

MEETING MINUTES  
14<sup>th</sup> Meeting  
Informal Group on Gaseous Fuelled Vehicles (GFV)  
7<sup>th</sup> June 2011  
Palais Nations, Geneva  
9.30-12.30

**I. Welcome & Introductions**

1. Mr. Rijnders welcomes the group.

**II. Approval of the Minutes of GFV-13**

2. No comments or corrections are made from the group. The minutes are adopted as they are.

**III. Approval of the agenda**

3. There are no additional agenda items requested.

**IV. Dual-Fuel Task Force report and amendments**

4. (Jean François Renaudin, Co-Chairman of the Heavy Duty Dual-Fuel Task Force reports on the results of the series of recent meetings. (Document GFV-14-05)
5. Definitions for dual-fuel engines and dual-fuel vehicles were reviewed on 10<sup>th</sup> June and clarified.
6. GFV recommends these definitions be included in the core of regulation R49, not in the dual-fuel annexes. The definitions would have to be repeated in the various regulations to ensure they are harmonized. There has been the suggestion to develop a Special Resolution dealing with definitions.
7. An engine that can operate or idle solely on diesel fuel cannot be considered as a Hddf Type 1A. It shall be considered as Hddf Type 2A.
8. In case of Hddf Type 1A engines the demonstration test to show that the engine does not operate on Diesel only at idle, shall be agreed with the Approval authority and described in the report.
9. Amendments will be proposed to R.85: To be noted an amendment proposal that does not affect solely Dual-fuel vehicles
10. EURO VI NOx control measures shall apply "mutatis mutandis" to Hddf engines.
11. In-vehicle indicators to alert the driver in what mode the engine is functioning as well when the gas tank is becoming empty. (The value is left to the manufacturer)
12. An operability restriction is activated as soon as a lack of gas supply is detected for whatever reason (tank becoming empty; interruption of the gas supply; etc.)
13. Conditions for the PEMS test are established (Portable Emissions Measurement System).
14. Euro V specific issues for PEMS: The eventual need and content has not yet been addressed by GFV; Issue to be solved before considering any retrofitting rule of Hddf engines.
15. GFV recommends EURO V Hddf Type 2A engines not be subject to certification according to R49 at this stage

16. Euro VI LNG Tanks. A sub-group on LNG is being established following a meeting on 16<sup>th</sup> May 2011. The work on ISO standards is likely to be completed one year after the D-F certification procedures are completed.
17. The time table for work and completion is presented. The project is on-time for completion so far by 2012, with approval hopefully at WP29 November 2012. But there will be a delay in amending R.115.
18. Mr. Rijnders asks if there are specific points that require GFV guidance or input.
19. Mr. Renaudin asks to agree on the definitions and that an attempt must be made to harmonize the definitions of the various fuel and vehicle alternatives. He recommends that the GFV provide an overview of the specific gaseous fuel definitions used currently. Then we can avoid having other definitions in other regulations or working groups. Input from Japan and the United States would be welcome. Also, Mr. Rijnders asks that the GRPE can take up such an effort to avoid misunderstanding between various regulations. Mr. Rijnders asks if the group supports such an effort.
20. Mr. Coleman supports the effort to consolidate definitions across EC and worldwide groups. He welcomes the GFV initiative. Though there is a delicate balance for the GFV in not exceeding its mandate to other fuels, but the GFV attempt is an excellent one.
21. Mr. Radzimirski refers to GFV-14-03 definition, that is similar but different for the same class/category of vehicles.
22. Mr. Rijnders clarifies that we could look at the existing and developing regulations to ensure good correlation between the various documents.
23. Mr. Piccolo reminds the group that the context of the definitions in newly proposed amendments is for light duty vehicles and makes a distinction between 'pure' bi-fuel vehicles and a new type of system that refers to a bi-fuel Type B.
24. Mr. Rijnders indicates that dual-fuel refers more to diesel and gaseous fuels rather than petrol mixtures, and this may cause some confusion. Creating a 'definitional overview' will help create workable definitions. He looks to AEGPL and NGV Global (as well as NGVA Europe) to review the definitions at this moment. Also Japan and the US are encouraged to provide their definitions.
25. Mr. Hubert suggests that we take care which regulations this work could ultimately be inserted: Special Resolution 1, the 1958 agreement, or other regulatory documents.
26. Mr. Renaudin asks also for the support from GRPE by creating an informal document.
27. Mr. Crawford (Westport Innovations) thanks Mr. Renaudin for his presentation and asks for clarification about Type 1A D-F and looking at different operating modes and the service mode specifically, that the engine should be continued to operate (i.e. in off-road areas near railways, or in an emergency situation).
28. Mr. Renaudin replies that operation on the diesel mode remains possible, in particular for safety situations, in the case of 'no gas' in the system (for whatever reason).
29. Mr. Dekker (TNO) says that the principles of R-85 document might be ready but that a formal document is not ready to be prepared. He asks if future modifications are possible and that any modifications to R.83 should be raised with GRPE due to the complication of R.83.
30. Mr. Renaudin will prepare an informal document for GRPE to make comments to GFV on various definitions from members and contracting parties.
31. Mr. Renaudin: We need GFV guidance on Euro V, Type 2A engines not be subject to certification according to R.49 at this stage (also to understand the OBD

