



Initial Priorities of the Electric Vehicle Working Group

Approved during the April 3, 2024 meeting of
the Electric Vehicle Working Group

Executive Summary

The Electric Vehicle Working Group (EVWG) announces the release of the first in a series of three reports providing a comprehensive update on the adoption of electric vehicles (EVs) in the United States.¹ This report provides a high-level overview of the EVWG’s plans to address challenges to EV adoption.

The Secretaries of the Department of Energy (DOE) and the Department of Transportation (DOT) directed the EVWG to “develop goals, metrics, and actionable recommendations for industry and government to collectively achieve widespread vehicle electrification as a part of a net-zero carbon transportation system in the United States.” To accomplish the Secretaries’ directives, the EVWG will form subcommittees to conduct initial assessments related to three priority focus areas: (1) Charging Network, (2) Medium- and Heavy-Duty (MD/HD) Electrification, and (3) Grid Integration. The subcommittees will also examine and address issues related to equity, workforce, and supply chain in their assessments.

Members of the EVWG will lead the subcommittees’ work and help to develop recommendations to the EVWG. The three subcommittees will interact with a broader set of subject matter experts and stakeholders across the private sector, industry, public utilities, non-profit organizations, labor unions, universities, disadvantaged communities, and various levels of local and state governments. The subcommittees will work in close collaboration to ensure that the EVWG’s final recommendations are aligned and will help drive the efficient and effective adoption of electric vehicles.

The EVWG may consider and discuss other key topics, as needed, to meet the overall direction from the Secretaries. The EVWG will continue to meet every quarter to engage with a broader set of subject matter experts and interested stakeholders to inform future recommendations. This approach will ensure significant collaboration with additional public and private stakeholders, and brings industry and government together to meet the nation’s electrification goals.

Introduction and Background

The EVWG’s first report provides a comprehensive update on the adoption of EVs. This report offers a high-level summary of planned actions and highlights the contributions of the EVWG toward achieving high levels of EV adoption in the United States.

The EVWG was [established on June 8, 2022](#), pursuant to the Infrastructure Investment and Jobs Act of 2021 (IIJA, also known as the Bipartisan Infrastructure Law). The EVWG was implemented by the Joint Office of Energy and Transportation (Joint Office) to make recommendations to the Secretaries of Energy and Transportation regarding the development, adoption, and integration of light-, medium-, and heavy-duty EVs into the U.S.

¹ For the purposes of this report, EVs includes both plug-in electric vehicles (PHEVs) and battery electric vehicles (BEVs).

transportation and energy systems. The EVWG operates in accordance with the provisions of the Federal Advisory Committee Act (FACA), as amended, 5 U.S.C. App.

The EVWG consists of key constituent representatives and federal government employees. The Secretaries of DOE and DOT (or designees) serve as co-chairs, while members consist of not more than six federal and 19 non-federal stakeholders. Federal stakeholders include not fewer than one representative from DOE, DOT, United States Environmental Protection Agency (EPA), White House Council on Environmental Quality (CEQ), and United States General Services Administration (GSA). The non-federal members, in the aggregate, consist of individuals with a balance of backgrounds, experiences, and viewpoints, and include individuals that represent both geographically diverse regions of the United States and the perspectives of rural, urban, and suburban areas.

Activities of the EVWG include:

- ▶ Providing recommendations regarding the development, adoption, and integration of light-, medium-, and heavy-duty EVs into the transportation and energy systems of the United States;
- ▶ Coordinating and consulting with any existing federal interagency working groups on fleet conversion, including car rental fleets, or other similar matters relating to EVs; and
- ▶ Reporting to the Secretaries of DOE and DOT; the Senate Commerce, Science, and Transportation Committee; the Senate Appropriations Committee; the House Transportation and Infrastructure Committee; and the House Appropriations Committee.

Activities to Date and Secretaries' Charge

EVWG members were announced on August 2, 2023, and a virtual three-hour kickoff meeting was held on September 26, 2023 for members to discuss which priorities to focus on, consistent with the EVWG's mandate. The EVWG then met in person on December 12-13, 2023, where the Secretaries of DOE and DOT shared their vision for the EVWG, including: "...to develop goals, metrics, and actionable recommendations for industry and government to collectively achieve widespread vehicle electrification as a part of a net-zero carbon transportation system in the United States." EVWG members synthesized ideas from their first meeting to create an initial framework for their activities, and further discussed and refined them, as documented in this report.

