

Freight Expectations

Future Opportunities and Threats for the Logistics Sector

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Heriot-Watt University

‘Navigating the Future’

Timber Transport Forum Conference

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The Five Cs



Consumption of fuel

Carbon emissions

Congested roads

Capacity of vehicles

Collaboration

Timber Logistics Trends 1991-2005

Tonnage delivered

+31.1%

modal shift to road

links in supply chain

growth of imports

Tonnes-lifted on road vehicles

+ 71.4%

Average length of haul

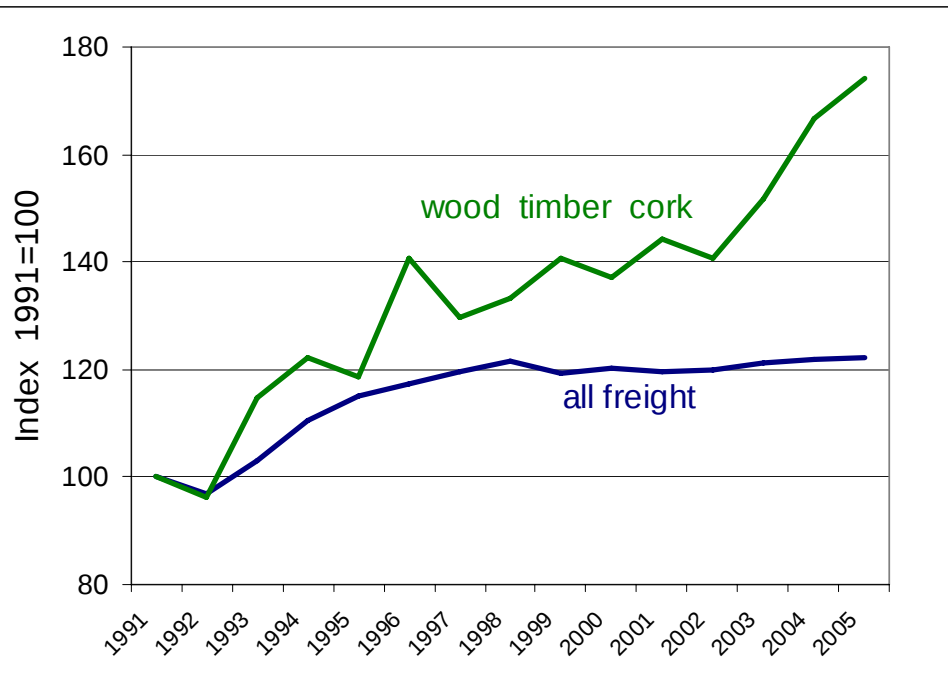
+ 1.5%

all freight 86 km

wood / timber 137 km

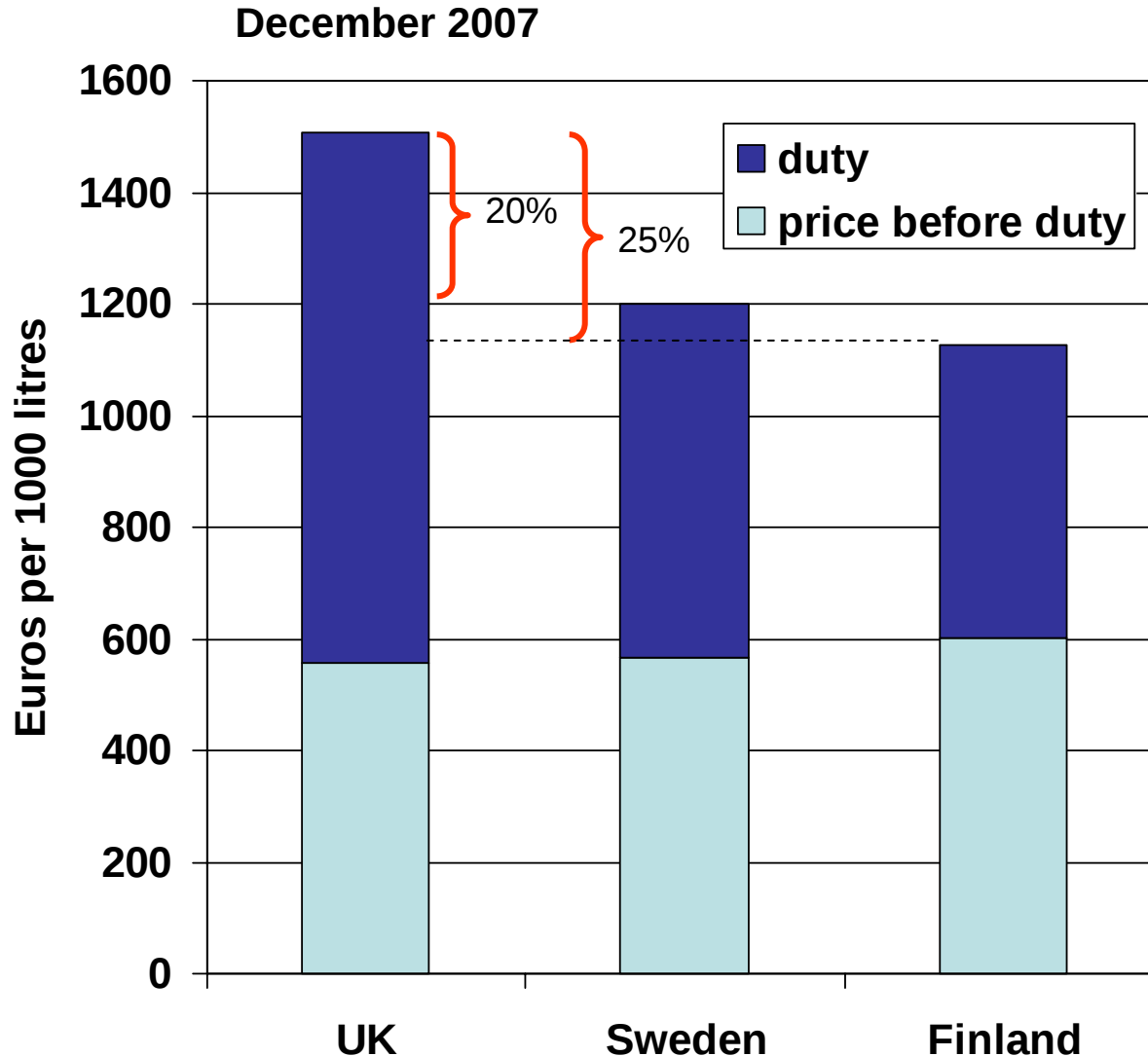
Tonne-kms by road

