

**Authorization to conduct research and develop new regulations on environmental requirements for electric vehicles**

**Submitted by the representatives of Canada, China, [European Union], Japan, and the United States of America.**

**I. Mandate and Objectives**

1. In the framework of the 1998 Agreement and under continued work by the Electric Vehicles and the Environment (EVE) informal working group (IWG), the main objective of this proposal is:
  - i. Part A: First, to further develop the recommendations for future work outlined in the Electric Vehicle Regulatory Reference Guide by: ) conducting additional research to support the recommendations; b) identifying which recommendations are suitable for the development of a global technical regulation(s) (gtr(s)) by the World Forum for Harmonization of Vehicle Regulations (WP.29); and, c) developing a workplan, which will identify which group(s) within the WP.29 forum is/are most equipped to develop the gtrs identified in b), including the EVE IWG, Worldwide harmonized Light duty Test Procedure (WLTP), Heavy Duty Hybrids (HDH), Environmental and Propulsion Performance Requirements for light vehicles (EPPR), etc. The development of a workplan would take into consideration feedback received from stakeholders during the first EVE IWG mandate (2012-2014) and Part A of the new mandate.
  - ii. Part B: Second, assuming not all gtr(s) identified in b) are suitable for development by other WP.29 informal working groups, the EVE IWG will develop new gtr(s) identified in the workplan. Prior to initiating work on a gtr, a request will be submitted to AC.3, which will include a specific description of gtr development.

**II. Introduction**

2. The EVE IWG was formed in June 2012 with the approval of document ECE/TRANS/WP.29/AC.3/32 by WP.29. This document established two distinct IWGs to examine environmental (EVE IWG, reporting to the Working Party on Pollution and Energy (GRPE)) and safety (Electric Vehicle Safety (EVS) IWG, reporting to the Working Party on Passive Safety (GRSP)) issues related to EVs; as the two groups were formed at WP.29, they also report to this forum directly. The proposal was supported by the European Commission, DG Enterprise and Industry, the National Highway Traffic Safety Administration and the Environmental Protection Agency in the United States, the Ministry of Industry and Information Technology of the People's Republic of China, and Japan's Ministry of Land, Infrastructure, Transport and Tourism.
3. During the first mandate of the EVE IWG the group aimed to accomplish the following objectives, which will be successfully completed by November 2014:
  - i. Develop a priority list of topics to address the most timely and significant considerations before the EVE informal working group.
  - ii. Understand and document the current consideration of EVs under the work of other established informal working groups: Electric Vehicle Safety (EVS) IWG, WLTP IWG, HDH IWG, EPPR IWG, and VPSD IWG.
  - iii. Establish a mechanism for sharing ongoing research and information sharing on topics related to EVs and the environment.

- iv. Develop a reference guide for environmentally-related EV requirements already established or being considered by contracting parties (EV Regulatory Reference Guide (ECE/TRANS/WP.29/GRPE/2014/13).
4. The Guide (ECE/TRANS/WP.29/GRPE/2014/13), based on the information provided by WP.29 Contracting Parties and IWGs, captured a snapshot of the existence of requirements relating to environmentally-related EV attributes at the time of the Guide's development (September 2013). As presented in Chapter 5 of the Guide, the analysis of such information led to the identification of gaps in requirements that could be addressed via the development of new gtrs, and/or via supplementation of gtrs that are currently under development (i.e. WLTP), and/or other suitable efforts, like research.
5. The recommended areas for future work in Chapter 5 of the Guide (ECE/TRANS/WP.29/GRPE/2014/13) were identified towards the end of the EVE IWG's first mandate, leaving the group little time to develop an appropriate workplan to develop gtrs. Also, the Guide did not assign responsibility for the completion of these recommendations. As outlined in document ECE/TRANS/WP.29/AC.3/32, both the EVS and EVE IWGs were established under the 1998 Agreement "...to create the basis for the possible development of a UN GTR", which is further defined in the EVE IWG's terms of reference (EVE-02-23e): "In its work the EVE informal working group may identify regulatory areas for the development of Global Technical Regulations (GTR) and as such would seek approval from AC.3 at that time to develop a GTR(s)."

