

Report of the 43rd Session

Electric Vehicles and the Environment Informal Working Group

Location:	WebEx
Date and Time:	February 3, 2021 at 05:30 – 07:30 EST February 4, 2021 at 05:30 – 07:30 EST
Chair:	Mr. Michael Olechiw (USA) [Present]
Vice-Chair(s):	Mr. Hajime Ishii (Japan) [Present] Ms. Chen Chunmei (China) [Not Present]
Secretary:	Ms. Kendelle Anstey (Canada) [Present]
Drafting Coordinator(s):	Ms. Panagiota Dilara (European Commission) [Present]

Agenda Items

List of Abbreviations	ii
Introductions, review of meeting agenda.....	1
Review of draft 42nd meeting minutes	1
Presentation from Japan.....	1
Presentation from Auto Alliance.....	2
Discussion of open items in GTR draft.....	3
Review of GTR open items to prioritize discussions for day 2.....	3
Proposal from European Commission and further GTR discussion	4
EVE IWG next steps on durability with March 9th deadline, Action Items for next meeting, summary of decision points and agreements.....	5

List of Abbreviations

DPR	Declared performance requirement
EC	European Commission
EVE IWG	Electric Vehicles and the Environment Informal Working Group
GTR	Global Technical Regulation
MPR	Minimum performance requirement
SOC	State of charge
SOCE	State of Certified Energy
SOH	State of Health (previous term SOH used, but now refers to both SOCE and SOCR)
SOCR	State of Certified Range
U.S. EPA	United States Environmental Protection Agency
WLTP	World Harmonized Light Duty Vehicle Test Procedure

Agenda Item	Time Allocation
Introductions, review of meeting agenda	05:30 – 05:35
Agenda was adopted	
Review of draft 42nd meeting minutes	skipped
Due to technical problems this was skipped.	
Presentation from Japan	05:35 – 06:10

Summary:

Japan presented previously conveyed material, proposals and requests.

- Japan accessed and analyzed the publicly available GeoTab data.
- Japan suggests that EVE IWG group no longer continues discussions on battery reserve capacities since it’s a design factor and not an MPR determining factor.
- Concerns with “battery reserve” in the MPR proposal have already been addressed, as the EU-Canada-US have a joint proposal incorporating the TEMA model, GeoTab data and Warranties.
- Japan maintains its position that a CP should be able to choose either 5 years or 8 years for the MPR, taking into consideration frequency of automobile inspection systems.
- Japan agrees that the MPR matrix should not be included in Phase 1 GTR text and proposed points to be included in Phase 1 GTR technical report for Phase 2 which include:
 - Reasoning for selection of MPR values for Phase 1; and
 - CP MPR selection upon GTR adoption based on harmonization concepts (also for consideration of different EV markets and applications)
- Japan believes that Phase 2 will be able to make use of Phase 1 data to develop substandard lines in the matrix which can be adjusted for adopted market.
- Japan voiced concerns that the current GTR draft discussions do not cover how to collect data for NUI consideration in Phase 1.
- Japan wishes to propose/discuss Phase 2 data gathering.

In addition to these, Japan stated being in favor of backstop approach and that according to their analysis they propose the following values (note that backstop values are in %):

		PEV		OVC-HEV(PHEV)	
		5yrs/ 100K km	8yrs/160K km	5yrs/ 100K km	8yrs/160K km
SOCE	MPRs	80 (←)	70 (←)	80 (90)	70 (80)
	Backstop	10 (5)			
SOSR	MPRs	Monitoring (←)			
	Backstop				

Discussion Points:

- OICA communicated that discussions amongst its members are ongoing but that agreement on suitable MPR values have not yet been agreed upon. However, it was noted that values currently discussed by OICA’s are quite similar to those proposed by Japan.

- The EU, U.S., Canada, and the UK seem to share the views found in the Japan analysis and are in support of the proposed values. There still remains some concern from these groups on the value of the backstop.
- Francois communicated that if there is a choice of MPR then this will need to be justified accordingly in the GTR because of the stringency change.