- requirements). He strongly suggests that only Type 2B engines be used (also in Euro V) since in the diesel mode these engines could be fully compliant. If a new Type 2A engine is developed then we could consider specific amendments suited to these types.
32. Mr. Crawford is interested for Westport to have certification at Euro V with their Type 1A engine, and would like to see it included.
  33. Mr. Renaudin indicates that the same type of operating restrictions for Type 1A but that issues associated with Type 2A engines (running low on urea, for example) is difficult to handle.
  34. Mr. Dekker says that Type 1A and Type 2B D-F engines could be certified with Euro V.
  35. Mr. Renaudin recommends for GRPE we would like to exclude Type 2A, as well as Type 1B. Type 1A should be included and that they still are working on this.
  36. Mr. Rijnders agrees to restrict Type 2A but we have to see yet if other types have to be restricted or excluded, depending on R.49 in the Euro V stage. Next GFV Task Force has to discuss this item again.
  37. The draft time plan to amend R.49 in the Euro V stage and the current timetable for D-F would or would not conflict with the timetable of the Commission.
  38. Commission is working on draft regulations for R.49 Euro VI. He doesn't think it is a major problem. But the Commission is in close contact with the D-F Task Force and they will attempt to include some of the provisions of Euro VI into R.49.
  39. Mr. Rijnders appreciates the support and work of the Commission and is pleased about the cooperation so that the transposition of Euro VI into R.49 will go smoothly.

**V. Regulations 115 & 83: Retrofit systems for direct injection engines** (Document GFV14-03)

40. Mr. Piccolo (AEGPL). They proposed new definitions of bi-mix fuel vehicles would be included in the definition of bi-fuel, including now two types: Type A (traditional bi-fuel) and Type B where gas and petrol can be used simultaneously. Proposal being made to determine the amount of gas used in the system would be to weigh the gas tank before and after the vehicle test. They have attempted to align R.115 and R.83 for this bi-fuel technology that already is being used in vehicles. He asks for comments from the group for the next GFV session.
41. Mr. Rijnders asks to have written comments on these documents, with the idea of having a new, formal document ready for January 2012. The Types A and B also take on a similar framework as the recommended definitions of the dual-fuel engines.
42. Mr. Piccolo indicates their intention that the definition be wider than narrow, to allow simultaneous use with LPG provided that the LPG in energy unit is equal or higher than 80%.
43. Mr. Radzimirski this is an important amendment to R.115 and as soon as possible. He takes issue that according to the Annex 6 the energy is measured and not the mass. This editorial correction should be introduced.
44. Mr. Rijnders believes the energy and mass difference should be aligned. He asks Mr. Radzimirski to provide written clarification and comments for the next GFV meeting.
45. Mr. Martinez (European Commission) asks if it is possible to make a more precise definition of Type 2B, in order to specify the percentage of gas mixture. It should be technically feasible so not to leave loopholes in the regulation.
46. Mr. Duvielguerbigny (AEGPL) says these amendments are due to requests by their members' desires.

