



Economic and Social Council

Distr.: General
27 August 2014

Original: English

Economic Commission for Europe

Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations

164th session

Geneva, 11-14 November 2014

Item 19.5 of the provisional agenda

**Items on which the exchange of views and data should
continue or begin – Electric vehicles and the environment**

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

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

The text reproduced below was prepared by the representatives of China Canada, Japan, the United States of America and the European Union. It is based on informal document WP.29-163-13, distributed at the 163rd session (ECE/TRANS/WP.29/1110, para. 106). This document, if adopted, shall be appended to the global technical regulation (gtr) in accordance with the provisions of paragraphs 6.3.4.2., 6.3.7. and 6.4. of the 1998 Agreement.

* In accordance with the programme of work of the Inland Transport Committee for 2012–2016 (ECE/TRANS/224, para. 94 and ECE/TRANS/2012/12, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

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

I. Mandate and Objectives

1. In the framework of the 1998 Agreement and under continued work by the informal working group (IWG) on Electric Vehicles and the Environment (EVE), the main objective of this proposal is:

(a) Part A: First, to further develop the recommendations for future work outlined in the Electric Vehicle Regulatory Reference Guide by:

- (i) conducting additional research to support the recommendations;
- (ii) 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
- (iii) developing a workplan, which will identify which group(s) within WP.29 is/are most equipped to develop the gtr(s) identified in (ii), including the IWG on EVE, Worldwide harmonized Light vehicle 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 mandate (2012-2014) of the IWG on EVE and Part A of the new mandate.

(b) Part B: Then, in the case that not all gtr(s) identified in (ii) are suitable for development by other WP.29 informal working groups, the IWG on EVE would develop new gtr(s) identified in the workplan. Prior to initiating work on a gtr, a request will be submitted to the Executive Committee of the 1998 Agreement (AC.3), which will include a specific description of gtr development.

II. Introduction

2. The IWG on EVE was formed in June 2012 following the approval of document ECE/TRANS/WP.29/AC.3/32 by WP.29. This document established two distinct IWGs to examine environmental and safety issues related to EVs (IWGs on EVE, reporting to the Working Party on Pollution and Energy (GRPE) and the IWG on Electric Vehicle Safety (EVS), reporting to the Working Party on Passive Safety (GRSP)). 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 (NHTSA) and the Environmental Protection Agency (EPA) of the United States of America, the Ministry of Industry and Information Technology of China, and Japan's Ministry of Land, Infrastructure, Transport and Tourism.

3. During the first mandate of the IWG on EVE, the Group aimed to accomplish the following objectives, which will be successfully completed by November 2014:

(a) Develop a priority list of topics to address the most timely and significant considerations before the IWG on EVE;

(b) Understand and document the current considerations of EVs under the work of other established informal working groups: the IWGs on EVS, WLTP, HDH, EPPR, and on Vehicle Propulsion System Definitions (VPSD);

(c) Establish a mechanism for sharing information and on-going research on topics related to EVs and the environment;

(d) Develop a reference guide for environmentally-related EV requirements already established or being considered by Contracting Parties (EV Regulatory Reference Guide (ECE/TRANS/WP.29/2014/81)).

4. The Guide¹ (ECE/TRANS/WP.29/2014/81), based on the information provided by the Contracting Parties and IWGs, presented the existing 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 through the development of new gtr(s), and/or through supplementing the gtr(s) that are currently under development (i.e. WLTP), and/or through other suitable efforts, like research.

5. The recommended areas for future work in Chapter 5 of the Guide were identified at the end of the first mandate of EVE IWG, leaving the group little time to develop an appropriate workplan to develop gtr(s). Also, the Guide did not assign responsibility for the completion of these recommendations. As outlined in ECE/TRANS/WP.29/AC.3/32, both IWGs on EVS and EVE were established under the 1998 Agreement " ... to create the basis for the possible development of a gtr", an objective which is further defined in the EVE'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 IWG on EVE (separate from the IWG on EVS) is desired to conduct additional research to support the recommendations outlined in Chapter 5 of the Guide (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 the identification of recommendations which are suitable for the development of gtr(s) by WP.29, and consequently the development of a workplan. The workplan will identify which group(s) in the WP.29 forum is/are most equipped to develop the gtr(s), including the IWG on EVE.

(a) The successful development of a workplan will require the participation of, ideally, members from each GRPE informal working group, including WLTP, HDH, EPPR, etc.

(b) It is pertinent at this time to remember that the scope of work during the first mandate of the IWG on EVE, 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

¹ Available at: <http://www.unece.org/trans/main/wp29/wp29wgs/wp29gen/gen2014.html>

Agreement (although work is on-going to develop a test-cycle for hybrid electric vehicles in WLTP and HDH groups)".

(c) 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 IWG on WLTP 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 IWG on WLTP in the Phase 2 and Phase 3 mandates. Thus, close cooperation with the WLTP-E-Lab. sub-group in this proposed work is essential.

(d) 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 GRPE and WP.29 to consider whether the IWG on EVE or any other WP.29 informal group could be tasked to pursue the development of new gtr(s), as the new gtr(s) would require expertise other than those of the WLTP-E-Lab. (see para. I(b)) sub-group. Consultation with the IWG on WLTP, including the WLTP-E-Lab. sub-group and the WLTP 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 IWG on EVE begins identifying which gtr(s) could be completed by specific IWGs, including the IWG on EVE. This consultation is to ensure that duplication of work is avoided and expert resources are used in the most efficient manner. During 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.

(e) Preliminary analysis of the recommendations in the Guide also indicates that some work may not be suitable for completion by informal working groups under 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 IWG on EVE is expected to be highly connected with the activities of other IWGs (in addition to WLTP). Again, it will be important to have a clear understanding of the mandates of other IWGs so that the activities of the IWG on EVE are unique or complement the activities of the other informal working groups. To accomplish this, the IWG on EVE will continue to have regular updates from all related IWGs at its meetings during its new mandate. 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 WP.29.

IV. Existing regulations

9. The group will build upon information gathered for the Guide, including the use of information sharing presentations from EVE meetings, with the aim of maintaining current knowledge of the global EV regulatory landscape.

V. Timeline

10. The plan, based on the draft road map, will be regularly reviewed and updated to reflect progress and feasibility of the timeline.

- (a) Part A:
 - (i) November 2014: Approval of the EV Regulatory Reference Guide and the new EVE mandate by AC.3; new work begins.
 - (ii) November 2014 - June 2015:
 - a. EVE conducts work on Part A of the mandate, develops a detailed workplan and drafts request(s) for gtr development.
 - b. 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:
 - a. IWG on EVE presents informal documents on the status of Part A and proposed gtr request(s) for Part B to GRPE; endorsement by GPPE.
 - b. IWG on EVE presents informal documents on the status of Part A and proposed gtr request(s) for Part B for consideration by AC.3.
 - (b) If the conditions outlined in Part B are met (see para. 1.(b) above) and AC.3 approves the development plan, the following timeline could be considered:
 - (i) November 2015: Approval of the authorization to develop a gtr (see Part B) by AC.3; new work begins.
 - (ii) June 2017: Draft gtr available, guidance on any open issues by GRPE.
 - (iii) June 2017-January 2018: Final drafting work on gtr text.
 - (iv) January 2018:
 - a. Endorsement of the draft gtr based on an informal document by GRPE.
 - b. Transmission of the draft gtr as an official document twelve weeks before the June 2018 session of GRPE.
 - (v) June 2018: Recommendation of the draft gtr by GRPE.
 - (vi) November 2018: establishment of the gtr by AC.3 in the Global Registry.
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