



Debunking Bio-CNG Myths

There are 6 fundamental misconceptions regarding Bio-CNG HGVs

8 July 25

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THE WORLD BIOGAS EXPO 2025
Hosted by
ADBA WORLD BIOGAS ASSOCIATION
9-10 JULY, NEC, BIRMINGHAM, UK

Fuels of the Future

Misconception 1

“If we are producing biomethane, it should be utilised to displace natural gas rather than diesel”

Fact 1:

When methane burns, it produces approximately 23% less CO₂ than diesel, which contains longer-chain hydrocarbons with more carbon atoms per molecule, resulting in higher CO₂ emissions per litre of fuel burned and so this results in a lower GHG outcome than displacing natural gas, so let's use biomethane to displace diesel

A fleet manager buying a Bio-CNG truck is replacing an older model that operated on diesel fuel, not substituting it for a vehicle that already runs on natural gas

CONVERSION SPECIAL NOV 2000

Burning Issues

Good news for the environment from **Lattice Energy Services**

Green light for gas growth

High oil prices fuel dash to gas

THIS ISSUE...

- Fuel switch cements in savings at brick firm
- Cheers for helping us brew on gas
- Hanson Aggregates call in Lattice Energy Services to help convert sites currently running on gas oil

MANAGING director of Lattice Energy Services, John Baldwin said: "The figures speak for themselves. Businesses have always been keen to make substantial financial savings but, increasingly, energy professionals are interested in reducing emissions as well."

Lattice Energy Services is converting 27 large industrial and commercial customers to gas in 2000, with significant financial savings, a number of which are described in this special 'green' newsletter. In addition, these projects will lead to a reduction of 65,000 tonnes per year of carbon dioxide emissions.

John added: "No-one can say for sure what is going to happen to oil prices but commentators do not expect an early fall."

Average fuel prices shown at www.energyhelp.co.uk

Sites consuming 30,000 tonnes per annum

Fuel Type	Price per therm
Gas	30
Heavy Oil	45
Medium Oil	50
LPG	55
Gas Oil	60
Electricity	85