47. Mr. Piccolo didn't want to make a long definition. They will try to move the 80% concept to the definition to avoid any other conflicts.
48. Mr. Dekker prefers to have a Type C to add to the definitions rather than change the current definition.
49. Mr. Martinez (European Commission) agrees that the 80% should be put in the definition.
50. Mr. Duviolguerbigny says we agree on the principles and its urgency, and that a newly amended formal document would be prepared for passage at the January 2012 GRPE.
51. Mr. Rijnders agrees that the GFV will work on this new proposal with a perspective to prepare the formal document for January.
52. Mr. Castagnini (AEB) reminds the group that they had also submitted another GFV-corrected document prior to the meeting to include natural gas (CNG).
53. Mr. Rijnders asks for written proposals so that a combined formal document can be developed and discussed at the next GFV.

#### **VI. Amendment R67 (Equipment for LPG)**

54. AEGPL updated the GFV on amendments dealing with safety that were proposed to the GRSG at their April 2011 meeting. ( ECE/TRANS/WP.29/GRSG/2011/14 from the Netherlands and informal paper GRSG-100-02-Rev.1 from Italy that were approved.) But there also were some newly crafted definitions for bi-fuel vehicles that now are not in accordance with existing regulations. (LPG running mode and bi-fuel vehicle: See GFV-13-06). (ECE/TRANS/WP.29/GRSG/2011/15 amending paragraphs 17.11.5 and 17.11.6. related to diesel dual-fuel operation.) The approved amendments are now to be presented for agreement at WP29. Two options: 1) the amendment to WP29 can go forward; or 2) WP29 could be asked to forego approval of the definitions and await the results of any comparison of definitions as proposed by today's GFV.
55. Mr. Duviolguerbigny summarizes the proposals made from GFV-13-06 reminding the group that Regulation 67 is specific to LPG only.
56. Mr. Rijnders is concerned that this new definition (bi-fuel) becomes confusing since existing definitions have applied to gaseous fuels and not just LPG. So we must now ask WP29 to either remove these definitions or adopt them and amend them in future.
57. Mr. Piccolo: The definition 2.21 in R.67 as adopted is in conflict with existing regulatory definitions. He suggests to eliminate provision 17.11.6. This is an emission-related provision (but not omit 17.11.5 which is about the switchover time from petrol to LPG).
58. Mr. Rijnders believes we are not ready for the upcoming GRPE to make a proposal. It is possible that we could make a formal amendment in September for the November WP29.
59. Mr. Hubert (UNECE GRPE Secretariat) suggests it is best to have a proposal to GRPE for discussion this week. Alternatively, a new proposal could be made again to the October GRSG meeting and then forward this to GRPE their consideration in January 2012.
60. Resolution: Mr. Rijnders suggests that the issue be moved back to the GRSG, taking suggested proposal from the GFV to the GRSG to reconsider for submittal to WP29 in November as a corrigendum to the previous amendments to R.110 from AEGPL/Italy.

### **New Task Force on LNG**

61. A 9<sup>th</sup> May 2011 session was held related to LNG in support of the dual-fuel task force. This is not a task necessarily for the GFV but amendments will be needed in R.110 to accommodate the certification of dual-fuel vehicles from the HDDF Task Force. He has spoken to Mr. Albus (GRPE Chairman) and Mr. Errario (GRSG Chairman) that the GFV could handle the LNG issues. Mr. Paul Dijkhof from KIWA in the Netherlands (a Dutch 'notified body') has agreed to Chair the new subgroup to work on regulations for LNG containers and related equipment and systems. There will be a co-secretariat of this group: Dr. Seisler from NGV Global and Mr. Del Alamo of NGVA Europe. People from the GRPE, GRSG, and GFV are invited to participate and offer their assistance.

