Technology for Healthier Air

UTOCRON

By Gasoline Fuel Systems India

GASOLINE
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Dual-Fuel Technology for Gensets

GASOLINE
FUEL SYSTEMS INDIA

Gasoline Fuel Systems India

Started Operations in 2005

Rs. 50 Crore Annual Group Turnover

Service network in all major cities of India

Factory & Head office at Pune, branches in & Chennai

100+ Employees

ISO9001, ARAI / ICAT Certified

Manufacturing Facility at Pune

Gasoline Fuel Systems India

What is PNG?

- PNG is a pipe natural gas transported through pipelines used for houses, industries, genset etc. Typical Pressure is less than 4 bar.
- Like diesel fuel, PNG is now a main line fuel in India for genset application
- >80 % Methane (CH4)
- It is available as local but also imported to fulfill Industry demand

Why PNG?

- Uninterrupted supply
- No daily liasioning
- Safer
- Environment Friendly
- Pocket Friendly
- No spillage and pilferage
- Widely Available in India

Basics of **Dual-Fuel** Gensets

Dual-fuel genset, allows any diesel powered engine to be fueled with in-cylinder blending of natural gas and diesel fuel.

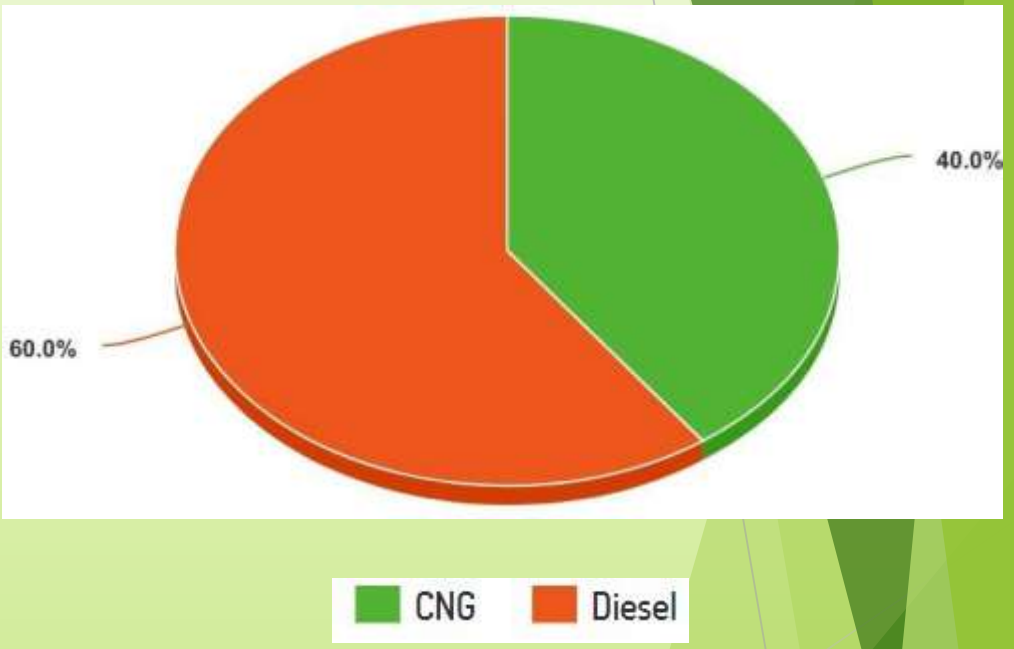
Natural gas is injected in the air stream through the injectors. Diesel is directly injected into the cylinders.

Amount of natural gas injected in the air stream is controlled through the electronic control unit.

Dual-fuel system is suitable with the mechanical diesel injection system as well as electronic diesel injection system.

