

**MINUTES OF THE 22<sup>nd</sup> MEETING**  
**Informal Group on Gaseous Fuelled Vehicles (GFV)**  
**2 October 2012**  
**10.00-17.30**  
United Nations, Palais Nations, Geneva  
Room S4

**I. Welcome and introductions**

1. Mr. Rijnders welcomed the attendees.
2. Mr. Renaudin asked for consideration in dealing with the HDDF TF report in the morning.

**II. Agenda for today (changes/additions)**

3. The agenda is accepted by all participants.

**III. Adoption of minutes of the 21<sup>st</sup> GFV on 6 June 2012. (GFV-21-10) and Amended minutes 20<sup>th</sup> GFV (GFV 20-07 rev 1)**

4. GFV20-07 rev 1. The revised minutes were circulated. The corrections are adopted. The minutes of the last meeting (GFV-21-10) also are adopted. Mr. Seisler will ensure that the revised minutes and that the document with comments from AECC are on the GFV UN website.

**IV. Report on Heavy Duty Dual-Fuel Task Force (1 October 2012)**

5. Mr. Dekker presented the results of the HDDF TF meeting from 1 October 2012. (Please refer to GFV-22-04.) He reported that in the next HDDF TF meeting on the 12 December 2012, the EURO V Annex 11 will be finalised followed by an informal document in January 2013 GRPE and a formal document for the June GRPE session in 2013. He indicated the need for a GFV workshop to determine how the group will proceed with dual-fuel retrofit.
6. Mr. Renaudin reminded the meeting that the HDDF TF will circulate a draft document of Annex 11 as a result of yesterday's TF meeting (1 October 2012) for people to review in preparation of the 12 December 2012 HDDF TF meeting. And, he would hope to have the full set of amendments and not only Annex 11 by the January 2013 GRPE meeting.
7. Mr Rijnders thanked the TF members for their progress on the EURO V dual-fuel amendments. He responded to the idea to set up a workshop for retrofits and suggested to organise this as soon as possible. The 13<sup>th</sup> December 2012 was proposed. All agreed and this will be organized and held in Brussels.

**V. Report on LNG TF: Amendments, Formal Document & upcoming GRSG (3 October 2012)**

8. NGV Global (Jeff Seisler) commented on the progress of the LNG amendments to R.110 submitted as a Formal (official) document to the GRSG on 6<sup>th</sup> July 2012, which had not been formatted by the UNECE staff due to various administrative complications as well as the nature of the comprehensive changes made to the original regulation. Thus the document introduced on the 3<sup>rd</sup> October 2012 GRSG is an informal document that will be discussed.
9. There are two possible outcomes: the amendments in their informal document could be adopted but, more likely, a newly formatted document will have to be prepared as an official document for the April 2013 GRSG. If adopted then it would be later (presumably) adopted by the WP29 in November 2013.

10. Mr. Renaudin clarified that the Hddf-TF Euro VI amendments should be adopted in November 2012 by WP29. Euro V amendments to R.49 would be submitted by June 2013 to the GRPE in its Official Format for adoption, which could be approved by WP29 in November 2013.
11. Mr. Crawford (Westport Innovations) asked when the documents would come into force to enable certification of engines and vehicles, following adoption by WP29.
12. Mr. Rijnders explained that before WP.29 can adopt the amendment the EU should agree because the new amendments will directly affect EU type approvals. After adoption in WP.29 the amendments will take about 8-10 months to come into force. Furthermore, the European Commission has to make some amendments in the Euro VI Regulation.
13. Mr. Martinez (European Commission) indicated that final adoption at the European level is being targeted for mid-2013.
14. Mr. Renaudin also indicated that, once the regulation has been adopted, individual countries could take action earlier. Mr. Rijnders clarified, however, that additional requirements from Euro VI such as repair and maintenance information also must be fulfilled apart from R.49 amendments. So there is a possible two-step approach to final adoption in individual countries. There could be a stage where there would be national type approval as an interim solution since there will be only a small time lag between final adoption of Euro VI and the R.49 amendments. This process could go on through the end of 2013 to become officially enforced at the beginning of 2014.
15. Mr. Crawford asked about the timing of the LNG amendments. The group clarified that it would take a similar amount of time to come into force through the UN and European Union. So the final LNG regulations could be expected by mid-2014. Hopefully by 2014 the engine regulations and the vehicle component regulations will become official so that complete type approval could begin.

