

## Case Study – Mumbai, September 2023

### Greaves GPW250 Diesel Genset

Ray Power & Energy Solutions Ltd is an authorised dealer / distributor of Greaves Diesel Engine Generator sets, based in Nigeria. The company was interested in G-Volution's renowned Dual-fuel technology and wanted to collaborate in order to offer a lower carbon and cost alternative to a standard diesel genset to their client base.

Dual fuel technology allows existing Diesel engines to be run simultaneously on a secondary fuel, such as PNG, CNG, Bio-LNG and Bio-LPG. This allows for a reduction in the use of fossil fuels by utilising greener sources of energy, resulting in reduced operating costs as well as carbon savings. This technology can be applied to existing equipment, such as Gensets, Locomotives and Heavy-Duty Vehicles.

G-Volution's patented control unit, the Optimiser, allows Diesel engines to run in dual fuel mode by controlling the flow of gas that enters the engine during combustion. This allows G-Volution to optimise the ratio of Diesel to gas so that the greatest cost and carbon savings can be made. In doing so, the Optimiser provides a cost-effective solution for reducing emissions and enables businesses to transition towards a zero-carbon economy.

For this case study, a Greaves GPW250 Diesel Genset was converted in Mumbai to run in Dual fuel mode with PNG, see Figure 1. The purpose of this conversion was to act as a demonstrator of the technology for Ray Power, so they can begin to expand their business into the Dual fuel sector.



Figure 1 - Greaves Power GPW250 Diesel Generator.

For this application, G-Volution was able to achieve high substitution rates above 70% at half of the Engine's maximum load capacity, and substitution rates above 60% for the majority of Engine load requirements, see Figure 2.

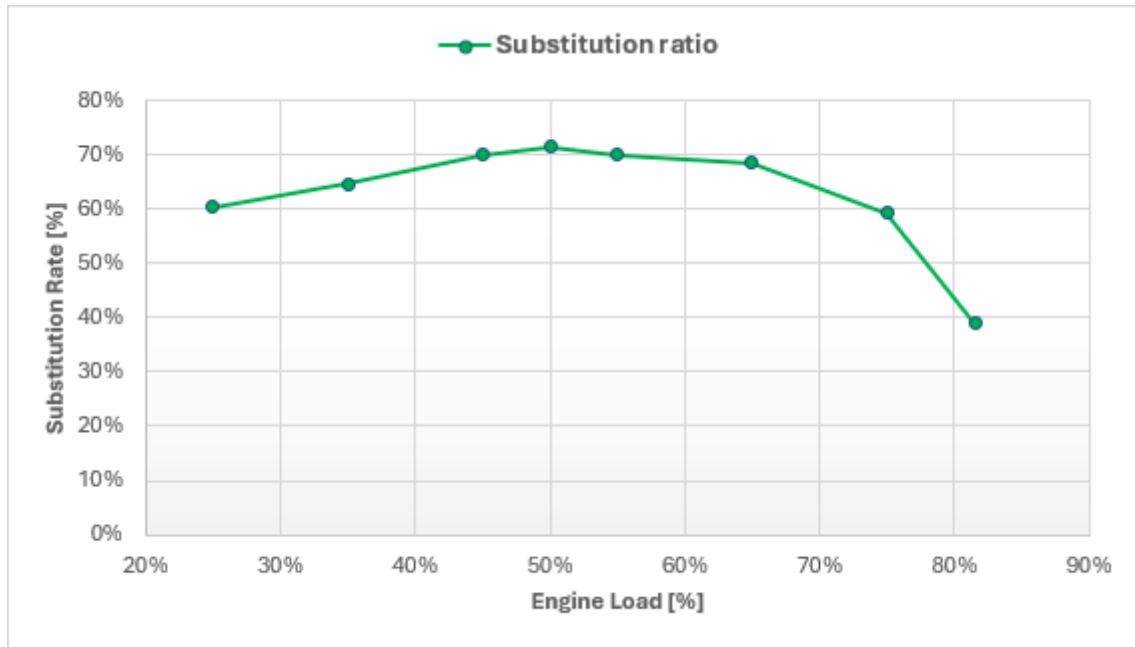


Figure 2 - Substitution ratio achieved for the GPW250 Greaves Genset in Dual Fuel mode, across Engine Loads 20 – 80%.

Our technology is capable of dual fuelling at high engine loads to optimise fuel savings whilst maintaining engine performance. The high levels of substitution achieved across a wide range of engine loads allowed for substantial commercial savings, as well as a considerable reduction in carbon emissions.