
Economic Commission for Europe

Inland Transport Committee

Working Party on Transport Trends and Economics

Thirty-seventh session

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Item 8 (a) of the provisional agenda

Transport trends and challenges in the road, rail and inland waterways sector

Progress report on the newly established informal task force on e-mobility and presentation of its 2024-2025 work plan

Note by the secretariat

I. Introduction

1. In response to the Working Party's request during its 2023 annual session (ECE/TRANS/WP.5/74, para 63), draft terms of reference for a dedicated informal task force on e-mobility were developed. These terms of reference focus on driving and coordinating efforts related to advancements in electric vehicles and their charging infrastructure. Document ECE/TRANS/2024/21, which outlines the task force's mandate, has been prepared for review by the Inland Transport Committee (ITC) at its eighty-sixth session. The ITC welcomed the proposal and requested that a progress report be presented at its next session (ECE/TRANS/344, para. 70).

2. This document provides an overview of the rationale and mandate of the informal task force, summarizing the key outcomes from its first meeting, held on 29 May 2024. It also synthesizes the results of an online survey, prepared by the secretariat, and distributed to task force members over the summer. Furthermore, the document outlines a draft work plan and timeline for the task force covering the period from September 2024 until the end of 2025.

II. Mandate

3. A multidisciplinary and cross-dimensional initiative, the informal task force on e-mobility is supported by the ECE Sustainable Transport and ECE Sustainable Energy sub-programmes. Its mandate comes from both the ECE Inland Transport Committee (ITC), granted at its annual session in February 2024, and the ECE Committee on Sustainable Energy (CSE), which endorsed it during its session in September 2024.

III. Objectives

4. As outlined in its terms of reference (ECE/TRANS/2024/21), the mission of the informal task force is to support and accelerate the deployment of electric vehicle (EV)

technology and charging infrastructure across the ECE region and beyond. It aims to raise awareness of the latest EV advancements and charging solutions, foster collaboration among countries, scientists, businesses, and NGOs to share interdisciplinary knowledge, and identify policy gaps to promote the global harmonization of regulatory frameworks, all while considering regional and national specificities.

5. The informal task force will focus on the following interdisciplinary areas:
 - Electric Vehicle (EV) developments: Staying informed about the latest advancements in EVs across all inland transport modes, including both passenger and freight applications.
 - Recharging infrastructure: Monitoring progress in EV charging infrastructure, with a particular focus on smart charging solutions, such as bidirectional charging and interactions with the electricity grid.
 - Clean energy for EVs: Exploring strategies to ensure that the energy supplied to EVs is clean, low- or zero-carbon, while upholding high standards for data accessibility, interoperability, and user experience.

IV. Modus operandi and timeline

6. The informal task force will be co-chaired by the Chair of the Working Party on Transport Trends and Economics (WP.5) and the Chair of the Group of Experts on Cleaner Electricity Systems.

7. The initial phase of the initiative runs from 2024 to 2026, with the possibility of extension. Biannual meetings will be held, supplemented by additional subgroup sessions as needed, with a flexible approach that includes both online and hybrid formats to ensure inclusive participation. The meetings will be held, and all documents will be produced in English only.

8. Participation in the informal task force is open to all concerned United Nations member countries, regional economic integration organizations (REIOs) and experts. Participation by Chairs/ Vice-Chairs and national delegates participating in existing working parties and groups of experts under purview of ECE ITC and ECE CSE is strongly encouraged. Interested intergovernmental and non-governmental organizations, as well as relevant scientific and private sector associations are invited to participate and provide expert advice in compliance with United Nations rules and practices.

9. ECE, with a lead from the Sustainable Transport Division, will provide secretariat services to the informal task force and shall ensure close cooperation with all stakeholders, including the secretariats to the United Nations Framework Convention on Climate Change (UNFCCC), the regional commissions of the United Nations, and other relevant intergovernmental and non-governmental organizations and private sector associations.

