

1. Introduction

1.1. **Overview of EVE IWG**

- 1.1.1. Formation (link to EVS, other GRPE groups), objectives, structure, TORs
- 1.1.2. Goals and expected outcome of the EVE IWG, timeline
- 1.1.3. Summary of EVE activities

1.2. **Purpose of EV Reference Guide**

- 1.2.1. Aim of document, audience, how document fits into EVE IWG objectives/goals/outcome
- 1.2.2. Connection to WP.29 and potential GTR development

1.3. **Outline of EV Reference Guide**

- 1.3.1. Overview of guide components, logic for ordering of sections, etc.

2. Guide design and methodology

2.1. **Design of EV Reference Guide**

- 2.1.1. Rationale for guide organization: vehicle attributes

Attribute: A characteristic, activity or requirement related to EVs and the environment.

See PowerPoint slide: Illustration of vehicle attributes.

- 2.1.2. Scope of guide: which attributes are included/excluded, relationship to the environment

Attributes related to EV safety were not included (i.e. crash testing; electrical safety standards for internal wiring, etc.). Attributes are grouped by those related to vehicle, battery, charging infrastructure and market deployment support. In order to remain within the scope of the WP.29 (vehicle-only related regulations), attributes related directly to the vehicle and battery are the focus of the guide. Although likely outside of the WP.29 scope, charging infrastructure attributes related directly to the vehicle and market deployment support attributes are included for completeness.

2.2. **Methodology for EV Reference guide information collection**

Information collected will be gathered through a questionnaire sent to WP29 working groups and contracting parties. Other stakeholders (non-contracting parties, i.e. vehicle industry, industry organizations, etc.) will be able to review the compiled questionnaire information in the form of a draft Guide once completed.

See Questionnaire.

3. Summary of findings

Information from the questionnaire completed by all stakeholders will be summarized for each attribute as follows:

WP.29: *Summary of WP.29 activities.*

Countries: *Summary of findings from countries surveyed with the questionnaire.*

Other stakeholders: *Summary of findings from other stakeholders.*

Vehicle

- 3.1. **Electrified vehicle range:** The maximum distance an electric vehicle can travel using only battery power. In the case of plug-in electric vehicles (PHEV) also indicate the “total range”. Vehicle range determination can include a specific drive cycle, test procedures and vehicle preconditioning. Please specify “end of test condition” used. Please include these elements in your answer, if applicable.
- 3.2. **Energy consumption/efficiency:** Energy required to travel X km in standardized conditions. Energy consumption/efficiency determination can include a specific drive cycle, test procedures and vehicle preconditioning.
- 3.3. **Electrified Vehicle driver-user information:** Standardized symbols for system warnings, charge systems, etc.

Outline

- 3.4. **Electrified Vehicle recycling and re-use** (excluding the battery): Requirements for recycling and/or reusing vehicle components and/or electric motors.
- 3.5. **Vehicle labeling**: Requirements for vehicle labelling, including the drive cycle and test procedure used to obtain information for the label. Labels may indicate, but are not limited to, fuel efficiency, emissions, range, total battery capacity (kWh), cost, etc.

Battery

- 3.6. **Battery performance**: Methods and conditions for testing and measuring battery power delivery capability, energy storage capacity, battery charge, etc.
- 3.7. **Battery durability**: Methods and conditions for determining average life cycle count, shock and vibration resistance, temperature, etc.
- 3.8. **Battery recycling**: Battery material recycling standards.
- 3.9. **Battery re-use** (post-mobility): Alternate uses for batteries after their useful life in vehicles.

Infrastructure

- 3.10. **On-board charging system**: Specifications and requirements for on-board charging system, including voltage, current, port for AC and/or DC power, etc.
- 3.11. **Off-board charging standard related to the vehicle**: Specifications and requirements for off-board charging system, including port for DC power, battery communication interface/battery management system communication interface, etc.
- 3.12. **Wireless charging**: Requirements and standards for wireless charging.
- 3.13. **Vehicle as electricity supply**: Vehicle-related specifications and requirements for transferring electricity from EVs to the grid.

Market deployment support

- 3.14. **Regulatory incentives**: Legal requirements that contain an incentive for deployment of electric vehicles. The term 'legal requirements' is broad and can refer to any regulation, legislation, code, and/or standard that is rooted in law.

4. Conclusions

- 4.1. Analysis for areas of high "activity".
- 4.2. Analysis for areas of "lower activity" and gap identification.
- 4.3. Implications of the summary and analysis.

5. Next steps

- 5.1. Analysis of guide information in the context of potential GTR development.

6. Annex

Information from the Annex portion of the questionnaire completed by all stakeholders will be summarized. For each attribute as follows:

WP.29: *Summary of WP.29 activities.*

Countries: *Summary of findings from countries surveyed with the questionnaire.*

Other stakeholders: *Summary of findings from other stakeholders.*

- 6.1. **Financial incentives**: Financial support provided by the government to vehicle manufacturers, businesses, organizations, and/or consumers for the purchase of an electric vehicle. Ensure to describe the terms of the financial support, specifying (if appropriate) where an incentive is applied, i.e. manufacturers, sales, infrastructure, etc.
- 6.2. **Consumer awareness**: Education and outreach activities supported by the government to increase awareness about electric vehicles.

Outline

6.3. Government purchasing: Requirements and/or financial incentives within government operations incentivizing the purchase and use of electric vehicles.