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Misconception 2

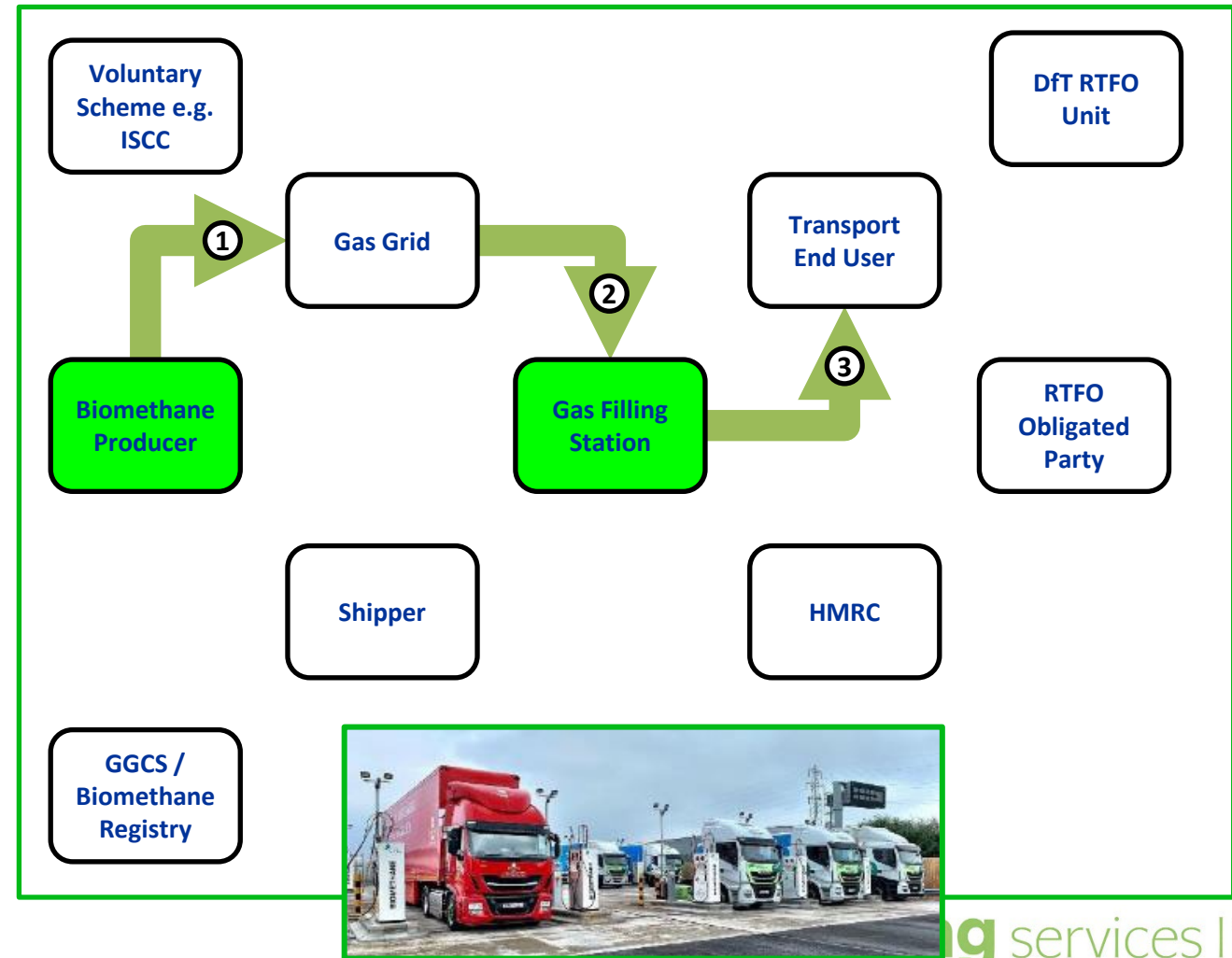
“using agricultural land for biomethane production takes away valuable land that could be utilised for growing food or deploying solar panels for renewable energy”

Fact 2:

In the UK, customers overwhelmingly want Bio-CNG derived from waste, not energy crops, and leading suppliers meet this expectation by sourcing fuel from certified waste-based anaerobic digestion

Although the UK is no longer formally bound by the EU Renewable Energy Directive (RED II), suppliers voluntarily adopt RED II-style mass balance and traceability systems, particularly when engaging in cross-border trade or preparing for UK ETS alignment

This allows every molecule of biomethane used for transport to be matched to sustainable feedstocks, ensuring that the gas used in UK trucks can be traced back to a waste-based AD plant in Europe — rather than being fossil methane imported from Qatar, the US, or Asia



Misconception 3

“Zero-emission vehicles are better for air quality”

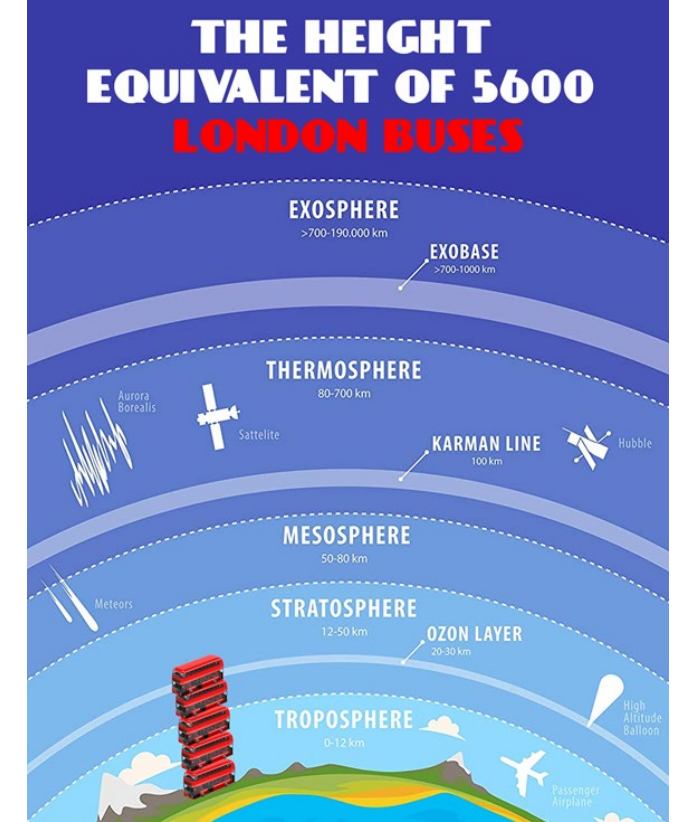
Fact 3:

