



CARLSBERG UK

uel Saving: – “Believing the
(BTAC) Facts”



Andrew Davis - National Fleet Engineer

What is Carlsberg Group today

No. 1

largest brewer in Northern & Eastern Europe and fourth largest brewer in the world

150

markets around the world

500

different beer brands

45,000

employees on three continents

12,000,000,000

litres of beer sold in 2008

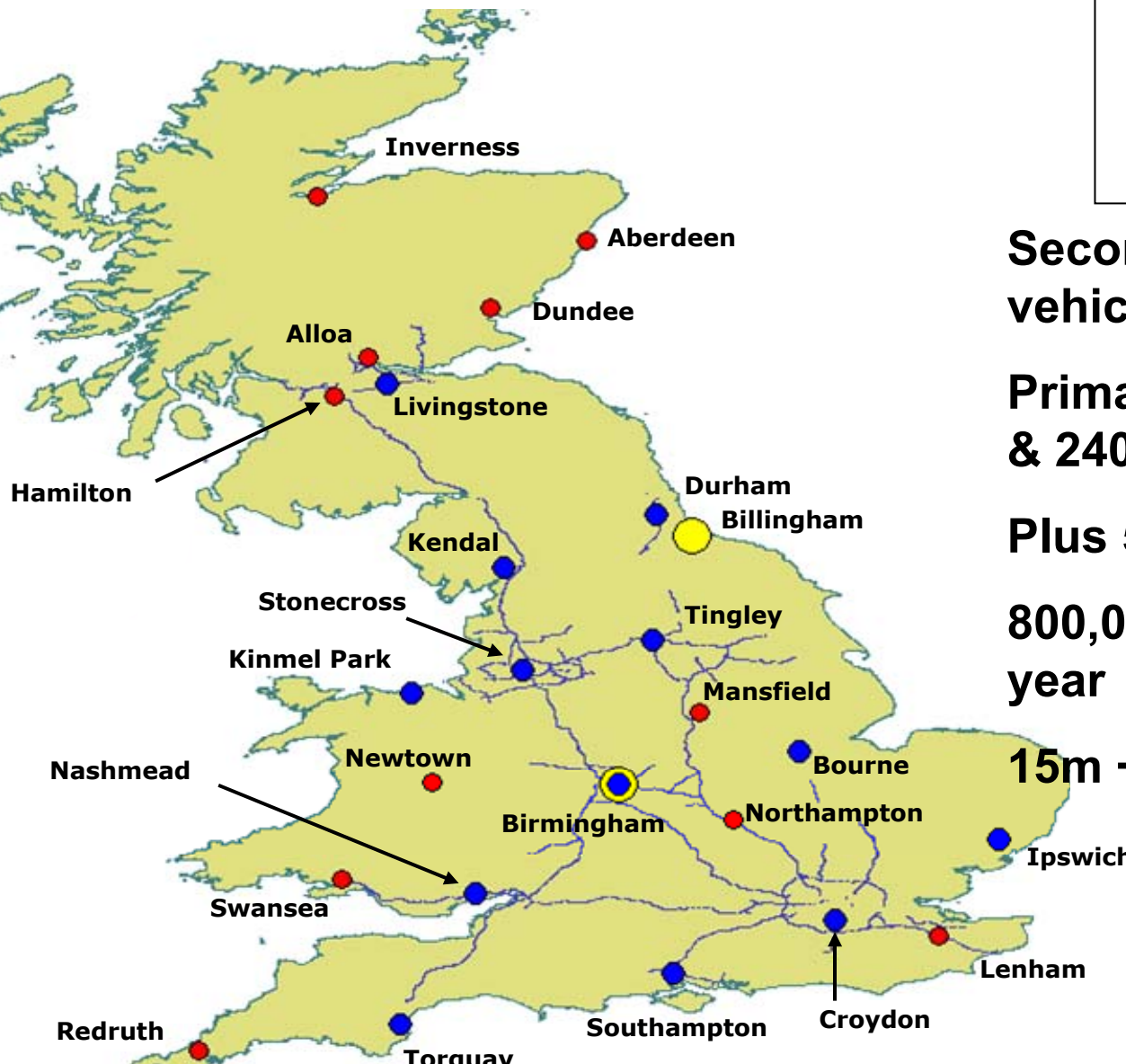


.....and probably the only UK national brewer with in-house distribution

Carlsberg UK Locations

Key:

- Depot
- Outbase
- W&S/Mother



Secondary fleet 300 vehicles & 170 trailers

Primary trunk – 53 units & 240 trunk trailers

Plus 541 MHE

800,000 + deliveries per year

15m + Km's per year



How BTAC Fuel Trails have helped Save Carlsberg

- 1 Objective**
- 2 Putting fuel spend in perspective**
- 3 Carbon saving – it's more than just fuel**
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- 6 Telematics – Fleet Manger's panacea or data overload?**
- 7 Recommendations for new vehicles for 2010 and next generation beyond**

the vision; “To ensure every £ spent of fuel is used as efficiently as possible by adopting best practises based on FACTS.

to meet the challenges of environmental concerns from government, public and our customers”



Carbon saving – it's more than just fuel:

OUTCOMES ACHIEVED BY CARLSBERG INCLUDE:

Redesigned and re-specified vehicle fleet to reduce emissions and improve efficiency (e.g. New City Dray, Euro 5, best practice aerodynamic bodies, speed limited, low emission zone compliance)

SAFE (Safe and Efficient Driving) at all depots has improved fuel efficiency by up to 15%

Driver and vehicle MPG monitored against benchmark targets to reduce overall fuel usage by 5%

Updated fuel specification to include a 5% bio-fuel mix

M&M – All vehicles on planned maintenance to run at optimum performance (incl. smoke and brake tests)

