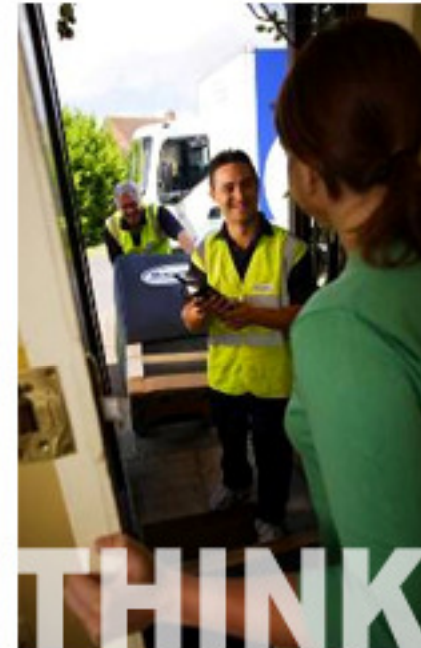




More than you think



MORE THAN YOU THINK

International Sustainable Logistics Conference

Huddersfield 27th May 2010

www.wincanton.co.uk



More than you think

Alternative Vehicle Fuels

- from a heavy road transport perspective

Dave Rowlands

Technical Services Director

Wincanton Group



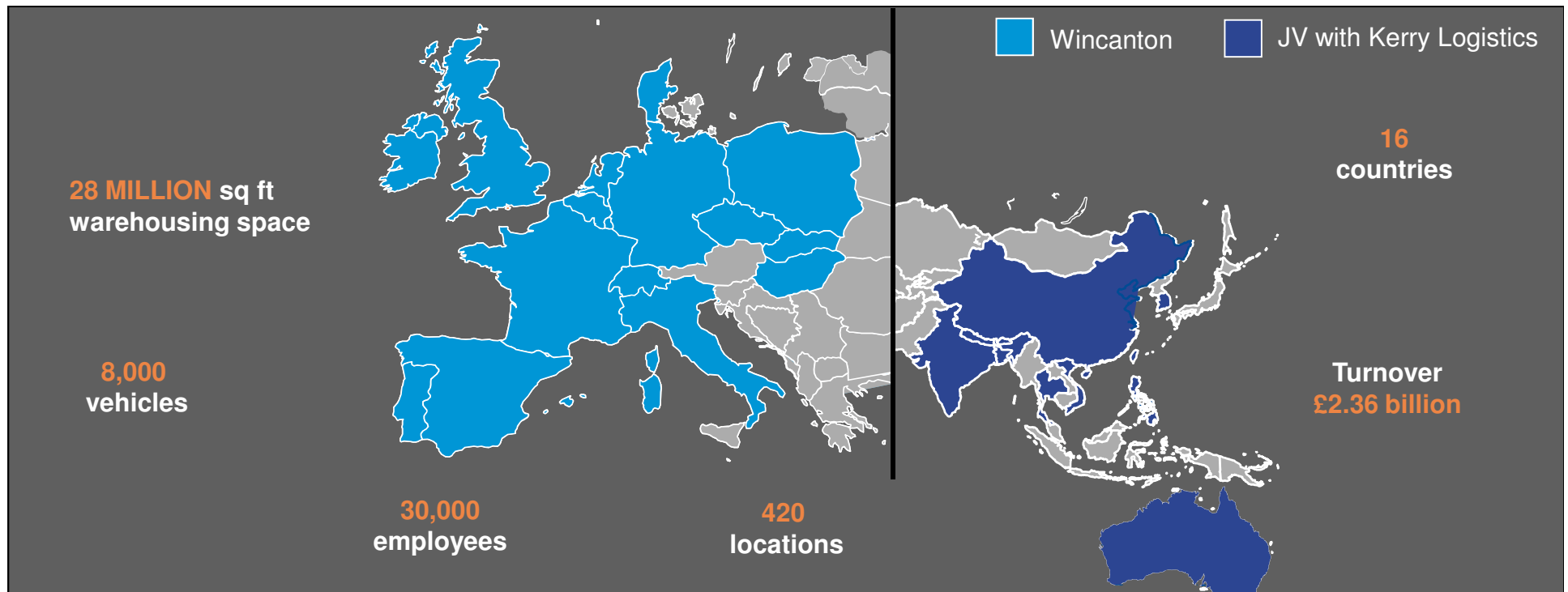
www.wincanton.co.uk

Our scope



More than you think

A STRONG EUROPEAN FOOTPRINT WITH INTERNATIONAL SUPPLY CHAIN CAPABILITIES



www.wincanton.co.uk

Our ambition



More than you think

TO BE THE FIRST CHOICE FOR SUPPLY CHAIN SOLUTIONS IN EUROPE,
WHOSE MARKET LEADING STATUS IS RECOGNISED...



