

Submitted by the EVE informal working group

Informal document **GRPE-71-29**
71st GRPE, 8-12 June 2015,
agenda item 10

Electric Vehicles and the Environment (EVE IWG)

1

REPORT TO GRPE 71ST SESSION

Current EVE Mandate Review

2

- **EVE IWG is currently operating under a mandate approved in November, 2014**
 - **Work has been divided into two parts:**
 - ✦ **Part A – Information gathering and recommendations for follow-up work**
 - Calculation of upstream emissions
 - Electrified vehicle durability
 - Determination of electrified vehicle power
 - Recyclability
 - ✦ **Part B – Potential development of GTR's related to durability and power determination**

EVE Roadmap, Part A: Jan 2015-Jan 2016

(EVE-13-06-Rev1e)



Task	start date	end date	status	--	EVE-13	--	EVE-14	EVE-15	--	EVE-16	--	EVE-17
				Nov-14	Jan-15	Mar-15	Apr-15	Jun-15	Jun-15	Fall-15	Nov-15	Jan-16
				WP.29	GRPE	WP.29	TBD	GRPE	WP.29	TBD	WP.29	GRPE
Approval of EV Regulatory Reference Guide by AC.3/WP.29 (ECE/TRANS/WP.29/2014/81)			completed									
Approval of new EVE mandate by AC.3/WP.29 (ECE/TRANS/WP.29/2014/88, WP.29-164-15)			completed									
(i) Conduct additional research to support Guide recommendations:	Nov-14	Jun-16	on-going									
Battery performance and durability												
Literature review	Jan-15	Jun-15	started									
Work on literature review recommendations	Jun-15	Dec-15										
Preparation of status report	Nov-15	Dec-15										
Determining power of EVs												
Review of motivation and scope	Jan-15	Jan-15	started									
Gathering information and summary of status and positions	Feb-15	Jun-15										
- making questionnaire												
Summary and analysis of previous works and existing standards	Jun-15	Oct-15										
Report Part A works to EVE	Oct-15	Nov-15										
Method of stating energy consumption												
Literature review	Jan-15	April-15	started									
Data collection	May-15	Sept-15										
Method development	Oct-15	Nov-15										
Battery recyclability												
	XXXX	XX	XX									
Status report from each subgroup	--	Jan-16										
(ii) Identify which recommendations are suitable for the development of GTR(s)	Jan-16	Mar-16										
(iii) Draft workplan developed by subgroups, EVE group	Jan-16	Mar-16										
Consultation, discussion within the EVE IWG	Jan-16	Mar-16										
Consultation, discussion with other GRPE IWGs: WLTP (E-lab sub-group), EPPR, HDH experts	Jan-16	Mar-16										
(iii) Draft requests for GTR development prepared by appropriate subgroups	Apr-16	Jun-16										
Consultation, discussion within the EVE IWG	Apr-16	Jun-16										
Consultation, discussion with other GRPE IWGs: WLTP (E-lab sub-group), EPPR, HDH experts	Apr-16	Jun-16										
Informal GRPE discussion on workplan and requests for GTR development	--	Jun-16										
Informal WP.29 discussion on workplan and requests for GTR development	--	Jun-16										
Finalize workplan and requests for GTR development	Jul-16	Nov-16										
Formal AC.3 consideration and approval	--	Nov-16										
EVE Part B and GTR development initiates	--	Nov-16										

EVE-14 meeting

(April 20, 2015, Teleconference)

4

- **Purpose:** To continue work on Part A of the EVE mandate, with updates on initial work in sub-groups:
- **EVE-14 discussion:**
 - Method of Stating Energy Consumption (China)
 - ✦ Task 1: Literature review to investigate EV energy consumption evaluation methods by various countries
 - Electrified Vehicle Durability (USA and Canada)
 - ✦ Timeline and structure of EV durability literature review, preliminary list of factors affecting durability
 - Determination of Powertrain Performance of HEVs (Germany and Korea)
 - ✦ Structure and content of a questionnaire containing technical and political questions to be distributed to the group
 - Updates from other IWGs: WLTP, EPPR, EVS