Tires re-grooved and remoulded to reduce energy used in tyre manufacture by 50%

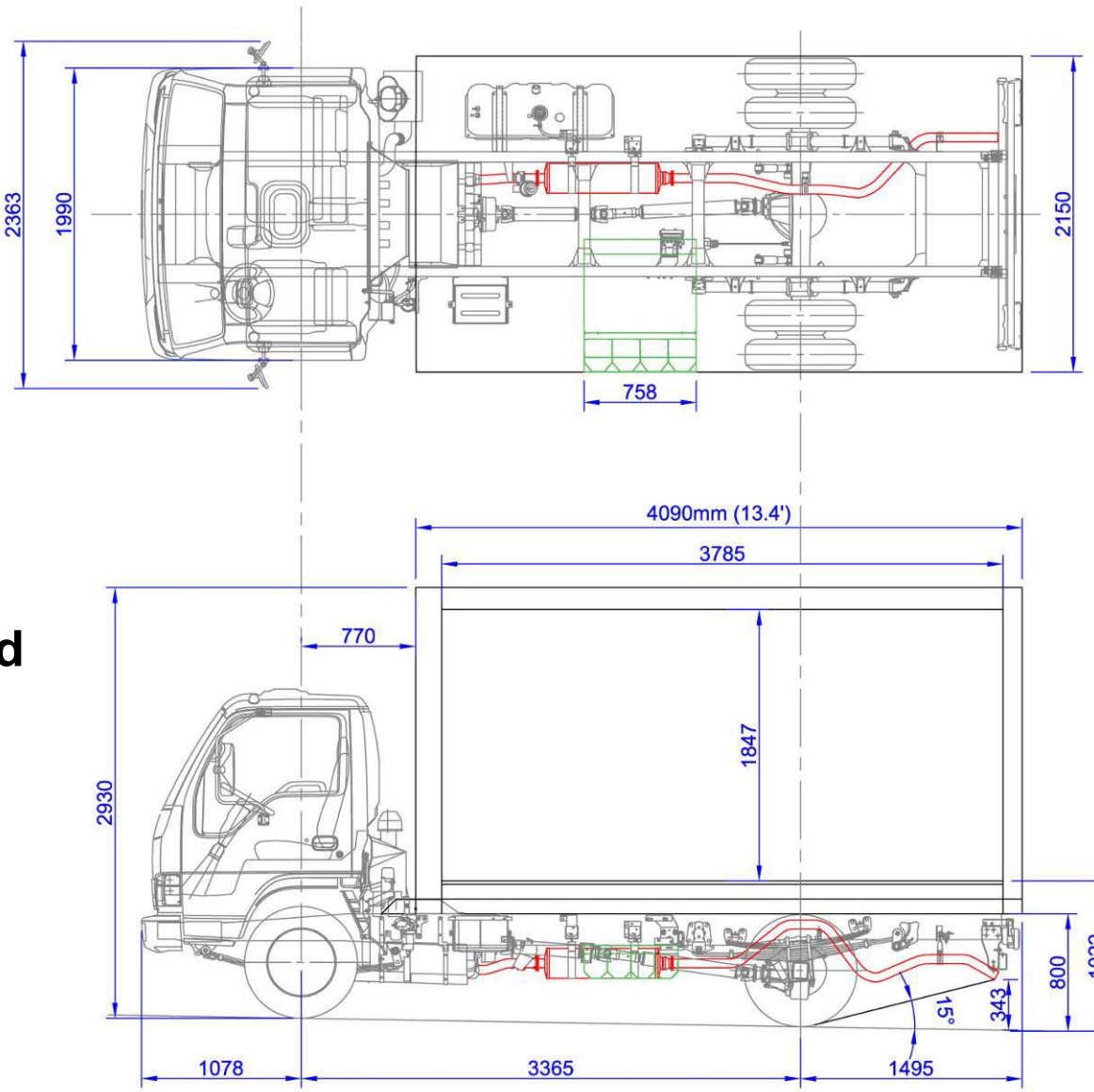


New concept of small narrow vehicle replaced normal 7 rigid and panel van

ty Dray”

concept
small truck
racing need
types

saved as
vehicle used
head of two



Previous chassis
overhang 1617mm
Spare tyre removed

Isuzu 7.5 tonne
proven and
“bullet proof”
with auto gear
and speed limit

Turning circle
good as a panel
van but dray box
designed for heavy
brewery use

Examples of savings as a direct result of BTAC trials: 61 tonnes B-tr



Now this did get my Operations colleagues excited – for a few minutes at least!

BUT it did provide good data for debate with the Trade Association

Reduce top speed – can't be difficult can it?

Some reasons given – BEFORE BTAC data from Trails was used to win buy-in:

Scania unit not geared for economy at 52 mph (says contractor)

We wouldn't meet delivery time windows (says duty managers)

We will cause congestion on Motorways (says drivers)

Don't think saving is worth that much (anonymous)

52 mph

Result – FACTS: fleet switch P4 last year, the average being 7.8 mpg, since then running at approx. 8.3 – so a 7.8% improvement or £200k per year

How do you measure? Do you REALLY believe your data?



CUK had a month trial of a urban artic – Telematics showed 1 mpg better than tank to tank

By the way, we had fifth wheel mounted correct way round

For *absolute* mpg data we always rely on BTAC fuel Trail data that weighs fuel used and adjusts for SG and temperature

BUT you can't use BTAC Trails for every vehicle or even put drivers on test tracks, so we input Triscan data into our own fleet tracker system reports

We report both vehicle and driver mpg weekly to operations and target those drivers that could benefit from training most

