

Informal Working Group on Gaseous Fuelled Vehicles (GFV)

André Rijnders-GFV Chairman

Background and Accomplishments
January 2008 to June 2016

GFV Background

- First Organizational Meeting September 2007 (Brussels)
- Mandate creating informal Working Group on Gaseous Fuelled Vehicles (GFV) 55th GRPE January 2008, Geneva
- Two times extended in 2011 and 2014
- Expire June 2016

Scope of Work

- Fuels to be dealt with include the gaseous fuels in internal combustion engines
 - Natural gas & LPG
- Other possible fuels
 - H₂+CH₄ combinations
 - Biomethane
 - Natural gas/diesel dual fuel systems also could be part of the mandate of this group.

Regulations Involved

- Regulation No. 49 - Emissions of C.I., NG, and P.I. (LPG) engines
- Regulation No. 83- Emissions of M₁ and N₁ categories of vehicles
- Regulation No. 101- Measurement of fuel consumption/CO₂ emissions of M₁ and N₁ categories of vehicles
- Regulation No. 115- Specific LPG and CNG retrofit systems (emissions provisions),
- Other topics dealing with gaseous fuelled vehicles that are addressed by the GRPE.

GFV Leadership

- Chairman, André Rijnders (RDW-Netherlands)
- Secretariat(s): NGV Global (Jeffrey Seisler) & AEGPL (Arnaud Duvielguerbigny [to June 2011], replaced by Salvatore Piccolo)
- Other Task Force chairpeople as new work items created

Special Task Forces

- **Task Force on On-Board Diagnostics** (2009) Chairman: Henk Dekker (TNO) and Jean-Francois Renaudin (OICA)
- **LNG Task Force** (for R.110) (June 2011 – April 2013)
Chairman: Paul Dijkhof (KIWA). Secretariat: NGV Global
 - Worked under the umbrella of GFV due to its expertise to deal specifically with LNG. Input provided to GRSG
- **Heavy Duty Dual-Fuel Task Force** (June 2010-June 2013)
Chairman: Henk Dekker (TNO)
- **Heavy Duty Dual-Fuel Task Force Retrofit** (June 2013 – June 2016) Chairman: Henk Dekker (TNO)

Accomplishments

Regulation 49 (Emissions Heavy Duty Engines)

- Specifying the technical provisions for OBD in-use performance monitoring: Annex 9B of Regulation 49 revision 4 and create an Annex 9C (2008-2009)
- Extend Euro VI pollutant emission requirements to dual-fuel heavy duty engines and vehicles; amending the 06 series of UN Regulation No. 49 (June 2012)
- Extend the Euro V pollutant emission requirements to dual-fuel heavy duty engines and vehicles; amending the 05 series of UN Regulation No. 49 (June 2013)

Accomplishments

Regulation 83 (Emissions Light Duty Engines)

- OBD systems for mono-fuel vehicles also to apply to bi-fuel vehicles (2008)
- Amendment regarding the simultaneous use of gas and petrol under certain conditions on some bi-fuel vehicles equipped with petrol direct injection systems (2012)

Accomplishments

Regulation 85 (Measurement of net power)

- Extend its scope to dual-fuel heavy duty engines and vehicles, enabling their type approval.

Accomplishments

R.115 Emissions of Gaseous Fuels

LPG & natural gas

- Limit in using petrol in test cycle when measuring gas emissions and switch-over time limit from petrol-to-gaseous fuel (90/60 sec) (2009)
- Alignment of Regulation No. 115 with respect to the new provisions on the Euro 5/6 emission levels (2009)
- Clarifying the provisions of Regulation No. 115 with regard to the definitions of retrofit systems as well as at correcting some errors (2009)

Accomplishments

R.115 Emissions of Gaseous Fuels (LPG & natural gas)

- Align R115 with Euro 5 provisions in R.83 (2010)
- Redefining the class of bi-fuel vehicles regarding the simultaneous use of gas and petrol in gas mode under certain conditions. This is similar to the amendment in UN Regulation No. 83 (2012)
- Introduced the use of G₂₀ and G₂₅ reference fuels. Similar proposals concerned UN Regulation No. 83. (2012)
- Aligning R115 with R.85 provisions to reduce various errors (2013)

Accomplishments

Miscellaneous

- Input to the European Commission on the development of a non-methane hydrocarbon (NMHC) limit value in European Regulation 715/2007 (2008)
- Input to Vehicle Propulsion System Definitions (VPSD) informal working group (2015)

Accomplishments

The final effort of the GFV

- Development of a new regulation: Heavy Duty Dual-Fuel Engine Retrofit Systems (HDDF-ERS) 2013-2016
