

**Meeting Minutes  
Informal Group on Gaseous Fuelled Vehicles  
GFV-30**

United Nations  
Geneva  
7<sup>th</sup> January 2014  
14.30-17.30  
Palais Nations Room VIII

**I. Welcome and Introduction**

1. Chairman Rijnders welcomed the group and wished everyone a very good New Year.

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

2. Mr. Rijnders reviewed the agenda and asked if there are any changes or additions. There were no changes.

**III. Adoption of minutes of the 29<sup>th</sup> GFV on 3-4 December 2013 (Document GFV-29-10)**

3. Mr. Rijnders asked if there are changes to the detailed minutes of the last GFV-29 meeting.
4. Mr. Dekker had some small changes more of an editorial nature. He will send these to the secretariat to make the changes. A new document (rev.1) will be put onto the GFV-29 UNECE website.

**IV. Process of the GFV HDDF Overview and Retrofit task-force activity, (André Rijnders). (Document GFV 30-02, updated from Document GFV 29-06). An update and background to the dual-fuel work of the Heavy Duty Dual-Fuel Task Force (HDDF TF) within the GFV.**

5. HDDF Activity: rev.5 regulation 49 (Euro V) was adopted in November 2013 and should be in force by approximately July 2014.
6. HDDF Rev.6 (Euro VI) Supplement to 1 to the 06 series of amendments entered into force on 15<sup>th</sup> July 2013.
7. Status of European Regulation 582/2011 (Euro VI) concerning Dual fuel: 3<sup>rd</sup> round Comitology adopted in July 2013. Publication is expected soon (January/February 2014).
8. Mr. Rijnders provided an overview of the newest HDDF tasks involving the creation and development of the regulations for dual-fuel retrofits. The target schedule is: June 2014 GRPE-69 to have an informal document; if possible, by GRPE 70 January 2015 to have a formal document ; and to have the new regulations adopted in June 2015 WP29.
9. Henk Dekker (TNO) will assume the Chairmanship for the dual-fuel retrofit work, with NGV Global providing the secretariat in the form that might be required by the committee's leadership. The meetings will be decided by the Task Force itself, either independent meetings or in association with GFV meetings.

**V. HDDF TF Outstanding Issues List plus discussion (New Document GFV 30-04, based on Document GFV 29-09)**

10. A list of fundamentals and principles for HDDF-retrofits was discussed at GFV-29. The scope will first be with Euro IV and V, afterwards with discussion by the Motor Vehicle Emissions Group (MVEG) in Brussels. Only type B will be covered with no distinction between types 1, 2 and 3.

11. Questions raised: 1) (Mr. Eberhardt (BMU-Germany): Will the next MVEG deal with dual-fuel? Mr. Rijnders indicated that this will not be an immediate issue for MVEG since Euro VI will come after the development of the IV and V retrofit regulations; Mr. Eberhardt indicated that the Euro VI will be a crucial discussion, especially due to the stringency of the regulation. Mr. Rijnders added that there is no intention to have backsliding on Euro VI vehicles, but this will be a challenge. The Commission is aware of this issue and is participating in the HDDF TF. Mr. Rijnders also invited Contracting Parties to provide input through the HDDF TF.
12. Families: Parent engine should be compliant with emissions limits and not more relaxed than the most stringent requirements. It sometimes is difficult to find a Euro VI-compliant engine that is performing within the emission limits and conversions must take this into account.
13. Mr. Dekker reminded the group that we are discussing 'system' type approval and not necessarily approval of an 'engine' type. Mr. Renaudin (Volvo) indicated that this needs to be discussed in more detail. Durability testing could give local authorities confidence that these engines are compliant with the regulations.
14. Mr. Rijnders emphasized the need to set stringent levels for retrofit systems but not so difficult that it is impossible to fulfill. This is the balance that will have to be found and durability might be one of the ways to deal with these requirements.
15. Approval: Retrofit systems versus retrofit engines will be discussed.
16. An Open Issues List was created at GFV 29 (see GFV-29-09) to help the group work through some of the most challenging issues. This document is updated by GFV 30-04.
17. Retrofit versus Conversion terminology was discussed. Retrofit might be considered to be a more intrusive system whereas a 'conversion' provides new design elements to an approved engine system. Mr. Renaudin (Volvo) described his views that: once an engine is *converted* then it should fulfill all the existing emissions limits but the OEM can no longer be responsible for the liability of downstream service and/or maintenance. But this is different than 'regulatory responsibility' (or liability). Non-conformity of the emissions limits is easier to deal with based on the clarity of the regulation. Therefore, there should be a clear separation of the two types of operations. Mr. Rijnders said that the GFV-29 meeting had agreed to keep the historical wording 'retrofit' system to avoid any confusion. But a sub-classification of retrofit systems might be appropriate if the dual-fuel system 'substantially' modifies the emission and operating strategies. In such cases the terms 'intrusive' and 'non-intrusive systems' could be appropriate.
18. Mr. Laurent (CLEPA) described the procedures for other types of vehicle technologies that are provided on a 'retrofit' basis, such as tires, rims, etc. where the up-fitter legally recognizes their general liability to take responsibility of the equipment they are supplying. He suggested adding a certificate of conformity for the converter/modifier. This is the same as done by truck body builders when they put a truck body on a chassis.
19. Mr. Piccolo (AEGPL) said that the shift of responsibilities (i.e. R 49 requirements) from OEM to retrofit system manufacturer, also for diesel mode (dual-fuel mode is the responsibility of retrofit manufacturer), should arise only when "substantial modifications" are made. Substantial modifications should not mean "physically touched" but modifications that bring the engine into non-compliance (in diesel mode). The regulation should be able to distinguish the two cases and regulate properly all the legal consequences with respect to R49 requirements. .
20. Mr. Rijnders added that the idea of taking responsibility and liability is not a clear black or white issue, particularly if a system added to, for example, the body of a vehicle has no impact on the emissions performance, which still is the responsibility of the OEM. Mr.

