



Major Energies Marketers  
Association of Nigeria

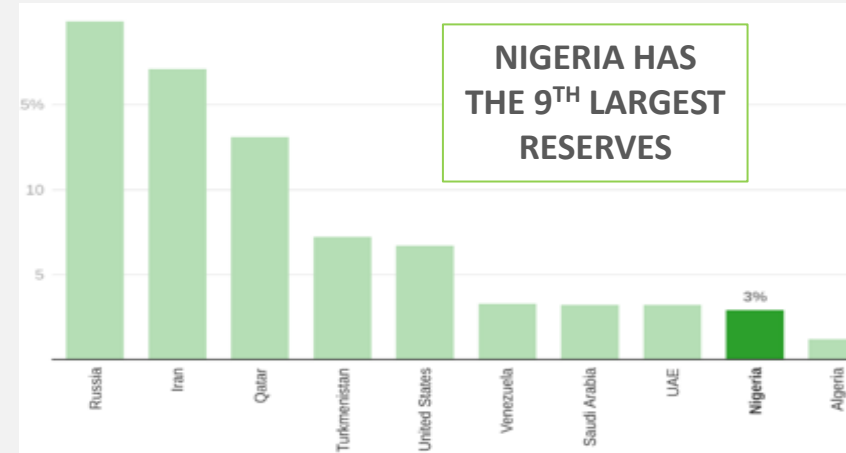
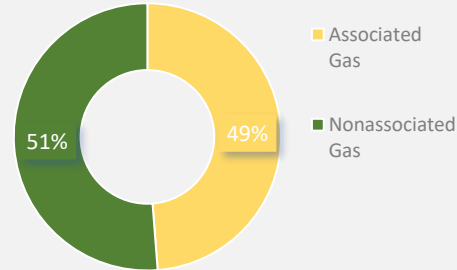
# INTRODUCTION TO NATURAL GAS VEHICLES (CNG)

7<sup>th</sup> March 2024

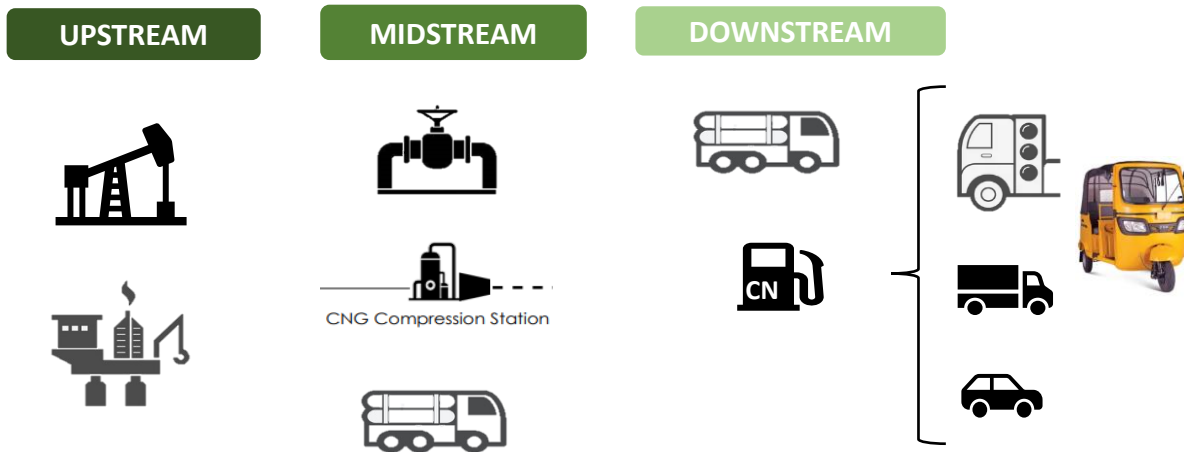


**Natural Gas** is a naturally occurring hydrocarbon gas and non-renewable fossil fuel obtained from conventional wells composed majorly of methane. Natural Gas can be found in **associated wells**, containing both gas and crude-oil, and **non-associate wells**, containing only gas with little to no rude.