V. Progress to date

A. First session of the informal task force on e-mobility – online – 29 May 2024

10. The first session of the informal task force on e-mobility took place on 29 May 2024, from 13:00 to 16:00 CET, in a virtual format via the MS Teams platform and was conducted in English. The session attracted nearly 130 participants from 23 countries, including Albania, Austria, Bosnia and Herzegovina, India, Iran (Islamic Republic of), Canada, Czechia, Denmark, France, Georgia, Germany, Latvia, the Netherlands, Norway, Poland, the Russian Federation, Spain, Sweden, Switzerland, Türkiye, Ukraine, the United Kingdom of Great Britain and Northern Ireland, and the United States of America, among others. Participants represented various sectors, including government bodies (ministries responsible for transport, energy, and the environment) and energy regulators from both ECE member

and non-member states, as well as NGOs, academia, the private sector, and independent experts.

11. Attendees from international organizations included representatives from the United Nations Copenhagen Climate Centre, the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), the European Commission, and the International Transport Forum (ITF). NGOs and private sector associations were also represented, including AVERE (the European Association for Electromobility), the World Business Council for Sustainable Development (WBCSD), the Global Battery Alliance, the International Council on Clean Transportation (ICCT) and the International Organization of Motor Vehicle Manufacturers (OICA).

12. Academic institutions were also represented, with participants from several leading universities and research institutes, including the Swiss Polytechnic Institute of Lausanne, Harvard University Business School, Harvard University Kennedy School, Columbia University in City of New York, Imperial College London, the Oxford Institute for Energy Studies, the University of Sheffield, the University of Illinois Urbana-Champaign, the Denmark Technical University, Technical University of Madrid, the University Institute for Automobile Research Francisco Aparicio Izquierdo (INSIA), the Catalonia Institute for Energy Research, the Institute for Energy Efficiency in Production, and the Institute of Economics by Paata Gugushvili at Tbilisi State University (TSU).

13. The primary objective of the first session was to review, organize and prioritize the 2024-2025 work programme for the task force in accordance with its agreed terms of reference. Participants received a comprehensive briefing from the ECE secretariat, represented by the Sustainable Transport and Sustainable Energy Divisions, followed by a roundtable discussion in which all stakeholders had the opportunity to share their views on priority areas for medium- and long-term follow-up by the task force or its thematic subgroups.

14. Discussions led to the following identified areas of work/ thematic clusters as shown in Table 1 below.

Table 1: Overview of identified thematic clusters and subclusters as per the initial terms of reference of the e-mobility task force¹

<i>Clusters/sub-clusters</i>	<i>Description</i>
Cluster A	Prepare a mechanism to share best practices and coordinate on (multi-modal) Zero Emission Vehicle (ZEV) infrastructure deployment. The mechanism would aim to support policy implementation including through providing insights on long-term ZEV infrastructure needs and energy supply, exploring the harmonization of existing and/or the development of new tools and products to support ZEV infrastructure planning and modelling at different levels.
Cluster B	Stock-taking of smart and innovative charging solutions for all types of EVs with a particular emphasis on opportunities for bidirectional charging (e.g., V2G and V2H), including aspects of network behaviour, and energy management (V2G).
Subcluster B1	Identify a regulatory barriers and ways to overcome them, including charging accessibility and affordability.
Subcluster B2	Define a supportive regulatory framework in the form of effective taxes, levies, or surcharges that provide transparency for the customer regarding the emission factor of the energy used.
Subcluster B3	Develop harmonized norms and standards for smart charging solutions, including bi-directional charging, by assessing associated infrastructure (including energy

¹ Topics with (*) will be considered at a later stage in 2026.

infrastructure) and vehicle needs, as well as defining how to best manage charging loads to support energy system transformation.

