

UP  CHARGE
ENERGY SOLUTIONS

Innovations for a
CLEANER TOMORROW



Visit Our Website

www.upchargeenergy.com



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One Stop Solution

The background image shows three industrial workers in a factory. They are wearing blue work clothes and white hard hats. One worker in the foreground is looking at a tablet, while two others behind him are looking at a large white industrial machine. The scene is dimly lit with a blue and purple color cast.

ABOUT UES

INTRODUCTION

Upcharge Energy Solutions LLP is a Climate and Energy Solutions company. Its a part of **EQMS** group companies, therefore a sister company of "EQMS **GLOBAL**", EQMS group's flagship company



#startupindia



OUR PARENT **COMPANY**

- EQMS Group are pioneers in the environment sector.
- With a legacy of over 25 years, EQMS has been a leading Environment, Health, and Safety consultancy accredited by MOEF & NABET
- EQMS has been facilitating organizations to achieve the highest standards of Safety & Environment and is driven by those same ethos themselves.
- EQMS GLOBAL is working internationally with reputed clients with a presence in over 10 countries presently and has served clients worldwide.
- Some of our reputable clientele includes names such as Coca-Cola, Hero Honda, NTPC, Vodafone, etc.





PROBLEM

Do you know that ALL pure diesel Gensets are **BANNED** from the 1st Of October 2023

CAQM Directive -73 (dated June 2, 2023): Diesel -only gensets in NCR **must be converted to Dual -Fuel** by September 30, 2023

SOLUTION

Conversion to **DUAL FUEL SYSTEM (DFS)**

AND/OR (depending on the rating)

Installation of **Retrofit Emission Control Device (RECD)**



AIR POLLUTION POSES **A GREAT THREAT**

PM10, PM2.5 matter responsible for major diseases

4th leading cause of death globally
Causes 3 million deaths per year
88% of these deaths occur in
developing nations

Threat of air
pollution is a
real and grave
issue...

Global
warming
potential
for PM is
~ 460
times
that of CO2

PM 10, PM 2.5
are the
key culprits of
ambient air
pollution

Respiratory diseases incl. Asthma and
Chronic Obstructive Pulmonary Disease
Cardiovascular diseases incl. Stroke and
Ischemic Heart Disease
Cancer PM2.5 from diesel exhaust is a
Class I carcinogen (WHO)
pre-term births - 18% higher likelihood

DIESEL GENERATORS – USED FOR POWER BACKUP

A major contributor to PM2.5 in metropolitan cities

Telecom Towers

Residential Areas

Construction sites

Malls & Multiplexes

Hospitals

Industries

And many more...



~16% of PM2.5 in the NCR
comes from Diesel Generators

~25% of PM2.5 in the Bangalore
comes from Diesel Generators

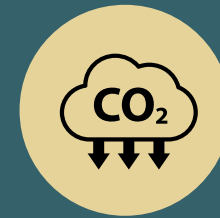
~9% of PM2.5 in the Chennai
comes from Diesel Generators



PRODUCT

DFS : Dual Fuel System Solution

DFS : Dual Fuel System Solution



Reduced Emission



Become Statutorily Compliant



24-36 months Year Warranty



Saving in Running cost



Minimum Downtime for installation

Components

- Air-Gas Mixer
- Gas Train/Kit
- Autonomous Fuel Blend System (AFB system)
- Electric Actuator
- Vibration Sensor
- Pressure Transmitter
- Thermocouple
- Other sensors