### **VII. Report to GRPE**

62. Mr. Rijnders: He will inform the GRPE about the 10<sup>th</sup> May GFV meeting and this GFV today.

### **VIII. Next meetings**

63. Mr. Rijnders suggests that we target Tuesday the 27<sup>th</sup> September for the next GFV meeting.

### **IX. Other items**

64. Mr. Rijnders announces that Mr. Duvielguerbigny will be leaving AEGPL at the end of June and will no longer be involved with our group's activities. He has been a solid pillar of the group and an important player for all the GFV. The group acknowledges Mr. Duvielguerbigny's contribution.

### **X. Closing**

65. With no further items raised by the membership Mr. Rijnders all those present for their participation and closes the meeting.

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## **ATTENDEES**

André Rijnders (RDW/NL)  
Jean-Francois Renaudan (Volvo)  
Henk Dekker (TNO)  
Arnaud Duvielguerbigny (AEGPL)  
Jeffrey Seisler (Clean Fuels Consulting/NGV Global)  
Romain Hubert (Secretariat GRPE)  
William Coleman (Volkswagen)  
Ann Vereecken (Belgium)  
Luboš Trnka (Czech Republic)  
Milan Woitsch (Czech Republic)  
Yannick Souchet (Ministère de l'  
'Ecologie, de l'Energie, du Développement, France)  
Beatrice Lopez (UTAC, France)  
Stephan Redmann (BMVBS, Germany)  
Winfried Matatko (TÜV Nord, Germany)  
Leif-Erik Schulte (TÜV Nord, Germany)  
Juan Pollak, (KTI, Budapest)  
K.K. Gandhi (SIAM, India)  
H.A. Nakhawa (ARAI, India)

Petkar Rajendra (SIAM, India)  
Zia A. Mujawar (ARAI, India)  
Dongwook Kim (KECO, Korea)  
Jaehyung You (KECO, Korea)  
Hyum Woo Lee (KATRI)  
Seong Woo Park (KEMCO, Korea)  
Konrad Kolesa (OICA)  
John May (AECC)  
Salvatore Piccolo (AEGPL)  
Francesco Cagnolati (Landi Renzo)  
Albert Castagnini, (AEB Technologies)  
John Crawford (Westport Innovations)  
Stanislaw Radzimirski (Motor Transport Institute, Poland)  
Ishii Hajime (NTSEL, Japan)  
Takai Seiji (MOE, Japan)  
Narusawa Kazuyuki (NTSEC, Japan)  
YukiToba , JASIC, Japan  
Woo Park Seong (KEMCO, Korea)  
Andrea Fechter (UBA, Germany)  
Per Öhlund, (Swedish Transport Agency)  
Petter Åsman (European Commission)  
Magnus Lindgren (Swedish Transport Administration)  
Dries Van Tonder (South Africa Regulator)  
Mike Bond (SABS Commercial)  
Nilesch Bhana (Naamsa, South Africa)  
Mark Saysbeyum (Russian Federation)  
Yum Sung Lim (Ministry of Environment, Korea)  
Junhong Park (Ministry of Environment, Korea)  
Takatoshi Sakai, (OICA)  
Martin Gerstl (CLEPA)  
Matthias Tappe (CLEPA/BOSCH)  
Iddo Riemersma (Transport & Environment)  
Youngduk Lee (OICA)  
Bill Colement (OICA)  
Giovanni Margaria (OICA)  
Jügen Stein (OICA)  
Jean François Renaudin (OICA)  
Laura Bigi (OICA)