- Subcluster B4** Rules and regulations surrounding data management, collection, sharing, protection, and analytics (including against cyber threats)/ Cybersecurity (secure-by-design of EV charging infrastructure).
- Subcluster B5*** Offer guidance for harmonizing grid access rules and develop instruments and technical solutions to help tackle grid congestion and overload.
- Subcluster B6*** Offer guidance on user friendly and seamless payment methods for public charging and harmonization of payment systems (including through dynamic charging rates and exploring alternative models for electricity pricing).
- Subcluster B7*** Offer guidance on rules and regulations surrounding information sharing to customers on the (smart) charging capabilities of vehicles.
- Cluster C** Collect and analyze innovative practices related to smart charging solutions and EV infrastructure planning and operational processes and develop a quick guide for countries aiming to advance in this field.
- Cluster D** Provide a platform to map and promote convergence of existing de facto protocols into de jure standards, enabling the long-term interoperability and seamless upgrading of EV charging systems across borders. The initial task involves reviewing the development of international standards for vehicle charging types (both software and hardware), contributing to the Breakthrough Agenda Road Transport priority 4 on infrastructure for e-mobility.
- Cluster E** Explore the concept of location efficiency and accessibility in terms of infrastructure planning and reducing mobility needs by linking buildings, industry, transport, and infrastructure through land use.
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15. Several participants volunteered to take an active role or lead specific topics. Further bilateral consultations with key stakeholders were agreed upon, with the secretariat continuing to engage task force members - including through an online survey - to finalize consensus on the work plan's priorities. Subclusters B5, B6 and B7 were identified as thematic areas that would be addressed during the second phase of the task force, in 2026. It was also noted that to manage the workload for both the task force members and the secretariat, a further prioritization exercise was needed whereby a maximum of 3-4 (sub-) clusters would be selected for focus during the first year, with the remaining clusters to be addressed in the second year of the mandate.

B. Launch of an online survey for task force members and summary of its results

16. Following the first session of the task force, the secretariat distributed a follow-up questionnaire to all participants during the summer. The questionnaire, consisting of 25 questions (reproduced in Annex I of this document), was designed to help the secretariat refine its prioritization efforts and to gain a clearer understanding of the individual areas of interest of task force members. Additionally, the questionnaire collected valuable input, including examples of regulations, norms, standards, and perspectives on innovative policies. This input will form the basis for the analytical work to be undertaken by the task force and its subgroups. The information gathered has contributed to the development of a draft work plan for the remainder of 2024 and 2025, as shown in Table 2 under item C below. A separate work plan for 2026 will be prepared by the end of 2025. A total of 51 task force members participated in the questionnaire. The following sections summarize the responses received

for each cluster and subcluster. As noted earlier, subclusters B5-B7 were not included in the survey and will be addressed in 2026.

1. Cluster A: "Establish a mechanism to share best practices and coordinate the deployment of multi-modal Zero Emission Vehicle (ZEV) infrastructure."

17. Participants in the survey acknowledged the benefits of creating a collaborative platform to support the exchange of best practices, facilitate policy implementation, and coordinate ZEV infrastructure deployment across diverse regions and sectors. *Inter alia*, the following key roles for such a platform were suggested:

- To assist policymakers in understanding long-term ZEV infrastructure needs and align their strategies with global standards.
- To explore the harmonization and standardization of existing tools and the development of new products for ZEV infrastructure planning and modelling.
- To offer opportunities for multi-modal coordination: ensuring the integration and coordination of ZEV infrastructure across different modes of transportation (e.g., road, rail, maritime, and aviation).
- To offer a centralized knowledge hub: a repository where stakeholders can access data, case studies, best practices, and lessons learned from existing ZEV infrastructure projects across different regions and sectors.

18. Participants in the questionnaire highlighted the importance of coordinating efforts with other international initiatives, including those led by the ZEV Transition Council, the International Council on Clean Transportation (ICCT), the International Transport Forum (ITF), the International Energy Agency (IEA), and regional ZEV alliances, as well as efforts under the Road Transport Breakthrough Agenda. Additionally, several respondents highlighted the importance of implementing robust monitoring and evaluation processes to assess the platform's effectiveness once it is established.

19. Respondents also emphasized the potential impact of clean fuel standards, such as California's Low Carbon Fuel Standard, in accelerating the development of ZEV infrastructure. Additionally, the planned creation of the European Union's European Access Point (EAP) was recognized as a valuable coordination effort. The EAP will act as a gateway to National Access Points (NAPs), collecting information on existing public, and eventually private, EV charging infrastructure.

20. Lastly, respondents underscored the need for long-term EV charging infrastructure planning, suggesting that the platform once it is established should assess medium- and long-term needs based on vehicle fleet evolution, charging capacities, and mobility patterns. In this context, respondents stressed the importance of gaining a deeper understanding of vehicle fleets, their stored energy, and charging capacities. This information, combined with data on average distances travelled, will enable more accurate estimates of infrastructure requirements for the medium and long term.

21. Local governments were identified as critical in streamlining permitting processes, implementing ZEV-friendly zoning codes, and educating consumers.