Safety Features

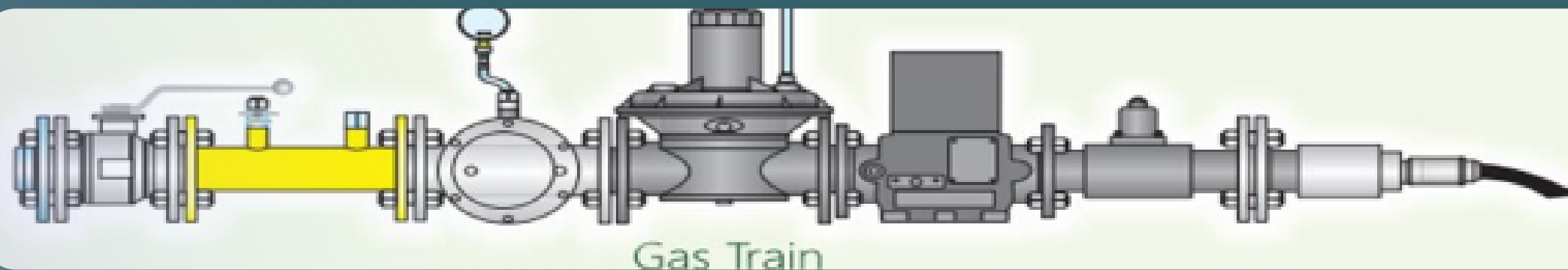
Audio-visual alarms for

- Failure of gas supply
- Low pressure of gas
- High exhaust temperature
- High engine manifold temperature
- High engine vibration