Presentation from Auto Alliance

06:10 – 06:50

Summary:

Alliance for Automotive Innovation analyzed and presented on how the GeoTab data is used to determine the SOH and how the data accessed. Recommendations and positions were also shared as described below:

- Alliance does not believe that warranties should be used for making performance requirements, as they are an agreement between consumers and manufacturers that their product will operate adequately for a given period.
- Alliance also notes that high MPR levels could increase the overall costs of vehicles
- Alliance does not believe that reserves should be considered in the MPR development and therefore eliminated in favor of engineering tolerances.
- GeoTab shows that using 5-year probability about 2.7% of the vehicle population is at or below 70% SOH (This is including the outlier vehicle with a 55% SOH). Notably, if the outlier is removed in the data, then this value improves to 2% of vehicle population being at or below 70% SOH. The estimates of SOH compared to real SOH data looks to be similar in most cases.
- Concerns were also voiced regarding the lack of vehicle model data and data points for regression of each vehicle.
- Alliance is reviewing the JRC response to industry TEMA questions and conducting deep-dive analysis with GeoTab.
- From the current analysis, TEMA without battery reserves will result in a 70% MPR at 5 years/100,000 km and GeoTab methods outlined similar values but Alliance suggested that the data cannot support a higher SOH at this time.
- Concerns of MPR results using current data set include less affordable vehicles, increased battery size/weight, limiting technological innovations, and customer dissatisfaction due to battery replacement requirements.

Alliance concluded with two possible recommendations:

- Phase-1 be used to collect data and establish representative MPR of a data set on the most up-to-date vehicles in the market; or
- Phase-1 MPR be based on fleet average and a backstop should be introduced in Phase-2.

Discussion Points:

- Concerns were expressed by Industry about the backstop value being set as 10% as a means to preclude outlier performing batteries instead of specifying conditions to exclude them.
 - Further to this the EVE IWG discussed whether vehicle outliers should in fact be included in the analysis. It is recognized that all of the data needs to be utilized in the analysis but at the same time the analysis should focus on data from vehicles that perform well with consideration within the scope of the GTR and its intention to eliminate poor performing vehicles in the market.

- Canada raised that if considering the overall emissions of the life cycle of a battery and the cost and the availability to replace a battery, in some cases it may be beneficial to have a lower and shorter MPR for specific battery types/models if there is a benefit to the customer (example: some NiMH battery types).
- OICA suggests that lack of data makes it challenging to come to agreements and that more discussions are needed on this topic such as on how the data will be derived in the case of implementing a backstop criteria.
- EC, UK, U.S., Canada and Japan are in favor for 2 MPR values and a backstop criterion.

Discussion of open items in GTR draft

06:50– 07:30

Summary:

- Contracting parties and Industry expressed that the outstanding issues need to be resolved. These will need to be discussed in the coming weeks leading up to the March deadline. OICA is not in favor of document being submitted in March due to the remaining open issues.
- It has been identified that it is worth spending time and exploring and resolving these issues in detail rather than rushing to meet a deadline of March.
- It was suggested to develop a list of outstanding issues and go through one by one to start resolving them.
- There was also another issue raised regarding the definition of light-duty vehicle in the US and Canada (up to 8500 lbs GVW) in comparison to N1 category vehicles, as the LDV regulations in US/Canada incorporate all of N1, in addition to some medium-duty vehicles up to 10,000 GVW. The Chair appointed Chris Nevers and Rob Gardner to coordinator comparison on definitions to better understand. Topic was moved for further discussion on Day 2.

Review of GTR open items to prioritize discussions for day 2

05:30 – 06:40

Summary:

For the second day of the meeting, it was agreed to work on GTR draft as the most effective way to address open issues. It was decided to skip the minutes review item and provide any comments in writing instead.

Key discussion topics were on

- **Scope of vehicles covered** by the GTR compared with North American vehicle classifications
 - In response to request inquiring how limits set in GTR would impact EPA and ECCC classes. A small portion of light-duty trucks with current GTR text was found to be not covered. The group decided to add phrasing to include these vehicles for places in North America adopting U.S EPA standards.
 - EVE IWG to further discuss inclusion of M2 category vehicles more as industry recommends they should be excluded.
 - OICA understanding that vehicles in scope are all categories 1-1, 1-2 and 2 (from WLTP GTR No. 15) are included in the scope up to 3.5 tonnes and up to 3.855 tonnes in the case of North America (U.S. and Canada).
 - The U.S. EPA suggested that MDV and heavy duty vehicles (from North American definitions) be excluded.
 - See document EVE-43-07e for definitions and comparisons