+74%



Consumption of Fuel

Impact of Fuel Price Differential on Price Competitiveness



Fuel = 35% of vehicle operating costs

Road transport cost = 35% of selling price of timber

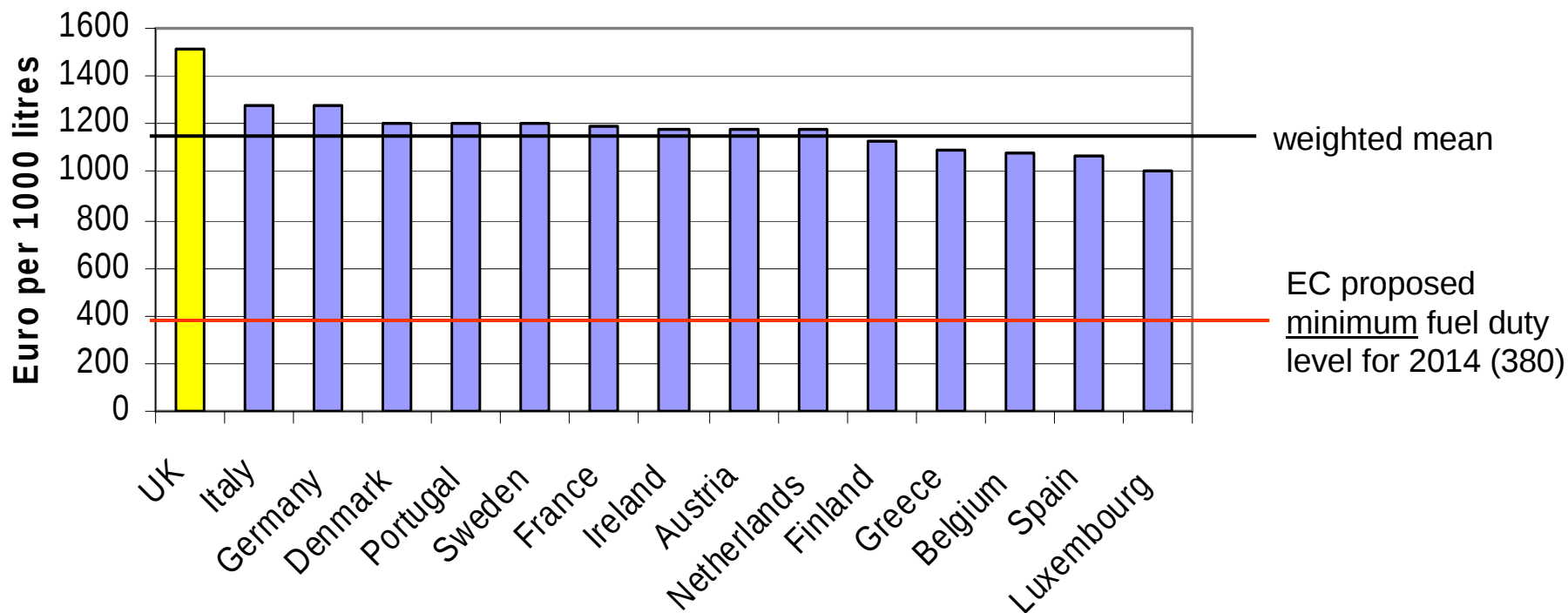
25% cheaper fuel

3% cheaper product

Other vehicle operating costs also lower:

Latvian road haulage rates 50% lower than UK

Variations in Diesel Fuel Prices (Dec 2007)



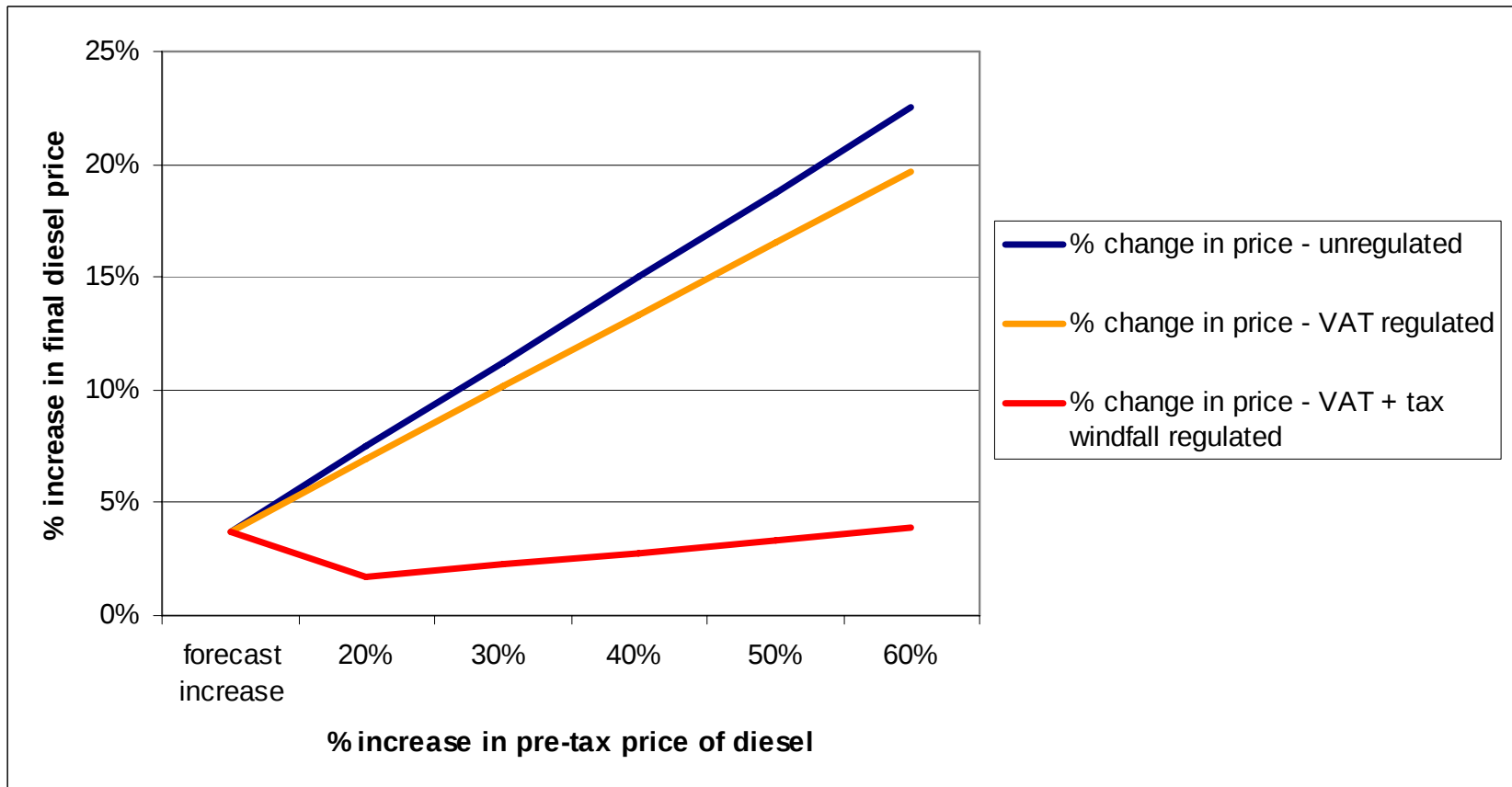
Data source: EC Oil Bulletin

Rejection of case for extending the use of red diesel to timber transport

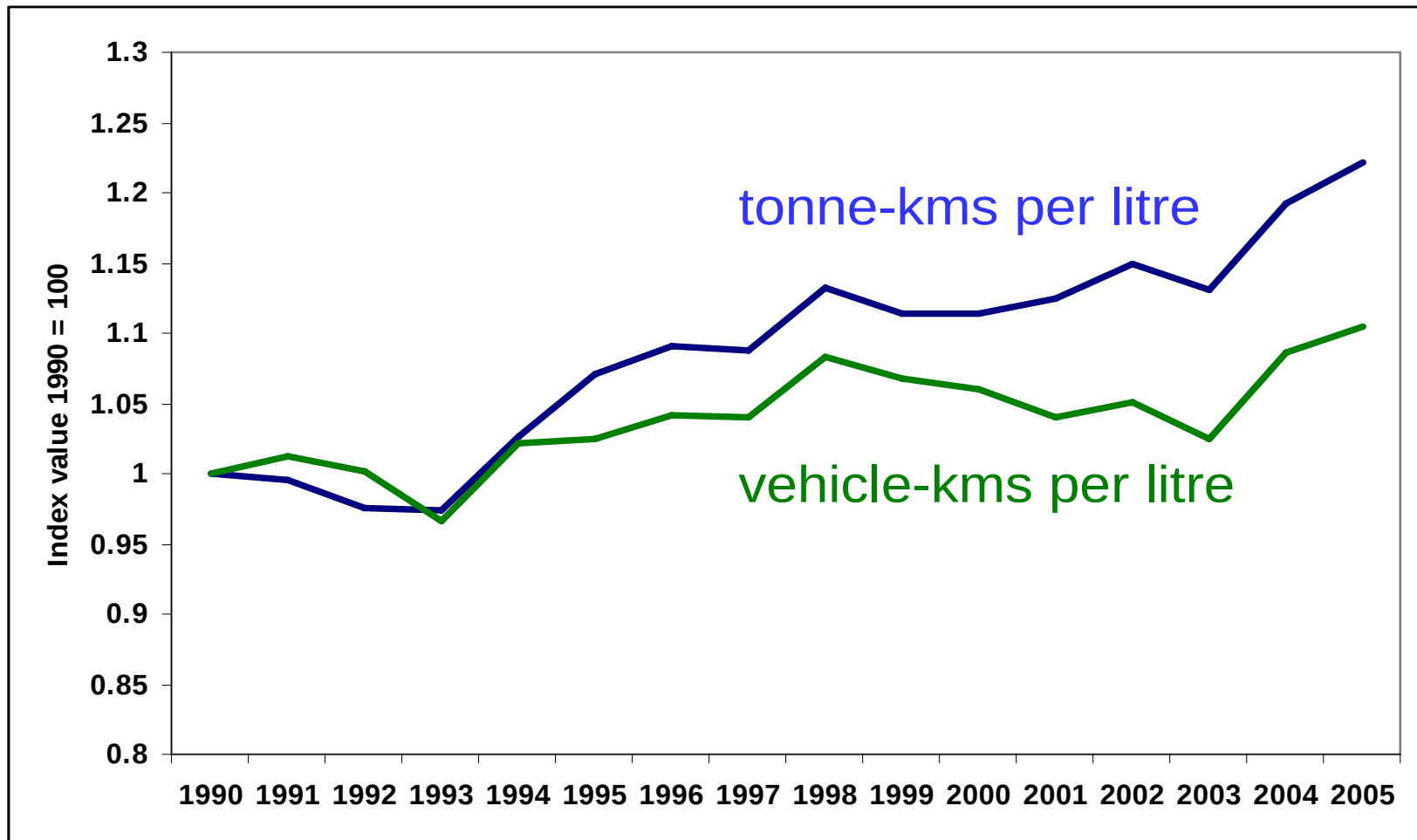
Impact of Fuel Price Regulator

Regulator 1: offset increase in market price of fuel with VAT surplus above forecast