...BY CUSTOMERS AS
SUPPLIER OF CHOICE



...BY EMPLOYEES AS
EMPLOYER OF CHOICE



...BY INVESTORS AS
STOCK OF CHOICE

Our customer relationships



More than you think

A COMPANY WHICH IS VALUED BY ITS CUSTOMERS,
HELPING THEM COMPETE WITH CONFIDENCE

Consumer goods	17%	Grocery retail	20%	General retail	15%
Automotive	15%	Petroleum & chemicals	12%	Industrial	21%

Our commitment to the environment



More than you think

OUR FIVE YEAR ENVIRONMENTAL STRATEGY
LAUNCHED IN 2008, FOCUSES ON DELIVERING PROGRESS
AGAINST FIVE KEY RESULTS AREAS

-
- Governance and management
 - Performance measurement
 - Energy use and climate change
 - Waste and recycling
 - Progressive product leadership



Current fuel use....

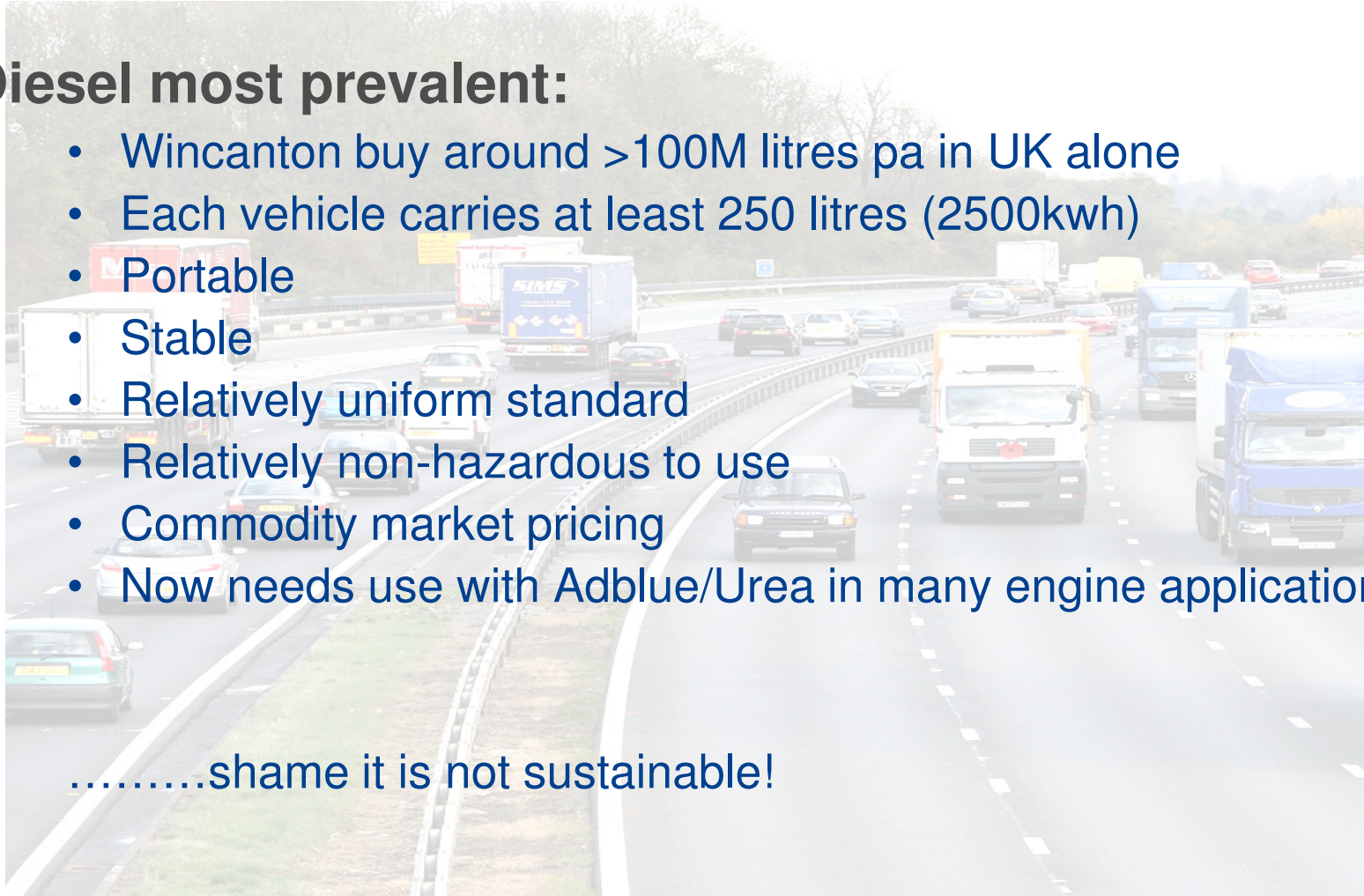


More than you think

Diesel most prevalent:

- Wincanton buy around >100M litres pa in UK alone
- Each vehicle carries at least 250 litres (2500kwh)
- Portable
- Stable
- Relatively uniform standard
- Relatively non-hazardous to use
- Commodity market pricing
- Now needs use with Adblue/Urea in many engine applications

.....shame it is not sustainable!



Alternative fuels issues...