Bio-CNG trucks give very low NO_x, which is why the California Air Resources Board (CARB) characterises engines running on this fuel as 'near zero' NO_x emissions (whilst near zero is more than zero, heavy EV trucks may have more brake dust and tyre emissions. It's likely that the HGV air quality point is not material in 2025 and beyond)

But it's not just the clean exhaust that is good for air quality in cities; we must look at the “whole system”. There are 7 large sewage treatment facilities around London, all producing biogas with >95% burnt in gas engines to generate electricity and all the CO₂ is vented. This was a good idea in 2009 when this electricity displaced coal generation but is increasingly untenable due to the growth in wind and solar. **Biogas engine NO_x emissions are a major issue in London (far more NO_x from burning biogas than from buses), and CO₂ venting is an easy option whose time has passed**

Rather than burning biogas for electricity and venting the CO₂, a more effective approach is to electrify sewage treatment operations with the biogas upgraded into biomethane for injection into the gas grid and used as Bio-CNG to make the switch economic (there are no other support schemes available if the biogas engines are switched off). Obviously, all the CO₂ from the biogas upgrading plant should be captured and sent to CCUS so CCS the overall effect is a reduction in CO₂ in the air and EV or H₂ trucks cannot achieve such net negative CO₂ **(100 TWh/annum of biomethane in 2050 would allow 10 million tonnes a year of CO₂ removal which will be very valuable for UK plc)**

NO_x equivalent emissions of running CHPs on biogas instead of importing electricity from the grid during the 1,000-hour 0p/kWh electricity price



NOx Calculator		
Description	Value	Unit
CHP Data		
Biogas CHP NOx Emissions Limit Value	250	mg/Nm ³
Biogas CHP Emissions	4,000	Nm ³ /MWe
Biogas CHP NOx Emissions	1	kg/MWe
Total Site MW	7	
Total Site NOx	7	kg/h
CHP Running Hours with Near Zero Electricity Price	1,000	h/annum
Total NOx based on Zero Price Running Hours	7,000	kg/annum
Bus Data		
NOx from Typical Euro 6 Diesel Bus	0.05	g/km
Average Speed	25	km/h
NOx from Typical Euro 6 Diesel Bus	0.00125	kg/h
Bus Running Hours Equivalent to Biogas CHP NOx	5,600,000	hours
Number of Buses each hour of Zero Price	5,600	buses