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Electric Vehicle Working Group

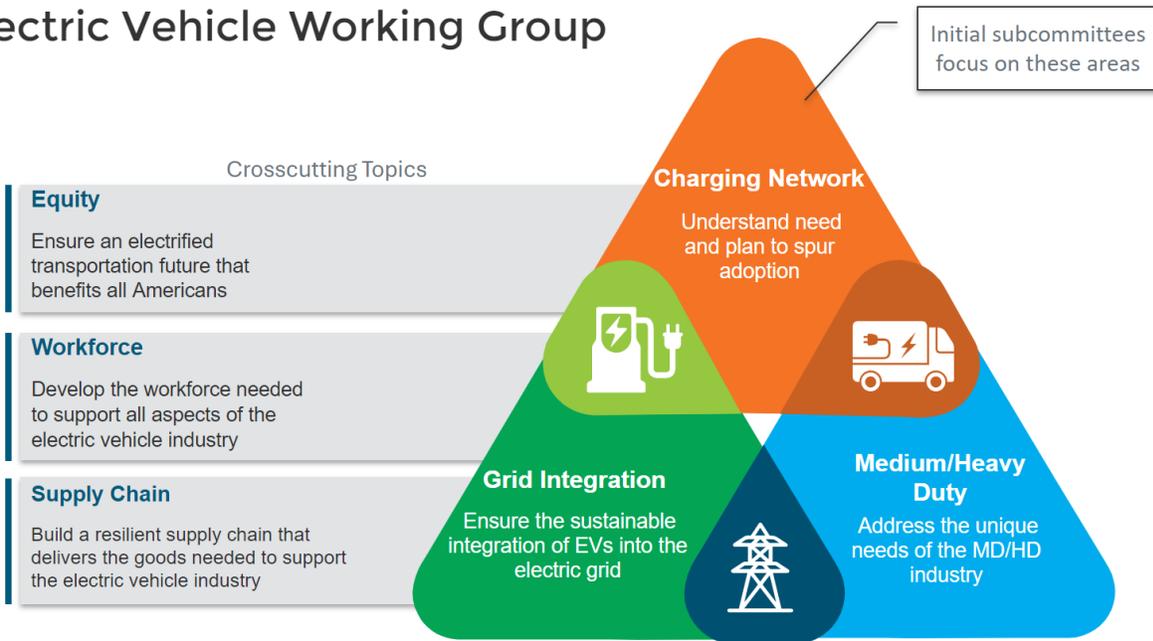


FIGURE 1: EVWG INITIAL SUBCOMMITTEE AND CROSS CUT FRAMEWORK

Initial Priorities Identified by the EVWG

In the initial EVWG meetings, the members were polled and determined three initial priorities: (1) the Charging Network, (2) MD/HD Electrification, and (3) Grid Integration. The members also identified three priority cross-cutting topics—equity, workforce, and supply chain—that are critical for understanding the three initial priorities.

While the priority areas and cross-cutting topics identified above are not the exclusive focus areas or topics of the EVWG, they provide a valuable initial structure for the EVWG’s work. Many other topics, such as cost, affordability, education, interoperability, and public-private partnerships have also been raised by EVWG members as areas to consider when addressing the Secretaries’ charge, and are likely to be part of future discussions.

In subsequent EVWG meetings, the members scoped out the subcommittees’ focus areas in further detail; those descriptions are below.

Charging Network Subcommittee

The charging network subcommittee identified the outcomes related to accessibility, affordability, reliability, and convenience that are necessary while ensuring that the grid is sustainable from a business and operational perspective. The subcommittee recognized the need to address not only home charging, but also charging on the road, at fleet locations (including consolidated car rental facilities); and for those whose living arrangements do not permit home charging. By recognizing the importance of these outcomes, the charging network

subcommittee aims to foster a constructive and collaborative environment that promotes the development of a robust, equitable, and efficient charging network that benefits EV drivers and the supply chain.

The scope of this work involves several areas of focus. The first area of focus is determining where to build charging stations, including the degree to which they should be in urban and rural areas or placed along interstate rights-of-way and other strategic locations, where public or private funding may be necessary.

Additionally, the subcommittee recognizes the need for a business case and return on investment for charging station operators. In the interim, equitably providing a bridge for access to investment capital is needed.

The charging network also needs to be future proofed by ensuring that it can handle increased demand and charging speeds from future vehicles and drivers.

The other four focus areas include promoting interoperability between all vehicles and charging equipment; identifying the workforce required for the installation, operations, and maintenance of a reliable charging network; making necessary electrical grid upgrades; and ensuring pricing transparency for all stakeholders.

In addition to the four focus areas, the charging network subcommittee prioritized the following items:

- ▶ Define metrics, including affordability, reliability, accessibility, and sustainability;
- ▶ Review the work done by the Joint Office on minimum standards and how these standards are communicated to the public;
- ▶ Develop a game plan for broader public education and awareness on EV ownership and usage;
- ▶ Analyze workforce baselines;
- ▶ Create a status baseline for the current charging infrastructure and develop strategies around the selection and deployment of charger locations;
- ▶ Establish a public planning baseline that includes zoning regulations and building codes, including toolkits for local governments.

The charging network subcommittee will coordinate closely with the others to ensure recommendations align and as a whole drive efficient and effective adoption of electric vehicles.

Medium– and Heavy-Duty (MD/HD) Electrification Subcommittee

The MD/HD electrification subcommittee will focus on the unique needs of vehicle classes six through eight, which includes delivery vehicles, transit buses, on-highway tractor-trailers, and vocational trucks. The main objective of this subcommittee is to facilitate the transition of these vehicles from internal combustion engines to electric propulsion.

