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National Transport Seminar

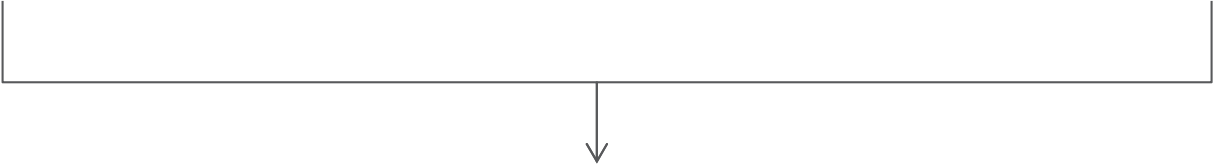
Who are Autogas Limited?



50%



50%



autogas



Issues facing the UK

- Main-grade fuel prices unpredictable
- UK is failing to meet its EU Environmental Targets
- Fines will be imposed on the UK by Europe
- Air Pollution in Cities hitting record levels
- Public health is suffering as a result; 40,000 annual UK deaths at a cost of £20b to UK economy
- Client Earth - Supreme Court Judgement
- Now being escalated to the High Court

Issues facing the UK

- Transport is one of the main contributors (80% London)
- New technologies are being developed
- EU Commissions report on Transport & Future Fuels calls for a diverse approach....there is no one size fits all solution
- We have the means to make a differencenow!

The Monkey's now Clearly on the back of Local Government



Political Activity and Lobbying

- Autogas Limited dynamic in the political arena
- Active in support of clean transport and environmental issues
- Hosted Parliamentary Receptions
- Engagement with DFT, TFL, DEFRA, HM Treasury, London Mayors Office, LTDA & major vehicle manufacturers



What is LPG?

Well you've probably already used it...



Naturally Occurring In Natural Gas Fields



Extracted During Oil Refining



Transported Globally



Transported Nationally



Sold to the motorist

Forecourt set-up



The Autogas Network

- National Coverage, 225 sites
- Largely follows Shell Network Area
- National infrastructure totalling over 1400 sites
- Average 5 miles between LPG sites



Benefits of autogas

- Running cost savings
- Extensive refuelling network
- Similar driving characteristics
- No range anxiety
- Lower emissions
- Refuelling similar to petrol & diesel
- No spillage – no ground or water pollution
- Proven technology - Worldwide pedigree & is the 3rd choice of road fuel
- Future Proofing Bio-Propane coming in 2017
- B2B Refuelling Options Available



