



Scaling up E-Mobility in the UNECE Region



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Electric mobility

One of the Key Areas of Work

LINKS to EXPERTS:

- [Group of Experts on Cleaner Electricity Systems](#)
- [Group of Experts on Energy Efficiency](#)
- [Group of Experts on Renewable Energy](#)
- [Expert Group on Resource Management](#)



UNECE addresses e-mobility through a systems-based, cross-sectoral lens, recognizing that electrified transport must be supported by clean, reliable, and efficiently managed energy.

The Groups of Experts contribute through data-driven assessments of electricity and infrastructure needs, enabling evidence-based planning and investment.

2024-2025
work plan

<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

2024-2025 work plan

- 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.

E-mobility Task Force:

Best practice and case studies on EV charging infrastructure and energy system integration

Cluster C meetings:

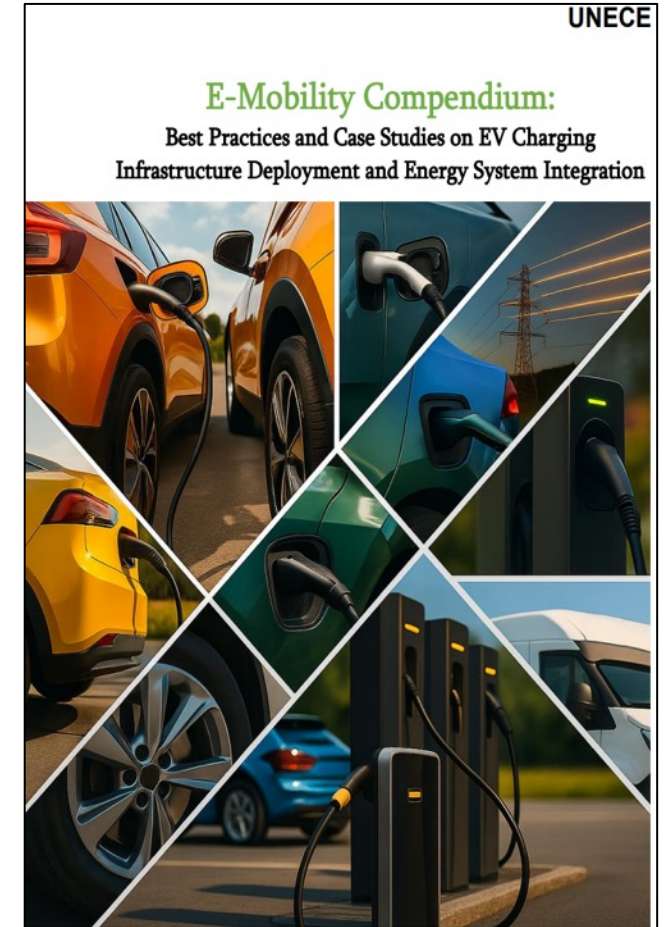
- Held via MS Teams (English only) on two occasions - April & June 2025
- Brought together ca. 50 participants from transport and energy authorities in 12 Member States as well as international organizations, private sector and academia

Events:

- 14th **International Forum on Energy for Sustainable Development**, 28-30 October 2025
- Workshop on **Assessing the Readiness of the Energy Sector** to Implement Smart Digital Technologies in View of Climate Change Mitigation, 22 May 2025
- Workshop on **Supporting Electric Mobility Adoption and its Integration into Energy System**, 2 December 2024
- Workshop on **Supporting Electric Mobility as Enabler of Digital and Green Transformations** in the UNECE Region, 27-28 November 2024
- Workshop on **Integration of Electric Mobility into Energy System**, 11 April 2024

Achievements:

- Compiled a **study report** (English), available online, containing:
 - **16 detailed case studies** provided by member States and industry representatives
 - **6 additional case studies** identified and presented
 - **Follow-up:** development of an online platform for continuous sharing of case studies and best practices