Regulator 2: offset with VAT surplus above forecast + North Sea oil tax windfall



Increasing Energy Efficiency of UK Road Freight Transport



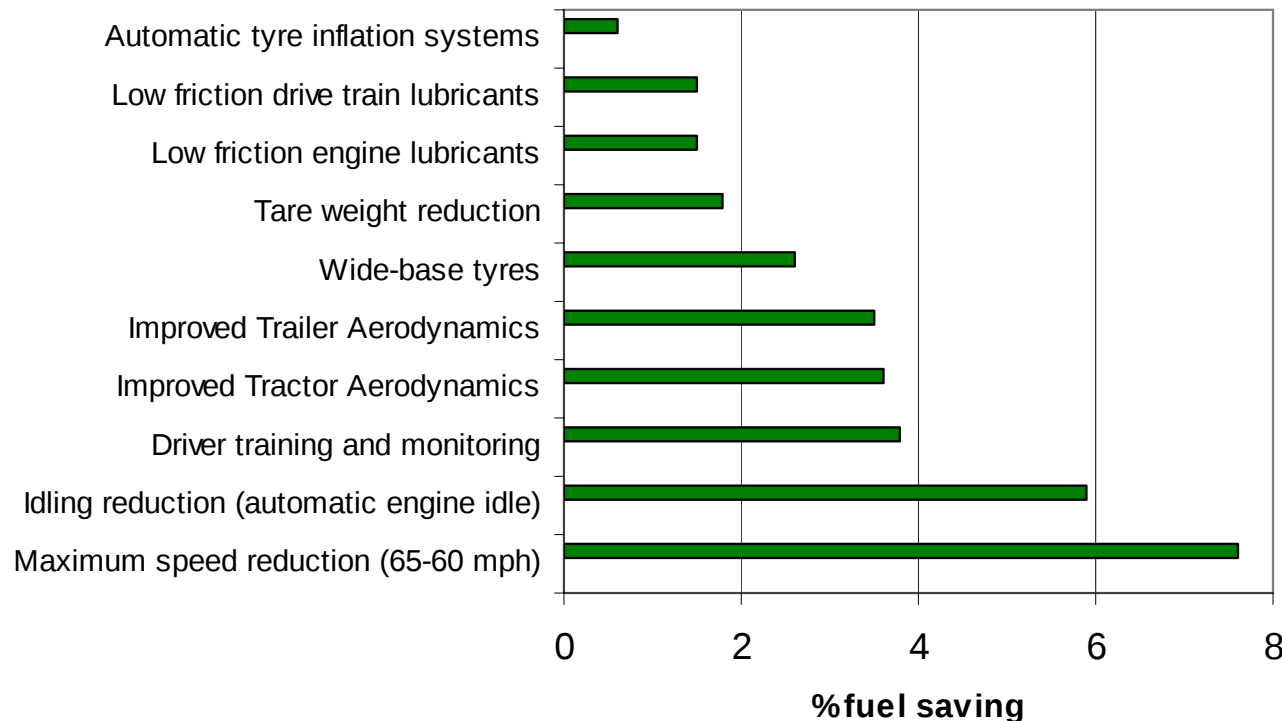
Source: DfT CSRGT

Prospects for Improved Truck Fuel Efficiency



	base	target	% reduction	saving	% of total saving
Engine losses (kWh)	240	143	40%	97	67%
Aerodynamic losses (kWh)	85	68	20%	17	12%
Tyres - rolling resistance (kWh)	51	31	39%	20	14%
Transmissions (kWh)	9	6.3	30%	2.7	2%
Auxiliary equipment (kWh)	15	7.5	50%	7.5	5%
Total	400	255.8	36%	144.2	100%

Woodroffe Assocs for US Dept of Energy



Source: Ang and Schroeer

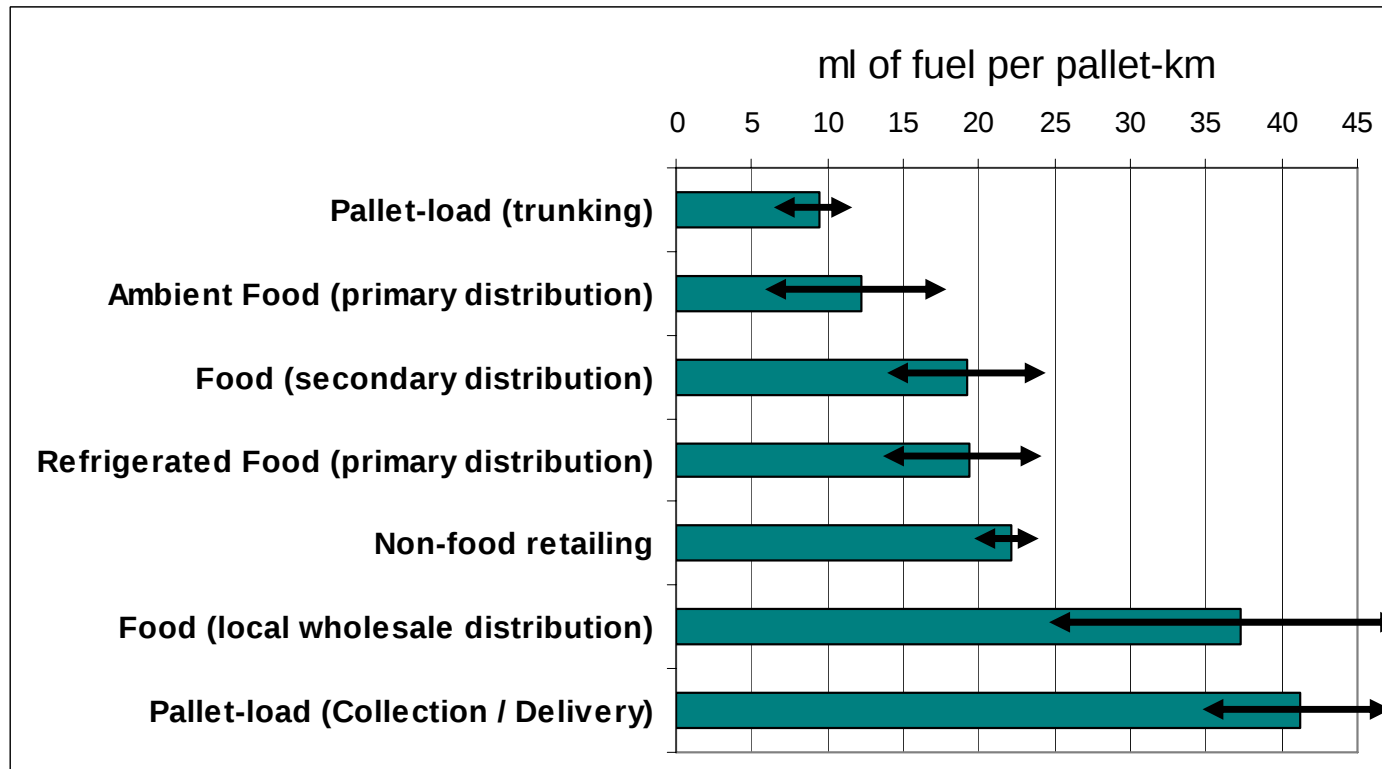
Transport KPI Benchmarking Surveys

Synchronised Audits of Transport Efficiency

Sector	Date	Fleets	Articulated vehicles	Rigid vehicles	Total	Trips	Distance Travelled (km)
Refrigerated food	1997	11	795	0	795	2981	519963
Food	1998	36	1393	182	1575	4024	1161911
Automotive	2001	7	143	50	193	679	179428
Food	2002	53	1446	546	1992	6068	1454221
Non-food retailing	2002	26	705	145	850	2496	744087
Pallet-load networks	2004	17	34	105	139	295	65880
Next day parcel delivery	2005	12	42	107	149	863	111464
Building merchants	2006	35	3	113	116	379	23120
Food and drink	2006	113	4,696	1,600	6,296	8,000	1,300,000
Totals		310	9257	2848	12105	25785	5,560,074