And you're also helping the environment

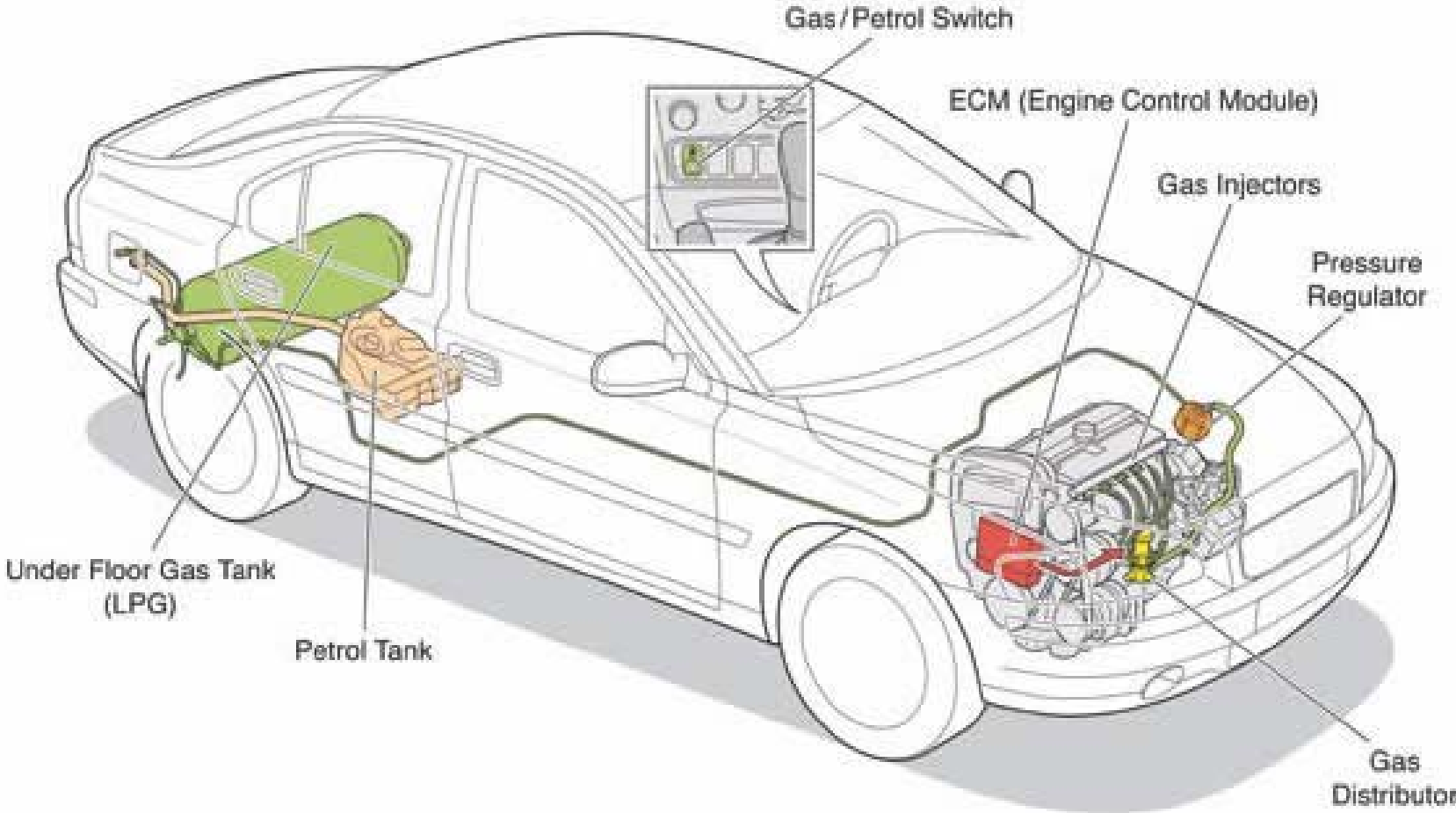
Lowering emissions of:

- PM (Particle Matter)
- NO_x (Oxides of Nitrogen)
- Co₂
- And other pollutants from other main-grade fuels (Benzene etc)



LPG Conversion of a Petrol Car

Bi-Fuel System (LPG)



Petrol Van Availability

Commercial Vans (Petrol) UK 2016

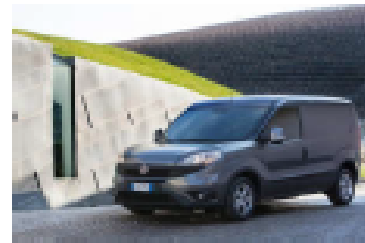


Commercial Vans (Petrol) UK 2016



Citroen Berlingo

- 1.6 VTI
- MPI
- 95 Bhp
- 151 gr/km



Fiat Doblo

- 1.4 16v
- MPI
- 95 Bhp
- 165 gr/km



Ford Transit (US)

- 3.7iT-VCT
- MPI
- 275 Bhp
- 3.5 EcoBoost
- DI
- 213 gr/km



Mercedes Citan

- 1.2i
- MPI
- 114 Bhp
- 140 gr/km



Ford Fiesta Van

- 1.25 Duratec
- MPI
- 82 Bhp
- 120 gr/km



Ford Transit Courier

- 1.0 EcoBoost
- DI
- 100 Bhp
- 120 gr/km



Peugeot Partner

- 1.6 VTI
- MPI
- 98 Bhp
- 150 gr/km

Petrol Van Availability

Commercial Vans (Petrol) UK 2016



Commercial Vans (Petrol) UK 2016



Vauxhall Corsa Van

- 1.2i
- MPI
- 75 Bhp
- 126 gr/km



Vauxhall Combo

- 1.4i
- MPI
- 95 Bhp
- 150 gr/km



Volkswagen Caddy

- 1.0TSI
- DI
- 104 Bhp
- BlueMotion, start/stop
- 1.2TSI
- DI
- 84 Bhp
- BlueMotion, start/stop
- 1.4TSI
- DI
- 125 Bhp
- BlueMotion, start/stop, DSG optional



Volkswagen Caddy/Transporter

- 2.0TFSI
- DI
- 150 Bhp
- BlueMotion, start/stop, DSG optional
- 2.0TFSI
- DI
- 204 Bhp
- BlueMotion, start/stop, DSG optional

Petrol Vans

Available in the UK

2016

29/01/2016, v1.0

Taxi's are targeted as polluters



Why repower with Autogas?

