

Hybrid Buses in Birmingham

LEB Workshop

16th November 2017

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Agenda

- National Express UK Bus
- Hybrid Fleet
- Marketing the Hybrids
- Hybrid comparison
- Hybrid Vs Diesel performance
- Hybrid challenges
- Future Air Quality plans



National Express UK Bus

NX UK Bus Overview

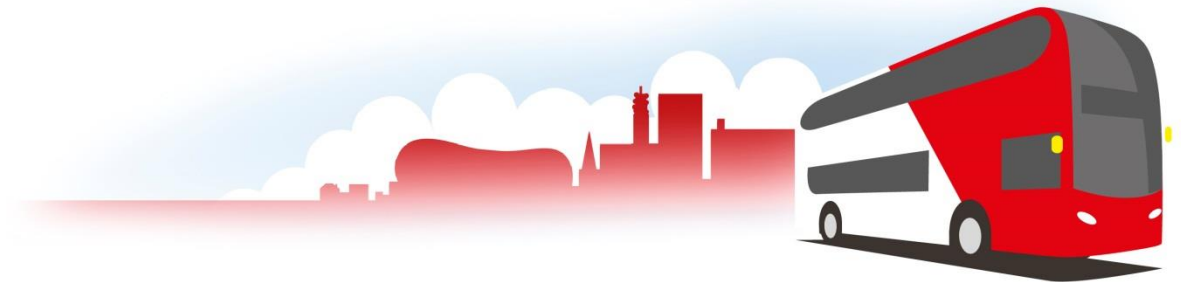
- Part of the National Express Group
- 1624 Operational Fleet
- Average Fleet age of 8.7 Years
- 16 different vehicle types
- 10 Depots spread throughout Birmingham, Black Country and Coventry
- 1 Depot in Dundee



Hybrid Fleet

Green Bus fund Round 1&2 assisted with the procurement of 48 Hybrid powered Vehicles:

- 21 x Alexander Dennis E400H in Wolverhampton
- 9 x Alexander Dennis E400H In Dundee
- 18 x Volvo B5LH in Birmingham



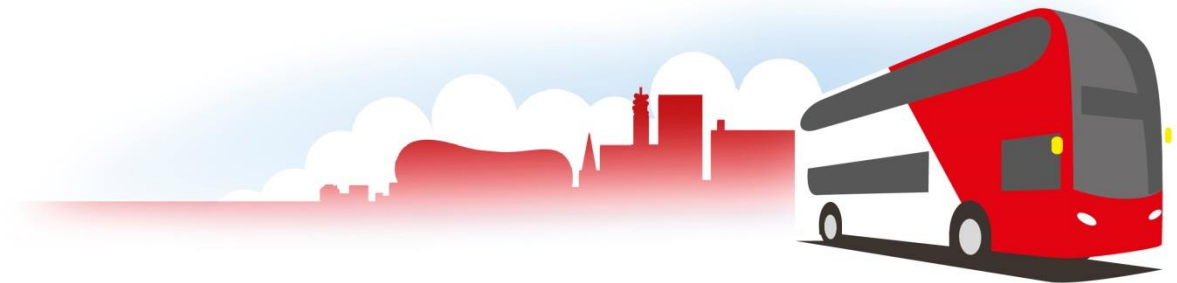
Marketing the Hybrids

29000 flyers printed and distributed to customers on routes 22 & 23 to advertise the brand new Hybrid buses:

- Quieter, Smoother Journeys
- Brighter, cleaner 'green' interiors
- Reduced emissions
- Money off vouchers

