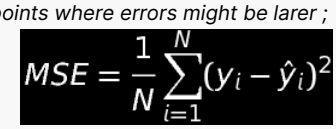
Comparison between EBSIG-07-06 and Annex 18

If we consider the "Energy Management System" defined in the R13 amendment proposal as the "The System" defined in the Annex 18 amendment.

Legend:

- If the text is highlighted in green: Agree to consider the element of the proposal contained in EBSIG-07-06 already covered by Annex 18.
- If the text is highlighted in orange: Agreement has yet to be reached to consider the element of the proposal contained in document EBSIG-07-06 is already entirely covered by Annex 18. This may mean that a modification of Annex 18 or of the UNR13 amendment proposal could be relevant.
- **If the text is in bold**: The item of information requested in EBSIG-07-06 was not deemed to be explicitly covered by Annex 18 at the moment and may require further work for its inclusion either in Annex 18 or in the UNR13 amendment proposal.
- *if the text is in italic* : It is an explanatory note

EBSIG-07-06	Annex 18 (GRVA-2023-10)
§1.1. A detailed overview of the energy management system, explaining its architecture, components, and capacities.	§3.1. The manufacturer shall provide a documentation package which gives access to the basic design of "the system" and the means by which it is linked to other vehicle systems or by which it directly controls output variables. The function(s) of "the system", including the control strategies, and the safety concept, as laid down by the manufacturer, shall be explained.
§1.2. A description of how the system monitors and manages electrical storage devices.	§3.4.4.1. This documentation shall itemize the parameters being monitored and shall set out, for each fault condition of the type defined in paragraph 3.4.4. above, the warning signal to be given to the driver and/or to service/technical inspection personnel.
§1.3. ~~A clear outline of how the energy management system operates to ensure sufficient energy for the electro-mechanical braking system.~~ (*This one might be redundant with §1.1. and can therefore be deleted*)	N.A.
§1.4. Sufficient information to illustrate the algorithms and logic used to assess the state of electrical storage devices.	§3.1. The function(s) of "the system", including the control strategies, and the safety concept, as laid down by the manufacturer, shall be explained. §3.2. Description of the functions of "the system", including control strategies. A description shall be provided which gives a simple explanation of all the functions, including control strategies, of "the system" and the methods employed to achieve the objectives, including a statement of the mechanism(s) by which control is exercised.
§1.5. A list of all the input variables considered by the energy management system in assessing the state of the electrical storage devices.	§3.2.1. A list of all input and sensed variables shall be provided and the working range of these defined, along with a description of how each variable affects system behaviour.
§1.6. **Include a sensitivity analysis that demonstrates how changes in each variable affect the energy management system decision-making process.** *Elements of understanding shared during the session:* *For example, the calculation of the Mean squared error (MSE) or its root (RMSE) is often used to identied particular points where errors might be larer ;*  *Calculation of the error variance and standard deviation. Strong penalty for large errors.*	
§2.1. **The documentation shall include a clear thresholds or criteria that trigger the warning signals described in §5.2.1.35.9. and §5.2.1.35.10.**	

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§2.2. Results of verification testing conducted by the manufacturer to assess the accuracy of the energy management system. These reports shall highlight the key findings, observations, **and any deviations from expected outcomes.**	§3.4.1. [...] The vehicle manufacturer shall supplement this statement by an explanation showing in overall terms how the chosen strategy ensures that "The System" objectives do not prejudice the safe operation of the systems referred above, and by a description of the part of the validation plan supporting the statement. §3.4.4. c) Inspection of the validation plans and results. This validation may use, for example, Hardware in the Loop (HIL) testing, vehicle on–road operational testing, or any means appropriate for validation.
§2.3. The documentation shall include data on different operating conditions, such as temperature variations or battery ageing. (*This one could be merged with §2.4 if a common understanding of what is covered by §3.2.3. of Annex 18, is reached*)	
§2.4. The documentation shall outline potential specific conditions that could impact the accuracy of the energy management system.	§3.2.3. Limits defining the boundaries of functional operation (paragraph 2.9. above) shall be stated where appropriate to system performance.
§2.5. The documentation shall describe mitigation strategies implemented to address failures and ensure the energy management system reliability to the best of its ability.	§3.4.4. The documentation shall be supported, by an analysis which shows, in overall terms, how the system will behave on the occurrence of any fault identified by the procedure below which will have a bearing on vehicle control, performance, or safety.
§2.6. **When applicable, the documentation shall include the procedures for updating the energy management system and ensuring its ongoing maintenance.**	
§2.7. The documentation shall provide the appropriate testing procedures to be taken into account when performing the relevant verification testing to ensure compliance with §5.2.1.35.9. and §5.2.1.35.10.	§3.4.1. The Technical Service may perform tests, or may require tests to be performed, as specified in paragraph 4. below, to verify that “the system” operates as per the chosen strategy.