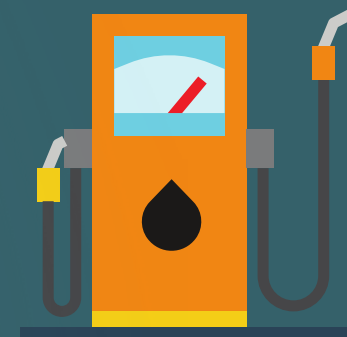
Note:

Apart from alarms, our AFB is capable of seamless switching to safe mode in case of any abnormality/malfunctioning



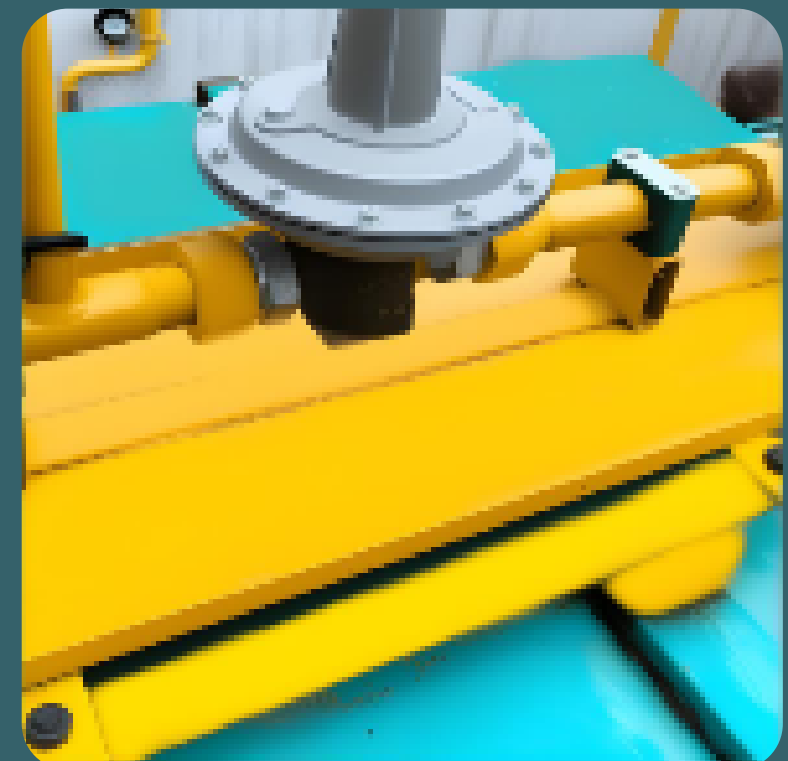
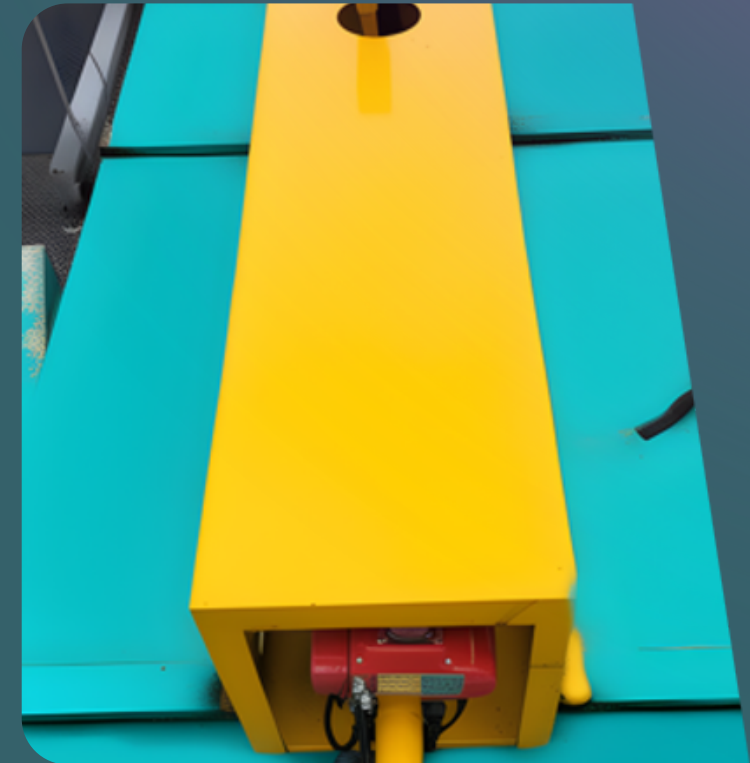
DUAL FUEL