Executive Summary & Methodology

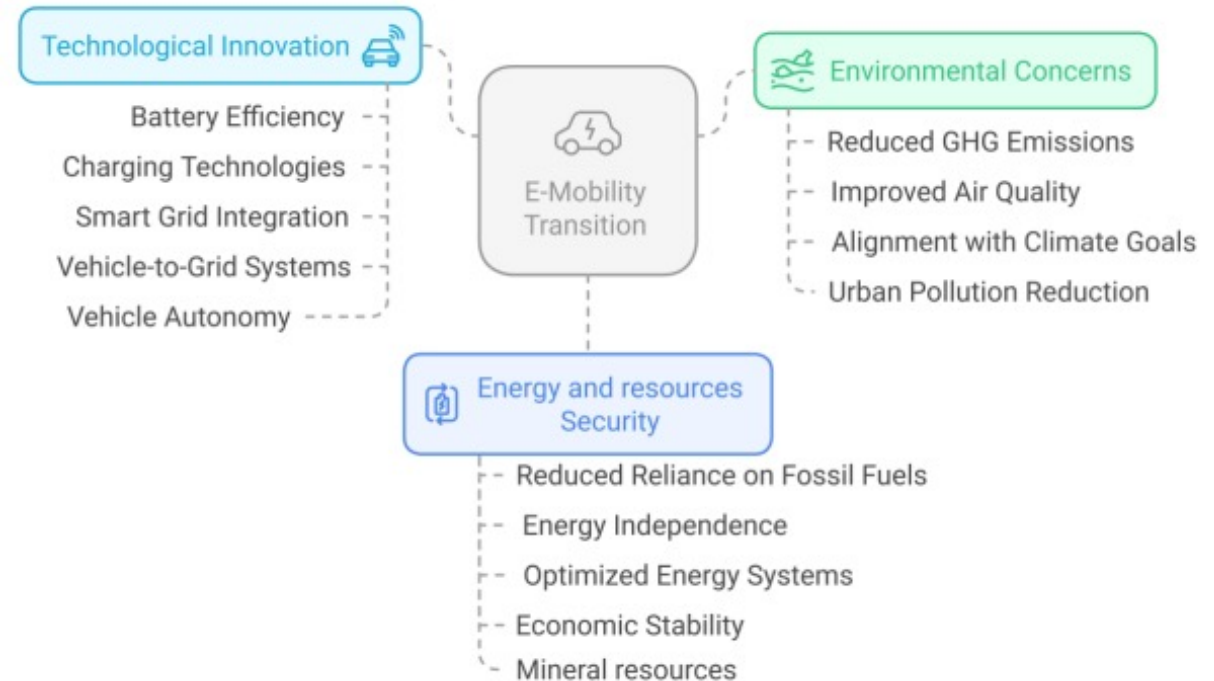
- Outlines objectives, context, and research approach
- Frames the urgency and direction of the e-mobility transition

Key Drivers of Change

- Environmental goals
- Energy security
- Digital transformation

Transition Pathways

- Theoretical paths for transition
- Market vs. policy-driven transitions
- Road map for transformation



Policy & Regulatory Frameworks

- 4-step approach to national EV policy development
- Mix of pull (incentives) and push (restrictions) policies
- Monitoring & adaptation mechanisms