2. Cluster B: "Stock-taking of smart and innovative charging solutions for all types of EVs with a particular emphasis on opportunities for bidirectional charging (e.g., V2G and V2H), including aspects of network behaviour, and energy management (V2G)."

Subcluster B1: Identify regulatory barriers and ways to overcome them, including charging accessibility and affordability.

22. Participants in the questionnaire identified several key barriers hindering progress in ZEV infrastructure development. These include inconsistent standards for charging infrastructure, which complicate deployment and interoperability, as well as double taxation on bidirectional charging, discouraging the adoption of vehicle-to-grid (V2G) technologies.

Additionally, it was noted that there is a lack of financial incentives to promote investment in smart charging solutions, while restrictive zoning regulations and bureaucratic hurdles further delay infrastructure deployment. The absence of a robust electricity metering system and the lack of common international standards for V2G were also highlighted as critical challenges that need to be addressed to facilitate widespread adoption of bidirectional charging and smart grid integration.

23. Some of the proposed solutions identified by participants in the survey include harmonizing charging infrastructure standards to improve compatibility and simplify deployment across regions. In addition, incentivizing bidirectional charging (V2G) would promote its widespread adoption, while automating processes could streamline connections with grid operators, further enhancing integration and operational efficiency. Supportive regulations aimed at enhancing customer transparency regarding emission factors were also suggested. These include carbon pricing mechanisms, the inclusion of renewable energy credits on utility bills, and the mandatory disclosure of the emission intensity of the electricity used at charging stations. These measures were seen as key to promoting cleaner energy use and increasing consumer awareness.

24. It was suggested that the task force could benefit from insights gained from the European Horizon programme on Vehicle-to-Grid (V2G), which recently published a report addressing regulatory barriers that must be overcome to make V2G a success. This programme encompasses a wide range of research and innovation projects across multiple sectors, with a focus on V2G technology.

25. Additionally, reference was made to the United States of America National Electric Vehicle Infrastructure (NEVI) Formula Funds and the State EV Infrastructure Deployment Plans, which aim to develop a more reliable public charging network across the United States of America. The NEVI Requirements are designed to standardize the user experience at charging stations across this network. These initiatives will support the deployment of larger and faster charging installations, such as Direct Current Fast Charging (DCFC) stations, medium- and heavy-duty EV charging sites, and commercial EV fleet charging depots, addressing the growing demand for robust and efficient charging infrastructure.

Subcluster B2: Define a supportive regulatory framework in the form of effective taxes, levies, or surcharges that provide transparency for the customer regarding the emission factor of the energy used.

26. Participants in the survey emphasized the need to enhance customer transparency by implementing mechanisms such as carbon pricing, renewable energy credits, and the mandatory disclosure of emission factors at EV charging stations. These measures would provide consumers with clear information about the environmental impact of their energy use and incentivize the use of cleaner, renewable sources of electricity for charging.

27. On the issue of taxation and pricing, it was noted that double taxation on bidirectional charging should be avoided by ensuring that energy is accurately metered and only taxed based on actual consumption. Additionally, the introduction of remuneration frameworks for services provided by bidirectional charging, such as energy feedback to the grid, would help encourage the adoption of Vehicle-to-Grid (V2G) technology by offering financial incentives.

28. Survey participants highlighted the need for establishing standards and labelling for emission and energy use information. Standardizing labels for CO₂ emissions and dynamic pricing based on emission factors was a common recommendation. Respondents referred to initiatives in the United States, where the Environmental Protection Agency (EPA) and the Department of Transportation (DOT) have established labelling standards that provide clear information on fuel economy, emissions, and energy usage for vehicles, including comparisons between electric and gasoline-powered cars. Additionally, respondents identified opportunities for similar regulations in Europe, suggesting the EU Emissions Trading System (ETS) applied in aviation as a potential model for implementing emissions transparency in the EV charging sector.

Subcluster B3: Develop harmonized norms and standards for smart charging solutions, including bi-directional charging, by assessing associated infrastructure (including energy infrastructure) and vehicle needs, as well as defining how to best manage charging loads to support energy system transformation.