Reports available at www.freightbestpractice.org

Energy Intensity of Distribution Operations by Sector



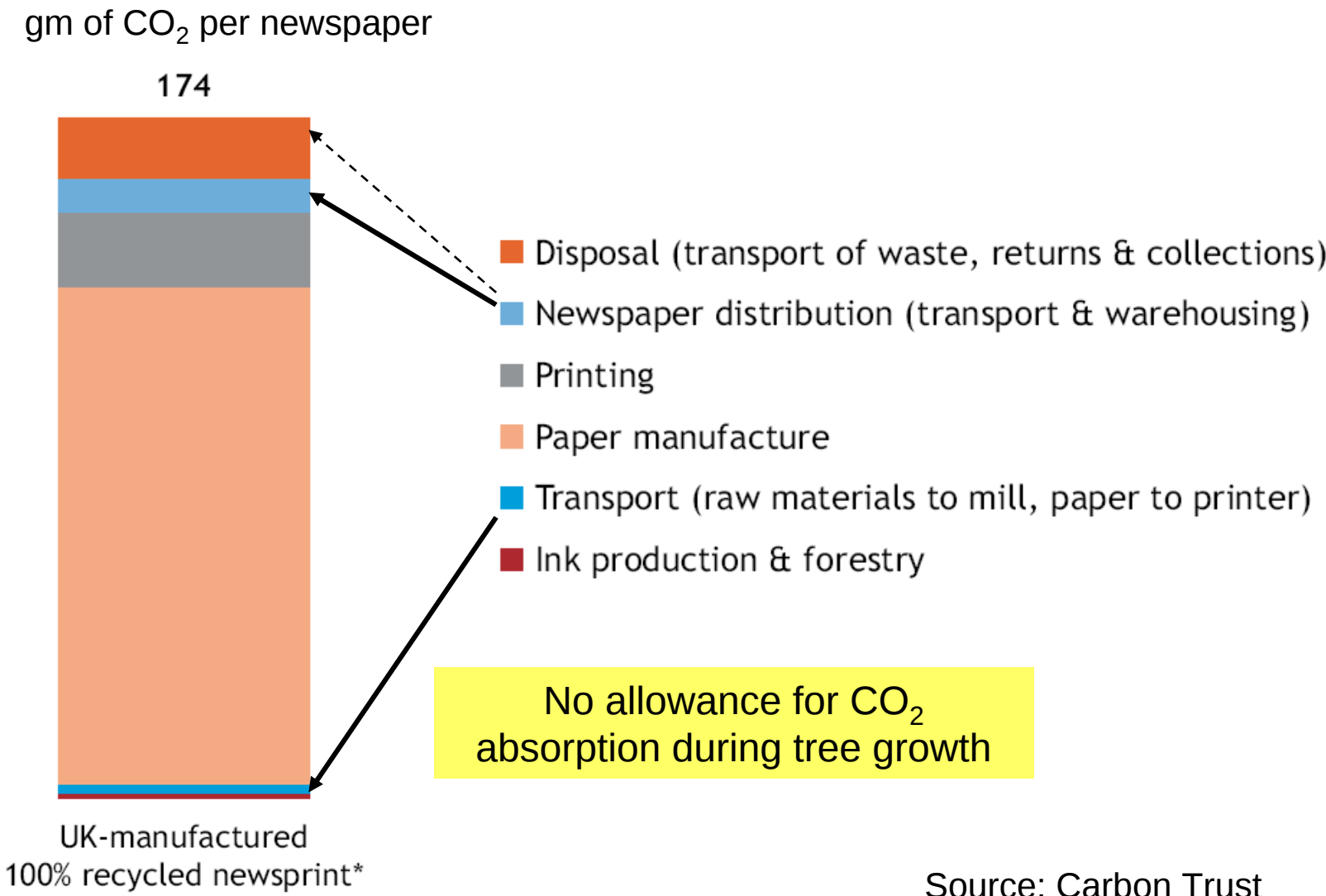
↔ 1 standard deviation around mean

Heriot-Watt dissertation project (2007):

Support for KPI benchmarking exercise in the timber transport sector

Carbon Emissions

Carbon Footprint of Newspaper Production, Distribution and Disposal



How much should governments' pay for carbon mitigation?

What carbon price should companies factor into the appraisal of carbon reduction measures?

How much is a tonne of carbon worth?

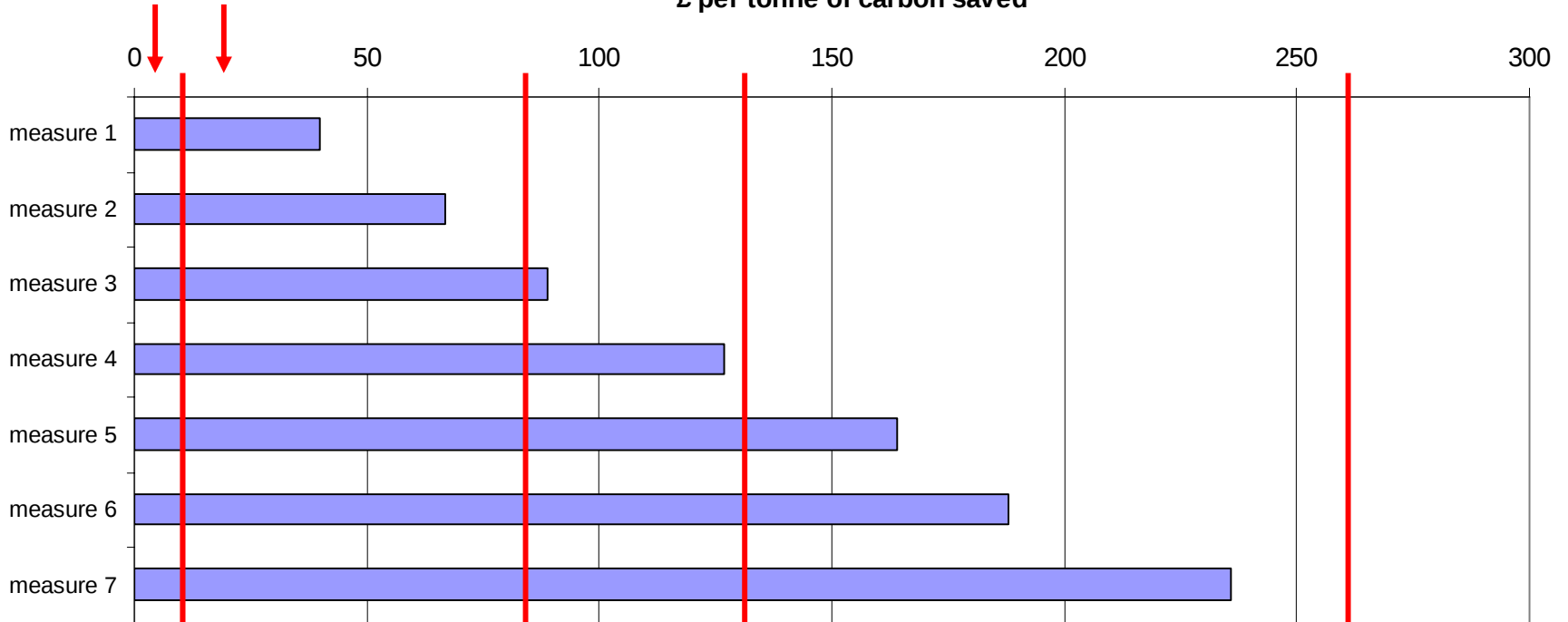
- European Emissions Trading system: spot price Dec 2007 £0.15
- Carbon offsetting cost (travel websites): £8-10
- European ETS: futures price Dec 2008 £17.50
- UK government economic service £82.00
- Implicit carbon price in average EU diesel fuel duty £130.00
- Stern estimate £265.00