**VI. CLEPA Amendment on Regulation R83 and document *ECE-TRANS-WP29-GRPE-63-infYY\_R83\_GFV* regarding the use of petrol in gas mode and its limitation for bi-fuel gas vehicles and the verification during type approval.**

16. Mr. Rijnders informed the group that the changes to Regulation 83 and Regulation 115 were approved by the GRPE. The Technical Committee for Motor Vehicles (TCMV) in Brussels will vote on this regulation next week to mandate the Commission to vote positively in WP.29 in November 2012.
17. The new proposal tabled by CLEPA (GFV-22-02) represents an updated version of the document GFV-20-03 that was presented by Harry Scheule (Continental/CLEPA) and discussed at the last GFV in Bologna, 14-15 May 2012. Winfried Langer (CLEPA/Bosch) introduced the new document: since the weighing-of-gas-tank procedure, which the current amendments are based on, may, from CLEPA's viewpoint, raise practical and safety problems during development and type approval. An alternative method is proposed for the identification of gas fuel mass as calculated by the ECU, making use of the injection time and flow rate through the fuel injectors,
18. Ms. Leifheit (ACEA/VW) said that she has not had a chance to check this alternative approach with her colleagues. She would have preferred to see the document earlier, therefore, they cannot make any comments but it looks very promising.
19. Mr. Del Alamo (NGVAE) also indicates that the document looks very good but that some more time is needed to review the proposal.

20. Mr. Piccolo (AEGPL) agrees that, even if based on proprietary data, the use of ECU outputs is undoubtedly more 'elegant' than the weighing procedure, and, if accepted by the authorities, it would be a valuable alternative to gas tank weighing, that could still be the method in the event of a dispute.
21. Mr. Dekker sees some potential problems regarding 2% accuracy measuring CO<sub>2</sub>. The 2% error in CO<sub>2</sub> can mean a 10% error in petrol consumption in percentage. The proposed validation procedure of ECU data needs further investigation and, furthermore, a detailed legal text about this process must be included in the regulation. The advantage of the weighing method is that it can be checked. So, additional work has to be done to get a consistent proposal.
22. As regards the errors, Mr. Langer points out that 2% error in the petrol mass would imply a 2% error in the CO<sub>2</sub> by calculation.
23. Mr. Rijnders understands that the work of the OEM can be accurate, but from the regulator's view as a type approval procedure they have to be able to check.
24. Mr. Rijnders indicates that we must wait for OICA/ACEA's response. He suggests that by December the GFV members should make comments in a written paper so the issue can be discussed again in January 2013. He asks CLEPA to prepare in detail, in the next two-three weeks, two informal documents (both R. 83 and R. 115) for the GRPE January 2013 session, possibly taking into account the comments expressed today. These informal documents will be sent to the GFV members before the end of October for consideration. Deadline for comments from GFV members must be provided by the end of November/early December Thereafter CLEPA will try to revise their proposals in accordance with the collected comments. If needed, a possible telephone conference can be arranged in December among GFV members in advance of the January 2013 GFV. Otherwise, the final drafts will be dealt with directly in the January 2013 GFV.

**VII. GFV input for the European Commission proposal (Co-decision) on THC and methane emissions for NG vehicles.**

25. Mr. Rijnders introduced the concept of the discussion of THC emissions level that was brought to the GFV by the Commission for input.
26. Jeff Seisler presented on Overview & Status of Retrofit and OEM NGVs: Focus on Europe, in part requested by the European Commission staff working on the THC amendments (GFV-22-07).
27. A survey of European retrofit industry on methane limits and natural gas catalysts by NGV Global was presented by Jeff Seisler. Little hard data has been provided by the retrofiters, however, a number of aftermarket system suppliers indicated that a target THC of 150 mg/km could be something that is more easily justified in order to convert an existing gasoline car to natural gas without the use of a methane catalyst.
28. Commission Proposal on CH<sub>4</sub> limit in Euro 5/6 (Bernardo Martinez, DG Enterprise). GFV-20-08
  - Current limit values for Euro 5/6 are: NMHC 68mg/km and 100 mg/km THC.
  - Limits are relevant only for CNG, normally bi-fuel of a vehicle population of less than 1% Europe-wide.
  - Technical consequences: The THC requires that methane catalysts are needed for retrofitting vehicles to NGVs if they are to achieve Euro 6, 100 mg/km THC.
  - The proposal is to give a choice to the OEMs between: THC emission value of 100 mg/km (using a methane catalyst) OR a THC emission limit of 220

mg/km. In this second case the Global Warming Potential of CH<sub>4</sub> would be taken into account as a CO<sub>2</sub> equivalent.

