

Meeting Minutes
17th Meeting
Informal Group on Gaseous Fuelled Vehicles (GFV)
17th January 2012
Palais Nations, Geneva
14.00-17.00

I. Welcome & Introductions

- 1 Mr. Rijnders welcomed the group into the New Year

II. Approval of the Minutes of GFV-16

- 2 Mr. Renaudin mention that the GFV meeting minutes from 16th meeting should include a comment from him that says he fully supports harmonization of the LNG regulations with the US requirements, to the best extent possible.

III. Approval of the agenda (accepted without changes)

IV. LNG Task Force Report

- 3 Jeff Seisler, Co-Secretariat of the LNG Task force made a brief report to the group that is a shortened version of the last report to the GFV (see document (GFV16-05 (NGV Global LNG TF-2 Report))
 - 4 Genesis of the group: Follows the need created by the GFV/HDDF TF work on dual-fuel systems, which includes the use of LNG. While GFV deals with R.115 and the new LNG regulations are within R.110 (under Group of Experts on General Safety – GRSG), the LNG TF is following 'the line' upward within the GFV umbrella yet recognizing that all reports, decisions, amendments etc. must go through the GRSG.
 - 5 Main activities: Doing a line-by-line review of R.110 to include LNG language, loosely falling into three 'categories': Simple changes (low hanging fruit); more complex issues needing more consideration and analysis; completely new and different elements unique to LNG that will be put into a separate 'LNG Annex.'
 - 6 Key Issues: 1) Components versus systems (detailed specifications needed for some regulatory bodies); 2) venting and boil-off, both related to additional methane fraction into the atmosphere (likely not to be a big problem); 3) vehicle labeling; and, 4) a procedural issue: whether R.110 should be amended to incorporate LNG provisions or if an entirely new LNG 'companion' to R.110 should be created.
 - 7 On this issue the pros and cons are: 1) amended R.110 may be faster and all the existing R.110 language would not have to be copied/duplicated into a new LNG regulation; and 2) in favor of creating a new regulation it would be a 'stand-alone' LNG document that might be more easily dealt with by GRSG *but* the regulation would be subject to a co-decision process within the European Union and that could add two years to the adoption of the new regulation. Increasing the time for adoption of new regulations is less desirable to the industry. The LNG TF is on track to amend the existing regulation but the issue will be more closely debated at the next LNG TF meeting on 8 February 2012 in Brussels.
 - 8 On the issue of amendments versus a new LNG regulation Mr. Rijnders indicates that Contracting Parties must be prepared to consider these new changes to ensure that they are appropriate for both CNG and LNG.
- V. GFV overview of all definitions related to gaseous fuelled vehicles (request from WLTP)**
- 9 Mr. Rijnders indicates that he has received a document from Mr. Albus about definitions of fuels and alternative fuels, vehicle types, power trains, etc. from work being done at the WLTP for discussion to achieve a better level of harmonization.

10. A GFV document concerning GFV definitions is under preparation and will be sent the GFV at the end of week 3 so we will not be prepared for a discussion at this meeting.
11. Mr. Del Alamo. We need to consider that some of the definitions are likely to change due to the documents from AEGPL/Italy that we are considering at the GFV.
12. Mr. Rijnders indicated that we can include the document with the new definitions as part of the GFV documents. These definitions and any other additions that are made from the GRPE should be included and highlighted as such.
13. Mr. Renaudin wants to ensure that there are no new definitions of dual fuel engines/vehicles because the HDDF TF already has spent a great deal of time on this effort.
14. Mr Rijnders indicated that the definitions in the GFV document will reflect the existing and GFV-proposed definitions.