Sustainable Distribution Measures

estimated cost per tonne of carbon saved

**European Emission Trading Scheme spot
price £0.015 – phase 2 £17.50 Dec 2008**

£ per tonne of carbon saved



**carbon offset
cost £8-10**

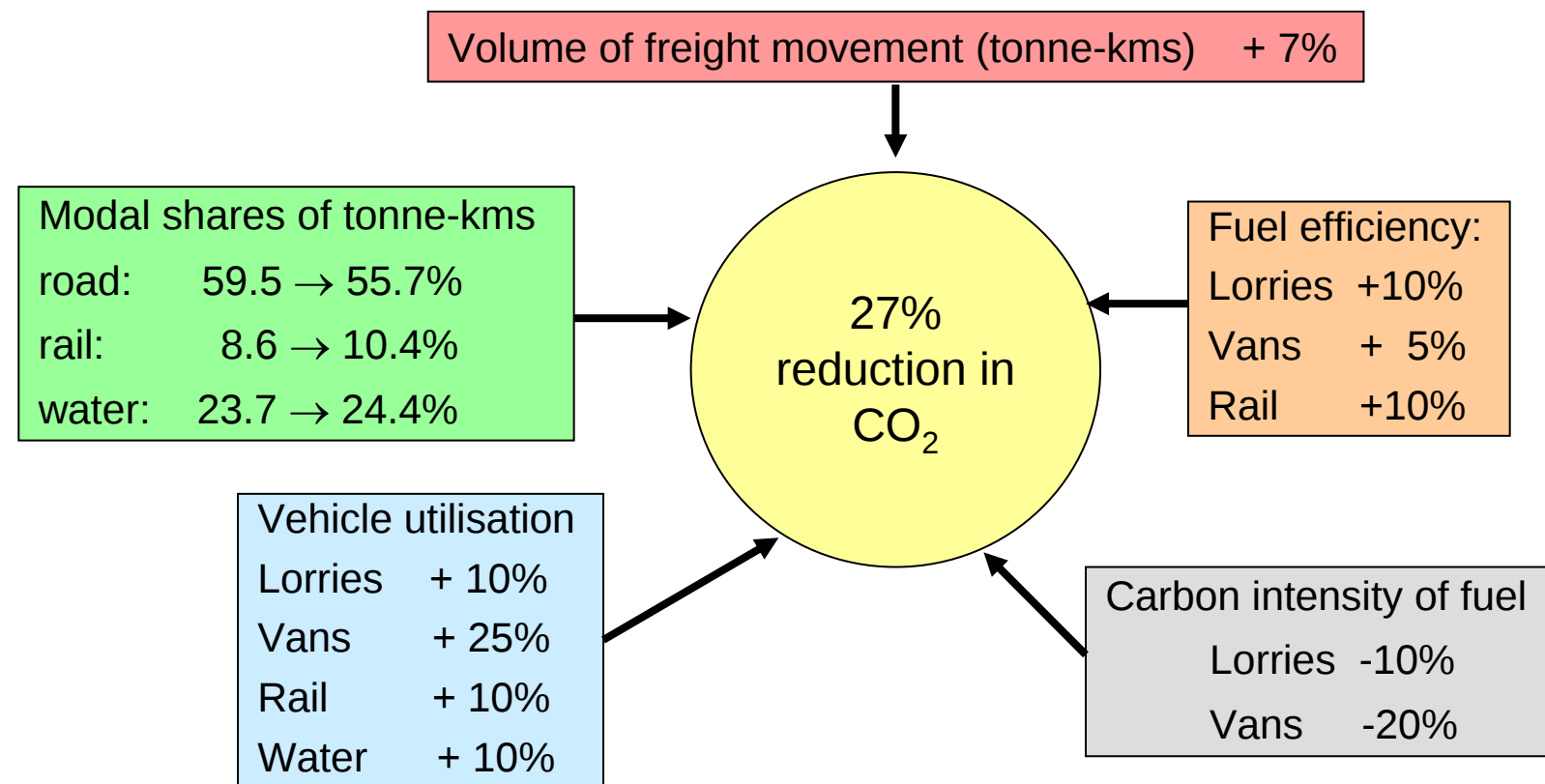
**Government Economic
Service (2007) £82**

**Average EU
fuel duty £130**

**Stern (2007)
£265**

Freight Transport CO₂ : Aspirational Scenario 2015

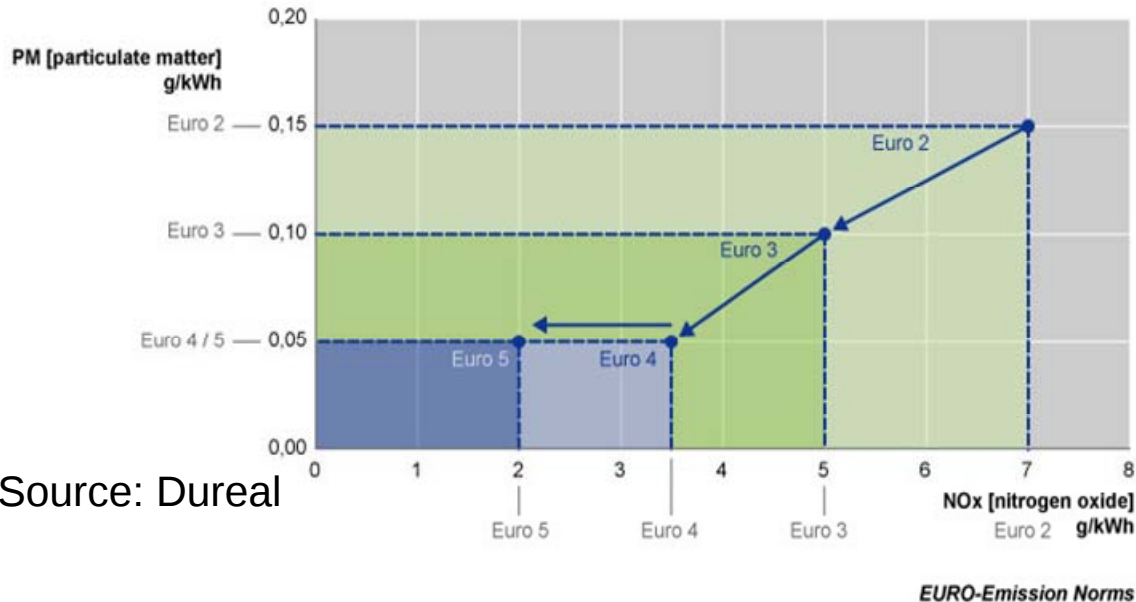
Baseline 2004



Source: McKinnon / Commission for Integrated Transport 2007

Reducing Emissions from Road Freight Transport

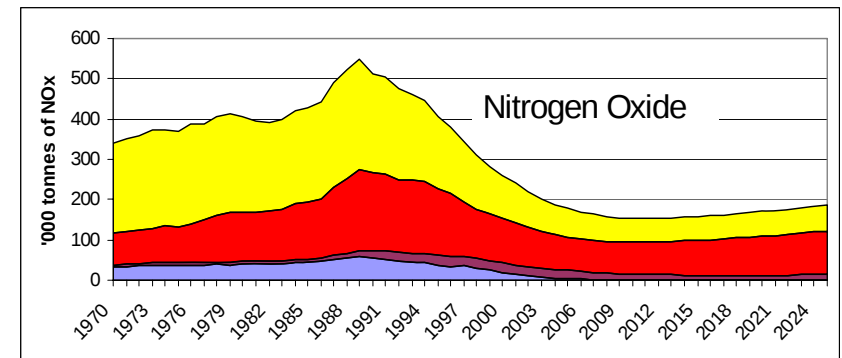
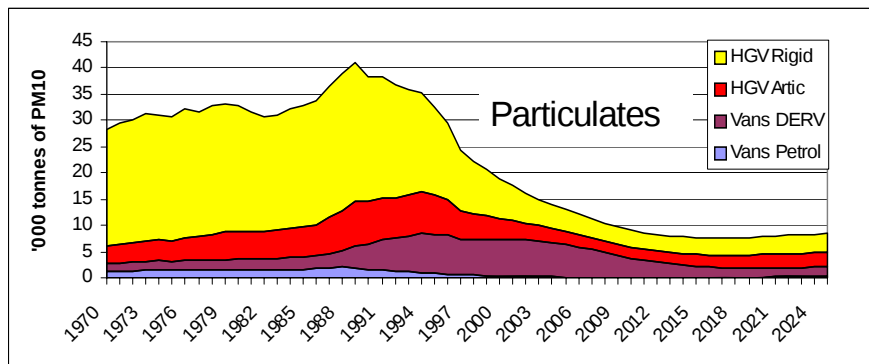
Effects of Tightening Euro-emission Standards