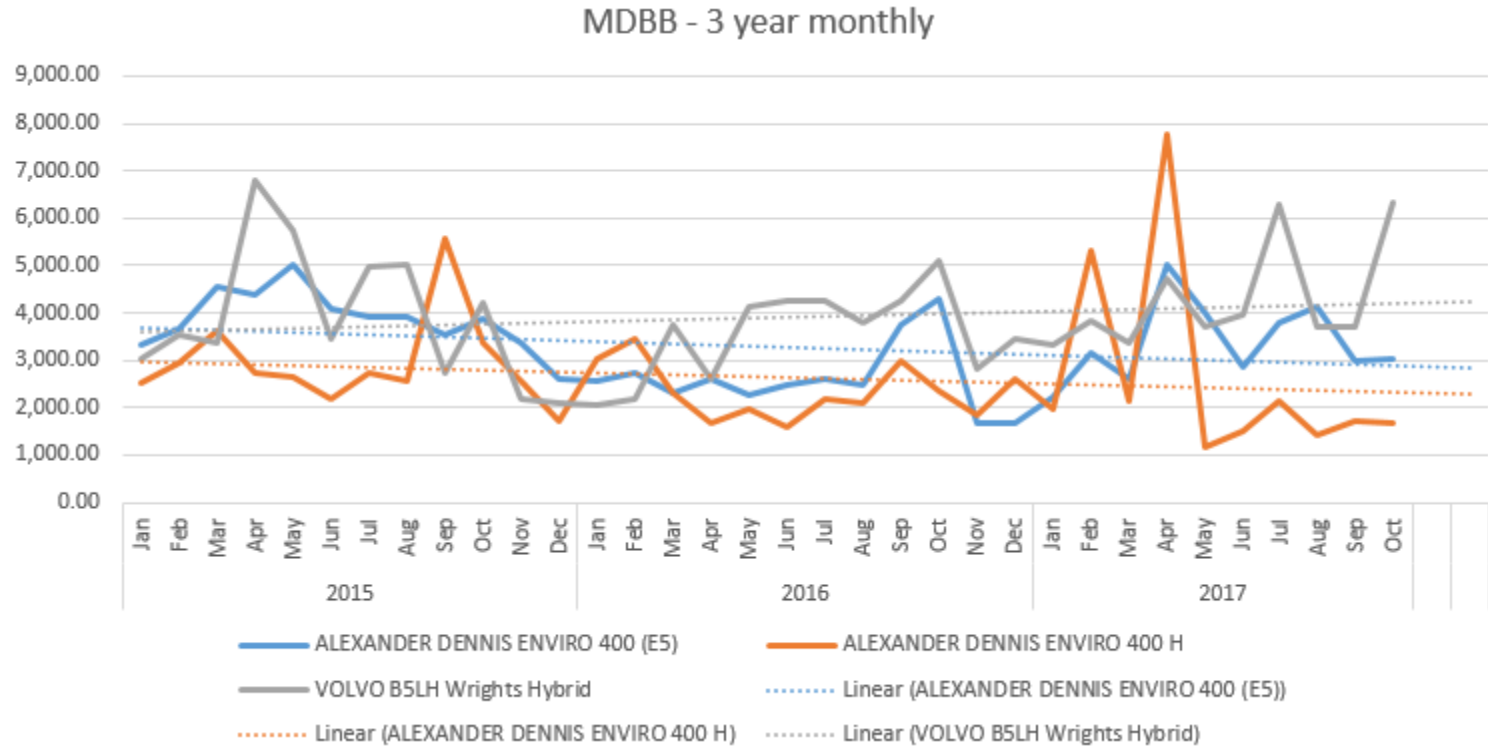


Patronage declined following the introduction of the Hybrid vehicles, which we believe was linked to the spike in customer vomits!