VI. Dual-Fuel Task Force report and amendments (Jean François Renaudin -Volvo)

15. The group yesterday (16 January 2012) finalized, for the most part, a document that will be brought to the GFV (R 49 rev6 Euro VI). The exceptions are two appendices based on a document submitted to GFV in September for specific calculations, in particular, on gas measurement. OICA and TNO will be working to complete this by the end of January and it will be discussed by the HDDF TF in Brussels at the next meeting on 8th February 2012.
16. The document GFV 17-4 will be circulated to the GFV this week and comments can be made from this latest version.
17. Yesterday (16 January) the group worked mainly on editorial changes.
18. These details will be worked out at the next meeting of the HDDF TF on 8 February 2012 (Brussels) and another meeting early in May. The draft of R.49 amendments (v.6 Euro VI) will be prepared as a formal document from the GFV for consideration at the June 2012 GRPE meeting. Thus the Euro V/R.49 amendments (retrofits) will be delayed by six months and will consider a formal document in January 2013.
19. Some specific points that need consideration of the GFV are:
 - LNG20 was considered – pure methane -- (modeled after G-20, one of the emission test fuels) but then it was thought to remove LNG20 because it is not a ‘recognized’ test fuel. Mr. Renaudin suggested that an informal document be prepared on this issue and not necessarily included in the complete HDDF TF document if it would slow down the discussion/adoption of the R.49 amendments.
 - OBD requirements. A question was raised about the possibility of having two OBD systems; one for the diesel mode and another for the dual-fuel mode. This would make the system more complex (and more expensive). The intention is to look carefully at this issue and consider adding the fuel requirements and include this for discussion at the next meeting. (This comes from the fact that R.83 — light duty -- allows two OBD systems.)
 - Comment made that the regulation should include some flexibility.
20. GFV 17-4 will be made into a informal document for the GRPE (less a few specific comments not necessary for GRPE) from R.49. Euro V requirements are not yet included but will be included in a later version. The appendix will be included in the version drafted in February. The document will be sent by the GFV secretariat in hopes of having comments back as soon as possible for the HDDF TF to consider and to be included in an informal GFV document. Two documents will be done: GFV-17-04 will be put on the UNECE website. A ‘cleaned’ version will become the informal document for GRPE.
21. Mr. Rijnders will work with Mr. Albus (Chairman, GRPE) to ensure that the documents submitted and the reports from the GFV by Mr. Rijnders at the June GRPE are done in the proper order on the agenda and not under point 8 (GRPE agenda item 4) to ensure

that the GFV issues are dealt with logically so that participants clearly understand the work and progress of the GFV/HDDF TF.

VII. Regulations 115 & 83: Retrofit systems and bi-fuel vehicles with direct injection petrol engines (AEGPL)

22. Mr Rijnders indicated that the documents GRPE 63-5 (R.83) and 63-06 (R.115) are informal documents for this GRPE.
23. Mr. Piccolo indicated that the group decided to look at a re-definition of bi-fuel vehicles to include new technologies making a more intensive use of gasoline in gaseous fuel vehicles, instead of providing ad-hoc provisions for gas systems intended to be fitted on direct injection petrol engines, in retrofit or new applications;
24. A common requirement for all types of systems has been defined: the use of petrol simultaneously with gas during the Type I test cycle is permitted provided that the energy consumption of the gaseous fuel is higher than 80% of the total amount of energy consumed during the test;
25. A gas energy ratio has been preferred to a petrol one since gas consumption measurement has been considered easier and more accurate;
26. Mr. Rijnders indicated that the proposals were agreed in the last GFV meeting but ask again if there are additional comments. Mr. Tappe (CLEPA/Bosch) notes that the present paragraph 3.2.5. of Annex 12 permits, within the maximum time frame of 60secs, the use of petrol during the entire test, while the proposed amendments would allow the use of pure petrol exclusively in the start-up phase;
27. Mr. Tappe pointed out that there are systems using the 60 seconds of petrol split over the cycle and not necessarily only in the starting phase;
28. He proposes to re-extend this possibility also to the rest of the driving cycle, adding the wording "**only or**" in the paragraph 3.2.5 of Annex 12 just after the first part of the sentence: "**Without prejudice to paragraph 6.4.1.3. of Annex 4a, during the Type I test it is permissible to use petrol....**";
29. TUV remarks that recalculation of dilution factors might be needed because they do not take into consideration the use of different fuels.
30. Mr. Rijnders indicated that presently recalculation the use of petrol up to 60 seconds is not considered because the effect is negligible. Only for simultaneous use of the fuels is a recalculation introduced. The dilution factors as well as fuel density of gas only are used in the calculations of the final emissions in gram/km, since these represent the "worst case" conditions. This basic assumption generates emission values (g/km) higher than those that would be generated by weighted factors and a mean density;
31. Mr. Piccolo brings forth document GFV-16-02, where there are detailed explanations on why the present calculation procedures of emissions, based only on gas parameters are not affected by the proposed amendments and do not need to be adapted.
32. Oliver Eberhardt (BMU, Germany) asked why extend the possibility to increase the use of petrol.
33. Mr. Rijnders explained the technical reason: in the gas mode, petrol injectors placed directly in the combustion chamber (direct injection) could be over-heated if not cooled by the passage of some petrol.
34. Mr. Erario asked if there will be an amendment from CLEPA because he is concerned there already is a document on the table for GRPE.
35. Mr. Rijnders indicates that if this point should be agreed here, it can be included in the informal document as proposed by GFV. Otherwise it would have to be included as an amendment from CLEPA.
36. It is decided that CLEPA and AEGPL will work together to create amended language that will be included in the GRPE document as a GFV 'amendment'.