What is wrong with diesel?



3 diesel powered TX models were tested for emissions
None of the models met any Euro standard

Birmingham City Council

- The Birmingham **NOx Reduction Champions** project was funded to the tune of **£500,000** through the Clean Vehicle Technology fund from OLEV
- 63 black taxis are in the process of being re-powered to run on autogas LPG
- Driver applies for repowering
- Vehicle assessed for suitability
- If suitable driver provided with voucher by BCC
- Taxi driver only pays VAT element



Taxi TX (1,2 & 4)

LTC TX

- Diesel

Multiple attempts

- Rebuilding diesel engine to petrol

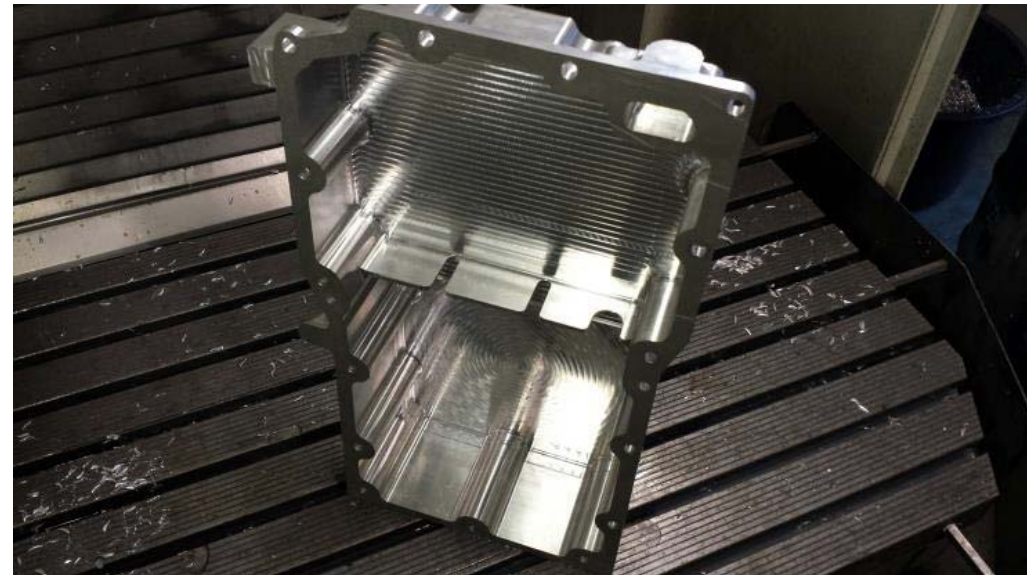
Autogas solution

- New 2.0L 4-cylinder petrol engine
- Port injected, low pressure turbo
- Designed for and adapted to LPG
- Bespoke ECU
- 100L LPG + 12L Petrol tank