29. Survey participants emphasized the need for developing universal communication protocols between electric vehicles (EVs) and the grid to ensure seamless compatibility across all smart chargers. Establishing such protocols would enhance interoperability, streamline integration, and simplify interactions between different charging systems and vehicles. Additionally, participants highlighted the importance of grid-friendly charging standards that incorporate dynamic load management and support essential features like demand response, peak shaving, and frequency regulation. These standards are crucial for ensuring that smart chargers can efficiently adapt to grid demands while maintaining energy stability.

30. A significant challenge raised by respondents was the lack of harmonized bi-directional charging standards across different regions and the inconsistency in testing procedures for power quality and recharging capabilities. Respondents also agreed on the need to standardize data formats and reporting requirements to ensure consistent data collection, improve transparency, and enhance monitoring and regulatory efforts.

31. Participants stressed the importance of addressing cybersecurity for smart chargers, advocating for standardized cybersecurity protocols to safeguard data integrity and protect against vulnerabilities in the charging ecosystem.

32. The survey highlighted the need for the development of international standards, with organizations such as the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) playing key roles. Discussions referred to critical standards such as ISO 15118, which governs communication protocols for vehicle-to-grid (V2G) systems, and EN 50549, which outlines requirements for grid connection of distributed generation systems, including renewable energy sources. These internationally recognized standards facilitate the adoption of consistent practices. Participants stressed the importance of achieving full interoperability of Alternating Current (AC) V2G systems, ensuring that any electric vehicle can connect to any charging station, whether at home or in public. Additionally, participants called for clearer definitions of smart charging within the IEC 61851-1 standard and recommended the inclusion of testing procedures to ensure compliance with power quality limits, suggesting that these limits be tested at various current levels to account for the flexibility offered by smart charging systems.

Subcluster B4: Rules and regulations surrounding data management, collection, sharing, protection, and analytics (including against cyber threats)/ Cybersecurity (secure-by-design of EV charging infrastructure).

33. Survey respondents highlighted the need for robust cybersecurity standards in the context of smart charging and vehicle-to-grid (V2G) infrastructure. Many emphasized that security should be integrated into these systems from the outset, adhering to secure-by-design principles. This approach would include encryption, regular security audits, and real-time threat monitoring to address potential vulnerabilities. Respondents also underscored the importance of secure data-sharing protocols, especially given the growing connectivity between electric vehicles and the grid, which introduces new cybersecurity risks if not properly managed.

34. Respondents further stressed the importance of a unified regulatory framework to avoid fragmented cybersecurity regulations across different jurisdictions. Many recommended that governments publish clear guidelines to promote standardized cybersecurity protocols within the charging and V2G ecosystem. Without coordinated efforts, inconsistent regulations could hinder industry progress and create security vulnerabilities.

35. Additionally, existing frameworks such as the UN cybersecurity regulations (R155 for cybersecurity and R156 for software updates) were identified as valuable foundations for developing standardized cybersecurity protocols. While the EU's Alternative Fuels Infrastructure Regulation (AFIR) primarily focuses on infrastructure standardization and interoperability, it can indirectly support cybersecurity efforts by promoting consistent technical standards across charging networks. Aligning new cybersecurity standards with these frameworks would help ensure consistency and security in the rapidly evolving electric mobility sector.

3. Cluster C: “Collect and analyze innovative practices related to smart charging solutions and EV infrastructure planning and operational processes and develop a quick guide for countries aiming to advance in this field”

36. Survey respondents provided valuable insights on policy dimensions, regulatory incentives, technological tools, and operational strategies that could be incorporated into a quick guide for countries aiming to develop efficient and sustainable smart charging systems. Many highlighted the integration of renewable energy into EV charging infrastructure as crucial, recommending incentives to encourage charging stations to adopt renewable energy sources. Additionally, respondents emphasized the importance of time-of-use pricing and vehicle-to-grid (V2G) technologies for optimizing grid load and enhancing grid stability. Public-private partnerships were seen as essential for expanding infrastructure and fostering collaboration among key stakeholders.