Conversion can be done up to 2000 kva gensets

Natural gas/diesel substitution percentage

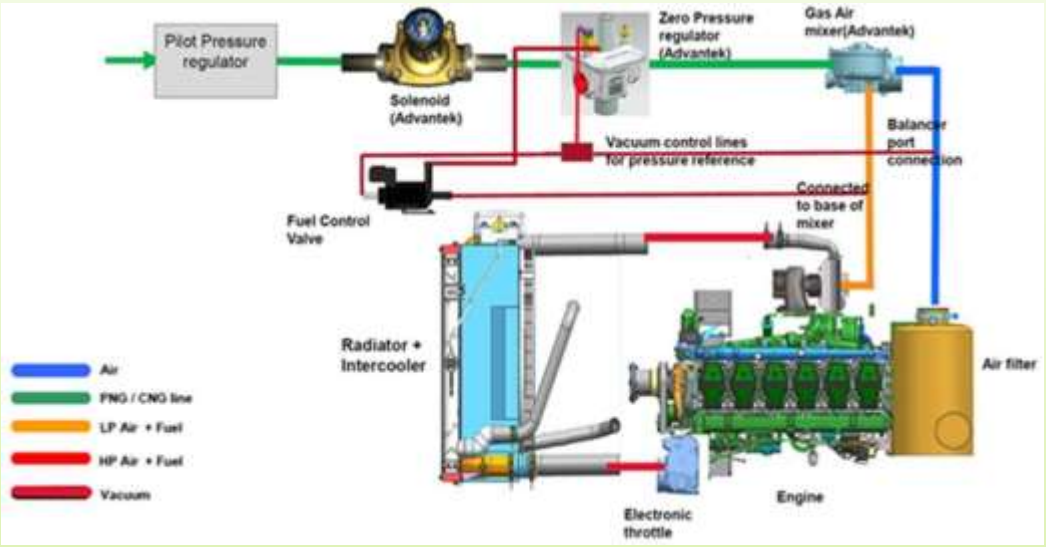


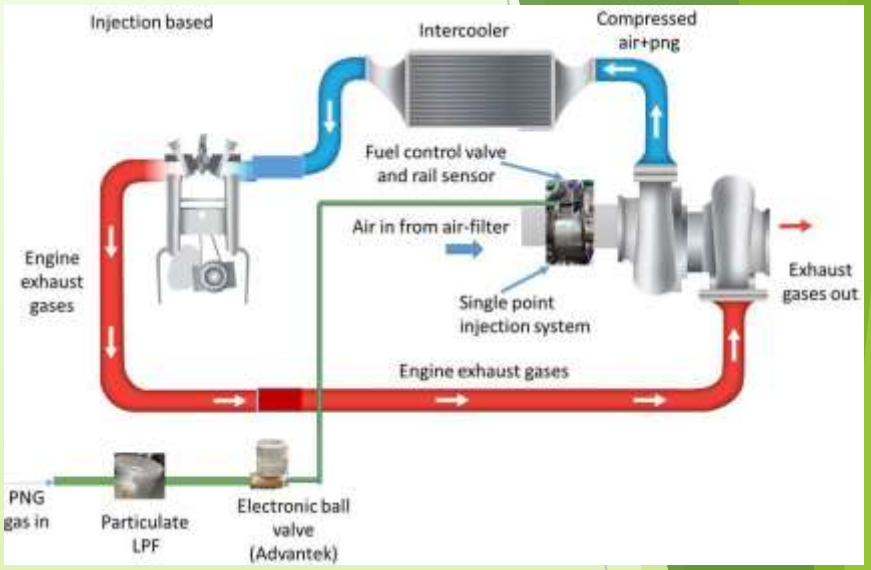
Average natural gas and diesel substitution percentage may vary in the range between 50-70%, depending on the genset and loading condition.

Benefits of Dual-Fuel Technology

- Genset conversion cost is low
- Genset can be run with diesel mode only or in dual-fuel mode using selector switch.
- Automatic set to 100% diesel in case of trouble detection
- No power loss
- No torque loss
- Carbon footprint/emission reduced
- Running cost of the genset is comparatively less

Mixture Based Vs Injection Based Technology





Regulators: Two regulators

Fuel control: Air entering the mixture estimates the fuel fraction that the jet has to push.

Efficiency and Power: Smooth operation with a adequate power output

Performance: Gas-air mixture is unable to measure the correct air-fuel ratio

Fuel Efficiency: Mixture based system is unable to adjust the fuel ratio according to the engine conditions.