- Rijnders recognized that an OEM cannot just renege on its original responsibility if any system is added to the vehicle, particularly if the vehicle is not 'substantially' modified.
21. Mr. Richter (OICA/MAN) said it is perfectly acceptable to compare body work to engine work. At the level of a Euro IV or V, how will an OBD system or new methane catalyst system continue to function without the cooperation of the OEM. Conversions of a Euro VI engine, with its complicated computer system, is much more difficult.
  22. Mr. Van Tonder (NRCS-South African regulator) reminded the group to be careful of how words and definitions are used. For example the word 'substantial' must be defined or it will be a nightmare to regulate such systems.
  23. Mr. Dekker indicated that if we don't regulate these systems then there is no way to control retrofit suppliers. One concept is to add a dual-fuel system without compromising the ECU and the rest of the diesel system. This might be considered to be a 'non-intrusive' retrofit with SCR systems fitted to the vehicles. Even though it is difficult to create regulatory language for these technologies it is possible.
  24. Mr. Rijnders suggested that it would be very good if the OEMs would work cooperatively with retrofitters to ensure quality control of vehicles that are fitted with retrofit D-F systems.
  25. Mr. Eberhardt used an example of adding an after treatment system that negates the SCR system.
  26. Mr. Erario suggested that we should not be so pessimistic about retrofitting Euro VI vehicles. In Italy there are some good companies that are doing expert retrofits. There must be a solution.
  27. Mr. Renaudin referred back to the comments from the member of South Africa. It is not impossible but a retrofit must be the responsibility of the system supplier/installer.
  28. Mr. Dekker said that we still are talking about system approvals. It is difficult to create rules but this must be discussed fully and good regulations are possible. There must be controls on those suppliers who are doing conversions.
  29. Mr. Renaudin agreed but does not want to endanger the progress made on the environment and that there is no danger of competition to the OEMs.
  30. Mr. Seisler reminded the group that the *OEM vs Retrofit* debate is not new and that everyone needs to be reminded of the historical perspective of introducing NGV conversion systems into the market. The same concerns being discussed today were expressed thirty years ago when NGV conversions of gasoline vehicles began becoming possible and popular. At first the OEMs were against any modifications and took no responsibility for a vehicle modified to run on (bi-fuel) natural gas. Over time the OEMs began seeing some benefits of new alternative fuels and became concerned about being able to provide AFVs/NGVs to customers. As such, they began creating relationships with the higher quality converters who became 'Qualified Vehicle Modifiers' and regulations began to change to provide rules about conversions that would maintain quality of the OEM *and* the conversion system. At this point our work should not be slowed or inhibited by the OEM vs Retrofit argument. We need to move forward in a cooperative spirit, create regulations that will lead to safe, reliable, and emission-benefited retrofits that also will not compromise OEM vehicles. In time the retrofit systems will begin to fade in the market in favor of purely OEM NGVs that also will rely on the higher quality system suppliers to provide reliable equipment. But this will take time and in the meantime good, well written regulations are needed to ensure that the best HDDF systems come into the market.
  31. OICA had provided three sets of requirements (for GFV-29): certification of a conversion system; certification of a converted vehicle; and installation of a certified engine on a converted vehicle. The GFV concluded that the higher priority and 'low