Misconception 4

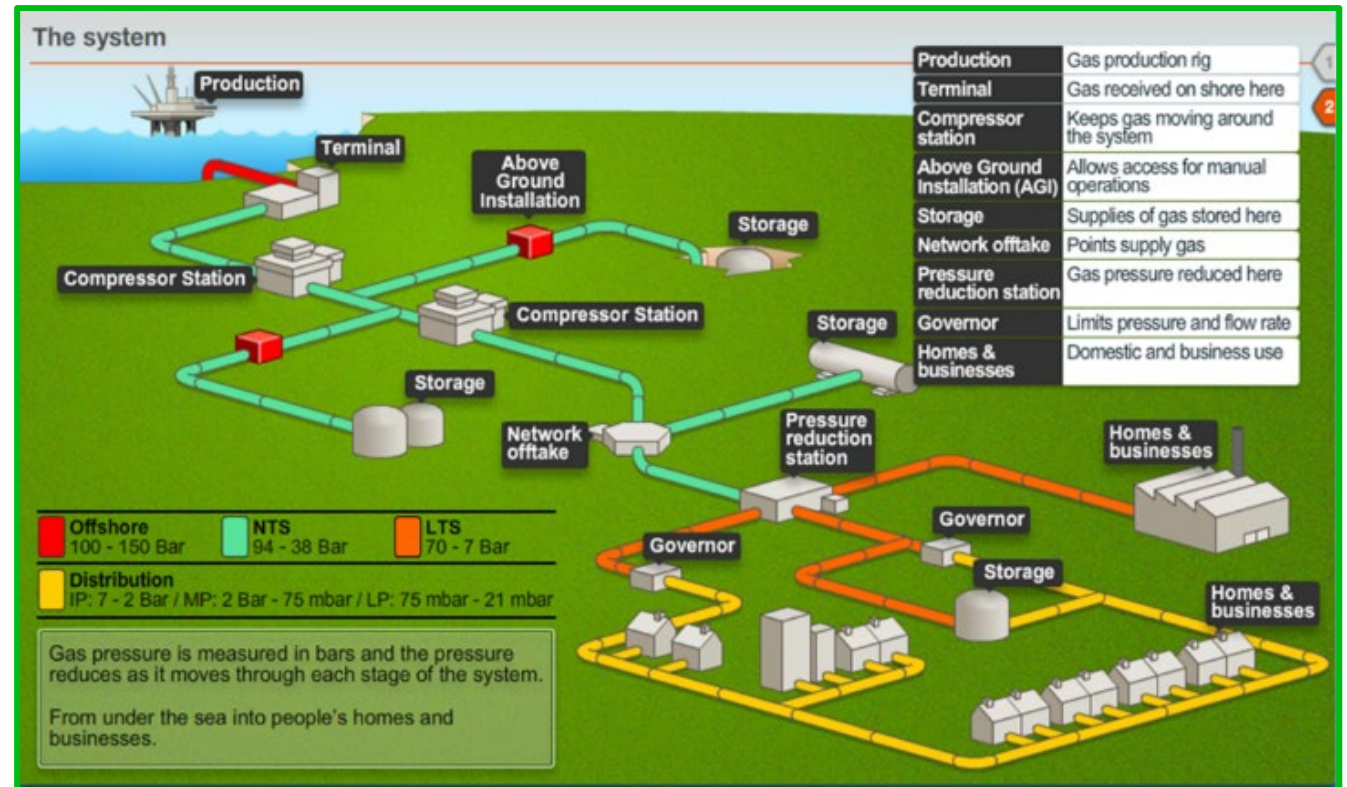
“Bio-CNG is methane which is a greenhouse gas and leaks cause warming”

Fact 4:

Bio-CNG involves production of biomethane, its transportation, compression and use in engines. New production facilities being built target zero methane emissions and this is monitored with CH₄ detection equipment

The biomethane is injected into gas grids at 2 bar and above and avoids those low-pressure cast-iron mains that have the most significant methane leaks (and are being progressively replaced)

Compression to 300 bar have near zero methane emissions, which leaves the truck engine which has regulated emissions of methane which are also near zero (note, the methane leaks associated with shale gas production have no impact on mass balanced European biomethane)



Misconception 5

“Pursuing Bio-CNG is a distraction, and the focus should solely be on electric HGVs”

Fact 5:

While electric vehicles will play a major role in future HGV decarbonisation, there is currently no commercially viable EV solution for 44-tonne trucks operating over 100,000 miles per year — particularly when grid connection capacity is limited or unavailable. The best solution for them is biomethane with tracking of the waste derived molecules in Europe