The subcommittee will develop a comprehensive analysis of MD/HD EV Total Cost of Ownership (TCO) to identify commercial challenges and opportunities related to the transition to MD/HD EVs and will provide recommendations to improve the economics of EV adoption. This analysis will consider the differing needs across specific MD/HD market segments and vehicles use cases and develop recommendations to ensure alignment between government incentives and infrastructure. The subcommittee will identify early high-volume markets by considering customer applications and electrification feasibility; and identify MD/HD-specific infrastructure requirements, including the feasibility of ultra high-power charging.

The subcommittee will concentrate on industry standardization to ensure a safe, efficient, and expeditious adoption of EV technology. It will collaborate with vehicle manufacturers on software key performance indicators (KPIs) and application programming interface (API) standardization to drive interoperability, economies of scale, and data availability in support of grid planning.

The subcommittee will also work on identifying gaps in workforce needs to support the transition to MD/HD EVs and will develop recommendations to address these gaps.

Finally, the subcommittee will address hydrogen fuel cell electric vehicles (HFCEVs) as a complementary priority due to their commonality of electric drive train components and opportunities to address the battery electric vehicle (BEV) challenges of weight, range, and recharging times.

The subcommittee will begin by taking the following actions:

- ▶ Define the priorities and sequencing of activities;
- ▶ Create an inventory and baseline of existing MD/HD standards and regulations relevant to the objectives of the subcommittee;
- ▶ Commence with TCO analysis and requirements definition for MD/HD EV specifications; and
- ▶ Establish position statements on HFCEVs and regulatory considerations.

The MD/HD electrification subcommittee will coordinate closely with the other subcommittees to ensure the recommendations align and drive the efficient and effective adoption of electric vehicles.

Grid Integration Subcommittee

The grid integration subcommittee identified four focus areas to ensure the “sustainable” integration of EVs into the electrical grid ecosystem: grid readiness; comprehensive planning; transparency and education; and partnerships. In addition to the EVWG cross-cutting topics of equity, workforce, and supply chain, “sustainable” integration must address safety, reliability, affordability, and security (including cybersecurity). To effectively transition to EVs while managing the other changes to the electrical grid, issues related to cost effectiveness, timeliness of infrastructure development, construction timelines, near-term solutions, and the ability to continue the integration of carbon-free grid resources must also be addressed. These considerations must work in harmony with the other changes to the evolving electrical grid, including generation and new loads.

The four focus areas are:

1. **Grid Readiness:** This area includes measures to ensure the grid is equipped to handle the increasing electricity demand from vehicles in a sustainable manner (while other loads also increase).
2. **Comprehensive Planning:** This area involves the development of short-, medium- and long-term strategies and plans to support transportation electrification without negatively impacting grid stability and reliability.
3. **Transparency and Education:** This area aims to improve understanding of EVs and the electric grid among utilities, stakeholders, customers, and the public.
4. **Partnerships:** This area involves building strong relationships and innovative collaborations among industry stakeholders, regulators, and other key players to foster cooperation in pursuing sustainable grid integrations.

“Partnerships will be essential to ensuring the sustainable integration of EVs into the electrical grid ecosystem and will require cooperation and coordination among vehicle manufacturers, charging providers, and utilities.”

In addition to the priority cross-cutting topics for all EVWG priority areas (i.e., equity, workforce, and supply chain), the grid integration subcommittee added three overlapping topics that it will consider in making recommendations, including: (1) affordability, (2) speed, and (3) data. Doing so will ensure that the subcommittee takes a comprehensive look into grid integration in a way that addresses all needs and keeps customers at the center.

The grid integration subcommittee has identified the following initial actions:

- ▶ Create a status baseline to understand the available tools from industry, non-governmental organizations (NGOs), and federal organizations;
- ▶ Identifying gaps and needs;
- ▶ Establishing metrics; and
- ▶ Leveraging existing federal programs, non-profits, and industry efforts to avoid duplicating efforts.

The subcommittee noted additional factors for consideration. One of the crucial factors is the expected demand for MD/HD EVs, which requires the grid to be capable of handling the increased demand for power that comes with EV adoption. Another important consideration is to identify “no regret” investments, which provide benefits, regardless of future scenarios.

By keeping these considerations in mind, the subcommittee hopes to mitigate certain grid-related EV adoption barriers to promote efficient and sustainable grid integration.

The grid integration subcommittee will coordinate closely with the others to ensure recommendations align and as a whole drive efficient and effective adoption of electric vehicles.

Conclusion and Next Steps

The EVWG is in the first phase of its work; these initial priorities are critical to address the development, adoption, and integration of light-, medium-, and heavy-duty EVs into the transportation and energy systems of the United States.

The IJJA requires the EVWG to submit three reports; this is the first of the reports. The IJJA requires each subsequent report to be completed within two years of the previous report. Each subsequent report will delve deeper into these topics and make recommendations to the Secretaries and Congress, as outlined in the IJJA.

In addition to these formal reports, the EVWG may also make interim recommendations to the Secretaries on critical issues that need more immediate attention. The EVWG will continue to meet every quarter and looks forward to engaging with a broader set of subject matter experts and interested parties to inform future recommendations from the EVWG.