

**24th Informal Group on Gaseous Fuelled Vehicles (GFV)  
15 January 2013  
14.30-17.30**

United Nations, Palais Nations, Geneva  
Room IX

**I. Welcome and introductions**

1. Mr. Rijnders welcomed the members and guests.

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

2. One exception is noted by CLEPA on agenda item 8. Their document is still being reviewed by members and request to deal with the issue at the next GFV.

**III. Adoption of minutes of the 22<sup>nd</sup> GFV on 2<sup>nd</sup> October 2012 (GFV-22-09) and 23<sup>rd</sup> GFV on 13 December 2012. (GFV-23-13) (GFV Workshop)**

3. GFV 22-09 meeting minutes were not officially approved at the GFV workshop so approval is requested today. There are no objections to the minutes and they are adopted.
4. The GFV Workshop minutes have just been completed and will be presented on the UNECE website. Approval will be at the next GFV meeting.

**IV. Report on results of GFV HDDF Retrofit Workshop, 13 December 2012**

5. Jeff Seisler was asked to present the results of the HDDF Retrofit workshop (see document GFV 24-02)
6. Mr. Rijnders adds that the critical issue is deciding what regulatory pathway of the three options that were presented (REC – Retrofit of Emissions Control devices; amending R.115; or creating an entirely new regulation). Mr. Rijnders asks for the input of the members present.
7. **Alberto Castagnini (AEB) presents a view about the future of the HDDF retrofit regulations. (See GFV 24-03)**
  - A HDDF UN/ECE regulations is desirable: it avoids problems having only *unharmonized* national regulatory approaches
  - Scope: provisions should apply to retrofit systems on engines approved according to Euro IV emissions stages or later. Retrofit system family defined in UNECE R.115 can also apply to HDDF retrofit systems, with some possible adaptations. Components must be type approved according to R67/01 for LPG or R.110 for natural gas.
  - Emissions should be tested according to the original test procedures for each engine's type approval. (Euro IV: ESC plus ETC, etc., Euro VI, etc.). Methane and NMHC also should be included
  - Test sequences should be followed once for each system for both diesel and gaseous fuels; following extensions should follow simplified procedure: PEMs for Euro VI and simplified PEMs for Euro V; and using SEMs in place of PEMs.

- Dual-fuel engine classifications can be the same as adopted for OEM's, with the exception of Class A type D-F (D-F mode only). Diesel mode should be retained in a retrofit so as not to alter the original manufacturer's type approval.
  - OBD: When the original OBD system is proven to be active also in dual-fuel mode, simplified requirements can be allowed: gas ECU should monitor gas emission-related components. In the case of a malfunction a switch back to diesel should be required. This way no modifications to the original ECU are required.
  - Durability: R.115 already contains the same durability requirements as for OEM LDV (application of table DF's) . Similarly, the same deterioration factors used by OEMs also could apply to HDDF retrofit systems (R49/05 annex 7 par.3.6)
  - Conclusions: New provisions should take into account a system-based type approval; retrofit systems help develop and diversify the market.
8. Mr. Rijnders thanks Mr. Castagnini for his valuable contribution.
  9. NGVA Europe feels the approach presented is very desirable and hope by the next meeting to provide a supportive paper regarding this process.
  10. Mr. Dekker (TNO) can support a two state process for retrofit; it is compatible with what is being considered in the Netherlands. System approval basically is a good concept but there is some concern about system approval for different manufacturers. Certification is complicated by the fact that there are a wide variety of emissions results for different systems in different engines. There are some concerns about using ESC/ETC only. More attention must also be given to OBD system requirements.
  11. Mr. Castagnini responds positively, indicating that this is merely a proposal and comments and suggestions certainly are welcomed.
  12. Mr. Rijnders said that there are two sides that could be considered in respect to the to mean Euro V retrofits, both new Euro VI trucks and older Euro IV trucks. In all cases the retrofit systems should not represent a back-sliding in emissions performance. How to treat competition with the OEMs (Euro VI) also has to be considered and should be part of the discussions in the upcoming sessions of GFV.

**V. Report on Heavy Duty Dual-Fuel Task Force (December 2012 & January 2013). Henk Dekker (TNO) provides a presentation from him and the co-chairman of the HDDF TF Mr. Renaudin.**

13. The work on HDDF is progressing well on Euro V.
14. One issue is that multi-setting engines needs to be solved (now allowed in the document) and introducing a requirement to show there is not much change between the tests performed and the real world operation. Type approval and end use conformity was dropped for measuring the gas energy ratio over the ETC and ESC, and the difference should not be more than 20% of the value of the GER (gas energy ratio).
15. A new Annex from Series 6 R.49 (4B and 4C) annexes are being used as an example. Modification of reference fuels also is required hence, there are a number of issues that need to be address.
16. Other meetings of the HDDF TF will be required before March 2013 so that a formal document can be prepared by March deadline to submit documents to the June 2013 GRPE. An informal document with this report can be submitted to GRPE so people can see the materials. The informal document is intended to allow GRPE members to provide input, give feedback, and request changes in the document so the

delegates are in a position to comment and work on the document prior to it becoming a working document formally tabled in the GRPE.