Unlike future electrification pathways, **Bio-CNG can be deployed immediately** using the existing gas grid and a growing UK refuelling network. It offers an opportunity to decarbonise today’s most polluting diesel trucks without delay, allowing for the elimination of carbon emissions while encouraging the production of biomethane across Europe. This process also promotes additional CO₂ capture

Immediate action is essential in achieving net-zero goals and we cannot wait until 2040 to act. **To meet net-zero targets, we must prioritise early emissions savings and Bio-CNG has a critical role to play in delivering them now**

1. Cumulative Emissions Matter More Than Future-Year Targets

Climate change is driven by **cumulative CO₂ emissions** in the atmosphere, not just where we end up in 2045 or 2050.

- **Earlier reductions = greater avoided warming**
- A tonne of CO₂ **not emitted in 2025** prevents **20+ years** of accumulation and warming
- The Intergovernmental Panel on Climate Change (IPCC) stresses that **front-loaded mitigation** is critical to limiting warming below 1.5°C

2. Net Zero Budgets Are Finite and Front-Loaded

- The UK and other countries operate under a **carbon budget**, i.e. a finite allowance of emissions to 2050
- **Spending that budget slowly (early savings)** extends flexibility later
- Delaying action until 2045 risks blowing through the budget

Example:

If you save **1,000 tonnes of CO₂ in 2025**, the cumulative climate benefit by 2045 is roughly **20,000 tonne-years** of avoided atmospheric CO₂.

If you save the same 1,000 tonnes in 2045, it does little to offset the damage already done.

Misconception 6

“44-tonne Bio-CNG trucks don’t have the range”

Fact 6:

The Bio-CNG 44 tonne tractor units produced by Iveco and Scania have a range of more than 500km which will be hard for battery EV to meet

This is adequate for more than 90% of the current haulage work carried out by 44-tonne diesel trucks

The operational range of Bio-CNG 44-tonne tractors will increase as the truck manufacturers optimise the product, and with a continuously expanding nationwide network of Bio-CNG stations, operational reasons for not operating 44-tonne Bio-CNG trucks are no longer valid

A Scania 6x2 tractor unit is available with a Bio-CNG (Compressed Natural Gas) engine, offering a range of up to 600km, [according to Truck Pages](#). This is achieved by utilizing the latest European regulations on vehicle dimensions to accommodate larger gas tanks. The Bio-CNG option is part of Scania's broader strategy to expand its alternative fuel offerings and support decarbonization efforts in the transport sector. 

The Iveco S-Way 6x2 tractor unit, designed to run on Bio-CNG (Compressed Natural Gas), boasts a range of around 500km (approximately 310 miles). This is achieved through a configuration of eight 100-liter Faber CNG tanks. The Bio-CNG fuel, derived from biomethane, allows for significant CO2 emission reductions, potentially up to 95% when compared to diesel. 



Conclusions

- Bio-CNG offers a proven, low-carbon solution to displace the dirtiest diesel trucks on UK roads, segment that battery-electric vehicles cannot yet reach at commercial scale
- Once the six common misconceptions are cleared away, the path forward becomes clear. We already have the trucks, the gas grid, **a national network of stations** and a realistic supply pathway to 15 TWh of waste-derived biomethane annually which is enough to fuel the 20% highest-consumption diesel HGVs by 2035
- Bio-CNG trucks are the dinosaur-era CO₂ hunter's technology of choice, delivering overall negative CO₂ emissions and helping energy independence using infrastructure we already have
- It's time this was recognised and supported at pace



Current CNG Fuels Bio-CNG Stations

Leyland, M6
Weston Road, Crewe
Northampton, Junction 16, M1
Warrington, M62
Erdington, Birmingham
Newark, A1
Knowsley, Liverpool, M57
Bellshill, Scotland
Avonmouth North
Castleford, M62
Newton Aycliffe
Corby
Bangor
Aylesford
Doncaster
Livingston