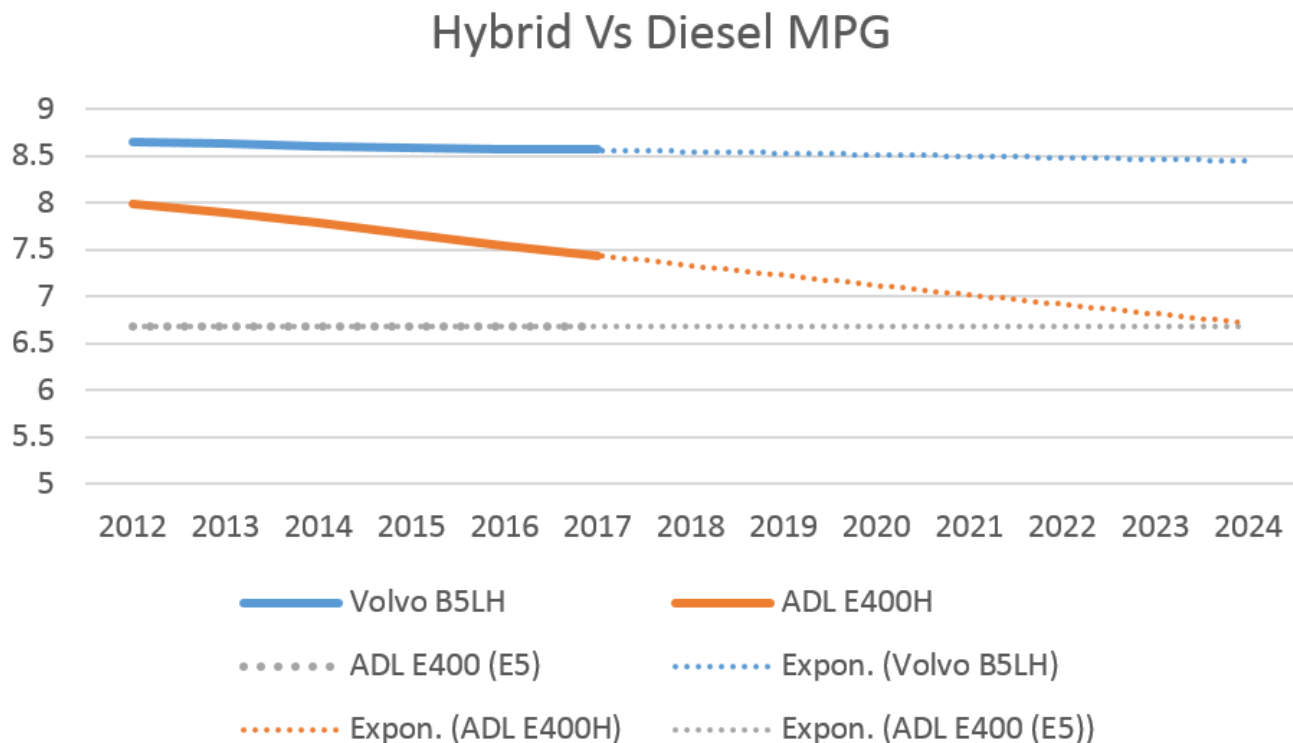


Hybrid Vs Diesel Performance

Hybrid V Diesel Mean Distance between breakdowns 2015 > 2017 YTD



Hybrid Vs Diesel Performance



- ADL E5 E400 Diesel 6.68MPG
- ADL E400H Hybrid 8MPG (20%) when new, reducing to 7.43MPG (11%) in 5 years due to battery degradation
- Volvo B5LH Hybrid 8.65MPG (30%) when new, reducing to 8.57MPG (28%), No signs of Battery degradation



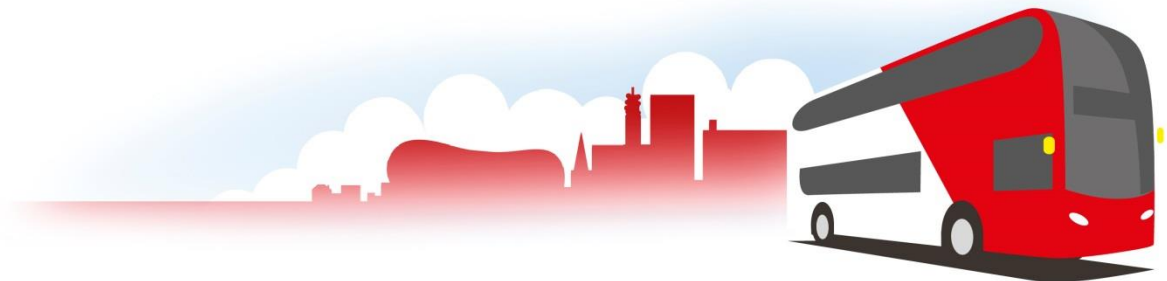
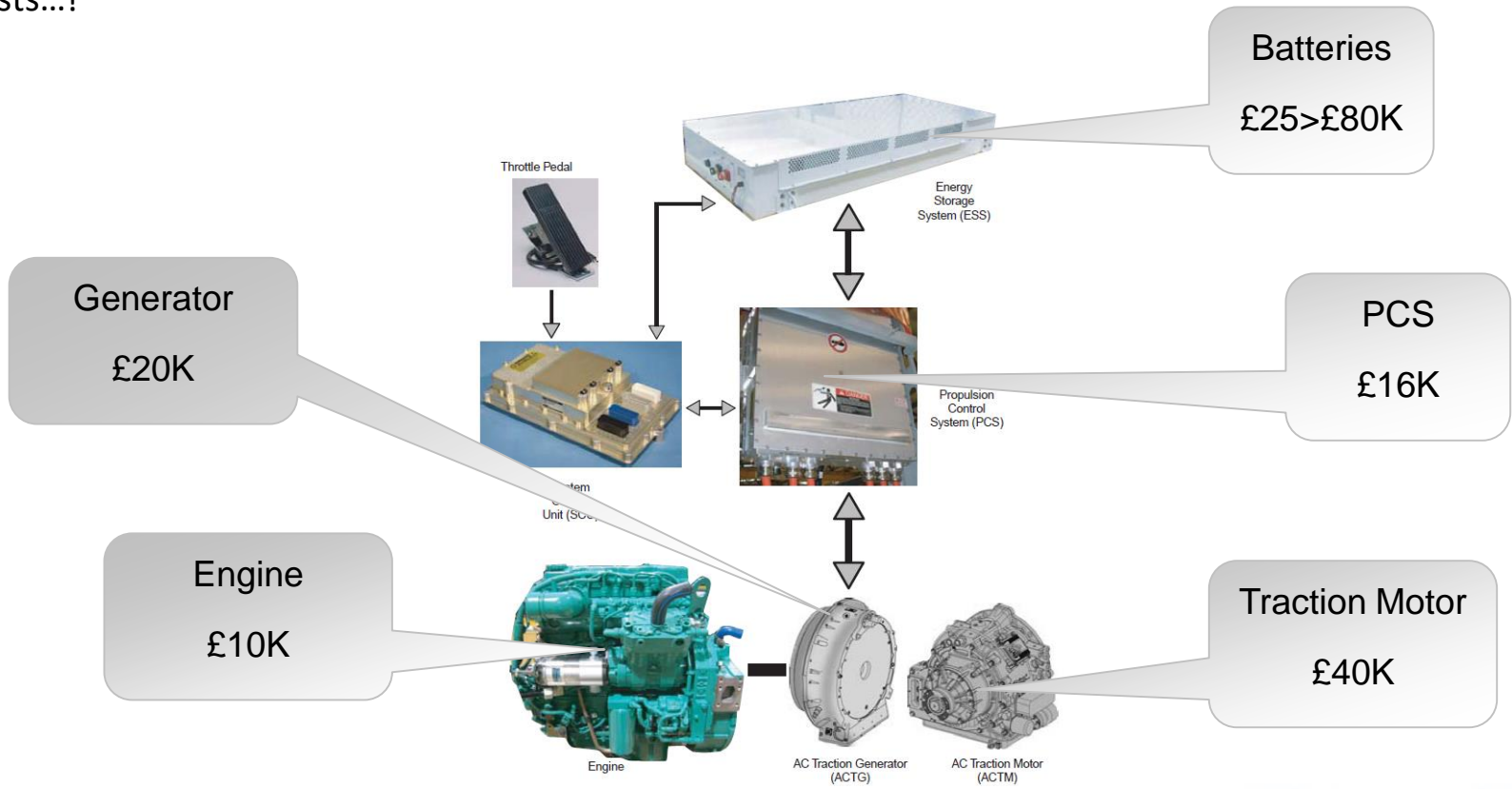
Hybrid Challenges

