

Refuse Fleet Natural Gas Vehicles

Exhaust emissions are harmful to the environment and to health. A range of vehicles are now available which can run on natural gas which emits fewer harmful pollutants. These include lorries, buses, taxis, some cars and refuse vehicles.



Natural Gas Vehicles (NGV's) can be separate petrol and gas (bifuel), diesel and gas (dual fuel) or dedicated gas. As well as a significant reduction in emissions natural gas vehicles also make 50% less noise (5dBA).

To reduce emissions from refuse vehicles operated on behalf of Woking Borough Council, the Council took part in a trial of two Liquefied Natural Gas (LNG) refuse vehicles in 1998/2000. The trial was so successful that the whole of the Council's waste management vehicle fleet will now be LNG vehicles. The project was supported by a grant from the Energy Saving Trust under the Powershift programme.

Why choose Liquefied Natural Gas?

Liquefied Natural Gas (LNG) is natural gas liquified at -165°C which reduces the gas volume by some 600 times.

Compressed Natural Gas (CNG) compresses normal domestic gas which is stored at very high pressure (200 bar).

LNG stations require only 10% of the investment needed for fast fill CNG stations enabling the cost of installation to be recovered more quickly. The speed of refuelling is effectively the same as diesel and is suitable for depot based fleet operators with heavier vehicles. The storage volume required for LNG vehicles is less than half that required for CNG vehicles. LNG stations can also be economically adapted to serve CNG vehicles but CNG stations cannot be economically adapted to serve LNG vehicles. LNG stations should therefore be capable of supplying the full range of NGV's and the future fuel cell technologies for vehicles.

NGV Waste Collection Refuse Fleet

In developing a policy for alternative vehicle fuels, the Council looked at the overall pollutants in exhaust emissions measured in grams of carbon dioxide

CO₂ per kilometre (km) travelled, rather than perceived environmental benefits. See table below for Emissions of Vehicle Fuels on Urban Cycle (g/km).

EMISSIONS OF VEHICLE FUELS ON URBAN CYCLE (G/KM)				
	CO	CO ₂	NOx	Particulates
Natural Gas (CNG/LNG)	0.90	140	0.12	nil
LPG	2.90	175	0.60	0.10
Petrol	3.75	190	0.70	0.10
Diesel	0.84	170	0.50	0.30

LNG Refuse Vehicles

ERF Model EC8.25G.MU3LC 6x4 gas municipal rigid unit with a Cummins 255PS liquified natural gas power engine.

LNG Refuelling Station

MGW 30480 kg
 TARE 1000 kg
 18,630 litres

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