Euro 6 may carry 4-7% fuel efficiency penalty

CO₂ versus NO_x

Projected Emissions
from Road Freight
Operations in the UK

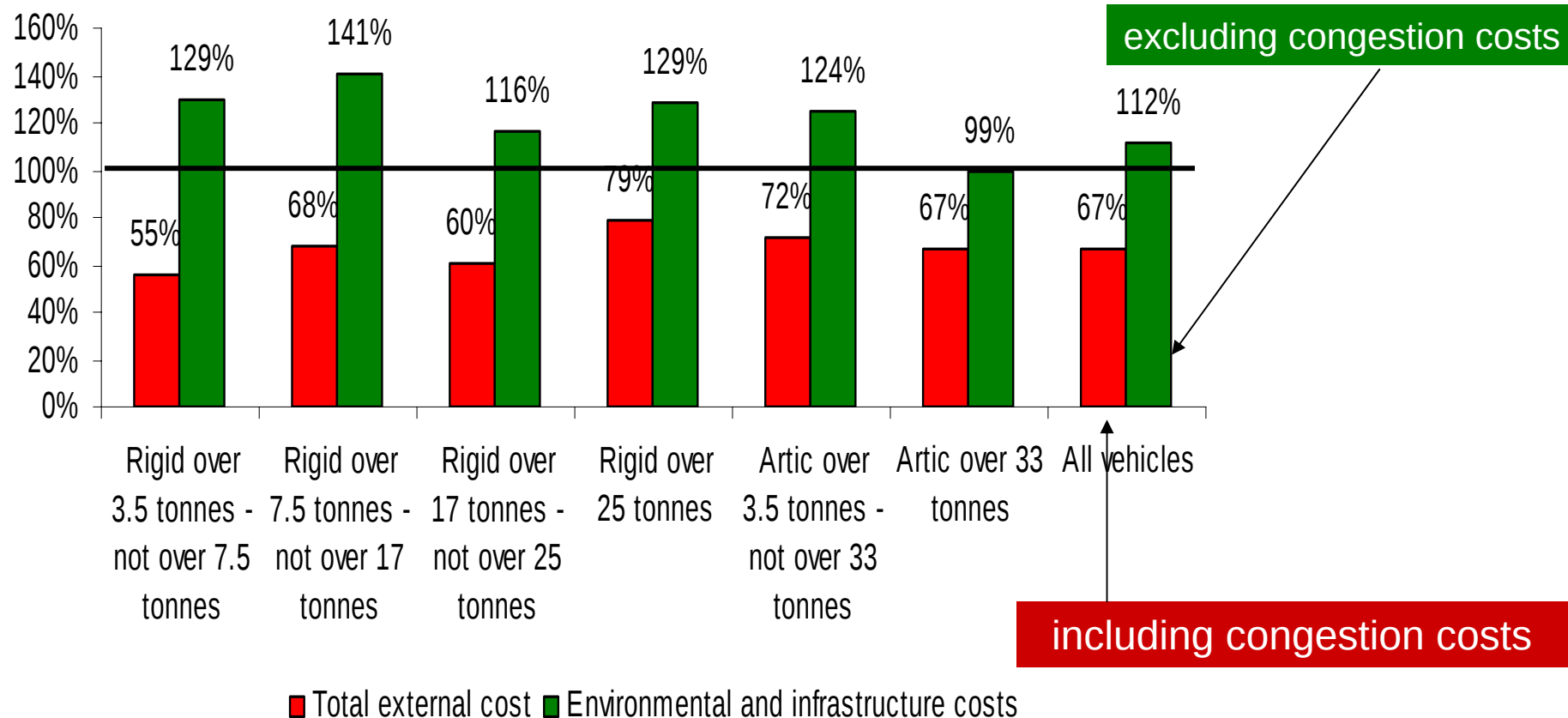


Source: UK Dept for Transport

Internalising the External Costs of Road Freight Transport

Taxes: VED, fuel duty + VAT

Externalities: emissions, noise, congestion, accidents and damage to infrastructure

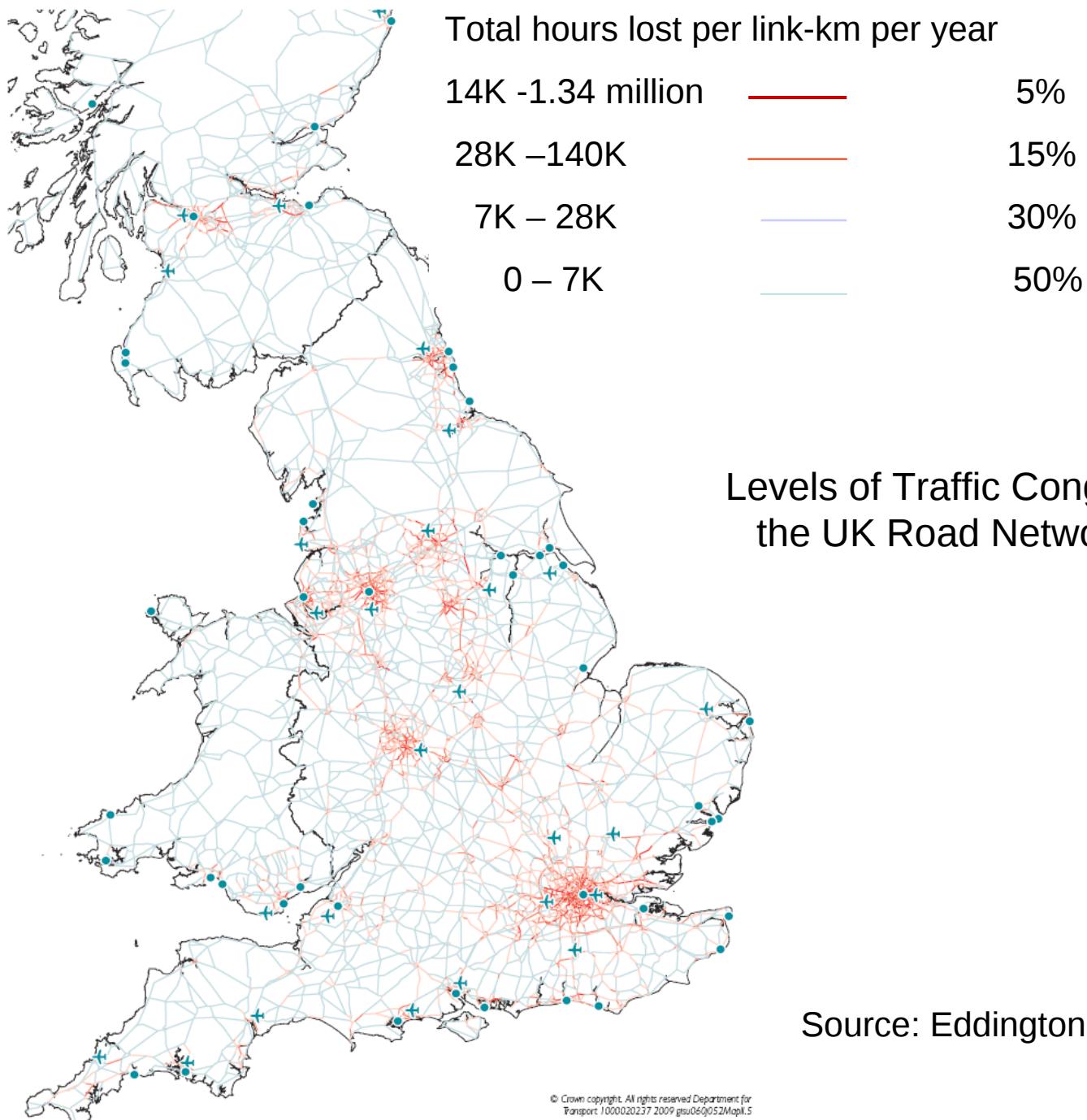


Congestion

Congestion

Eddington Report

- 8% of UK road traffic is subject to 'very congested conditions'
- Eliminating traffic congestion would save £7-8 billion per annum
- If no action is taken:
 - *road traffic and congestion will grow by 30% by 2025*
 - *13% of road traffic will be subject to 'stop-start travel'*
 - *Cost of traffic congestion will rise to £22 billion by 2025*
 - *'Costs to business and freight' will increase by 'over £10bn a year'*



Source: Eddington report, 2006

Eddington Report: *Recommendations*



- Adopt a '*sophisticated policy mix*'
- Some road building to '*unblock pinch points*'
- Improved traffic management schemes
- Promote public transport
- National system of road pricing – 'getting the prices right'
 - could cut congestion by 50% by 2025
 - reduce need for strategic road building between 2006 and 2025 by 80%
 - benefits worth £28bn / year by 2025 (including £15bn extra GDP)