**NIGERIA'S RESERVES @ 206.53 TCF**

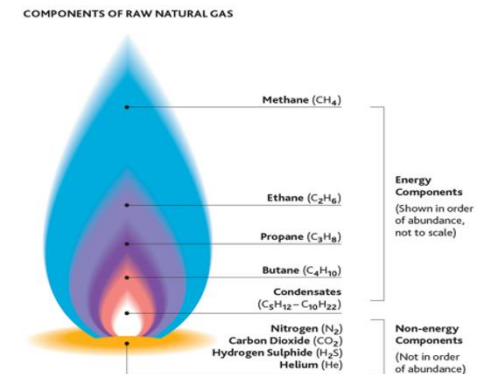


The **Natural Gas Value Chain** is divided into three major business divisions:



**Compressed Natural Gas (CNG)** is piped natural gas (PNG) pressurized at 250bar to 1/100<sup>th</sup> of its original volumes into virtual steel cascaded for ease of distribution to areas without existing pipeline.

PNG or CNG being a cleaner and cheaper fossil fuel, is utilized as fuel for power generation, cosmetics or food processing and transportation.



A **Natural Gas Vehicle (NGV)** is an alternative fuel vehicle that uses CNG. Natural gas powers more than 6,500 vehicles in Nigeria. Worldwide, there were almost 28 million NGVs, the market was led by China (5.4 million), Iran (4 million), India (3 million), Pakistan (3 million), Argentina (2.2 million), Brazil (1.8 million), and Italy (1.1 million).

The advantages of natural gas as a transportation fuel include its domestic availability and reduced greenhouse gas emissions over conventional gasoline and diesel fuels.



There are **three** types of NGVs:

- **Dedicated:** designed to run only on natural gas.
- **Bi-fuel:** Two separate fuelling systems that enable them to run on either natural gas or gasoline.
- **Dual-fuel:** These vehicles have fuel systems that run on natural gas but use diesel fuel for ignition assistance. This configuration is traditionally limited to heavy-duty vehicles.