- Initial purchase price if not subsidised by Green funding.
- Reduction in patronage, linked to Nausea.
- 600V training and safety risks associated.
- Risk of staff / public walking into Hybrids when operating in full EV mode.
- Driving style to ensure capture of Regenerative braking.
- Cleaning of engine bay / High voltage components.
- Restricted operating environment.
- Emergency attendance training with local fire department
- Total cost of ownership...



Hybrid Challenges

Ensure at the point of purchase you are fully aware of hidden maintenance and hardware replacement costs...!

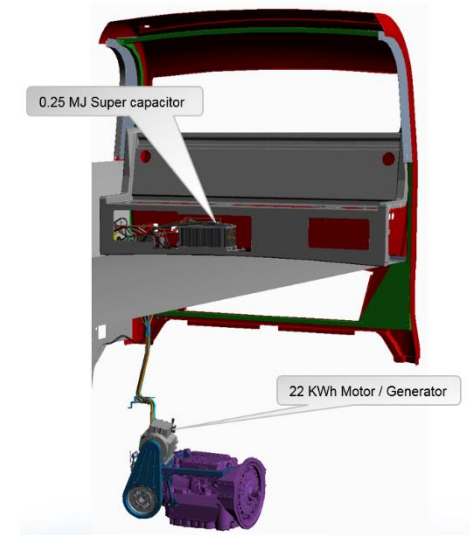


Future Air Quality Plans

Advanced Quality Partnership Scheme in place to reduce emissions in Birmingham. From the 31st of May 2017 only vehicles Euro 4 and above can operate in the centre of Birmingham.

Air Quality reduction plans:

- Introduction of more Bus Priority lanes
- 2015 - One of the first operators to invest in 252 Euro VI vehicles
- 2017 - 211 Euro 3 powered vehicles retro-fitted with SCRT traps to reduce emissions to Euro 5+ levels.
- 2017 - Purchase 38 'Smart Hybrid' E400MMC's
- 2018 – Purchase 19 'Full Electric' ADL E200 EV's
- 2019 – Plans to operate 20 Hydrogen powered Double Decks in partnership with Birmingham City Council to Promote Hydrogen!!



Questions?