**VI. Report on LNG TF: Amendments, Formal Document (16 December 2012).  
Mr. Rijnders asks Mr. Seisler to provide a quick update on the LNG TF activities.**

17. The LNG task force presented an informal document to the GRSG in October 2012 amending R.110 for LNG vehicles. Comments from the GRSG members were requested by 1<sup>st</sup> December 2012.
18. The LNG TF met on 15 December to incorporate all the comments that were received and now are finalizing a formal document that will be submitted to GRSG on 18<sup>th</sup> January 2013.
19. It is hoped that the Formal Document will be approved by the GRSG at their April 2013 meeting, which would be approved by WP29 in November 2013 and come into force sometime in the first quarter of 2014.

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

20. Mr. Rijnders reports on the current situation regarding the European Commission proposals regarding total hydrocarbons (THC) and non-methane hydrocarbons (NMHC). GFV was asked to provide input to an amendment proposed by the EC to change the THC regulation to favour an improved balance affecting NGV retrofits.
21. There was a brief meeting of the European Commission between ACEA, NGV Global, NGVA Europe and member states following a presentation made by Mr. Seisler at the November 19<sup>th</sup> meeting of the Motor Vehicle Emissions Group (MVEG) that provided the background to the issue, a brief history, and the progress of the input by the GFV.
22. Mr Rijnders explained that the car industry currently is suggesting that the methane/NMHC issue should only be addressed in Regulation 115. But if only R.115 is changed this will result in an emission level difference with R83 and this would affect member states retrofit policy throughout Europe. The car industry is concerned about any changes in CO2 regulations or methane being considered as a CO2 equivalent. The last suggestion by the Commission was to take the CH4 emissions to be considered as a CO2 equivalent only if the THC is above 100 mg/km but always lower than 220 mg/km At this time there is no new information from the Commission.
23. The delegate from Sweden asks about the CO2 measurements and the fleet requirements. Mr. Rijnders explained that the OEMs have to conform to the fleet CO2 limit values now in force. He describes in more detail the benefits of OEMs when they sell natural gas vehicle which have low CO2. values in their Certificate of Conformity (COC). Ms. Leifheit (ACEA) indicates if the OEM goes over the 100 mg limit they have to pay the penalty but the retrofit industry would not suffer any penalty (if they exceeded the 100mg, which would not be in compliance with the emissions regulations).
24. Mr. Rijnders clarifies the relative nature of the so-called 'penalty' that, in fact, NGVs would still have a CO2 benefit over petrol vehicles. For NGV retrofitters the challenge of a low THC still remains and the calculation for the CO2 value in R115 should also be changed with a methane CO2 equivalent in line with the R83 proposal
25. AECC (Mr. May) wonders if it will be feasible to achieve two changes in the regulations by two different Directorate Generals at the same time.

26. Mr. Martinez (DG Enterprise) agrees that DG Climate also will need to have input and agreement to any change in the emission limit values. DG Climate will be involved in any resolution of this issue.

**VIII. AEGPL ECU Approval & Start Stop Amendments to R.110 & 67/01 (see GFV 22-03) Recommendation from GFV for this GRSG-item.**

27. Mr. Piccolo explains that the proposal was presented by CLEPA in GFV as well at the latest GRSG session as formal document. There has been a variety of discussions on the topic and working with stakeholders and CLEPA.
28. Mr Laurent (CLEPA) indicates that the finalization of an agreement among stakeholders is about to be achieved and they will come back to the GFV with the final consensus outcome.

**IX. Alternative Fuel Vehicle Propulsion System Definitions (VPSD) (see ECE/TRANS/WP.29/GRPE-65-12 and GRPE-65-13) (GRPE-65-12 also is available among the documents for GFV22, as GFV 22-06e)**