- Reg.115 would be amended with a THC limit of 220 mg/km.
- Advantages for OEMs: 1) no negative effect for OEMs as CO<sub>2</sub> penalty when below 100 mg/km; and 2) manufacturer could use the same emission limits as retrofitters.

29. Discussion & questions:

- NGVA Europe: Current NMHC limit value would remain unchanged? Yes. And the retrofitters likely would not have a problem with the 220 mg/km limit.
- AEGPL. It might be good to introduce the same type of approach in R.83 to calculate the same CO<sub>2</sub> equivalent.
- ACEA/VW: This is a new approach and they had not seen the proposal earlier. Ms. Leifheit indicated that they need time to discuss this internally within ACEA. At the first glance the first option is not an advantage because the OEMs still would have to pay for a methane catalyst; for the second option the OEMs would have to pay for a CO<sub>2</sub> penalty, so the second option also could be costly.
- For some vehicles it may not be an advantage to have a methane catalyst so it could be an advantage to have the second option.
- The only reason the OEMs are now investing in NGVs is to save CO<sub>2</sub>.
- NGVA Europe position. They believe the suggestion made from the Commission is a positive contribution to the debate and they will have to go back to their members – OEMs and retrofitters – and determine if this is an acceptable solution for the stakeholders.
- Mr. Rijnders concludes that the proposal from the Commission looks very promising because it is balanced between OEM and Retrofit. It eliminates the possible negative CO<sub>2</sub> impact on OEM NG vehicles. Further discussion between the Commission and stakeholders will continue.

**VIII. Updating Regulation 115**

30. Mr. Rijnders: There still remains a gap in performance requirements between the OEMs and retrofits. It could be as we move to Euro 6 that some member states will not allow retrofit applications of these Euro 6 vehicles if the quality of the retrofit is not improved. Looking to the REC (Retrofitting Emissions Controls) proposal there may be some elements related to durability that should be incorporated into R.115. There is a need to bring R.115 to a higher level. This will be a topic for discussion at upcoming GFV meetings.

**IX. Upcoming Meetings of GFV & Task Forces**

31. 12<sup>th</sup> December HDDF TF will meet (venue in Brussels to be determined); followed by Monday, 14<sup>th</sup> January 2013 (afternoon) in Geneva. For the GFV, 13<sup>th</sup> December GFV Workshop (venue in Brussels to be determined) and the 15<sup>th</sup> January 2013 half day in Geneva.

**X. Other Items: Opening and closing of the automatic valve (R.110)**

32. As regards ECE-TRANS/WP.29/GRSG/2012/25, and in particular the shut-off valves functioning in start & stop,
33. Jaime Del Alamo NGVA Europe explains that the current valves are tested for a number of opening and closing operations that are not appropriate in the case of a start-stop system. Therefore, CLEPA proposes to keep the valve open. NGVAE supports the CLEPA proposal.
34. AEGPL proposes to keep the valve open only if required by the start-stop strategy in the gas mode. As a consequence, if there is no mandatory

requirement to keep the shut-off valve open, there should be a provision for an upgrade in the durability testing of the valve that will close and open at each start-stop phase, In addition, whereas the valve has to stay open during the start-stop phases – mandatorily or voluntarily - in the event of a crash the valve should be cut off. This should be clearly stated in the regulatory text.

35. Mr. Rijnders adds that GFV is happy to hear about this information but since this is a GRSG issue the GFV has no mandate although we do have views on these issues and the GFV can provide valued input.

**XI. Closing.** Mr. Rijnders thanks the group for its attendance and attention. And for the people here for the GRSG meeting, have a very good meeting.

## **ATTENDEES**

Jean-François Renaudin (OICA/Volvo)

Henk Dekker (TNO-NL)

André Rijnders (RDW- NL)

Bernardo Martinez (DG Enterprise)

Salvatore Piccolo (AEGPL)

Arun S. (Ashok Leyland, India)

John Crawford (Westport Innovations)

Alberto Castagnini (AEB)

Steve Whelan (Clean Air Power)

Dirk Bosteels (AECC)

Jaime Del Alamo (NGVA Europe)

Jeff Seisler (NGV Global/Clean Fuels Consulting)

Winfried Langer (Bosch/CLEPA)

Susanne Leifheit (ACEA/VW)