VIII. Other items

37. The European Commission has requested that the GFV group provide documentation about methane to support a possible change in the emissions regulations to do away with the total hydrocarbon standard or include a methane cap or to include methane within the CO₂ provisions as a greenhouse gas.

IX. Next meeting(s)

38. Mr. Rijnders will ask again for a half day meeting in June at the GRPE. We do not have a meeting between today and June but will schedule another meeting. This might be hosted by AEB-Landi-Renzo in Italy. But the schedule is somewhat dependent on the work of the HDDF-TF and its desire to include an informal document through GFV by 9th March.

39. Mr. Renaudin suggests that the HDDF-TF meeting is held on 29th February before the dual-fuel document is submitted as a formal document. Then before the 9th of March a teleconference can be done with the GFV. Thereafter possibly the next GFV meeting could be in April in Bologna. Mr. Rijnders shall this week consider the meeting dates of the GFV

X. Mr. Rijnders thanks all attendees and the secretariat and closes the meeting.

ATTENDEES

André Rijnders (RDW) (Chairman)

Henk Dekker (TNO)

Jean-François Renaudin (Volvo)

Jeffrey Seisler (NGV Global/Clean Fuels Consulting)

Jaime Del Alamo (NGVA Europe)

Antonio Erario (Ministry of Transport, Italy)

Aldo Bassi (ISO)

Alberto Castagnini (AEB)

Francesco Cagnolati (Landi Renzo)

Mark Vaysblyum (Russian Federation)

AlexyTerenchenko (Russian Federation)

M. Ravi (Ashok Leyland Ltd, India)

John Crawford (Westport Innovations)

Susanne Leifheit (Volkswagen)

Ian Bacon (OICA)

Kazuzuki Narusawa (NTSEC, Japan)

Willar V vonk (TNO)

Henk Baarbe (Netherlands I&M)

Adolfo Perigo (European Commission- JRC)

Ivan Pollak (Hungary)

Milan Woitsch (Dekkra Automobil, Czech Republic)

Leif-Erik Schulte (TUV Nord)

Oliver Eberhardt (BMU –Fed. Ministry of Environment – Germany)

Andrea Techter (UBA, Germany – Federal Ministry of Environment)

John May (AECC)

Takatoshi Sakai (JAMA/Isuzu)

Matthias Tappe (CLEPA/Bosch)

Jurgen Stein (OICA/Daimler)

Salvatore Piccolo (AEGPL/Assogasliquidi Italy)