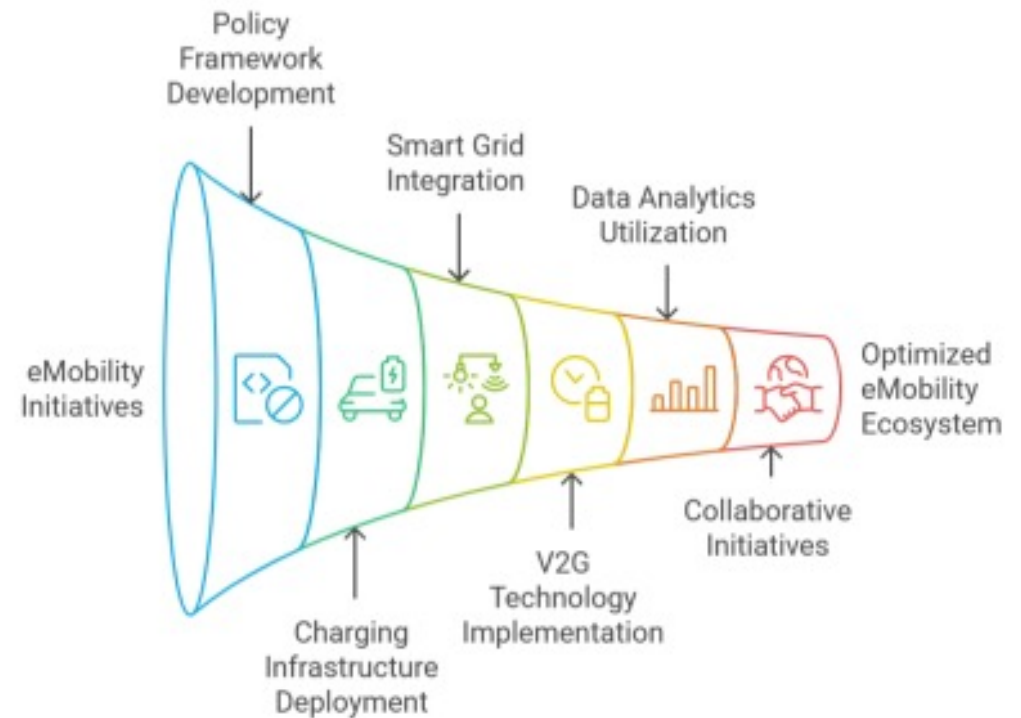
Charging Deployment & Grid Integration

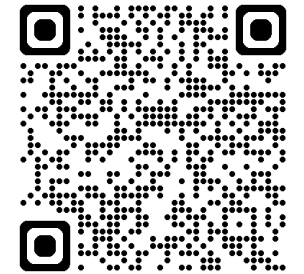
- Infrastructure needs and planning
- Market design and regulatory frameworks
- Deployment strategies and evaluation

Smart Grid & V2G Technologies

- EVs as grid assets
- One- and bi-directional charging models
- Interoperability and financing models

Enhancing eMobility through Integrated Strategies





Circular Economy

- Battery lifecycle (reuse, recycling)
- Sustainable infrastructure materials
- Digital tracking of resources

Data & Energy Management

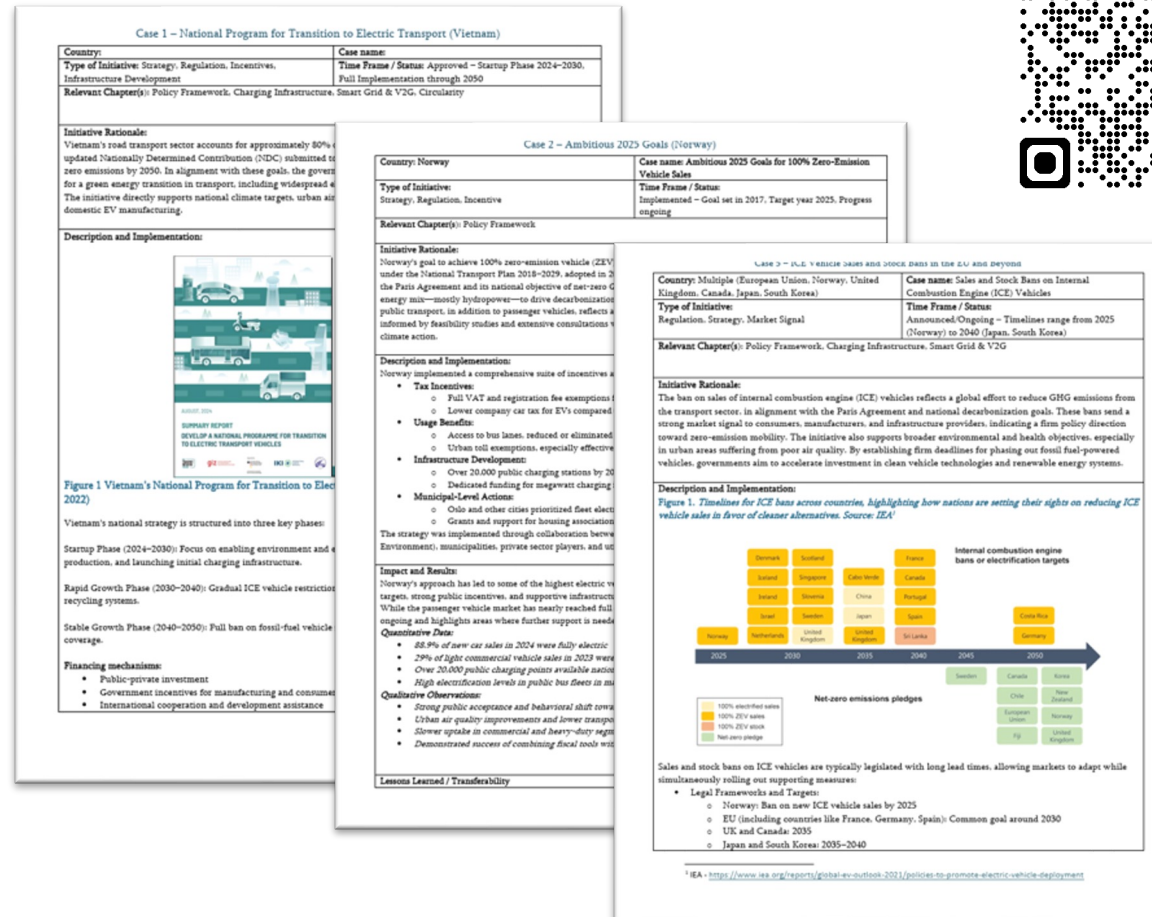
- Tools for monitoring and control
- Strategies for system optimization

