

Electric Vehicles and the Environment (EVE IWG)

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REPORT TO GRPE 75TH SESSION

Areas of Work for EVE IWG

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- Current mandate authorizes work in three primary subject areas
 - Determination of electrified vehicle power
 - ✦ Goal is to develop GTR for determining power of electrified vehicles
 - Electrified vehicle durability
 - ✦ Goal is to continue research on the topic of electrified vehicle durability and make formal recommendation related to GTR development at the end of the current mandate
 - Method of stating energy consumption
 - ✦ Goal is to find an additional partner with expertise in electricity generation and distribution to lead the development of a model to assess upstream emissions of EVs, with support of EVE IWG

Meeting Frequency and Locations

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- **Completed and planned meetings**
 - January 2017 – Geneva – 1/2 day
 - April 2017 – Ann Arbor, USA – 2 days
 - June 2017 – Geneva – 1/2 day
 - September 2017 – Teleconference – 1/2 day
 - October 2017 – Vienna, Austria – 2 days (confirmed)
 - January 2018 – Geneva – 1/2 day
 - March/April 2018 – Japan – 2 days (tentative)
 - June 2018 – Geneva – 1/2 day
 - September/October 2018 – Ottawa, Canada – 2 day (tentative)
 - January 2019 – Geneva – 1/2 day
- **EVE IWG and WLTP SG-EV will try to organize joint meeting, possibly September 2017 teleconference**

Determination of Electrified Vehicle Power

- Test procedure to be based on the ISO method
 - Final balloting for ISO procedure has begun
 - Expect approved ISO document to be available at the end of November 2017
- Draft technical report supporting GTR has already been started (online as EVE-23-06e)
- Chair of drafting group appointed (Mike Safoutin – USA)
- Multiple labs identified for validation testing (Canada, JRC, Korea & EPA, possibly others)
 - Target finalized test matrix by October 2017
- Priority will be given to developing/validating the reference method, and a decision on whether to also develop the candidate method will depend on work progress

Planned Schedule for Power Determination GTR Development

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2017		2018				2019			
July	Oct.	Jan.	Apr.	July	Oct.	Jan.	Apr.	July	Oct.
Key events		☆ 25 th session		☆ 26 th session	☆ 27 th session	☆ 28 th session	★ Submit Formal Doc to GRPE		★ Adopt Formal Doc by WP.29
	☆ 24 th session	© ISO procedure available				★ Submit Informal Docs to GRPE			
Validation program									
Preparation			Testing						
Drafting									
Conditions		Technical Method		Modification & Drafting technical report		Finalize draft			

Electrified Vehicle Durability

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- EVE IWG continues to interact with WLTP EV subgroup for durability requirements which should be assessed by EVE IWG
- EVE IWG members continue to discuss a variety of durability related research topics
- Draft battery durability technical report has already been started (EVE-23-05e)

Electrified Vehicle Durability

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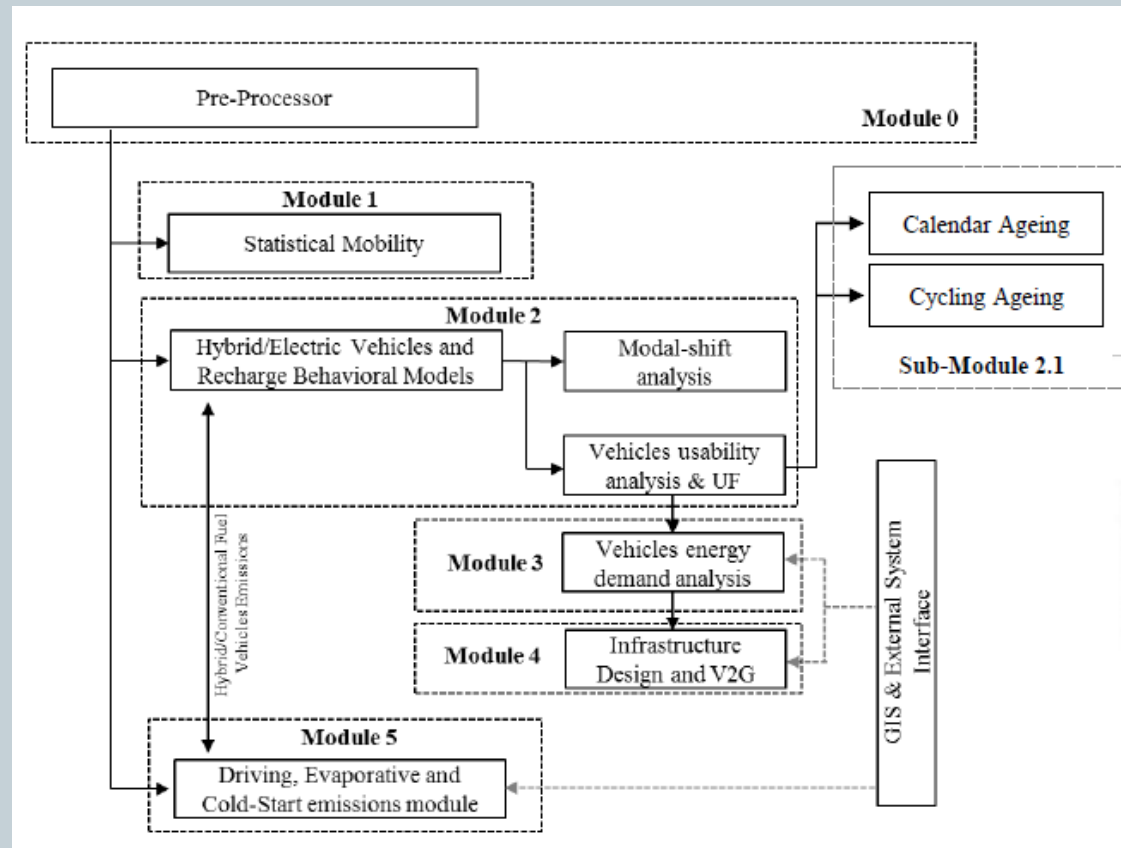
- EVE awaits durability requirements from WLTP as shown in table below
 - WLTP has committed to providing answers by end of summer

