

**NGV INDUSTRY TERMINOLOGY ISSUES****NGV Global****September 2011**

It is a known fact that the simultaneous growth of NGV industry in different areas of the world has brought with it the coexistence of different technical standards in different areas. This issue has been addressed and work has been done in order to harmonize the technical requirements of equipment and components.

Nevertheless, together with the difference in standards, it has been found that the terminology applicable to the NGV industry has also developed in different ways. It has been recognized that often the same term means completely different things depending in where it is applied. Just as it happens with technical requirements, this situation may lead to confusions with economic and technical implications to manufacturers, users and policy makers.

This work addresses the most common terminology in the NGV Industry where discrepancies have been found, and the suggestion to where the harmonization efforts should be directed.

**1. Vehicles with respect to Fuel System**

**1.1. Vehicle which runs on one fuel at a time but has two independent fuel systems. For example, the vehicle runs either on gasoline or on natural gas and may change alternatively from one to another.**

**Recommended Term: Bi-Fuel**

SOURCE	TERM	DEFINITION
<b>ISO 15501-1</b>	Bi-fuel	Vehicle that has two independent fuel systems (one of them for natural gas) and can run alternatively on either fuel, but only on one at a time
<b>USA:</b> 49 USC CHAPTER 329 CFR Title 40 part 88	Dual Fuel	any motor vehicle (or motor vehicle engine) engineered and designed to be operated on two different fuels, but not on a mixture of the fuels
<b>USA:</b> NAT GAS ACT of 2011	Bi-Fuel	a vehicle that is capable of operating on compressed or liquefied natural gas and gasoline or diesel fuel
<b>ECE</b>	Bi-Fuel	There is no direct definition, but bi-fuel references are made in Regulations that lead to the interpretation that this is the correct application.

<b>EU</b> 2002/80/EC	Bi-Fuel	vehicle that can run part-time on petrol and also part-time on either LPG or NG
<b>CHINA</b> SAC	Bi-Fuel	has two independent sets of fuel supply systems, one supplying natural gas or LPG and another supplying fuel rather than natural gas or LPG, is called a Bi-Fuel Vehicle. Two fuel supply systems supply fuel to the engine separately but not simultaneously, such as a petrol/compressed natural gas vehicle, or a petrol/LPG vehicle etc.

## 1.2. Vehicle which runs only on gaseous fuel

### Recommended Term: Mono-Fuel

SOURCE	TERM	DEFINITION
<b>ISO 15501-1</b>	Mono-fuel/ Dedicated	Vehicle which operates on natural gas only . Note 1: Also known as "Dedicated Natural Gas Vehicle" Note 2: In Europe and in India the term Mono-Fuel also applies to a light duty NGV with max 15 litre gasoline tank.
<b>USA:</b> 49 U.S.C.3290 CFR Title 40 part 88	Dedicated automobile	an automobile that operates only on alternative fuel
<b>USA:</b> NAT GAS ACT of 2011	Dedicated	vehicle that is only capable of operating on an alternative fuel
<b>ECE</b> UNECE R-115	Mono-Fuel	it is equipped with a petrol tank of capacity $\leq$ 15 litres, that can only be used to "limp-home"..
<b>EU</b> 2002/80/EC	Mono-Fuel	vehicle that is designed primarily for permanent running on LPG or NG but may also have a petrol system for emergency purposes or starting only, where the petrol tank does not contain more than 15 litres of petrol
<b>CHINA</b> SAC		

### 1.3. Vehicle that runs on a mixture of gaseous fuel and liquid fuel

#### Recommended term: Dual-Fuel

SOURCE	TERM	DEFINITION
<b>ISO 15501-1</b>	Dual-Fuel	Vehicle that has two independent fuel systems (one of them for natural gas) and can run on both fuels simultaneously. It also may run on one fuel alone.
<b>USA:</b> CFR Title 40 part 88	Flexible Fuel	any motor vehicle (or motor vehicle engine) engineered and designed to be operated on any mixture of two or more different fuels*
<b>USA:</b> NAT GAS ACT of 2011	Dual-Fuel	vehicle that operates on a mixture* of natural gas and gasoline or diesel fuel but is not capable of operating on a mixture of less than 75 percent natural gas
<b>ECE UNECE</b> R-110 R-67	Dual-Fuel	vehicles, using diesel as the primary fuel for igniting the air/gas mixture  reference to pilot operated dual fuel engines
<b>EU</b>	Dual Fuel	Mentions in several EU decisions
<b>CHINA</b> SAC	Dual-Fuel	Any vehicle which has two independent sets of fuel supply systems, one supplying natural gas or LPG and another supplying fuel rather than natural gas or LPG, is called Dual-Fuel Vehicle. Two fuel supply systems supply fuel to the engine simultaneously mixed in a preset ratio, such as a diesel/natural gas vehicle, or a diesel/LPG vehicle etc.

A new term has been proposed by AEGPL: “Bimix-fuel gas vehicle” means a vehicle with a gas storage and a separated petrol storage, of a capacity exceeding 15 litres, that can run on petrol (petrol mode) and also on either LPG or CNG (LPG or CNG mode), and in gas mode it is designed to make a limited use of petrol also simultaneously with gas.

The Bimix fuel gas vehicle is compatible and covered with the definition of dual-fuel as it can run only on gasoline or on a simultaneous injection of gas and gasoline. In a petrol vehicle the injection of gasoline serves primarily as a means of safeguarding the liquid fuel system and injectors.

Another term proposed by AEGPL is bi-Fuel Type B: bi-fuel vehicle that in gas mode is designed to make a limited use of petrol also simultaneously with gas, with a resulting use of gas not lower than 80% in energy unit (or resulting in a minimum use of gas of 80% in energy unit). This last definition is equivalent to the ones used for Dual-Fuel. If this definition is applied, most dual-fuel vehicles (diesel-gas or gasoline-gas) would fall under this category.

#### Recommended Action: Reject Bi-Fuel Type B

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\* It must be understood that strictly speaking dual-fuelled vehicles do not run on mixtures of gas and liquid fuel, but run on two fuels simultaneously. This situation is also valid for the new proposed Bimix category