

First 12 slides originally submitted by the EVE
informal working group as GRPE-74-15

Electric Vehicles and the Environment (EVE IWG)

1

REPORT TO GRPE 74TH SESSION

Review of Past EVE Mandate

2

- EVE IWG had a two-part mandate approved in November 2014, and conducted Part A of that mandate through 2015 and 2016
- Work was divided into two parts:
 - Part A – Information gathering and recommendations for follow-up work
 - ✦ Method of stating energy consumption
 - ✦ Electrified vehicle durability
 - ✦ Determination of electrified vehicle power
 - ✦ Battery Recyclability
 - Part B – Potential development of GTR's related to durability and power determination

Meeting Frequency and Locations During Part A

3

- **Four (4) half-day meetings coincident with GRPE**
 - January 2015, June 2015, January 2016, June 2016
- **Two (2) teleconference meetings**
 - April 2015, July 2016
- **One (1) meeting in Canada**
 - October 2015
- **One (1) meeting in China**
 - April 2016

Key Outcomes of Part A

4

- Draft documents presented to GRPE in June 2016
 - Draft formal document
 - Draft status report
 - Draft energy consumption model and explanatory document
- Final documents submitted to WP.29 for consideration in November 2017 and endorsed by AC.3
 - Formal Document
<http://www.unece.org/fileadmin/DAM/trans/doc/2016/wp29/ECE-TRANS-WP29-2016-116e.pdf>
 - WP.29-170-28, WP.29-170-29, WP.29-170-30
<http://www.unece.org/trans/areas-of-work/wp29/working-parties-and-documents/world-forum-for-harmonization-of-vehicle-regulations-wp29/informal-documents/transmainwp29wp29wgswp29gengeninf170.html>

Next Steps as Adopted by AC.3

5

- **Determination of electrified vehicle power**
 - Proceed with GTR development as outlined in formal document
- **Method of stating energy consumption**
 - Approach the *Group of Experts on Energy Efficiency (GEEE)* to request that they take a leadership role in this work with the EVE IWG playing a supporting role
- **Electrified vehicle durability**
 - Continue research on battery performance and durability
 - Target returning to AC.3 seeking authorization for relevant activities (including GTR development) if warranted
- **Battery Recyclability**
 - Will be removed from the mandate

Key Outcomes of EVE-21 (11-Jan-2017)

6

- Leadership of EVE IWG and WLTP IWG met and confirmed a mutual understanding of how the two groups will collaborate going forward
 - General agreement between EVE and WLTP on approach to create test method and duty cycle for battery durability testing
- Emphasis that EVE should try to collaborate with and build on the work of ISO to the extent possible
- European Commission confirmed that the approach for durability outlined at EVE-21 remains appropriate for their purposes
- Identify host countries for upcoming meetings

Next Steps for Determination of Electrified Vehicle Power

7

- A procedure would ideally have two certification methods
 - Reference method which is validated by testing
 - Candidate method, which would allow certification based on component data
 - ✦ Candidate method will only be developed if testing and analysis show good correlation to the reference method
- Procedure should consider WLTP needs for power determination, progress of similar process at ISO and potential use in for customer information purposes
- Timelines target GTR development in 2 years, but allow for 1 additional year to validate candidate method, if necessary

Next Steps For Electrified Vehicle Durability

8

- Continue research on the topic of battery performance and durability, which influences vehicle performance
- Cooperate with WLTP IWG to obtain vehicle level durability requirements
- If required, return to AC.3 to seek authorization for relevant additional activities such as GTR development

Next Steps for Method of Stating Energy Consumption

9

- Approach the *Group of Experts on Energy Efficiency (GEEE)* to request that they continue the work on the model and incorporate experts in electricity generation and distribution
- If GEEE is unwilling/unable to continue the work, EVE IWG will request the aide of the UNECE Executive Secretary in identifying a suitable forum within the UNECE structure where experts in electric vehicles and experts in the generation and distribution of electricity may collaborate on this work
- EVE IWG plans to continue supporting this work, but will not lead the work

Next Steps for Battery Recyclability

10

- Remove from EVE mandate

Overall EVE Next Steps

11

- Continue leading work on two primary work items
 - Determination of Electrified Vehicle
 - Electrified Vehicle Durability
- Approach GEEE about leading the work on Method of Stating Energy Consumption with EVE in a supporting role
- Next meeting in Spring 2017
 - Target 10-11 April in United States
 - October 2017 confirmed in Austria
 - Spring 2018 possibly in Japan
 - Fall 2018 probably in Canada

Questions

12



EVE-22 Goals for Determination of Electrified Vehicle Power

13

- Confirm co-lead with Korea?
- Role of ISO procedure?
- Target timing for validation testing of candidate method?
- Suggested laboratories for validation testing of candidate method?
- Separate drafting group?
 - Technical Secretary?

EVE-22 Goals for Electrified Vehicle Durability

14

- Identify future research projects?
- Complete draft matrix for proposal to WLTP?
- Views on default deterioration?
- Identify major data gaps that EVE IWG explicitly wants to address?
- Are there data sets we want to access?
 - Public sector data such as China data set that was seen at EVE-18? JRC? National research laboratories?
 - Manufacturer data?
 - 3rd party companies such as FleetCarma?

EVE-22 Goals for Method of Stating Energy Consumption

15

- Designate lead to for Part B of mandate?
 - China still interested?
- Confirm date/plan to approach the Group of Experts on Energy Efficiency (GEEE) to request that they continue the work on the model and incorporate experts in electricity generation and distribution?
 - Draft letter to GEEE at EVE-22?