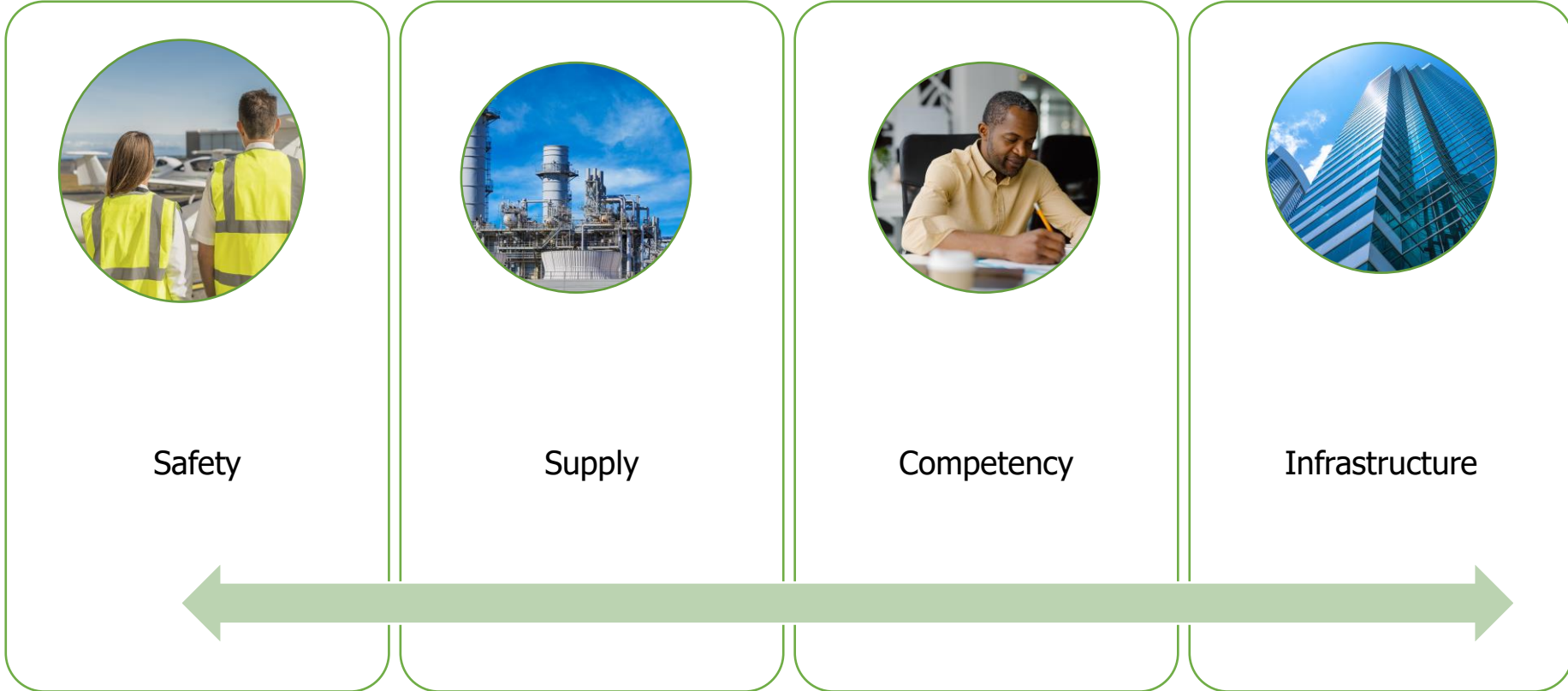
PARAMETER	AGO	PMS	CNG
Fuel Composition	Hydrocarbon dodecane (C <sub>12</sub> H <sub>26</sub> ) and hexadecane (C <sub>16</sub> H <sub>34</sub> )	Hydrocarbon Octane (C <sub>8</sub> H <sub>18</sub> )	Methane (CH <sub>4</sub> )
Carbon Emissions	2.7 kg of CO <sub>2</sub> per ltr.	2.3 kg of CO <sub>2</sub> per ltr.	1.8 kg of CO <sub>2</sub> per ltr.
Combustion	Compression-ignition	Spark-ignition	Spark-Ignition or compression-ignition
Calorific Value	42 – 46 MJ/kg	42 – 45 MJ/kg	50 – 55 MJ/kg
Price Per Unit	NGN 1,200 per litre	NGN 660 per litre	NGN 530 per scm
Running Cost per Kilometer	NGN 48.00	NGN 39.60	NGN 26.32



## NIGERIA'S PLAN (PCNGi)

- Establish a common gas vehicle standard system in Nigeria by 2024.
- 1 million CNG Auto-gas Conversion by 2027 with addition of 250,000 new Bifuel Vehicles
- Support the establishment of 1,000 auto-gas conversion workshops by 2027, aiming to convert 250,000 vehicles annually for 20 years, creating 250,000 jobs.
- Convert ALL FGN fleet to Auto-gas by 2030 and implement EO on New Purchases by 2025
- Facilitate investment of up to \$2 billion in 5 years into CNG Infrastructure & Supply
- Support training and certifying 25,000 autogas conversion technicians by 2027 for complex conversions and retrofits.

GEOGRAPHICAL ZONE	STATES	COMPRESSION STATIONS	COMPANY NAME
North West	-	-	
North Central	FCT	2	NIPCO
	Kogi	1	NIPCO
North East	-	-	
South West	Lagos	2	GNSL, MBH
	Ogun	3	NIPCO, GASCO, GREEN FUELS, CONTECT ENERGY
	Ondo	1	NIPCO
	Oyo	1	NIPCO
South East	-	-	
South South	Edo	7	NIPCO (6), POWER GAS
	Delta	2	NIPCO, POWER GAS
	Bayelsa	1	POWER GAS
	Rivers	1	POWER GAS
	Akwa Ibom	1	NIPCO
<b>TOTAL</b>		<b>22</b>	





THANK YOU

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