Regulators: No regulators

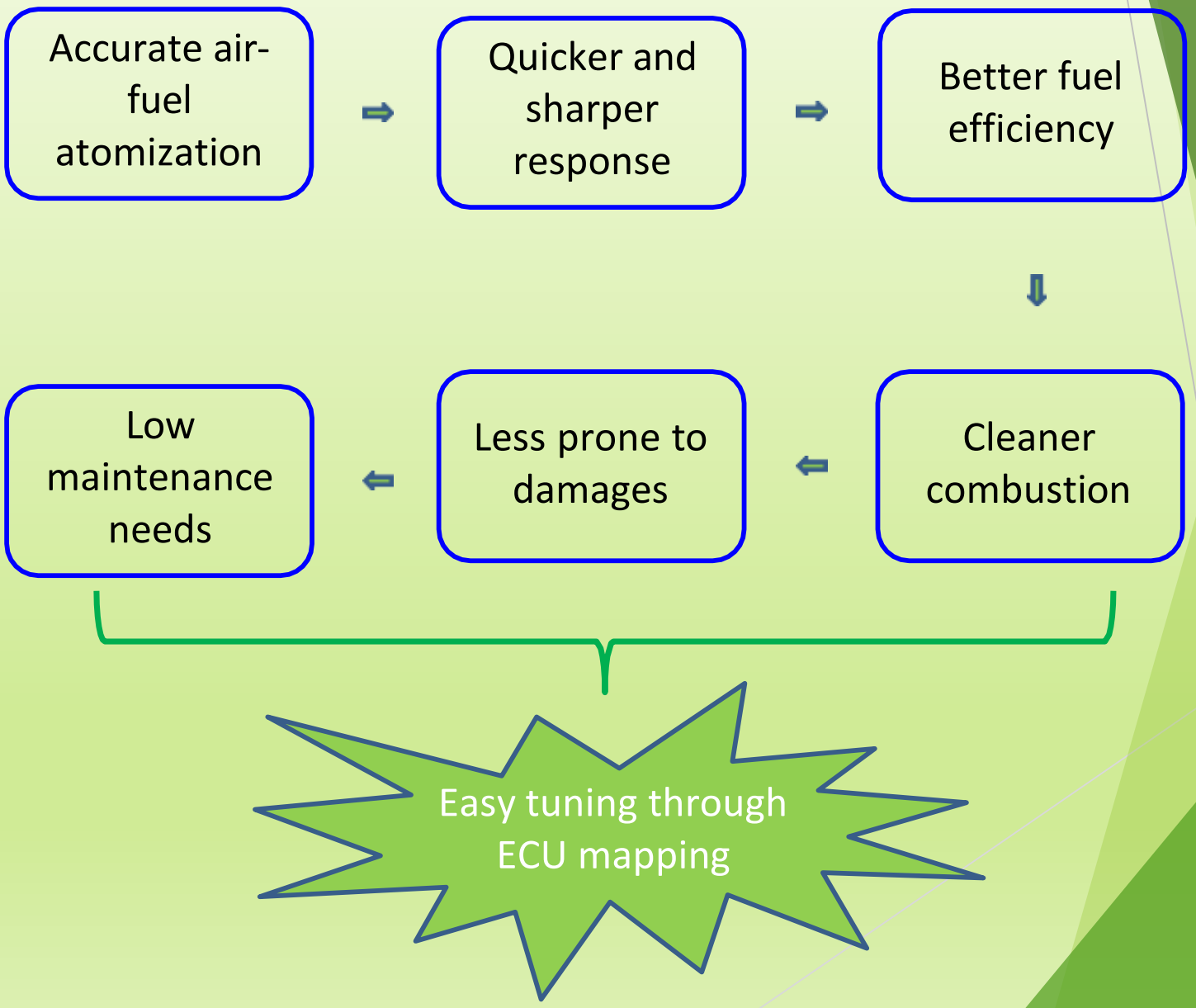
Fuel control : Injector valve opens and closes several times per second to control the fuel.

Efficiency and Power: Offers greater efficiency with a higher power output

Performance: Injection based system with an electronically controlled fuel induction can constantly tweak the fuel delivery to the cylinders delivering better performance.

Fuel Efficiency: Fuel injection system precisely delivers fuel in the right with better fuel efficiency.

Benefits of Injection Based System Over Gas-Air Mixture



Drawbacks of Mixture based system

Slow response

10-15% higher gas consumption

Low fuel-efficiency

Needs regular tuning

More prone to wear and tear

Delicate diaphragm components might be damaged easily

Higher amount of gas may damage the engine components

→ Cost of the engine is around 20-40L, depending on the genset rating

Components for Dual Fuel Genset

Single point injection system

Electronic control unit

Trigger wheel and crank position sensor

TMAP sensor

Exhaust temperature & Oxygen sensor

Electronic ball valve (Solenoid valve)

Components for Dual Fuel Genset

Inline filter

Rail pressure & temperature sensor and CNG injectors

Dual-fuel mode selector switch

Wiring harness

Economy Analysis of Dual-Fuel Genset

Diesel Genset (500 kva)	
Diesel Price (Rs./Lt.)	87.62
Working Hours/Day	1
Working Hours/Year	365
Diesel Consumption at 100% load (Lt/hr)	100
Diesel Consumption in a year (Lt.)	36500
Diesel Generator Running Cost (Rs.)	3198130

Dual-Fuel Genset (500 kva)	
Diesel Price (Rs./Lt.)	87.62
PNG Price (Rs./SCM)	65
Working Hours/Day	1
Working Hours/Year	365
Diesel Consumption at 100% load (Lt/hr)	50
PNG Consumption at 100% load (SCM/hr)	50
Diesel consumption in a year (Lt.)	18250
Gas consumption in a year (SCM.)	18250
Dual-Fuel Genset Running Cost (Rs.)	2785315
Running Cost Saving in a year (Rs.)	412815

Consider genset is working only 1 hour in a day. If usage is higher ROI will be faster

Thank You !

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Contact us

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