29. Germany has raised the point to align the definitions of vehicle propulsion system definitions.
30. Mr. Rijnders shows document GRPE 65-12 (30-12-2012) where he has put some remarks of interest to the GFV . He reminded the group that the GFV has prepared a document of these definitions earlier (GFV 18-02, February 2012, Brussels meeting) as the initial start of the effort that began with the WLTP. The document refers to all types of alternative fuel vehicles including electric, gaseous, etc. and addresses bi-fuel vehicles and mono-fuel vehicles.
31. Mr. Dekker points out that there are consequences of changing the definitions (i.e. mono-fuel natural gas vehicles that also include 15 liters of petrol on-board). Mr. Rijnders agrees that GFV should be considering these definitions and make comments on the definitions document. Mr. Dekker points out the value of simple definitions such as the bi-fuel vehicle definition but, still, other regulations would be impacted.
32. Mr. Martinez, (DG Enterprise) perspective supports clarity in definitions. But he points out that new definitions would have to be consolidated in EU regulations and legislation.
33. Mr. Asman (Sweden) indicates this is a good and necessary exercise but we need to have further discussion with other groups and the GRPE Chairman. There are many national definitions as well. This is a difficult issue but one that needs to be resolved to the best extent possible.
34. Mr. Seisler (NGV Global) stresses that the international association has spent a great deal of time discussing and debating vehicle definitions and that the input has been incorporated into ISO definitions. NGV Global has been an advocate of harmonization and recommends that ISO definitions, to the best extent possible, be considered and incorporated into this process. NGV Global has a document consolidating definitions from its viewpoint. (GFV 24-07e)
35. Mr. Rijnders indicates that GRPE will discuss this more in-depth. GFV will be connected to the group discussing definitions to the degree that gaseous fuel vehicles are involved.
36. Mr. Piccolo reminds GFV that in the current EU legislation and UN/ECE related regulations there is double level of definitions for mono/bi-fuel vehicles: one more general and another more specific for mono/bi-fuel **gas** vehicles. The latter has been subject to modification by the most recent GFV amendments to R83 and R115 . He believes that the first draft of the original GFV paper on this topic needs much more

work and that the GFV should be involved in both the approach and the substance of various definitions. He agrees with Mr. Rijnders that the GFV must be involved in this activity.

#### **X. Updating Regulation 115**

37. The GFV does not at this point have guidance on how to upgrade R.115, also taking into account Euro 6 requirements, but we need to start a task to improve the regulations. It also depends if the HDDF retrofit is implemented into R.115. At that time we need to look more in-depth how to address improvements to R.115. Mr. Rijnders looks to the members of the GFV as to how to facilitate this process and to receive input as to the substance of changes that might be needed (i.e. implement in-service conformity requirements). Another example: We would have to ensure that retrofit systems fulfil more stringent requirements for emissions to avoid large differences with OEM requirements.
38. Regarding the alignment with Euro 6 testing procedures and limits, Mr. Piccolo reminds the group that R 115 contains dynamic references to the applicable series of amendments to R.83 so all the testing procedures and limits applied to new Euro 6 gas vehicles can and shall be applied to retrofit systems intended to be fitted on Euro 6 petrol cars I. This has also been improved with some recent amendments to R115 aimed, inter alia, at cleaning up some residual static references to R.83/05 ,
39. Mr. Rijnders agrees that many elements, including in-service conformity monitoring, durability requirements, and related issues are not included in R.115. We will explore thoughts on this and Mr. Rijnders welcomes input, suggestions and comments about how to update R.115.

#### **XI. Other Items**

40. No other items are raised.

#### **XII. Planning upcoming Meetings of GFV & Task Forces**

41. We need to plan a meeting in between now and the June GRPE session in March. AEGPL has invited the GFV in March to come to Rome for the next meeting. Preliminary date in March could be tentatively planned for Wednesday 13<sup>th</sup> & Thursday 14<sup>th</sup> March 2013.

#### **XIII. Closing**

42. Mr. Rijnders thanks the participants for their presence and contributions.

#### **Attendees**

André Rijnders, Chairman (RDW-NL)  
Jeff Seisler, Co-secretariat (NGV Global/Clean Fuels Consulting)  
Salvatore Piccolo, Co-secretariat, (AEGPL/Assogasliquidi/Federchimica)  
Jaime del Alamo (NGVAEurope)  
Leif-Erik Schulte (TUV Nord)  
Petter Asman (Swedish Transport Administration)  
Henk Dekker (TNO)  
Susanne Leifheit (OICA/ACEA/Volkswagen)  
Bernardo Martinez (European Commission DG Enterprise)  
Yannick Souchet (DGEC/MEDDF France)  
Milan Woitsch (DEKRA/Czech Republic)  
Daniela Leveratto (OICA)  
Michael Hygrell (OICA/Volvo)

Ian Bacon (OICA/SMMT)  
Alexey Terenchenko (NAMI/Russia)  
Mark Vysblyum (NAMI/Russia)  
Pierre Laurent (CLEPA)  
John May (AECC)  
Lars Rapp (Swedish Transport Agency)  
Krisztian Uhlik (KTI)  
Ivan Pollak (KTI)  
Alberto Castagnini (AEB)  
John Crawford (Westport)  
Takatoshi Sakai (OICA/JAMA)