

Operational Experience of CNG Vehicles

Justin Laney

General Manager - Fleet

How do we reduce transport carbon ?

- Fewer miles



Scheduling, backhaul, forward haul, load utilisation, collaboration

Double deck trailers, longer trailers

- Reduce fuel burn per vehicle



Telematics, drag reduction, engine spec

- Alternative fuels



Natural gas, biomethane, biodiesel, 3rd generation biofuels

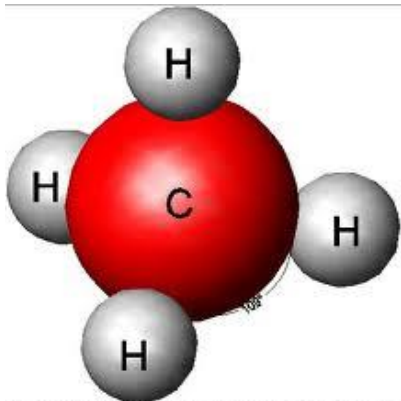
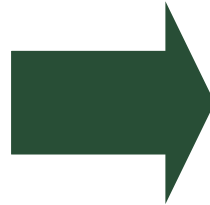


Our Strategy

- Use methane, and bio-methane
- Focus on long distance, heavy trucks for carbon reduction
- Have solutions for air quality and noise in urban areas
- Focus on refrigeration units as well as vehicles



What is Biomethane ?



3-DIMENSIONAL VIEW OF METHANE MOLECULE

Why compressed ?

- Route to biomethane
- Lower cost
- Avoids risk of venting
- Vehicle filling easier

But....

There will always be a need for both



Experience with Gas Vans

Five 3.5 tonne vans

One 5 tonne van



- Reliability and driver reaction good
- Reduced payload on 3.5 tonne vehicles
- Infrastructure challenges
- Payback ?
- Similarity with EV challenges

Dedicated CNG Experience

Emissions

- Relatively small CO₂ reduction on CNG
- Big CO₂ reduction on CBM
- Negligible (?) NO_x and PM
- Low noise

Efficiency

- CNG has 20% lower CO₂ per kWhr
- Current gas tractors are less efficient than diesel
- Efficiency improvements expected

Cost

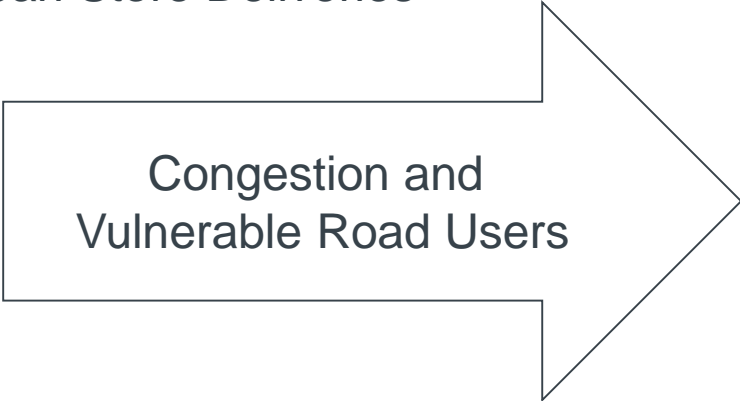
- CNG has c30% lower cost per kWhr
- Current gas tractors are c£25K more expensive
- Payback depends on mileage



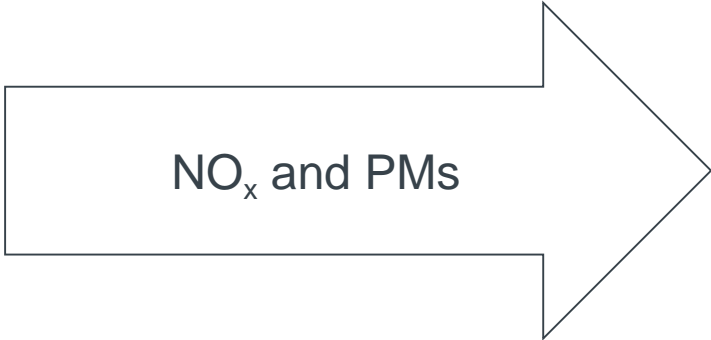
Driver Reaction

- Fuelling process much cleaner
- Quieter in cab
- Positive environmental reaction
- Driving experience good

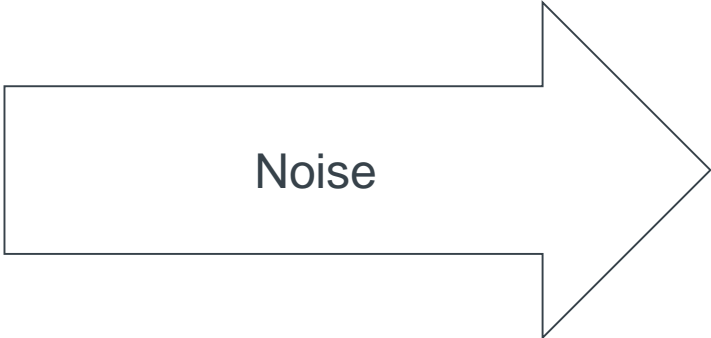
Urban Store Deliveries



Large vehicles,
Out of Hours
Safety measures



Electric or Euro 6



Electric, Gas,
Quiet Diesel
Quiet Fridges

Gas Station Economics

Build Cost	£1,500,000
Ops Cost	£200,000
Payback (yrs)	5
Selling price	£0.73
Duty	£0.25
Gas	£0.16
Ops Cost	£0.32
Kgs pA	1,547,988
Trucks	25



Next steps....

- AMTs to improve efficiency
- Bio-methane via grid recognised for carbon reporting
- Clean engines to power transport refrigeration units
- Greater choice of vehicles
- Infrastructure
- Incentives for urban use



Summary

- It works
- Everyone likes it
- Infrastructure is critical
- Important role in urban bulk deliveries