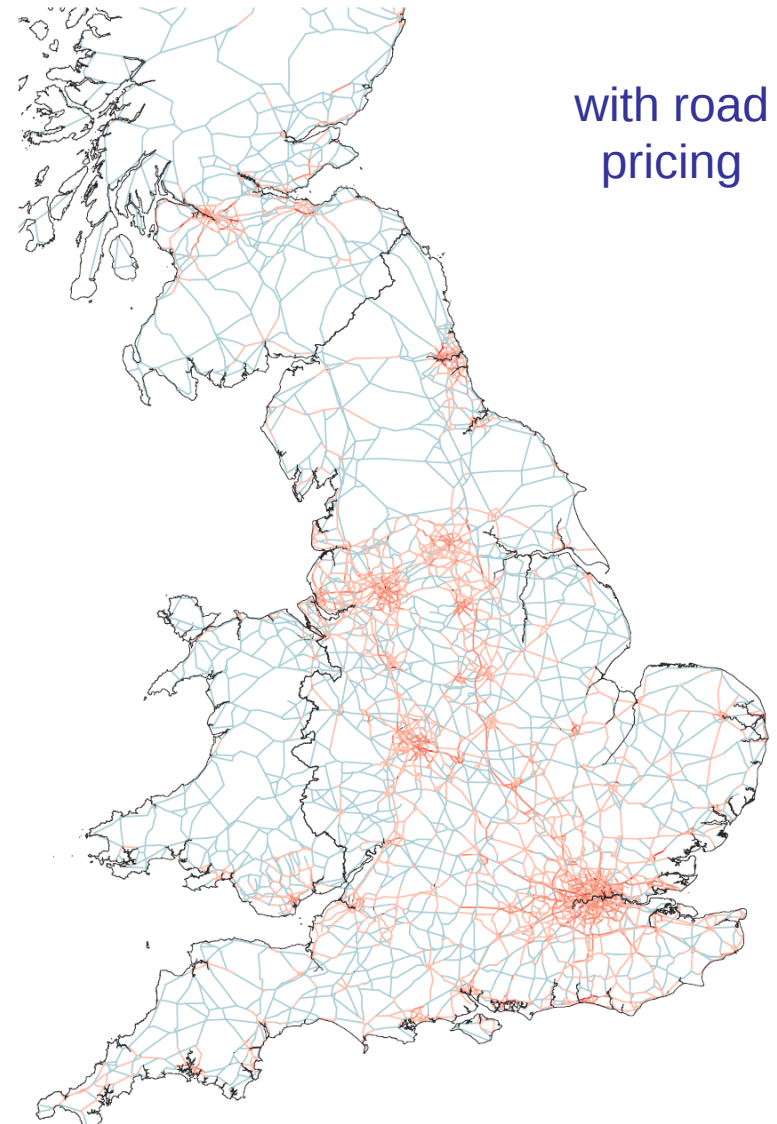
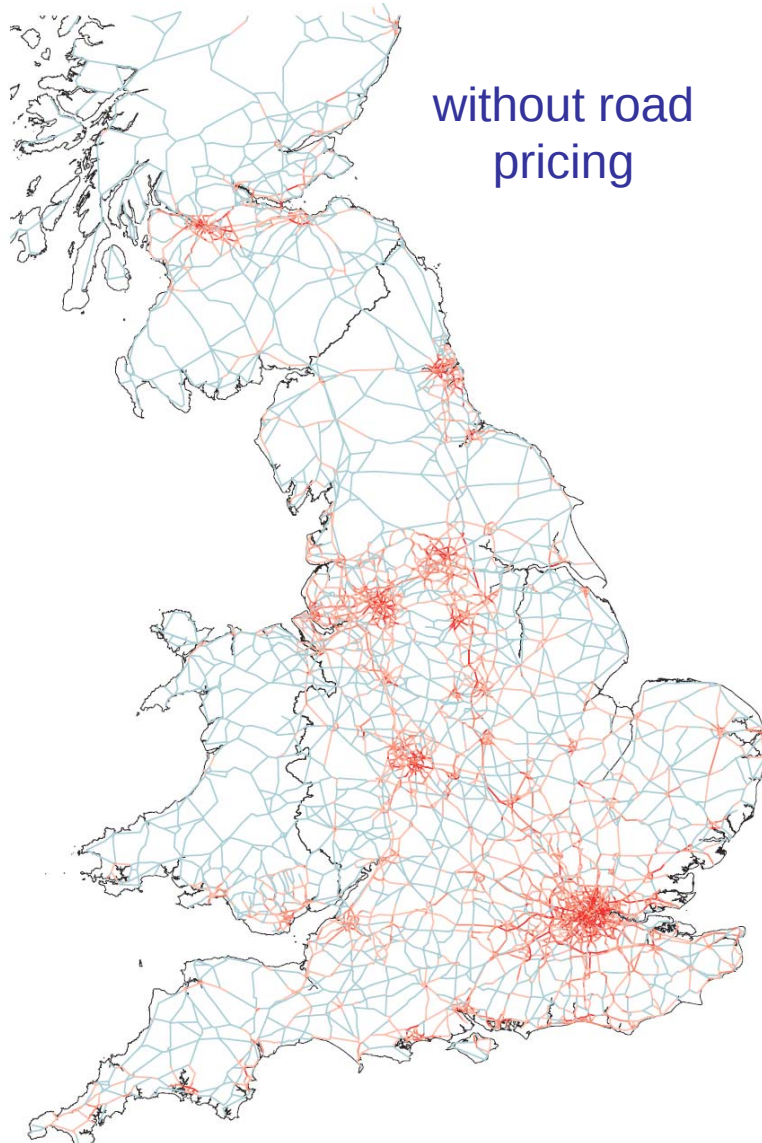
BUT: no estimate of the cost of national road pricing scheme

Department for Transport Road Pricing Feasibility Study (2004):

Estimated cost of national road pricing scheme: *set up cost £10 - 62bn*

'With uncertainty on this scale, it is impossible to come to a conclusion on whether road pricing would be value for money.' (House of Commons Transport Select Committee, 2005)

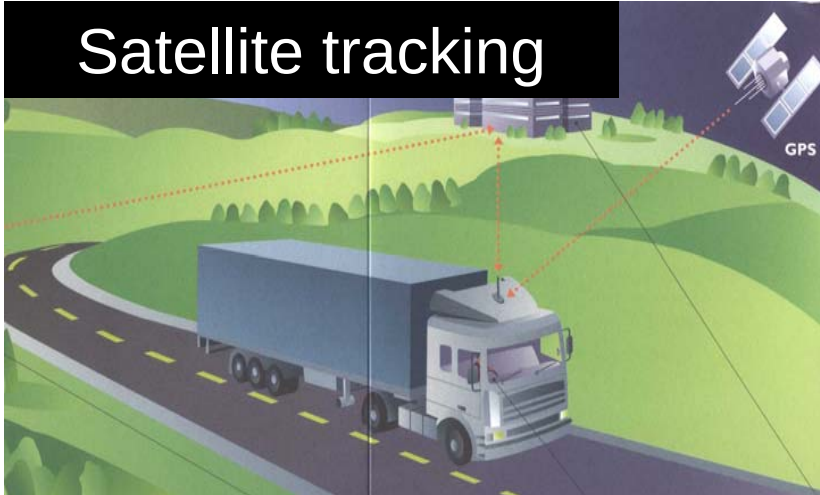
Road Congestion Patterns in 2025 with and without National Road Pricing Scheme



- General endorsement for Eddington recommendations
- *'We do not need a roads programme anything like as ambitious as planners envisaged at the height of 'predict and provide' in the 1980s, but we do need targeted increases in capacity.'*
- *'Urban congestion charging, backed by investment in public transport, is our priority.....while it is possible that road pricing could have the potential to be extended to include other parts of the national network, **that is a decision for the future** – to be informed by the development of local schemes... and clear answers to the technological and system challenges'.*
- No time-scale for the development of a national road pricing scheme