hanging fruit' would be the approval of a dual fuel retrofit system. It will be important to recognize the quality of a 'system', which then can be installed on a certified vehicle.

32. Mr. Castagnini (Landi Renzo-AEB) updated the group on the adaptation of the new text for dual-fuel retrofit systems. As regards the concerns about a sort of COP of the "converted vehicle", he reminded that the proposal includes a requirement for the retrofit system manufacturer to provide a detailed instruction manual specific to each vehicle and model so that the installation can fulfill the requirements of the various vehicle regulations such as R.67, R.110, etc..
33. Mr. Rijnders confirmed that the GFV will take overall responsibility for the regulatory activities dealing with HDDF but that the primary work can be accomplished by the HDDF TF, which will be given some initial, accepted principles so full drafting of the new regulation can begin. At the GFV-31 (upcoming on January 29<sup>th</sup> in Brussels) we can develop milestones and the operating procedures for the HDDF TF to continue its work.
34. Mr. Rijnders showed the latest version of the Open Issues List (OIL). (See new document (GFV 30-04, based on GFV 29-09). Issues dealt with include: 1) We take on Euro IV and V but Euro VI will be pending; dual-fuel Type B will be addressed with no distinction between system types 1,2, and 3;
35. Mr. Renaudin felt that maybe Type 3 engines should not be included in the regulation. Mr. Dekker felt that with engine type approval having Type 3 as fine for diesel operation fulfilling diesel requirements in the engine family requirements. At this moment customers want to convert from diesel for economic reasons and not so much for environmental reasons, therefore, governments may not want to support such conversions.
36. Mr. Rijnders suggested the solution is to remove Type 3 dual-fuel from the regulation. The group has no objections to this. The OIL will be changed to reflect the new decision.
37. Other issues from the OIL chart: 1) Compliance with emissions limits and retrofit system approval have been agreed. 2) Approval of a retrofit engine and retrofit vehicle is pending for further discussion. 3) In-Service Conformity is an open issue. Conformity of Production (COP) will be a new item added to the chart. Reliability and responsibility of converted vehicle: will be added to the chart for further discussion. OBD: an issue for further discussion.
38. Mr. Rijnders asked the group to consider the Open Issues List carefully and inform him of any additions, changes or preferences in the OIL. Mr. Renaudin suggested that NOx control should be added as an issue for discussion (Euro V). He added that this will be a 'living document' that will gain importance in upcoming meetings to deal with these difficult issues that need further discussion.
39. With no further comments from the group, Mr. Rijnders closed the discussion on dual fuel.

**VI. Update on other UN regulatory activities related to safety (Jeff Seisler)**

- Brief report on LNG-TF: New amendments being considered for May 2014 GRSG.
  - Update on UN WP15 (Carriage of Dangerous Goods) and ADR regulatory issues regarding CNG and LNG safety on ADR-regulated trucks. (Updated from document GFV 29-08, with progress from December 2013 teleconference)
40. Mr. Seisler updated the group on the ADR provisions that have been created with leadership of the Dutch delegation. (Please refer to Document GFV 30-03.)

**VII. Other Items**

41. No new issues were raised for consideration.

**VIII. Planning upcoming Meetings of GFV & Task Forces**

42. January 29<sup>th</sup> will be the kick-off meeting that transfers the work on HDDF from GFV to the HDDF TF.

**IX. Closing**

43. Mr. Rijnders thanked the group for its interest and participation.

**PARTICIPANTS**

André Rijnders, Chairman (RDW-NL)  
Jeff Seisler, Co-Secretariat (NGV Global/Clean Fuels Consulting)  
Salvatore Piccolo, Co-Secretariat (AEGPL)  
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