



# Arriva North West & Wales

## Experience of operating MAN EcoCity CNG buses

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## Why Gas buses ?

### A simple cost effective environmental solution

- Arriva Europe: 300 + Gas Buses
- Known Technology - No surprises
- Simple maintenance regime
- MAN expertise in Gas technology - 4000+ Gas Buses
- Gas Bus Alliance Solution

# Why Runcorn depot ?

- Fleet 47
- PVR 42
- 10 gas buses                      5 SB200's                      32 SB120's
- Annual mileage 2,971,326 of which gas bus miles = 698,366



# Services in Runcorn & Widnes



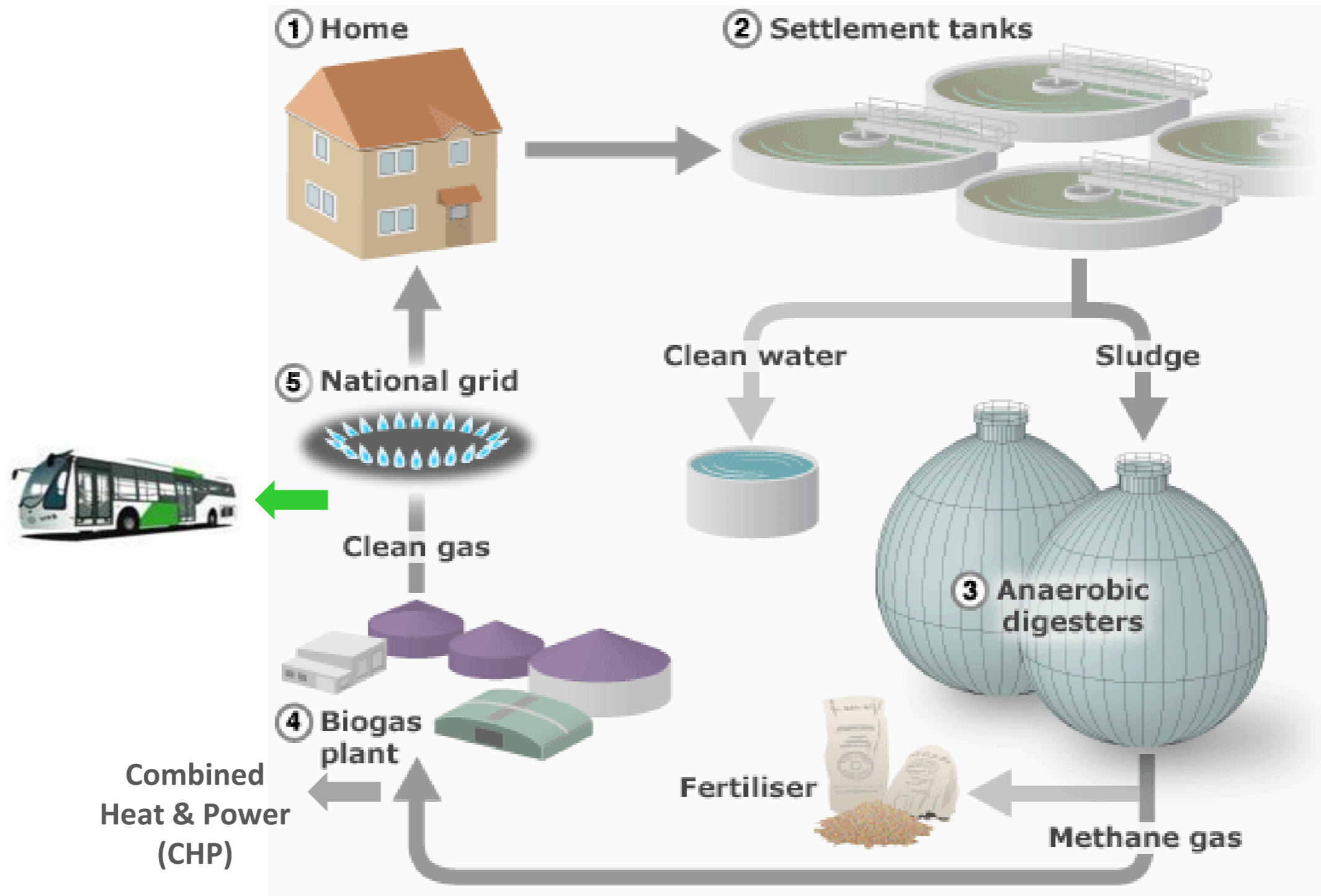


## Runcorn - Gas Station

- Designed & Built by Gas Bus Alliance
- Installed 2014
- To date: 100% Operation
- Capacity: 20 Buses

**100% Biomethane**

# GBA - Biomethane Production





## MAN Ecocity

- E2876 – Dedicated Gas Engine
- 6 Cylinder 12.8 ltr - Spark Ignition
- 270 bhp
- 4 Gas Tanks: 1136 ltr, approx 300 miles
- EEV/Euro V1 (On order)
- Capacity 70 passengers

Current Fleet Size: 10 (Further 9 on Order)