### **III. Areas of work**

6. Therefore, a new mandate for the EVE IWG (separate from the EVS IWG) is desired to first conduct additional research to support the recommendations outlined in Chapter 5 of the Guide (ECE/TRANS/WP.29/GRPE/2014/13, 5.1 Vehicle range and energy consumption testing; 5.2 Method of stating energy consumption; 5.3 Battery performance and durability; and, 5.4 Battery recycling). This research will allow for the identification of which recommendations are suitable for the development of a gtr(s) by WP.29, and consequently the development of a workplan; the workplan will include identification of which group(s) within the WP.29 forum is/are most equipped to develop the gtrs, including the EVE IWG.
  - i. The successful development of a workplan will require the participation of, ideally, members from each GRPE informal working group, including WLTP, HDH, EPPR, etc.
  - ii. It is pertinent at this time to remember the scope of work during the first EVE IWG mandate, which was approved by WP.29 in document ECE/TRANS/WP.29/AC.3/32, was: "[to] share information about developing techniques...such as measuring the energy efficiency of future electric vehicles, battery durability, cold start performance and recharging performance...application of fuel economy standards to electric vehicles and measurement of upstream emissions could be discussed". This document also acknowledged a gap under the 1998 Agreement "...the exact method of measurement of emissions and energy efficiency has yet to be defined under the 1998 Agreement (although there is ongoing work on test-cycle for hybrid electric vehicles in WLTP and HDH groups)".
  - iii. Preliminary analysis of the recommendations in the Guide indicate that if the recommended work was to be completed by WP.29, some of the work involving EV test cycles and test procedures could be completed by the WLTP-E-Lab. sub-group. The WLTP IWG is currently starting phase 1b of the light vehicle gtr development, with planning for phase 2 starting in 2016; therefore, some of the Guide's recommendations

could be carried out by the WLTP IWG in future Phase 2 and Phase 3 mandates. Thus, close cooperation with the WLTP-E-Lab. sub-group in this proposed work is essential.

- iv. However, preliminary analysis of the recommendations in the Guide also indicates that some of the work is not suitable for completion by the WLTP-E-Lab. sub-group. In these cases, it would be most appropriate for the EVE IWG to pursue the development of new gtr(s), as the new gtr(s) would require expertise other than those present in the WLTP-E-Lab. sub-group. Consultation with the WLTP IWG, including the WLTP-E-Lab. sub-group and the WLTP IWG co-sponsors (Japan and the European Commission), will be completed through Part A of this work. Consultation with WLTP will be especially important once the EVE IWG begins identifying which gtr(s) could be completed by specific WP.29 IWGs, including the EVE IWG. This consultation is to ensure that duplication of work is avoided and expert resources are used in the most efficient manner. Via this consultation process it will be decided if an ‘EV expert group’, as proposed by the European Commission in EVE-09-08e, is required to complete work.
  - v. Preliminary analysis of the recommendations in the Guide also indicates that some work may not be suitable for completion by informal working groups under the GRPE and WP.29 because it is outside the scope of work. If there is disagreement among parties during workplan development as to which work is within or outside of the scope of WP.29, AC.3 will be approached for advice and/or decision. Also, prior to initiating work on a gtr, a request will be submitted to AC.3, which will include a specific description of gtr development.
7. As in its first mandate, the work of the EVE IWG group is expected to be highly connected to the activities of other WP.29 IWGs (in addition to WLTP). Again, it will be important to have a clear understanding of the mandates of other IWGs so that the EVE IWGs activities are unique or complement the activities of the other informal working groups. During its new mandate, the EVE IWG will continue to have regular updates from all related IWGs at its meetings to accomplish this. Cooperation with relevant researchers and technical experts will also be required for successful operation of the group.
  8. The group will continue to report primarily to the GRPE, but also to the WP.29 forum.

#### **IV. Existing regulations**

9. The group will build upon information gathered to populate the EV Regulatory Reference Guide (ECE/TRANS/WP.29/GRPE/2014/13), including the use of information sharing presentations from EVE IWG meetings, with the aim of maintaining current knowledge of the global EV regulatory landscape.

#### **V. Timeline**

13. The plan, based on the draft roadmap, will regularly be reviewed and updated to reflect the latest situation on progress and the feasibility of the timeline.
  - a. Part A:
    - i. November 2014:
      1. Approval of the EV Regulatory Reference Guide and the new EVE IWG mandate by AC.3; new work initiates.

- ii. November 2014 - June 2015:
  - 1. EVE IWG conducts work on Part A of the mandate, develops a detailed workplan and drafts request(s) for gtr development.
  - 2. Consultation with the WLTP, including the WLTP-E-Lab. sub-group and WLTP co-sponsors (Japan and the European Commission) to determine if an 'EV expert group' is required to complete work.
- iii. June 2015:
  - 1. EVE IWG presents informal documents on status of Part A and proposed gtr request(s) for Part B to GRPE; endorsement by GPRE.
  - 2. EVE IWG presents informal documents on status of Part A and proposed gtr request(s) for Part B for consideration by AC.3
- b. Part B:
  - i. November 2015:
    - 1. Approval of the Part B EVE IWG gtr requests by AC.3; new work initiates.
  - ii. June 2017:
    - 1. Draft gtr available, guidance on any open issues by GRPE
  - iii. June 2017-January 2018:
    - 1. Final drafting work on gtr text
  - iv. January 2018:
    - 1. Endorsement of the draft gtr based on an informal document by GRPE
    - 2. Transmission of the draft gtr as a working document 12 weeks before June 2018
  - v. June 2018:
    - 1. Endorsement of the gtr based on a working document by GRPE
  - vi. November 2018:
    - 1. Final adoption of the gtr by WP.29/AC.3