- **Abnormal use cases;** A proposal was made for an additional Annex to describe what is considered normal or abnormal use and to include text to describe set of conditions surrounding vehicle admissibility, conditions for UBE fleet analysis, abnormal use and exclusion definition. The case of abnormal usage needs further discussion.
- **Accurate indicators:** In order to have an accurate indicator in Part B, a proposal was made by OICA for an additional Annex (Annex 2 subsequently the cases where the indicator can be flag a case of inaccurate monitoring.
 - Industry agreed that the cases for inaccurate SOCE indicators needs to be described in the text. Also to have similar verification for backstop criteria.
- **MPR values;** OICA stated that they were not ready to agree on set MPR values to be included in section 5.2 Battery Performance Requirements. This topic remains an open issue.
 - Recommendation from the GRPE Secretariat to have a general statement that CPs shall use both proposed MPR values (5 years/100,000 km and 8 years/160,000 km) with a footnote stating that at the option of a CP only one of the two MPRs may be used. Additionally the EVE IWG recommend a native English speaker clarify the text to reflect its meaning.
 - Industry raised that requiring both MPR values could potentially cause technology restrictions in future. Industry recommended to change the requirement to adopt both MPRs. U.S. EPA said they will consider the technology restrictive comment and speak with some experts.
 - Industry also asked what was the justification for having two MPR levels. Partial justification was to have permissible degradation levels at interim intervals to keep users satisfied.
 - MPR topic remains an open issue

Proposal from European Commission and further GTR discussion

06:40 – 07:10

Notes:

- The European Commission presented a statistical method to include in the GTR annex for Part A to verify the SOCR/SOCE monitors. The method was taken and slightly adapted from the conformity of production text used for WLTP.

Some general notes from the speaker:

- This method already introduced in COP test for WLTP, for CO2 criteria pollutants and electric range. The method was later revised by additional statistical analysis performed by the JRC.
- For conformity of production the procedure the tests are performed by the production manufacturer where certain vehicles are chosen for certain statistics from the in-service conformity, but it is also used for when the authority selects an in-use vehicle and performs the analysis for a mathematical reason.
- OICA voiced that they would like more time to review it and discuss it internally.
- Japan also voiced that they would need to take a closer look at the methodology before it is adopted into the text.

EVE IWG next steps on durability with March 9th deadline, Action Items for next meeting, summary of decision points and agreements

07:10– 07:30

Summary:

- Industry is not in favour of tight timeline. Japan also believes timeline is tight.
- Drafting coordinator asked GRPE secretariat whether technical rationale and justification can be submitted after the deadline. Response from secretariat was that the technical portion can be submitted after the formal document but before the next GRPE session in June if the document is submitted in March.
- The drafting coordinator noted that the EVE IWG will need to prepare the technical rationale and justification for the GTR submission and that she will need assistance from the group for text. The EVE IWG Secretariat noted that there was a document prepared a few years ago that could be used for some wording.

The EVE IWG was reminded that the next meeting will be approximately one week prior to the deadline for GRPE submissions.

- The EVE IWG did not confirm whether to extend the deadline but is still aiming for everyone to discuss between the 43rd and 44th EVE IWG meeting. **ACTION:** Comments on the GTR will be accepted until the 22nd of February prior to the next meeting, which is scheduled for February 26th.
- The chair cited that it would be helpful for contracting party members to provide background with respect to timing. It was already mentioned about the activities in Europe from the European Commission that could drive the timing of the GTR. With the new U.S. administration the U.S. EPA has not receiving any decisions with respect to new rulemaking but the EPA expects to engage in longer term rulemaking this year and one goal would be to incorporate the new GTR into this rulemaking process. Canada sees similar goals with the U.S. as their regulatory standards align.

Open issues discussed in this meeting:

- Confirmed: definitions of applicable vehicles to be covered by GTR (added LDT)
- Decision: Contracting Parties to inform the IWG their desire to have Category 2/N1 vehicles included within the scope of GTR.
 - US position is that Category 1 vehicle definitions cover the US light-duty fleet.
 - Industry stakeholders suggested that Category 2 vehicles not be included as the TEMA model, the GeoTab data and the warranty analysis was all reflective of Category 1 vehicles and may not be appropriate for Cat 2 vehicles.
- Decision: Wording to include details of abnormal use cases to define SOH for SOCE monitor and ensure accuracy
- Decision: whether requirements as worded are too restrictive for future technologies and other ways to implement
- Decision: Data collection for NUI - use cases indicating normal use to consider more closely (vehicle to grid usage).
- Decision: MPR values