## Results to Date

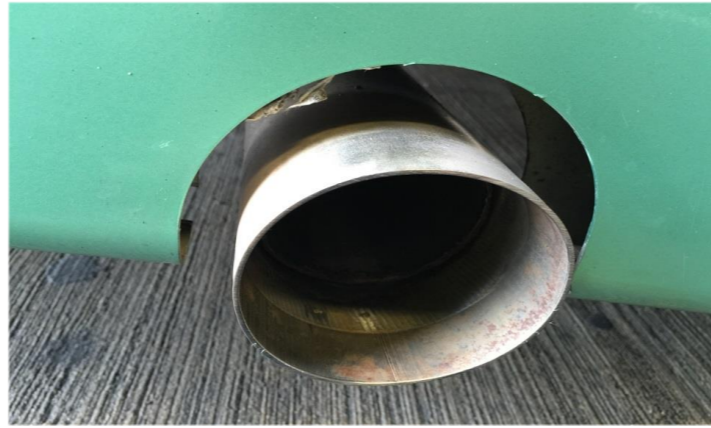
- 3.6 million Kgs CO2 saved
- Operational Savings: 21% v Fleet average
  - Fuel
  - Maintenance
  - Reliability
- Replaced Euro 3 & 4 Buses
  - NOx & PM reduction +95%



- Annual spark plug change
- No EGR system to maintain.
- No Particulate traps to service.
- Longer intervals between engine oil changes.
- No messy fuel filters to replace.
- All of this saves on cost of running these vehicles.



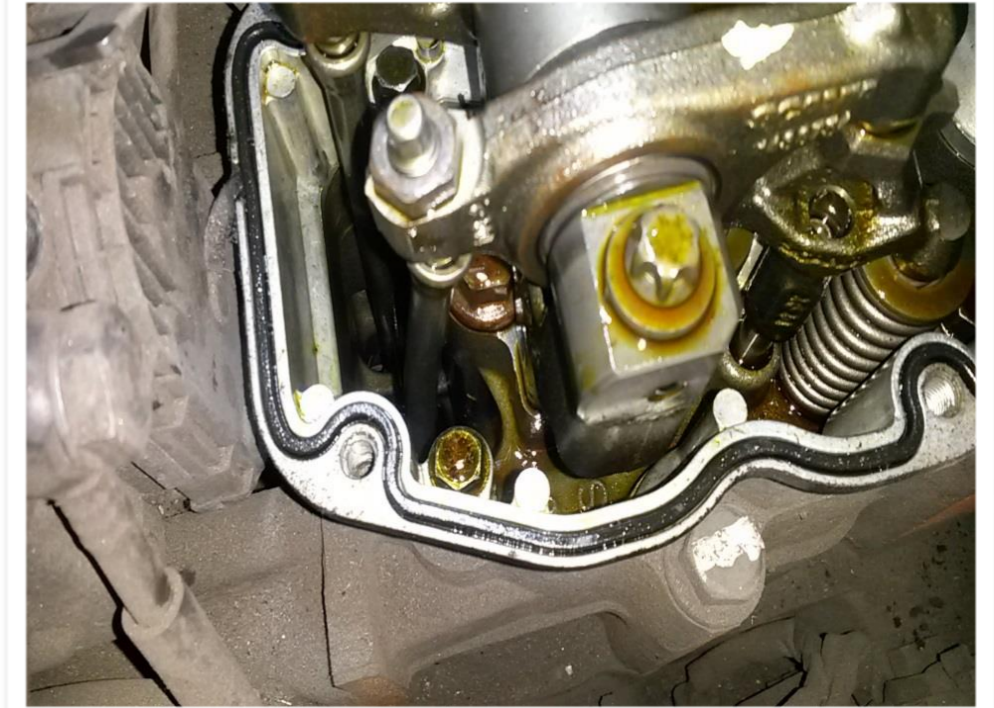
Euro V1 Gas  
(100,000+ Kms)



Euro V1  
Diesel Hybrid



Euro V1 Gas



# Advantages of CNG/Biomethane technology

**The cleanest, CO2 neutral, reliable, non-fossil and affordable solution for public transport:**

- Buses readily available
- Proven reliable technology
- Lowest PM emission
- Lowest NOx emission
- Low noise production (-2 dB)
- No link with food chain discussion (Bio-fuels)

# Advantages of CNG/Biomethane technology

The cleanest, CO2 neutral, reliable, non-fossil and affordable solution for public transport:

- Exceeds Euro 6
- No Adblue
- No Battery Packs, disposal or replacement
- Biogas compatibility
- No Spillage risks
- Future Proof - Biogas
- Manure, Municipal Waste, Food waste – Not crop reliant
- Biogas can be fed directly into the UK Gas Main

# Initial running cost comparator

- Gas: £0.38/mile
- Diesel: £0.48/mile
- Initial expected saving: 22%.
- However, to date the savings have exceeded 24%

# Vehicle cost

- MAN EcoCity (to Arriva specification) circa £220,000
- Standard Arriva specification single deck bus circa £165,000
- Variance = circa £55,000 per vehicle

# What the passengers think

- Quiet
- No vibration
- No diesel smell
- Good heating and ventilation
- Good interior lighting

# What the drivers think

- Good cab ergonomics
- Good seat
- Driveability
- Blown air – demisting
- Effortless drive



# In Summary

- Sustainable renewable fuel
- Carbon Neutral
- Farming community opportunities
- UK produced fuel
- Solution for now
- No Guinea Pigs

# CBN065g MAN A69CNG