Autogas taxi in Emission lab

Adaption components



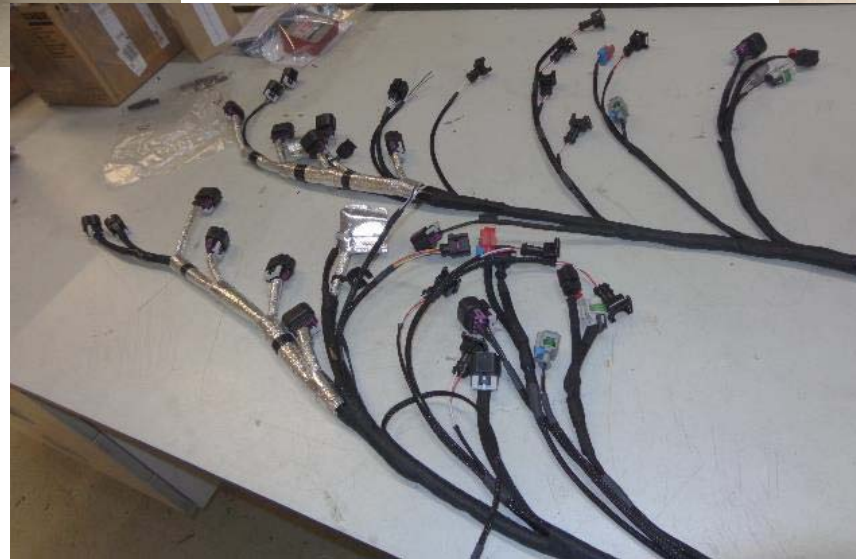
Main Engine Bay Component Parts



LPG ECU

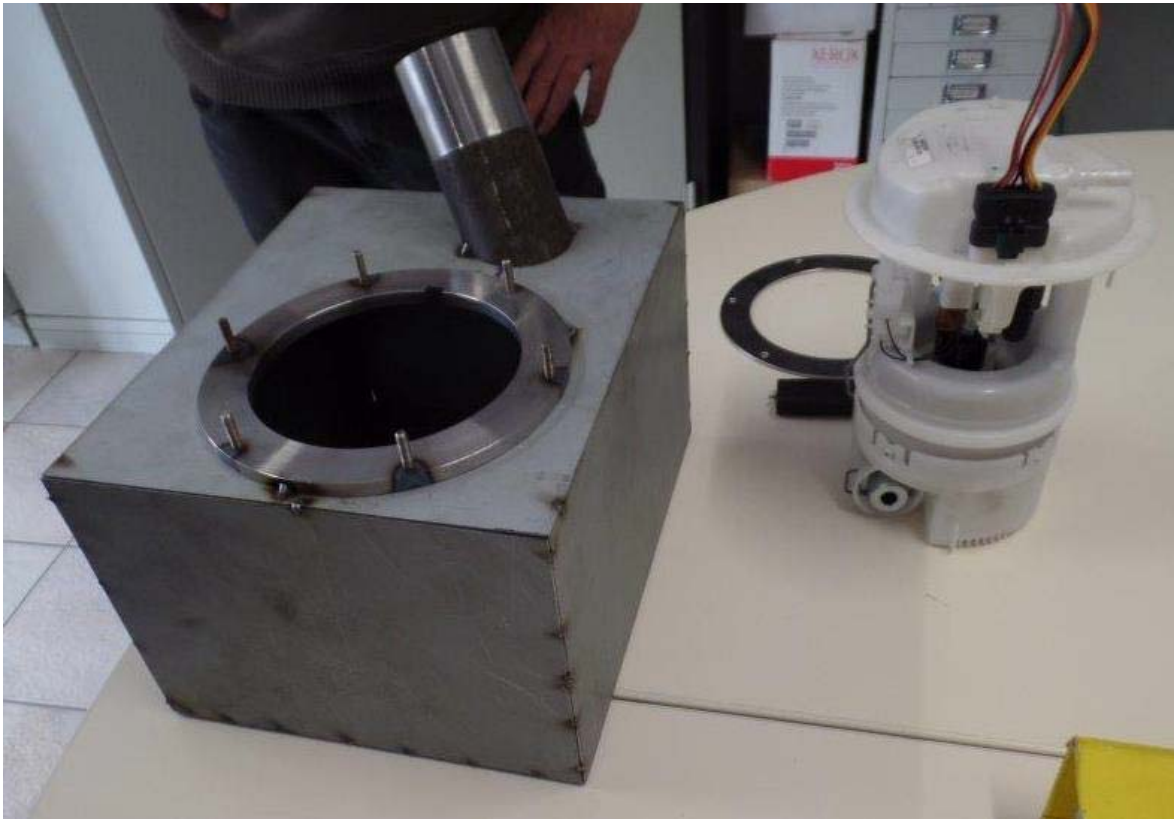


Engine ECU



Wiring Loom

12L Petrol fuel tank



TX2 installation



100L Autogas tank (300+ miles range)



Taxi TX (1,2 & 4)

Results Compared to Diesel

- Similar power & torque curve
- Quieter and less vibration
- Driveability improved
- 20% fuel saving

Emissions

- Euro 6 N1 Class 3
- Up to 98% less PM
- Up to 80% less NOx
- CO2 less 7%



In Summary....

- Autogas LPG is a here & now option
- We have an Air Quality IssueNOW....we need to take action NOW
- Technology supported by Defra, Kings College London, Policy Exchange
- Proven Technology with a Worldwide Pedigree
- Extremely cost effective
- Reduced Emissions
- Reduced Running Costs



Thank you for listening.....

