

Nigeria Dual Fuel

Zip-Tech Energy (ZTEN) believes that motorists can absorb shocks of rising fuel prices by increased use of compressed natural gas (CNG) in vehicles, ZTEN, the subsidiary of Zip-Tech Energy Limited London, is absolutely persuaded of this trajectory.

Nigeria has unbelievable amount of under develop and exploited domestic natural gas market for both domestic use and as propellant in combustion engines. The sector requires oxygen of growth in the form of structured investment from the bottom up. This include and not limited to: -

- soft loans for conversion kits, costing anything from **N300,000.00**. Such loans are available in most countries as " **Environment Green Support Loans**" and we are already talking to Bank to provide such
- training loans to become certified Gas Conversion Engineer
- retail/refuelling outlets
- Estate and Campus gas pipelines construction
- Distribution networks

We are collaborating with local partners to develop gas transportation pipeline along existing **Lagos – Ibadan – Ife – Ilesha – Akure Motorways**, to further expand gas utilisation, production, and distribution infrastructure. It guarantees to be major contributor to medium and long term, economically and environmentally viable solution.

On finance side, Nigeria Pass a New Bill to empower banks to approve and disburse the loan to qualified applicants; control, monitor and coordinate the students' loan account/fund and ensure compliance in respect of disbursement; monitor academic records of grantees of the loan to obtain information on their year of graduation, national service, employment to ensure that grantees of the loan commence repayment of the loan as at when due, among other functions. We are now exploring ways how this could contribute to retraining and training people wanting to get into gas conversion.

Benefits of Compressed Natural Gas (CNG)

- Environmentally Friendlier
- Reduced maintenance cost
- Significantly less Pollutants than petrol or diesel
- Cheaper fuel
- Safer than Petrol/diesel
- Greener fuel
- Lead and sulphur free

Green Fuel

CNG reduces harmful emissions indirectly reducing global warming. Being non-corrosive constituent, when use in automobile vehicle it enhances the longevity of spark plugs. Because of lead and benzene absences in CNG, the lead fouling of spark plugs, and lead or benzene pollution are eliminated.

Safety

CNG is less likely to auto-ignite on hot surfaces, because it has a high auto-ignition temperature (540 degrees centigrade) and a narrow range (5%-15%) of in flammability. If CNG concentration in the air is below 5% or above 15%, it will not burn. Thus, the high ignition temperature, and limited

flammability range makes accidental ignition or combustion very unlikely.

Low Operational Cost

Operational cost of vehicles running on CNG, compared to those running on other fuels, is significantly low. At the prevailing price of fuel in Lagos, Operational cost of CNG vehicles is 65% lower than petrol and 68% lower than diesel.

Prolong Engine Oil

Increased life of engine lubricating oils, as CNG does not contaminate and dilute the crankcase oil.

Mixes with Air

Being a gaseous fuel, CNG mixes in the air easily.

CNG Economical

- a) Easier on the pocket.
- b) Delivers high performance at low cost, giving the vehicle a better mileage.
- c) Does not contaminate or dilute crankcase oil, giving engine an extended life.

Eco Friendly

- a) It use significantly reduces harmful vehicular exhaust gas emissions like: -
 1. Carbon Dioxide
 2. Carbon Monoxide and
 3. Other suspended particles.
- b) Contribute greener environmental complementor, by reducing the effects of global warming.
- c) It is Non –toxic, non-corrosive, non-carcinogenic, and improves public health.

Safe & Reliable

- a) Lighter than air therefore disperses quickly without any dangerous accumulation.
- b) A narrow flammability range making it much safer than other fuels, and
- c) Higher ignition temperature than other fuels, reducing chances of accidental and spontaneous ignition.

Dual Fuel Conversion

All kinds of vehicles engines can run dual fuel system by installing conversion. This is an assembly of many components required to run existing vehicle on dual fuel. There are few basic components which are common in all type of kits, irrespective of the vehicles, such as storage cylinder tank, high pressure tube, pressure regulator, pressure gauge, change over switch, high pressure tube fittings, refuelling receptacle and air fuel mixer.

Major components of CNG kit for petrol vehicle are illustrated below: -

- Pressure Regulator
- Petrol Solenoid Valve with manual override switch. (Switch over button stops petrol flow when operating on CNG)
- On-Off valve and refuelling connector. (Opens or stops gas flow to the regulator and includes a refuelling device)

- Control Module/Change-over Switch (Electronic control component with fuel selection switch)
- CNG level Indicator (LED Indicator)
- Gas Air Mixer
- CNG cylinder with valve, vapour bag & bracket
- Petrol hose
- Low-pressure gas hose
- Ignition advance processor
- High pressure gas tube
- Wire harness
- NRV in petrol return line
- Pressure gauge