

ANSI ELECTRIC VEHICLES STANDARDS PANEL (EVSP)

ORGANIZATIONAL SPECIFICS

Standards Organizations:	Various
Technical Committees:	Various
Other Partnering Organizations:	ANSI
Government Organizations:	Argonne National Laboratory (ANL), National Renewable Energy Laboratory (NREL), Oak Ridge National Laboratory (ORNL), Pacific Northwest National Laboratory (PNNL), Idaho National Laboratory (INL), and Sandia National Laboratories (SNL)
Industry Sector(s) / Technology:	Automotive
Program / Activity Website URL(s):	https://www.ansi.org/standards-coordination/collaboratives-activities/electric-vehicles

STANDARDS DRIVEN PUBLIC-PRIVATE PARTNERSHIP (PPP) OBJECTIVES

PPP Drivers:

The ANSI [Electric Vehicles Standards Panel](#) (EVSP) was initially formed in March 2011 with the purpose of developing a roadmap of standards and conformance programs needed to facilitate the safe, mass deployment of electric vehicles (EVs) and charging infrastructure in the United States. The decision to form the Panel was made at a meeting of key stakeholders in March 2011, which ANSI convened in response to suggestions that the U.S. standardization community needed a more coordinated approach to keep pace with electric vehicle initiatives moving forward in other parts of the world. The EVSP developed the initial roadmap in 2012 and revised versions in 2013 and 2023.

The Biden Administration's goal for a clean energy future resulted in the issuance of a June 2021 lab call funding opportunity announced by the U.S. Department of Energy (DOE) [Office of Energy Efficiency & Renewable Energy](#) (EERE) [Vehicle Technologies Office](#) (VTO). The lab call included a pillar on codes and standards with the goal to "identify and address challenges and barriers to the integration of electric vehicles at scale (EVs@Scale) charging with the grid created by the uncoordinated development of codes and standards and the rapid advances in vehicle and charging technologies." The [EVs@Scale lab consortium](#), formed in response, committed to develop a 2022 roadmap like earlier ANSI EV standards roadmaps. [Argonne National Laboratory](#) (ANL) is the lead lab for the codes and standards pillar, supported by consortium members [National Renewable Energy Laboratory](#) (NREL), [Oak Ridge National Laboratory](#) (ORNL), [Pacific Northwest National Laboratory](#) (PNNL), [Idaho National Laboratory](#) (INL), and [Sandia National Laboratories](#) (SNL). The EV@Scale initiative supports federal and state funding associated with deploying EV charging infrastructure nationwide.

PPP Goals:

The ANSI EVSP is a cross-sector coordinating body whose objective is to foster coordination and collaboration on standardization matters among public- and private-sector stakeholders to enable the safe, mass deployment of electric vehicles and associated infrastructure in the United States with international coordination, adaptability, and engagement. Outputs of the EVSP in the 2011-2014 timeframe included a Standardization Roadmap for Electric Vehicles (Version 1.0 in April 2012 and Version 2.0, May 2013), a gaps progress report (November 2014) against same, and a standards compendium. Though the priorities have shifted in many respects with the new focus on EVs@Scale, aspects of the earlier EVSP work were drawn upon to support the 2023 [Roadmap of Standards and Codes for Electric Vehicles at Scale](#).

The priorities of the 2023 codes and standards effort was to identify the most critical standards for EVs at scale, including for standards to address high-power DC charging, storage (i.e., microgrid, distributed energy resource management systems) integrated with DC charging, vehicle grid integration, high-power scalable/interoperable wireless charging, cybersecurity, vehicle-to-everything (V2X) communications, and vehicle-oriented systems.

Public Sector Role & Participation:

Some 80 individuals from 130 public- and private-sector organizations supported the 2023 roadmap's development, including U.S. federal government agencies and national laboratories, standards and codes developing organizations, industry, academia, and others. The roadmap represents the culmination of the EVSP's work over eight months to identify key safety, performance, and interoperability issues for EVs and charging infrastructure, relevant published and in development standards, and to assess gaps.

All EVSP members offered their technical knowledge about issues, existing standardization activities, regulatory and codes activities, and R&D needs. There was no distinction between the roles of the public versus private sector. Some representatives engaged in EVSP as a member and others served in leadership roles. However, outreach efforts always targeted and advocated for both private and public sector engagement. Participation was open to EV stakeholders that have operations in the U.S. Membership in ANSI was not a prerequisite and there was no fee to participate.

The EVSP efforts were partially funded by ANL and supported through sponsorships including UL Standard and Engagement (ULSE) and the Kiosk Manufacturers Association (KMA).

Implementation Methods:

In 2011, before forming the EVSP, ANSI hosted a stakeholder workshop to explore the needs for collaboration and identify stakeholders. Once there was a consensus regarding the need, a structure for the EVSP was established. To maximize the effectiveness and relevance of the EVSP work, a Steering Committee (SC) was established. The SC membership included the working groups chairs as well as standards organizations, government, consortia, and others to give balance to the SC. The SC offered guidance and strategic direction, as well as leveraged their networks to ensure the technical expertise in the WG was sufficient to ensure technical and market relevance.

The [2023 roadmap](#) met completely virtually and did not utilize a Steering Committee (SC) as it had in the past. To develop the roadmap, the EVSP established three working groups that typically held online meetings twice a month:

- WG1: Vehicle Systems
- WG2: Charging Infrastructure
- WG3: Grid Integration and Cybersecurity

Measurement of Success:

The roadmap increases awareness about research, standards, and codes to support electric vehicles. It also highlights existing and needed standardization efforts, aimed at accelerating standards development and adoption.

Of the 37 gaps, 14 gaps are identified as high priority, 20 as medium priority, and three as low priority. In 23 cases, additional pre-standardization research and development (R&D) are noted. The roadmap also provides prioritized timeframes for when standards work should occur, and identifies SDOs or others that may be able to develop the standards or perform the R&D. It is envisioned that a mechanism will be established to assess progress to implement the roadmap's recommendations.

The target audience for the roadmap includes vehicle manufacturers, entities that will be installing and operating charging infrastructure, SDOs, U.S. federal, state, and municipal government agencies, electric utilities, and others.

It is too early to determine the impact the 2023 roadmap will have on EV stakeholders, but feedback from EVSP participants has been positive. The roadmap has been downloaded approximately 800 times.

Key Takeaways:

1. A clear scope of what technical areas should be addressed as a whole, as well as the WG level is important in order to not overwhelm or slow efforts.

2. A balanced representation of expertise in each of the technical working groups is necessary to ensure market relevance and unbiased recommendations.
3. Allowing for public review of drafts prior to publications helps ensure broader input from directly and indirectly impacted stakeholders.

Advice for Others:

The initial plan for the 2023 roadmap was to leverage the 2014 version and update it. However, as the work began, it was determined that too much time had passed and the content was outdated. This resulted in a delay in WG progress. After re-strategizing, progress started heading in the right direction. It may be beneficial to leverage a steering/advisory committee model with balanced representation of industry to proactively head off delays or confusion. Additionally, or alternatively, an industry survey could aid in scope refinement and gauge the readiness of stakeholders to support the effort.