37. Respondents discussed using clean fuel standards to promote sustainable energy integration and encourage smart charging behaviours. The need for remuneration schemes to financially reward consumers participating in V2G systems was raised, as these incentives could promote energy feedback to the grid. Additionally, respondents stressed the importance of standardization and advanced technologies in optimizing EV infrastructure. Tools such as AI-based grid planning and dynamic load management were identified as key for significantly improving grid efficiency. By leveraging predictive analytics and real-time data, AI can optimize the placement of charging infrastructure and ensure the efficient distribution of energy, reducing transmission losses and preventing grid overloads. Dynamic load management further enhances efficiency by balancing supply and demand, shifting energy usage to off-peak times, and better integrating renewable energy sources into the grid. Standardizing grid codes and communication protocols, such as ISO 15118, was also recommended to ensure seamless integration of EVs across regions.

38. Participants agreed that raising public awareness about the benefits of smart charging and engaging communities in the transition to EVs would accelerate adoption. Addressing local challenges—such as simplifying regulatory frameworks for municipalities and tailoring infrastructure to local mobility needs—was also suggested. Respondents noted that initiatives like the Smart Charging Alignment for Europe (SCALE) project are critical for advancing smart charging ecosystems, including Vehicle-to-Everything (V2X) solutions, which support a more flexible and sustainable energy system. They also highlighted the need for interoperable standards and a consistent European regulatory framework to ensure cross-border compatibility.

4. Cluster D: “Provide a platform to map and promote convergence of existing de facto protocols into de jure standards, enabling the long-term interoperability and seamless upgrading of EV charging systems across borders”

39. Survey participants provided key insights into the need to promote convergence of de facto protocols into de jure standards for EV charging. Several international standards were highlighted as critical for achieving seamless integration across the industry. ISO 15118 was identified as a key standard for vehicle-to-grid (V2G) communication, ensuring smooth interaction between vehicles and the grid. IEC 62196, which governs the physical connectors used for EV charging, was also seen as essential for ensuring hardware interoperability across borders. The Open Charge Point Protocol (OCPP) was cited by several respondents as a widely used standard for communication between charging stations and management

systems, playing a crucial role in ensuring interoperability. Additionally, IEEE 2030.5 was noted for its focus on smart grid interoperability, which is crucial for integrating EVs with modern grid systems.

40. Survey respondents also pointed out several additional relevant standards that play a significant role in the EV ecosystem. IEC 61851-23 addresses high-power charging stations, particularly for DC fast charging, while ISO 15118-20 and IEC 62909 focus on bidirectional charging and V2G applications, supporting advanced energy management. OpenADR was highlighted for its importance in automating demand response, which is essential for grid stability when integrating EVs. OCPI (Open Charge Point Interface), which enhances user accessibility by facilitating interoperability between charging networks and service providers, was also recognized.

41. Regarding convergence and harmonization efforts, respondents acknowledged the role of the European Commission in facilitating discussions on aligning OCPP (Open Charge Point Protocol) and OCPI (Open Charge Point Interface) with IEC standards. These efforts aim to reduce complexity and ensure global alignment in the standardization landscape. Global collaboration beyond Europe was encouraged to provide market certainty and streamline EV infrastructure deployment. Specific standards such as IEC 63110 for energy management protocols and ISO 17409 for EV charging safety were identified as areas needing further development. Respondents also emphasized the need for standards addressing megawatt charging systems, particularly for commercial and heavy-duty vehicles. Lastly, regional standards like the North American Charging Standard (NACS), also known as SAE J3400, were noted as gaining significant traction. NACS offers a unified solution for both AC and DC charging, reducing infrastructure costs by allowing the use of the same utility power feeds. It is also compatible with existing standards such as the J1772 connector and Tesla's proprietary connectors. The Federal Highway Administration (FHWA) supports the adoption of NACS by permitting the use of J3400/NACS adapters in federally funded DC fast charging stations. As this standard continues to be adopted in North America, aligning it with global standards is seen as crucial for enhancing compatibility, reducing infrastructure costs, and ensuring seamless integration across markets worldwide.

42. In terms of future development, respondents emphasized the importance of standardizing charging cable plugs to streamline production and ensure global interoperability. Bidirectional charging was identified as a critical component for the future of EV infrastructure, with recommendations to integrate efforts from various clusters working on vehicle-to-grid (V2G) and vehicle-to-home (V2H) technologies. Additionally, respondents underscored the need for the continuous improvement of protocols like the Open Charge Point Protocol (OCPP) to maintain seamless interoperability and support future upgrades across different platforms and regions. This would ensure that evolving technologies can be implemented smoothly as the EV ecosystem grows.

