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Vehicle technology investment in a Global marketplace

Colin Matthews

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Global Vehicle Technologies

- Broad brush on technologies being developed
- Right Fuel, Right Vehicle, Right Application
- Real life vs lab testing
- Just because its not happening in the UK doesn’t mean it not happening..!!

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Vehicle Types

- Cars
- Vans
- Rigid Trucks
- Articulated Trucks
- Buses

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Cars

- 20 of CO_2 from journeys <5 miles but 40% of CO_2 from journeys > 25 miles
- Improvements in IC engines
  - Move to Low capacity Turbo Petrol. Low CO_2 in test cycle but in reality……
  - Diesel – limited future developments + AQ issues
  - High Blend Biofuels (B30 / E85 / BioButanol)
  - Natural gas / Biomethane

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Cars

- Electric Platforms
  - Electric
    - Short range – limited use
    - Topography
    - No set test cycle to report range vs speed
    - Recharging infrastructure
    - CO_2 footprint
    - Battery life & failure rates need to improve
    - Raw materials…..
  - Parallel Hybrids
  - Series Hybrids
    - Range Extender
    - Utilises Electric drive systems

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Cars

- Hydrogen Fuel Cell
  - Longevity and reliability of Fuel Cell
  - Availability of Low Carbon Hydrogen
  - Infrastructure and storage
  - Cost per mile for the fuel
  - Hydrogen has a very wide flammability profile c.f. other fuels.
- Lighter Vehicle Platforms
  - Conflict with end of life recycling and crash test rigidity

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Cars – the Challenges

- Range Anxiety
  - On board cost to go 550km
    - IC € 250
    - NG (250 bar) € 1,000
    - H_2 (700bar) € 12,000
    - Battery € 40,000

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Vans

- IC developments as per cars
- NG/Biomethane
  - Weight penalty (2-300kg) with tanks
  - France allows 3.5te to run at 3.8te to kick start this market
  - Strong AQ and noise benefits
- Electric
  - Weight penalty
  - Cost penalty (€21k vs €70k)
  - Range/Topography issues
  - Range extender hybrid could be option

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Rigid Trucks

- Euro VI likely to bring increased fuel consumption and increased vehicle cost (+15%?)
- NG gaining momentum globally – noise and AQ benefits – night time deliveries?
  - Potential weight penalties?
  - Ideal for RTB fleets
  - Strong RCV solution
  - Lower Fuel Duty
- Mild hybrids

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Articulated Trucks

- To move 28te of Groceries electrically would require 36 te of batteries….!!
- Long haul diesel best (with possibly dual fuel with NG)
- City centre work – NG/Biomethane
  - AQ and Noise benefits
  - Most are RTB fleets – easier infrastructure
  - Shared facilities on combined Logistics parks

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Buses

- Large global growth in NG Bus fleets
  - Globally proven performance and urban environment benefits
  - UK has small incentive under the Low Carbon Emission Bus programme (not enough yet)
- Hybrids
  - Can meet LCEB criteria but Parallel hybrids don’t deliver in practice
  - Wait to see performance of series hybrids

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Buses

- Electric
  - Careful consideration of Topography
  - Park ‘n Ride?
  - Easier quick charge infrastructure build
  - Limited other route use compared to diesel/hybrid buses

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Concerns for Government

- Loss of revenue
  - If 30% of cars go electric how do they recover the lost Fuel Duty and VAT?
  - Same for hydrogen
- Pedestrian safety of near silent vehicles
- Statement that they will not back technology winners when their actions say otherwise..!!
- Taking the public along on the journey
- Lack of integrated thinking and policy action
- Slow to react and very limited pro-activity

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Conclusions

- Right Fuel, Right Vehicle, Right Application
- Topography has an effect
- Technologies are proven Globally
- Real life results matter
- AND Finally
- Don’t forget we are dealing with Joe and Josephine Public who need to be educated and encouraged along a sustainable journey

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Most people in a traffic jam do not believe they are part of the problem
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