	air pollutants	CO ₂ /energy consumption	range
HEV	Is requirement for in-use compliance sufficient? (5 year, 100,000 km already in place in EU)	???	X
PHEV	Is requirement for in-use compliance sufficient? (5 year, 100,000 km already in place in EU)	???	???
PEV	X	???	Is WLTP goal to regulate range maintenance of PEVs, or is this a manufacturer/customer satisfaction issue only?

Electrified Vehicle Durability

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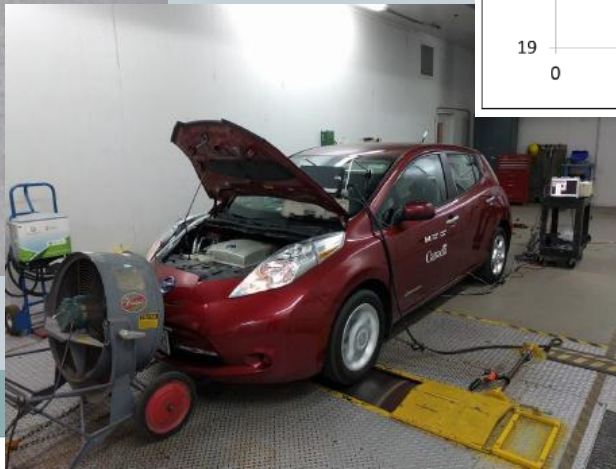
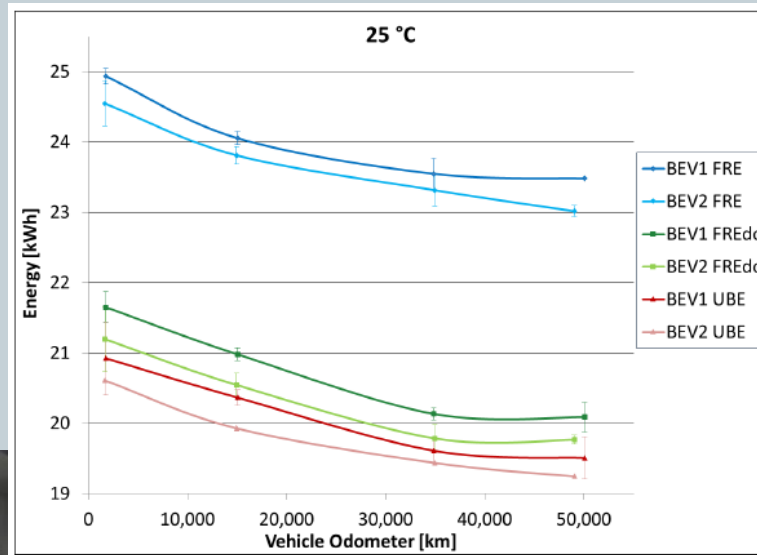
- JRC has developed an ageing model with activity data from >600,000 vehicles and >2.5 billion trip events
- JRC model estimates effect of both cycle ageing & calendar ageing



Electrified Vehicle Durability

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- Canada continues research project assessing the durability impact of L2 vs L3 charging, and cold weather operation



Method of Stating Energy Consumption

- As authorized by mandate from WP.29, on 02-May-2017 EVE IWG sent message to Chair and Secretary of the Group of Experts on Energy Efficiency (GEEE) to ask if they are willing to assume leadership of the project to assess upstream emissions from EVs, with support of EVE IWG (EVE-23-07e)
- Outreach to GEEE included status report on the work (EVE-23-09e)
- No response yet
 - Plan additional follow up following GRPE
- Some members would like to know if this project is a priority for any contracting parties other than China

Next Steps for EVE IWG

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- **Power determination**
 - Await ISO method in November, 2018
 - Begin drafting introductory sections of GTR
 - Continue developing power determination technical report which will support GTR
 - Develop test matrix (select vehicles, labs, etc.) – based on what we know now
 - Target informal document January 2019, formal document voting at GRPE in June 2019
- **Electrified vehicle and battery durability**
 - Continue durability research and modelling
 - Continue developing technical report for EV and battery durability

Next Steps for EVE IWG

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- **Energy Consumption**
 - Follow up again with GEEE about method of stating energy consumption
- **Next meetings**
 - September 12, 2017 telecon (possibly with WLTP SG-EV)
 - October 24-25, 2017 in Austria
 - January, 2018 Geneva
 - Explore possibility of March/April, 2018 meeting in Japan

Questions

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