Future? Many factors must be considered – “you pay your money and

	Climate impact	Energy efficiency	Land use efficiency	Fuel potential	Vehicle adaptation	Fuel cost	Fuel infrastructure
Biodiesel	☁☁	⚙️⚙️⚙️	🌱	⚙️	🚛🚛🚛🚛🚛	💰💰💰	🚛🚛🚛🚛
Synthetic diesel	☁☁☁☁☁	⚙️⚙️⚙️ / ⚙️⚙️⚙️	🌱🌱🌱	⚙️⚙️⚙️	🚛🚛🚛🚛🚛	💰 / 💰💰💰	🚛🚛🚛🚛🚛
DME – Dimethylether	☁☁☁☁☁	⚙️⚙️⚙️ / ⚙️⚙️⚙️⚙️	🌱🌱🌱 / 🌱🌱🌱🌱	⚙️⚙️⚙️⚙️	🚛🚛🚛	💰 / 💰💰💰💰	🚛🚛
Methanol/Ethanol	☁☁☁☁ / ☁☁☁☁	⚙️⚙️⚙️ / ⚙️⚙️⚙️⚙️	🌱🌱🌱 / 🌱🌱🌱🌱	⚙️⚙️⚙️⚙️	🚛🚛🚛	💰 / 💰💰💰💰	🚛🚛🚛
Methanol/Ethanol	☁ / ☁☁☁	⚙️ / ⚙️⚙️⚙️	🌱 / 🌱🌱	⚙️⚙️⚙️	🚛🚛🚛	💰 / 💰💰💰	🚛🚛🚛
Biogas	☁☁☁☁ / ☁☁☁☁	⚙️⚙️⚙️	🌱🌱🌱	⚙️⚙️⚙️⚙️	🚛	💰 / 💰💰💰	🚛
Biogas+Biodiesel	☁☁☁☁	⚙️⚙️⚙️⚙️	🌱🌱🌱🌱	⚙️⚙️⚙️⚙️	🚛🚛🚛	💰 / 💰💰💰	🚛
Hydrogen+Biogas	☁☁☁☁ / ☁☁☁☁	⚙️⚙️⚙️	🌱🌱🌱🌱	⚙️⚙️⚙️⚙️	🚛	💰 / 💰💰💰	🚛

Source: Volvo trucks

CO₂ emissions have been reduced by 80% in last 15 years -
 NO_x emissions are still decreasing

PM (g/kWh)

0.36

0.15

0.10

0.02

0

0

1

2

3

4

5

6

7

8

NO_x (g/kWh)