- Dual Fuelling is simultaneous combustion Methane rich gas (most often Natural gas) with Diesel as fuel.
- During Dual Fuel operation, a reduced quantity of diesel fuel acts as the ignition source for the air-gas mixture.
- The Methane rich gas mix replaces a significant proportion of Diesel to produce equivalent heat energy during combustion in the cylinder.



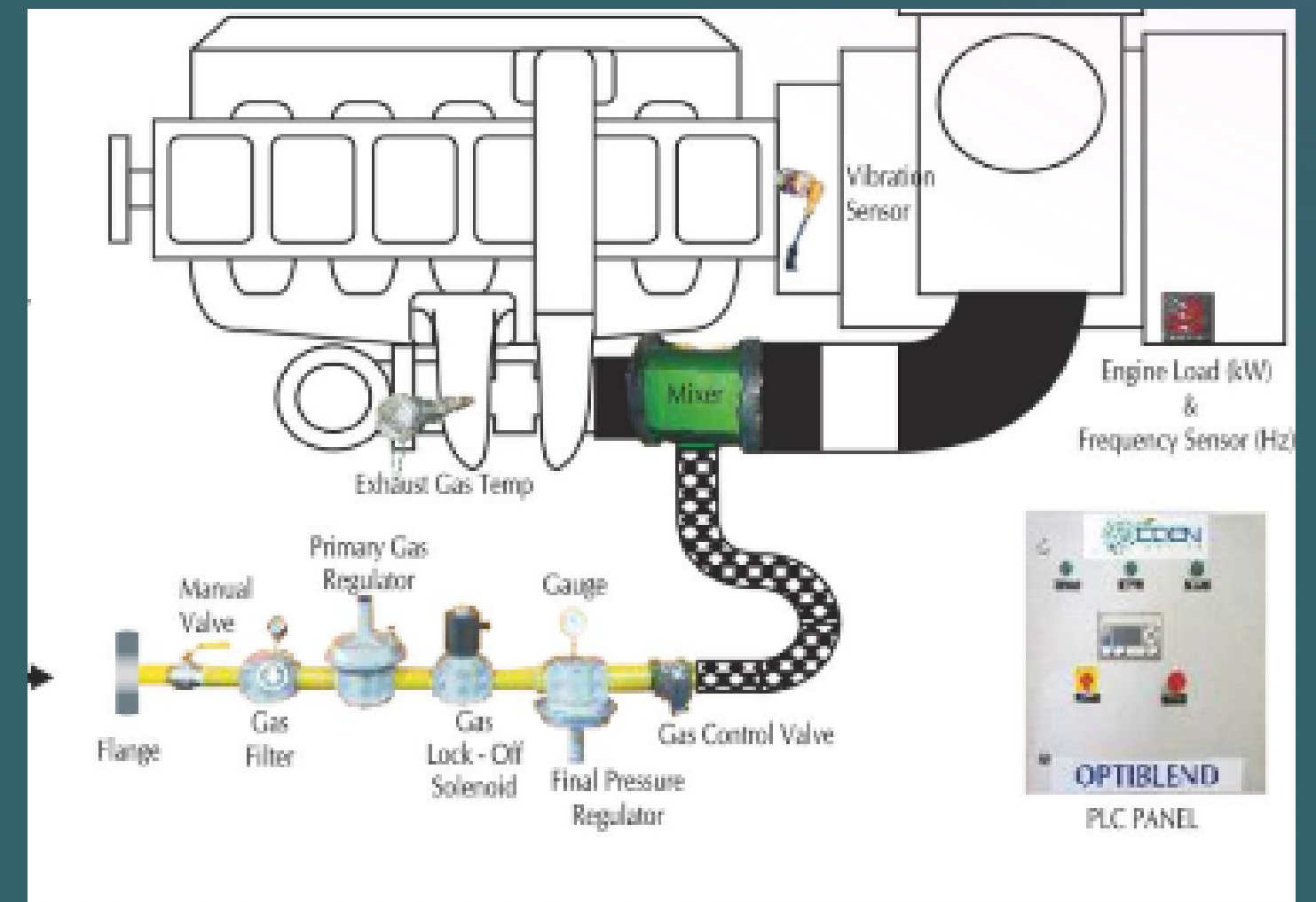
DUAL FUEL WORKING PRINCIPLE

- The Natural gas used for Dual Fueling is sourced from either piped gas or from local storage.
- It is injected into the combustion air stream via a Gas Train consisting of a gas filter, gas pressure regulators and a solenoid valve.
- A flow control valve at the end of the train controls the proportion of the gas injected through a gas mixture unit. This is done by using an electric modulating actuator which opens and closes the valve according to the required amount as it is in constant communication with our Autonomous Fuel Blend System.
- The gas train is designed to accept input gas at low pressure and deliver it to the engine at a slightly negative pressure.
- In dual fuel mode, natural gas is introduced into the engine's intake system.



DUAL FUEL WORKING PRINCIPLE

- In dual fuel mode, natural gas is introduced into the engine's intake system.
- The air-to-natural gas mixture is then drawn into the cylinder, just as it would be in a spark-ignited engine, but with a leaner air-to-fuel ratio.
- Near the end of the compression stroke, diesel fuel is injected and ignites, causing the natural gas to burn.
- A dual fuel engine can operate on 100 percent diesel fuel or the substitution mixture of diesel and natural gas
- It delivers the same power density, torque curve and transient response as the base diesel engine.



Upcharge Energy Solutions

DFS System Differentials

Electronic Modulating Actuator

This electronically opens and closes the gas intake valve according to DFS requirement depending on load and ensures optimum exact delivery of gas leading to negligible or no gas wastage, in contrast to manual adjusting screw(MAS) used by industry & competition alike that keeps the opening valve fixed leading to gas wastage or under consumption of gas as its not dependant on real time equirement.



Protection

Extra robust protection by additional base plate and full covering canopy.