43. The overall conclusion drawn from the survey inputs is that global harmonization of EV charging protocols and standards is essential to ensure interoperability, simplify infrastructure development, and provide long-term stability for the market.

5. Cluster E: “Explore the concept of location efficiency and accessibility in terms of infrastructure planning and reducing mobility needs by linking buildings, industry, transport, and infrastructure through land use”

44. Survey participants offered valuable insights into policy and planning strategies for developing sustainable EV infrastructure. There was a strong emphasis on streamlining planning processes through collaboration with subnational governments, reducing taxes on public charge points, and mandating EV chargers in new residential developments. Prioritizing city hubs for freight, e-buses, and intercity corridors was seen as essential for improving accessibility and equity. Mixed-use zoning, which integrates residential, commercial, and industrial spaces, and transit-oriented development, which focuses urban planning around public transportation hubs, were highlighted as key strategies to reduce reliance on private vehicles and promote sustainable mobility by integrating EV charging and renewable energy infrastructure.

45. Participants advocated for a holistic approach to mobility that aligns transport, energy infrastructure, and industry across both urban and rural areas. This includes optimizing distribution grids, supporting vehicle-to-grid (V2G) services, and encouraging cross-sector collaboration. Night and workplace charging were also highlighted as efficient solutions for urban settings.

46. Several tools for policymakers were proposed, including checklists and decision-tree tools to guide infrastructure planning based on local mobility patterns and energy needs. Early public engagement was deemed critical for transparency and community support. EV infrastructure must be adaptable to local contexts, with equity considerations ensured through tools like the EVI-Equity tool, which assesses social and economic factors to prevent underserved communities from being overlooked.

47. Collaboration with commercial entities, such as supermarkets and shopping centers, was seen as a strategic way to support EV adoption while attracting customers. The integration of EV infrastructure into major transport networks, like the Trans-European Transport Network (TEN-T), was also emphasized as crucial for improving regional connectivity.

48. Additionally, respondents highlighted the need for land-use policies that better connect residential, commercial, and industrial areas, reducing long-distance travel and promoting sustainable transport options such as walking, cycling, and public transport. The integration of renewable energy into EV charging infrastructure was viewed as critical for enhancing both sustainability and energy efficiency.

C. Prioritized 2024-2025 plan of work and tentative timeline

49. The discussions during the first session of the informal e-mobility task force, along with insights gathered from the participant survey (as detailed in paragraphs 17-48 above), have informed the selection of four priority clusters/subclusters for inclusion in the work plan for the remainder of 2024 and 2025 (see draft in Table 2 below). A separate work plan covering 2026 will be developed by the end of 2025, which will address the remaining clusters and subclusters.

Table 2: Prioritized 2024-2025 plan of work and tentative timeline

<i>Item no.</i>	<i>Cluster/ subcluster</i>	<i>Upcoming meetings</i>	<i>Secretariat entity</i>
1	Cluster B3: Harmonized norms and standards for smart charging solutions	Q4 2024 Q2 2025 Q3 2025	Sustainable Transport
2	Cluster C: Quick guide on innovative practices for smart charging solutions	Q4 2024 Q1 2025	Sustainable Energy and Sustainable Transport
3	Cluster D: Develop a platform to map and promote convergence of existing de facto protocols into de jure standards	Q4 2024 Q2 2025 Q3 2025	Sustainable Transport

4	Cluster E: Explore the concept of location efficiency and accessibility	Q1 2025 Q3 2025	Sustainable Energy
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D. Public outreach and meeting announcements

50. The webpage for the UNECE Informal Task Force on E-mobility can be accessed at: [Informal Task Force on E-Mobility | UNECE](#). Upcoming meetings of the Task Force and its subgroups, which focus on specific thematic clusters, will be announced on this page. Task Force members and participants of the questionnaire will also receive email notifications regarding these meetings.

E. Role of the Working Party

51. WP.5 is invited to review the progress report on the work of the e-mobility task force to date, particularly the proposed draft work plan for 2024-2025, and to provide its feedback on the suggested prioritization.

Annex

UNECE Informal Task Force on E-mobility Questionnaire

This questionnaire aims to map contributions to the UNECE Informal Task Force on E-mobility's activities for 2024-2025 and help the secretariat maintain its records of the expert community.