**Eu1
(1993)**

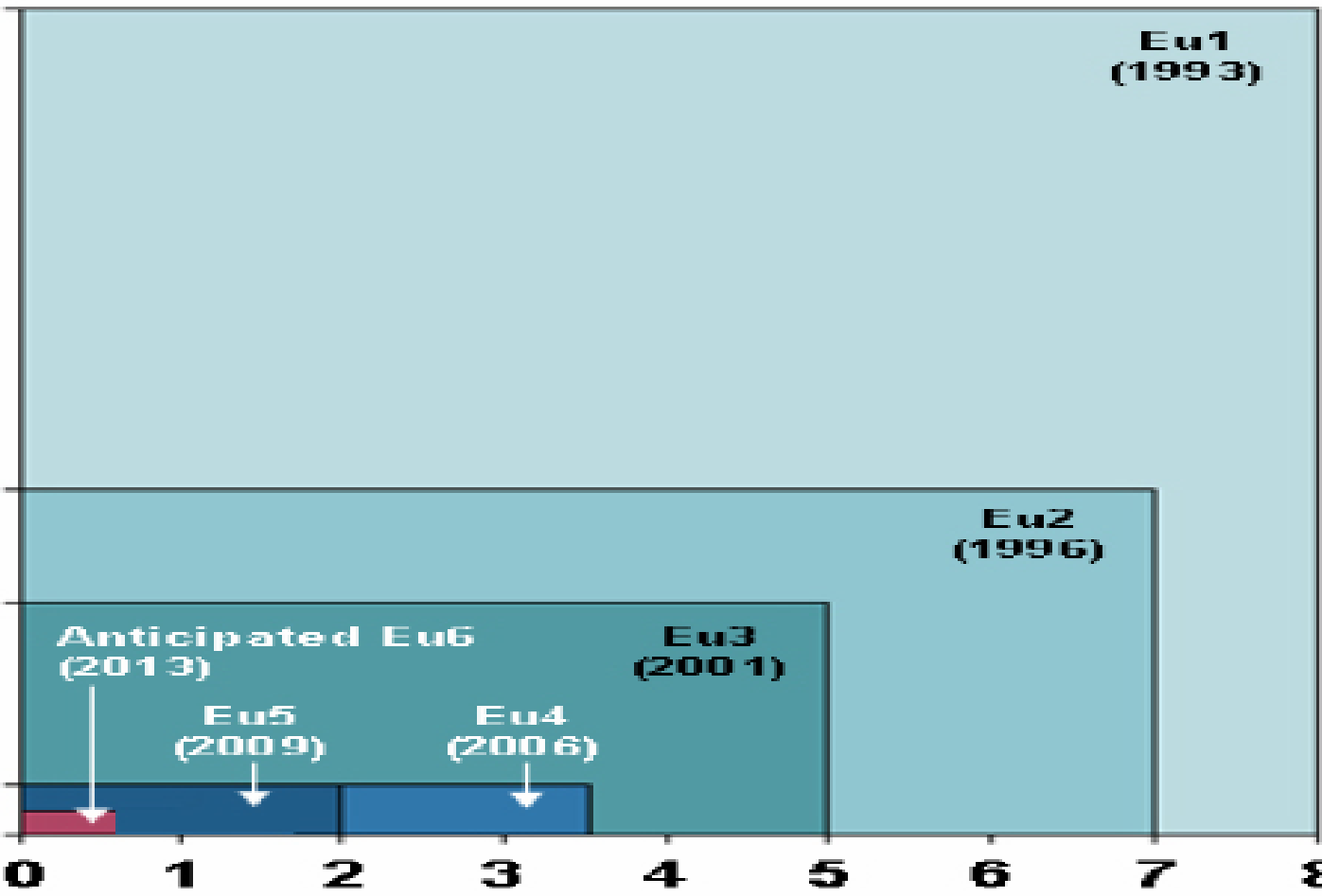
**Eu2
(1996)**

**Eu3
(2001)**

**Eu4
(2006)**

**Eu5
(2009)**

**Anticipated Eu6
(2013)**



OPTIONS:

Seven alternatives – 3 liquid and 4 gas fuels plus hybrid (source: Volvo Trucks)



– truck manufacturers make no mention of the hydrogen fuel cell – which car manufacturers are working on; and MB for buses

Emissions

Dash for clean Gas?

(source Mercedes Benz Denmark)

	CO (g/kWh)	HC (g/kWh)	NO _x (g/kWh)	Partikler (g/kWh)
01.10.05	4,0	0,55	3,5	0,03
01.10.09	4,0	0,55	2,0	0,03
untary	3,0	0,4	2,0	0,02
01.01.2014	1,5	0,13	0,4	0,010
values (EC certificate)	0,0	0,0	1,9	0,003

So is gas the answer?

facts the manufacturers don't tell you about gas:

BTAC trials with various diesel / gas LGV's never produce savings quoted – source BTAC Web site

Gas requires x6 size of tank for equivalent energy / kms of diesel

Packaging can be an issue where chassis is used for delivery aid equipment / CO2 bottle racks etc



Don't forget Maint. Workshops - might need additional safety features

Development of Bio-fuels – what cost?

Currently, total usage in EU is @1% of road vehicles fuel usage

target is by 2010 = 5.75%

2020 = 10%

note: CUK use 5% blend of bio-diesel from our supplier Petroplus. This equate to a 3% reduction in CO2

Key Issue: lack of effective Euro standard for bio-fuels over 5%

Manufacturers reluctant to agree to over 5% without engine modifications and increased oil / filter changing (which negates much of the benefits from bio-diesel)



Picture of MAN EGR urban fuel showing classic water emulsified fuel and bacteria residue left in bottom of tank. Repair cost £4k each time BUT where is water coming from?



The diesel engine

– efficient and future proof

Euro 6 emissions by 2013 mean “near zero emissions” with high quality diesel

(source: Cummins Diesels)



“...probably the most healthy and pleasurable form of transport in the world”



Zero
emissions
AND no
ad-blue or
ERG worr

Recommendations for New Vehicles for 2010 – and next generation beyond

**Gasoline powered vehicles: but to “best” emission level to take
advantage of reduced taxation and lower charges for City low
emission zone charging**

**CO2 neutral transport is attainable: but need fuel standards for
diesel or synthetic diesel to be nationally available.**

**The vehicle is only one element of any fuel strategy: we must
continue to invest in our drivers for SAFED type training AND
improved fuel monitoring**

**Use FACTS: BTAC membership with access to 28 years of
dependent fuel trials DOES help with decision making**

**Be proud and shout louder of our industry’s environmental
achievements - and share with your customers!**