Visual Appeal

Aesthetically pleasing look with stylish canopy with dual purpose of weather protection and animal tampering protection (monkeys etc in remote areas etc)



Dynamic Autonomous fuel blend system

Our in house developed AFB system keeps the whole system in check through constant communication with the system and has the capability to reset, reboot and instruct the system as and when required. It also communicates with actuator for optimum valve opening



Vibration pads

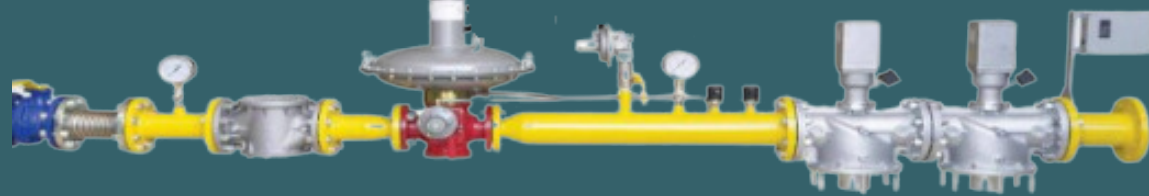
Vibration Prevention by using vibration absorbing pads for smooth vibration free running.

Dual Fuel Kit Component

Gas filter, Pressure regulator, Gas Pressure Gauge, Zero Pressure regulator, Gas shutoff valve and Gas flow adjusting electric actuator

Gas piping from gas train to Gas mixer and Gas mixer unit (depends on number of Turbocharger in engine – same qty as Turbo)

GAS TRAIN



Dual Fuel System delivers fuel gas to the combustion cylinders via the Gas Train into a special Air-Gas Mixer. The mixer is installed on the engine air inlet before the Turbo charger.

Combustion is commenced by Diesel as the ignition source and followed by ignition of the GAS MIXER



SENSORS

Gas pressure sensor and Boost pressure sensor Exhaust gas temperature sensor/s and Intake manifold temperature sensor Vibration sensor/sR



CONTROL PANEL

Dual Fuel System delivers fuel gas to the combustion cylinders via the Gas Train into a special Air-Gas Mixer. The mixer is installed on the engine air inlet before the Turbo charger. Combustion is commenced by Diesel as the ignition source and followed by ignition of the Gas.

BENEFITS OF DUAL FUEL KIT

Improved Energy Efficiency

By utilizing a combination of gaseous and liquid fuels, dual fuel systems can achieve higher energy efficiency levels compared to single-fuel systems. This results in reduced fuel consumption and lower operating costs.

Emissions Reduction

Dual fuel engines produce fewer emissions compared to conventional diesel engines. Natural gas, in particular, emits fewer pollutants such as nitrogen oxides (NOx) and particulate matter, contributing to a cleaner and more environmentally friendly operation.

Cost Savings

Dual fuel technology can lead to significant cost savings over time. The ability to switch between fuels based on price fluctuations can help organizations optimize fuel expenses. Additionally, reduced maintenance and longer engine life can result from the cleaner combustion associated with dual fuel systems.

Our Clients





Ancillary Services

Hassle free One-stop solution

Service Features



1

SPECIAL PRICING

Discounted special rates for Bulk Orders

2

FINANCIAL ARRANGEMENTS

Financing Services for customers

3

PIPING SUPPORT

Implementation Support for Gas Piping

4

AMC Services

Discounted AMC Services

DFS SYSTEM : Additional services

FINANCING

Financing options through major banks such as HDFC, AXIS, ICICI, etc offering term loans starting from 8.5%.

PIPING SUPPORT

Tie-ups with MAJOR professional piping vendors to provide piping infrastructure support at a discounted price

AMC & SPECIAL PRICING

Special prices for bulk orders to facilitate fellow industry corporates.

UES also provides AMC services at a discounted rate (including spare parts for DG set) for DG sets as well as DFS.

WHY UPCHARGE

- **Modulating Electric Actuator : Our USP that controls the proportion of the gas injected according to need leading to increased efficiency and therefore increased savings.**
- **Protection and visual appeal via sturdy base plate and stylish canopy**
- **Professional workmanship**
- **24-36 months WARRANTY**
- **State-of-the-art Technology developed with technical backing of premiere institutes**
- **Imported high industry-standard components**
- **Safety features as for UES safety is paramount**

COME, LETS SOLVE

THIS ISSUE

TOGETHER &

GO GREEN





THANK YOU!

Have any question?



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