More than you think

Not one 'silver bullet' - all have their merits

Heavier fleets likely to only adopt most practical for general use

HGV mass is a key issue

Dependant upon:

- Availability
 - Price
 - Energy content
 - Ease of storage and use
 - Complexity of vehicle engineering
-

Options available.....



More than you think

Dimethyl Ether (DME):

- High Cetane rated gas
- Gasification from biomass
- Liquified for transport
- Low Nox and CO₂, concern for PM
- Nordic countries (Volvo promoted)
- Little current use in UK
- Current availability issues
- Minor engine modifications needed

Options available.....



More than you think

Hydrogen:

- High cost, poor availability
- Low energy content
- Emission free at wheel
- Well to wheel issues
- Concern if carried in high volumes on trucks
- Specialist opportunities
- Infrastructure not available

Options available.....



More than you think

Methanol/Ethanol:

- Biomass derived
- Tends to be used in petrol engined vehicles
- Half the energy content of diesel
- More likely use as a petrol blend
- No experience in heavy vehicle

Options available.....



More than you think

Biogas:

- Biomass derived (methane)
- Trialled in dual-fuelled heavy diesels
- Reliable in service
- Low energy efficiency
- Limited current availability
- On-weight due to tankage
- Infrastructure needs investment
- Specialist use – close to sources
- Opportunity for plant integration

Options available.....



More than you think

Synthetic Diesel/Biomass to diesel

- 2nd/3rd generation bioderv
- Biomass derived
- Algae derivation a probability
- Ought to quell the sustainability issue
- Could use the current distribution infrastructure
- Quality controllable
- Increased mix rates as petro-chem reduces
- Modelled on DERV and its benefits without its downsides

Options available....



More than you think

Electric/Battery:

- Small vehicle opportunity (3.5 to 7.5tonne)
- Some potential for hybrid drives at low weight
- Current availability only developmental
- Battery capacity key issue
 - Low operating mileage
 - High battery weight to power ratio (battery weighing >50t for 44t truck)
 - Practically limited to up to 7.5t gross
- Specialist applications and city
- No emissions at the wheel – local benefits
- A lot of operational experience in business

Most prevalent....



More than you think

Bio-derv:

- Trialled over many years at 5%
- Now with RTF obligations content running at up to 7%
- Initial B5 quality was questionable
- A number of algae attacks
- Good fuel storage husbandry essential
- High turn-over at bunker beneficial
- Uses current distribution infrastructure and is co-mingled
- Subject to quality issues
 - Stratification
 - Water absorption
 - Solidification
- Jury out on its sustainability



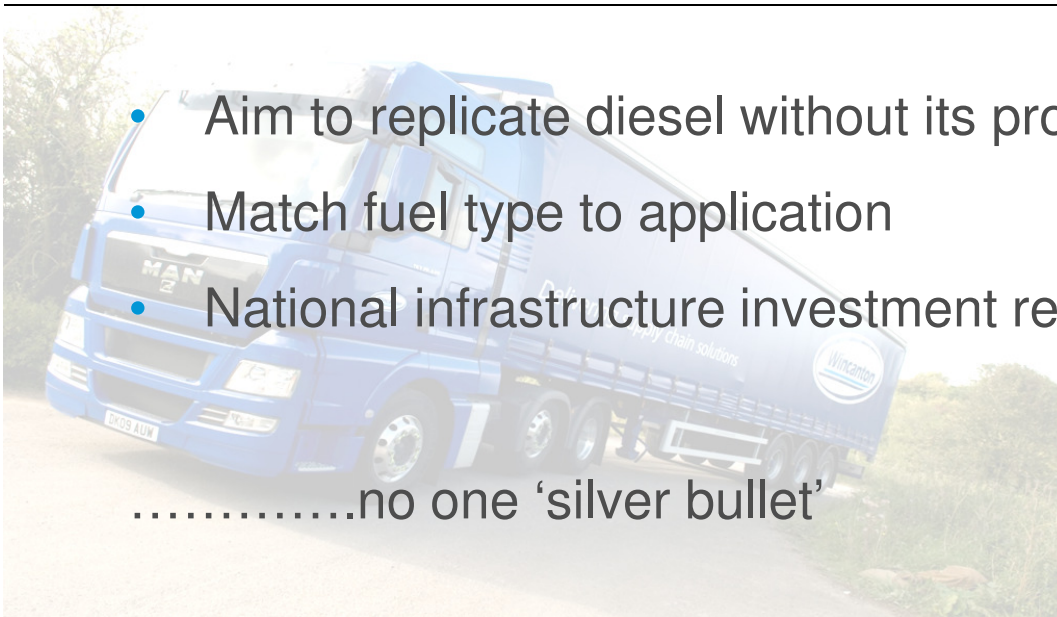
More than you think

Alternative Vehicle Fuels

- from a heavy road transport perspective.....

- Aim to replicate diesel without its problems
- Match fuel type to application
- National infrastructure investment required

.....no one 'silver bullet'





More than you think

Alternative Vehicle Fuels

- from a heavy road transport perspective

Dave Rowlands

Technical Services Director
Wincanton Group

Thank you for listening

Any questions?



www.wincanton.co.uk