelligent Transportation Systems (ITS), and rollout of communication between vehicle to everything (V2X).
 - ii. Recommendations on vehicle-to-vehicle & vehicle-to-infrastructure communication, use of 5.875 – 5.925 GHz frequency in the Intelligent Transportation System (ITS).
 - iii. Recommendations on various radio frequency Band and delicensing these frequency bands to the Department of Telecommunications (DOT).
- **Final Report of the Task Force on Intelligent Transportation System (ITS) covering Recommendations for Automotive Industry Standards and regulations related to ITS, and rollout of communication between vehicle to anything (V2X) is submitted to MoRTH by TEC**

Key recommendations include:

- i. For ITS Stack, based on wider ecosystem consultation and consensus, ETSI ITS stack may be adopted for V2X/ITS implementation in the country: Adoption of corresponding ETSI standard as National Standard may be taken up by the appropriate standardisation body in India (e.g. TSDSI, TEC).
- ii. For Security services, a harmonized approach based on ETSI TS 102 941, which is derived from IEEE 1609.2, should be adopted to ensure PKI Root of Trust and scalability. This includes the possibility of either having a separate and dedicated national ITS root CA or alternatively, consideration for a coexistence framework wherein the national root CA (X.509) countersigns the ITS certificates (**Next slide**)

Contribution from SESEI:

- SESEI expert with the help of ETSI worked with TEC on it and provided inputs to this report on ETSI ITS stack including diagrams for each layer and relevant standards with a focus on use cases for India.



Brainstorming and Stakeholder Consultative Meeting on PKI for V2X Communication

Brainstorming and Stakeholder Consultative Meeting on PKI for V2X Communication organised by C-DAC Hyderabad, MeitY and its department CCA:

- ✓ PoC of bridged CA architecture—enabling coexistence of CCA Root (X.509) and ITS Roots based on ETSI standards—demonstrated for adoption in India.
- ✓ ETSI Chair for ITS, participated virtually on request of SESEI and gave a presentation explaining the European Security Framework for V2X (C-ITS) and how trust is established by authenticating message senders through PKI-based signing.
- ✓ SESEI expert shared insights, including updates from ongoing discussions with TEC on the ETSI ITS stack.
- ✓ TEC finalised its recommendation for Ministry and submitted. ([Previous slide](#))



Conclusion

- With traditional and new entrants using a variety of technology approaches towards electric vehicles, it is crucial that standards are established to ensure that EV technologies are safe, reliable & interoperable.
- Regulatory frameworks that establish guidelines/benchmarks for various EV technologies and offer a certification process will increase consumer confidence, safety, and supplier compliance.
- Key benefits of establishing/adopting EN/Global standards and certifications include:
 - ✓ Safety of personnel, product, and charging infrastructure
 - ✓ Interoperability & Cybersecurity with common infrastructure making Cost reduction with mass production and accessibility of EV technology
 - ✓ Increased & fast adoption of new technologies underpinning the EV revolution
- EU and India should capitalize on their ongoing partnerships to strengthen collaboration in promoting, adopting, and deploying international standards in support of smart mobility including safety and security of Electric Vehicles(EV).



Thank you!

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