Collaboration & Best Practices

- Stakeholder engagement & financing

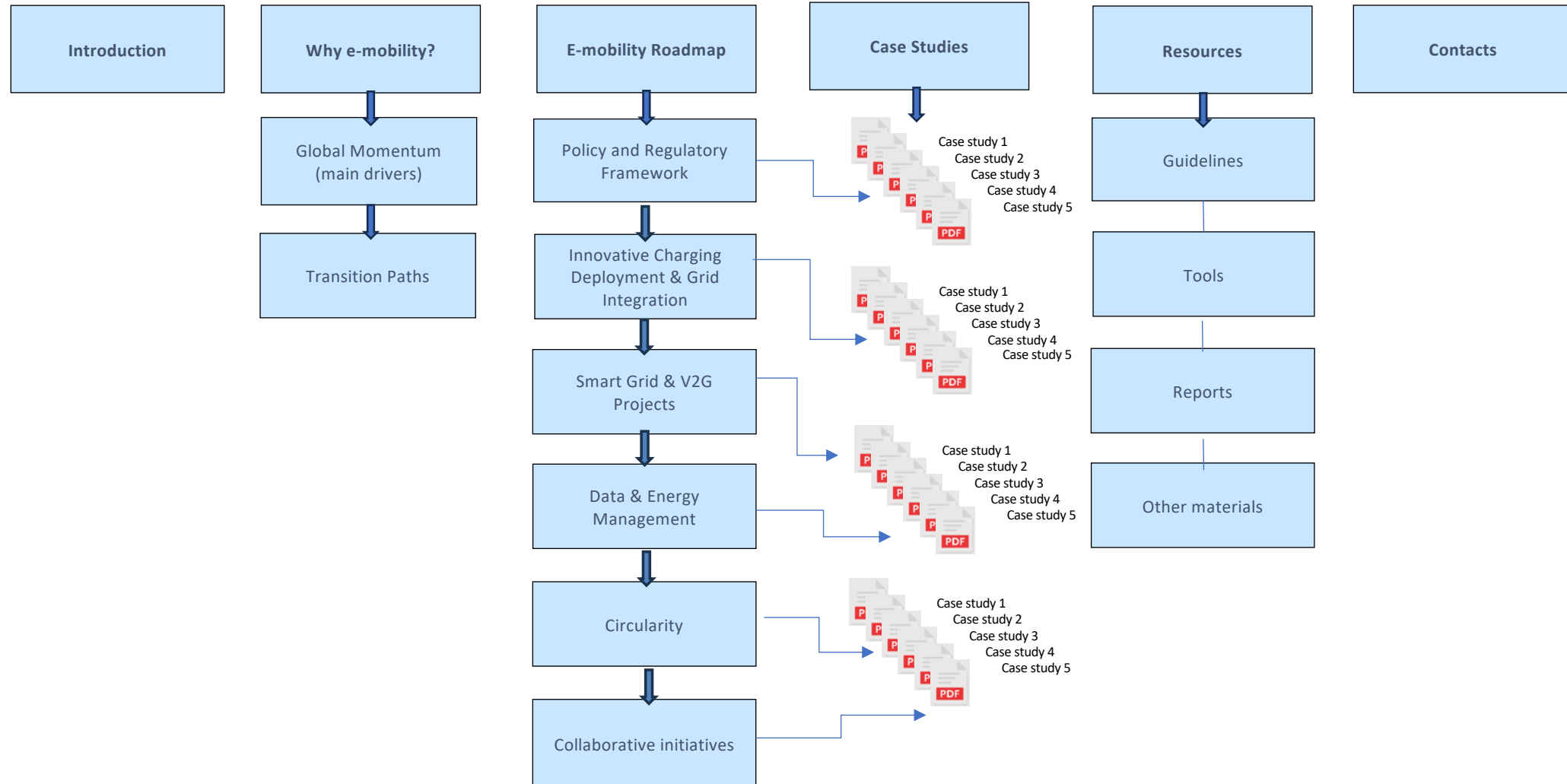
International case studies, including:

- National transition programs
- Smart charging pilots
- V2G & recycling initiatives



E-Mobility Online Quick Guide

Proposed Site Map



E-Mobility Online Quick Guide

(in preparation)



e-Mobility

[Introduction](#)

[Why E-Mobility is Important](#)

[Transition Main Drivers](#)

[High-level Towards Integration...](#)

[Case Studies](#)



Thank you for attention!



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