

# Informal Working Group on Gaseous Fuelled Vehicles (GFV)

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) 55<sup>th</sup> 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
  - H<sub>2</sub>+CH<sub>4</sub> 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 M<sub>1</sub> and N<sub>1</sub> categories of vehicles
- Regulation No. 101- Measurement of fuel consumption/CO<sub>2</sub> emissions of M<sub>1</sub> and N<sub>1</sub> 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 G<sub>20</sub> and G<sub>25</sub> 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

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