I. COORDINATES

1. Name and family name *

[Space for answer]

2. Gender *

- Woman
 - Man
 - Non-binary
 - Prefer not to say
-

3. Title *

- Ms.
 - Mr.
 - Dr.
 - Prof.
 - Other
-

4. Email address *

[Space for answer]

5. Country *

[Space for answer]

6. City

[Space for answer]

7. Organization / Institution / Affiliation *

[Space for answer]

8. Job Title / Role

[Space for answer]

9. What is the affiliation that you would like to associate with your membership on the Task Force? *

- Same as above
 - Other [Space for answer]
-

10. Main area of expertise *

[Space for answer]

II. 2024-2025 STRATEGIC ORIENTATION AND OUTPUTS AS AGREED BY THE TASK FORCE AT ITS FIRST MEETING

11. Cluster A

A mechanism to share best practices and coordinate on (multi-modal) Zero Emission Vehicle (ZEV) infrastructure deployment. The mechanism would aim to support policy implementation, including by providing insights on long-term ZEV infrastructure needs and energy supply, exploring the harmonization of existing and/or the development of new tools and products to support ZEV infrastructure planning and modelling at different levels.

Would you like to be part of Cluster A? *

- Yes
- No

Please type below your proposal on a mechanism to share best practices and coordinate on multi-modal ZEV infrastructure deployment, or suggestions on the existing relevant groundwork. *

[Space for answer]

12. Cluster B

Stock-taking of smart and innovative charging solutions for all types of EVs with a particular emphasis on opportunities for bidirectional charging (e.g., V2G and V2H), network behaviour, and energy management (V2G).

Would you like to be part of Cluster B? *

- Yes
 - No
-

13. Subcluster B1

Identification of regulatory barriers and ways to overcome them, including charging accessibility and affordability.

Which are the regulatory barriers that need to be overcome and which are the possible ways to overcome them?

Please enter "-" if you do not want to be part of this activity.

[Space for answer]

14. Subcluster B2

Definition of a supportive regulatory framework in the form of taxes, levies, or surcharges that provide transparency for the customer regarding the emission factor of the energy used.

Please list examples of supportive regulations that provide transparency for customers regarding emission factors.

Please enter "-" if you do not want to be part of this activity.
[Space for answer]

15. Subcluster B3

Development of harmonized norms and standards for smart charging solutions, including bi-directional charging, by assessing associated infrastructure (including energy infrastructure) and vehicle needs, as well as defining how to best manage charging loads to support energy system transformation.

Please provide suggestions for such norms and standards.

Please enter "-" if you do not want to be part of this activity.
[Space for answer]

16. Subcluster B4

Rules and regulations surrounding data management, collection, sharing, protection, and analytics (including against cyber threats) - Cybersecurity (secure-by-design EV charging infrastructure).

Please provide suggestions for such rules and regulations.

Please enter "-" if you do not want to be part of this activity.
[Space for answer]

17. Cluster C

Collect and analyze innovative practices related to smart charging solutions and EV infrastructure planning and operational processes and elaborate a quick guide for countries seeking progress in this field.

Would you like to be part of Cluster C?*

- Yes
- No

Please provide suggestions for innovative policies that should be included in the guide *

[Space for answer]

18. Cluster D

Providing a platform to map and promote the convergence of existing de facto protocols into de jure standards to enable long-term interoperability and seamless upgrades of EV charging systems in a harmonized manner across borders. The initial task would consist of reviewing progress in the development of international standards for vehicle charging types (both soft- and hardware). This task could contribute to the Breakthrough Agenda Road Transport priority 4 on infrastructure for e-mobility.

Would you like to be part of Cluster D? *

- Yes
- No

Which international standards would you like to consider? *

[Space for answer]

19. Cluster E

Explore the concept of location efficiency and accessibility in infrastructure planning, and reduce mobility needs by linking buildings, industry, transport, and infrastructure through land use.

Would you like to be part of Cluster E? *

- Yes
- No

Please provide suggestions for policies supporting location efficiency*

[Space for answer]

20. Expert Involvement

Regardless of your involvement in activities of the Informal Task Force, can you be approached ad hoc as an expert? *

- Yes
 - No
-

21. Additional Comments

[Space for answer]