EVE-15 meeting

(June 8, 2015, Geneva)

5

- **Purpose:** To continue work on Part A of the EVE mandate, with updates from lead parties on substantial work in 3 sub-groups
- **EVE-15 discussion:**
 - Updates from sub-groups (see slides 5-7)
 - Review of the EVE Roadmap, Part A (EVE-13-06-Rev1e)
 - Discussion of EVE-16 meeting agenda:
 - ✦ Oct.19-20, 2015 Ottawa
 - Updates from other IWGs: WLTP, EPPR, EVS
 - ✦ Linkages between EVE and IWG work:
 - WLTP: end of PEV range criteria, PEV shorten test procedure, battery durability (Phase 2)
 - EPPR: power determination (future EPPR work)
 - EVS: Task forces making good progress, but an extension of the mandate timeline was proposed

Method of Stating Energy Consumption

Current Issues (EVE-15-03e)

6

- **Lead: China**
- **Current status:**
 - Completed literature review:
 - ✦ a) many papers were related to the assessment of energy savings and GHG emission reductions of EVs in different countries/districts;
 - ✦ b) the upstream stage of power supply should be covered in the assessment of EV energy consumption;
 - ✦ c) data about the electricity mix and upstream emissions factors of different power supplies can be collected from most countries;
 - ✦ d) standardized method for calculating and stating energy consumption and the associated GHG emissions for EVs is recommended.
 - Request for data from parties: see slide 25, document EVE-14-11e
- **Discussion:**
 - Need for methodology to consider not only country-level, but regional-level differences in energy supply
 - Consideration of electrical grid factors continues to re-enforce the limited ability of the GRPE to address this topic.

Electrified Vehicle Durability

Current Issues (EVE-15-04e)

7

- **Lead: USA and Canada**
- **Current status:**
 - Literature review ongoing (anticipated completion: July 2015)
 - ✦ Factors effecting EV durability
 - ✦ Examples of electrified vehicle testing methodologies
 - ✦ Test laboratory examples (Idaho National Laboratory studies, etc.)
- **Discussion:**
 - Natural grouping of the factors into three areas: drive cycle, charging profiles and environmental exposure
 - Goal of work:
 - ✦ To increase knowledge on EV durability (definition, parameters involved, existing test methodologies, etc.)
 - ✦ Make recommendations on how to proceed (i.e. test procedure)
 - The recommendations that will be presented by FEV in the finalized literature review will be the opinion of FEV and will be considered by EVE group but may not be the final position.

Determination of Powertrain Performance of HEVs

Current Issues (EVE-15-05e, EVE-15-07e)

- Lead: Germany and Korea
- Current status:
 - ISO HEV System Power working group updates:
 - ✦ Information shared by Japan; updates to continue at future meetings
 - Discussion of information gathered by questionnaire (EVE-14-07-Rev1e):
 - ✦ Question 1 - Regulatory Approach
 - ✦ Question 2 and 3 – Current requirements (i.e. UN-R85 and/or other), test procedure
- Discussion:
 - WLTP group strongly supports work of this group
 - Application of the procedure beyond hybrids under consideration
 - Preferred regulatory approach: to be further discussed and defined during EVE-16

EVE Roadmap, Part A: Jan - Nov 2016

(EVE-13-06-Rev1e)

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Upcoming Meetings and Next Steps

10

- **October 19-20, 2015: EVE-16 meeting (Ottawa, Canada)**
 - Update on the status of work from 3 subgroups
 - Preliminary discussions about potential GTR/Regulation development, draft workplan (Part B of EVE mandate)
- **January, 2016: EVE-17 meeting and GRPE session**
 - Status report from each subgroup
 - Continued discussions about potential GTR/Regulation development, draft workplan (Part B of EVE mandate)
- **Spring, 2016: EVE-18 meeting (TBD)**
 - Decision on GTR/Regulation development and workplan
 - Initiate drafting of GTR/Regulation requests
- **June, 2016: EVE-19 meeting and GRPE session**
 - Informal GRPE discussion and agreement on GTR/Regulation requests and workplan (formal approval by WP.29 in November 2016, Part B of EVE mandate initiates)