Tolling Technology: different systems

Satellite tracking



Swiss Heavy
Vehicle Fee

Dedicated Short Range



Austrian LKW-Maut

German Toll-Collect



On Board Unit



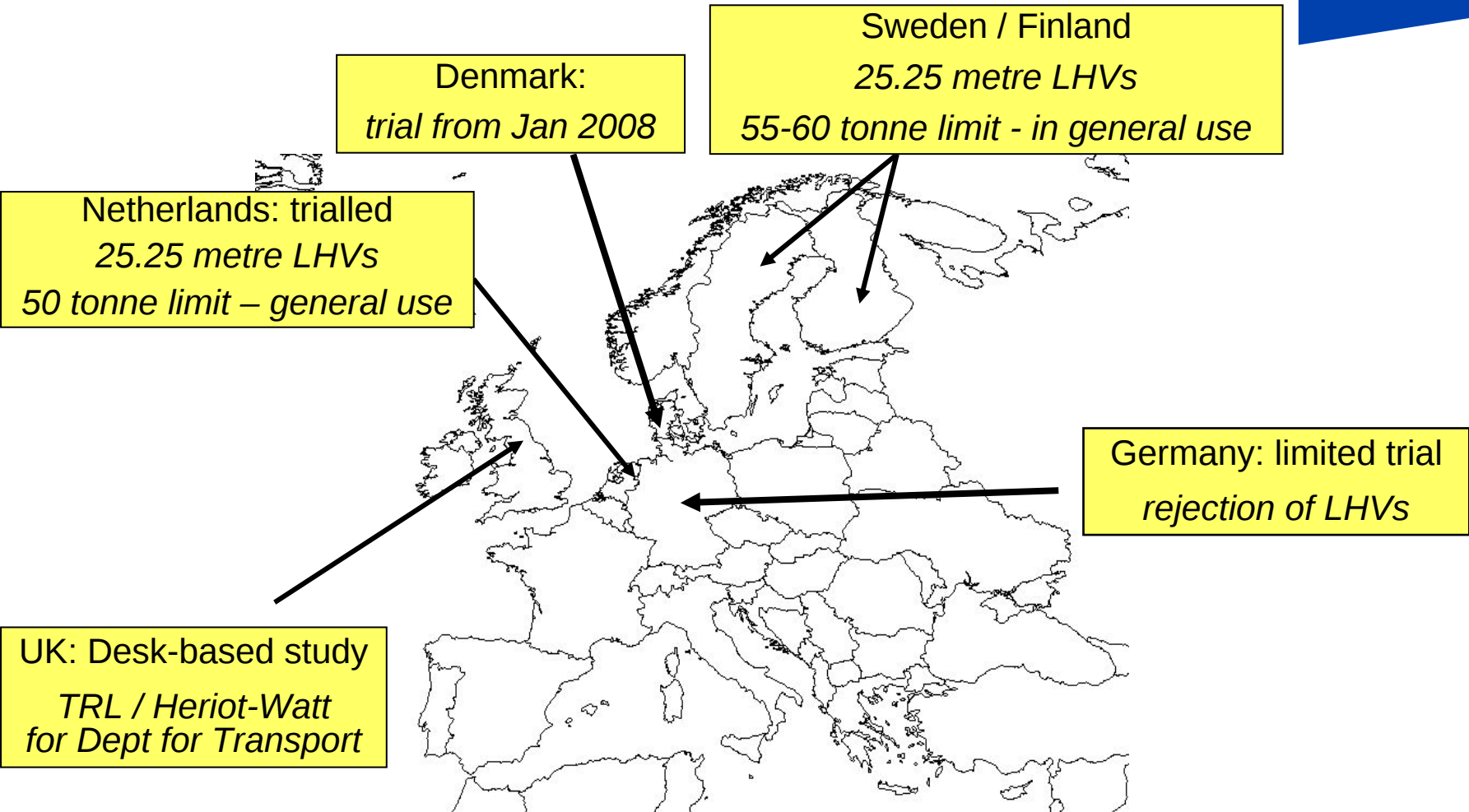
OBU linked to
tachograph



Go-box

Capacity of vehicles

Longer and Heavier Vehicles in Europe



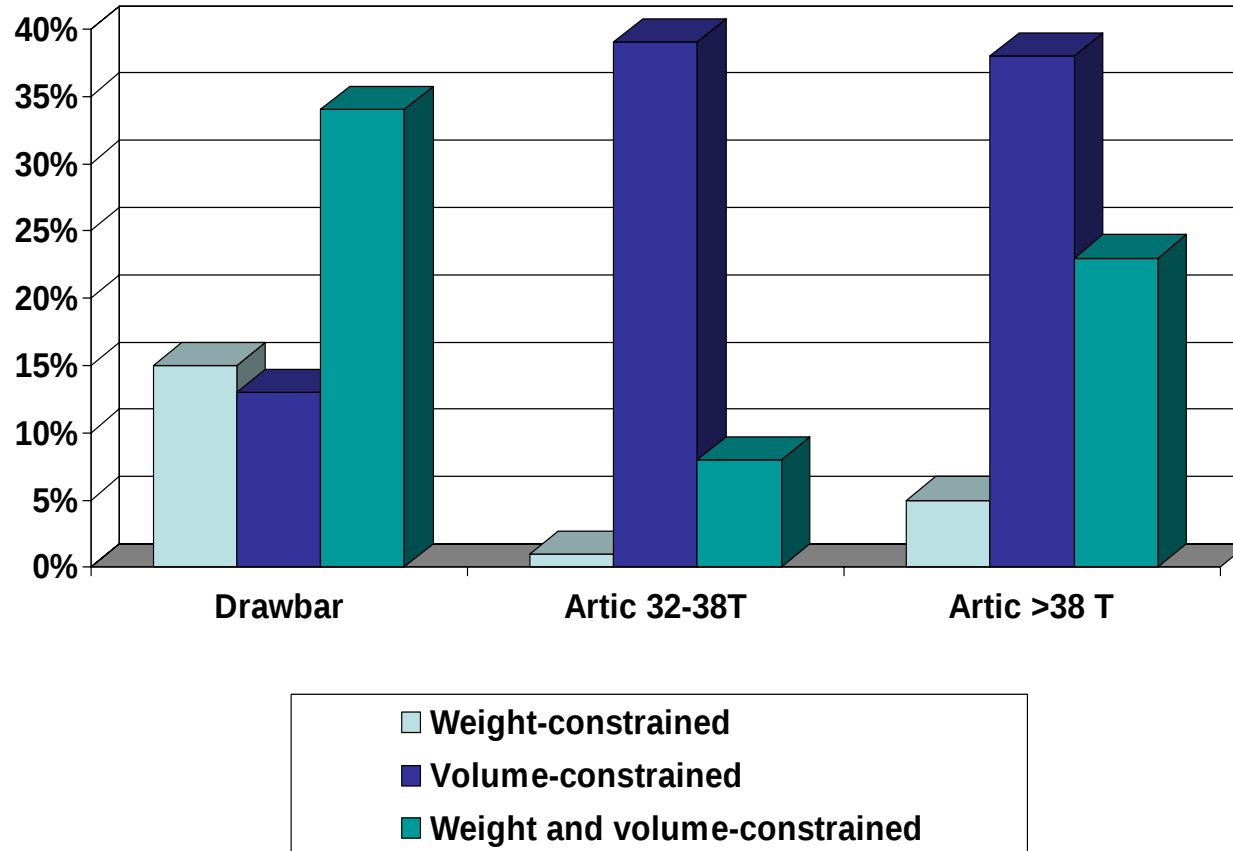
Timber Transport Forum workshop at Heriot-Watt University – April 2007

LHV Scenarios



Scenario	Configuration	Regulation	Capacity	Axles
1	baseline	Current regulations	Scope for increase on DDs and 44 t lorries	6
2	Longer semi-trailer 18.75 metres	Increased length No gross weight increase	Increased cube less weight	6
3	Longer semi-trailer 18.75 metres	Increased length Payload neutral weight increase	Increased cube current weight	6
4	Increased load length 25.25 metres	Increased length No gross weight increase	Increased cube less weight	8
5	Increased load length 25.25 metres	Increased length Payload neutral weight increase	Increased cube current weight	8
6	Increased load length 25.25 metres	Increased length Gross weight increase to 60 t	Increased cube increased weight	8
7	Increased load length 34 metres	Increased length Payload neutral weight increase	Increased cube same weight as 6.	11
8	Increased load length 34 metres	Increased length weight increase to 82 t	Increased cube increased weight	11

% of loads constrained by volume and weight



Emphasis on increasing cubic capacity / floor space of vehicle

Concerns



Infrastructural constraints:

- Level of investment required to upgrade network / parking facilities
- Practicalities of restricting LHVs to particular networks

Safety:

- UK unlikely to be permitted by EU regulations to introduce desired safety features

Modal shift from rail:

- Prediction of significant mode shift to 25m and 34m LHVs
- Strong lobbying by railfreight sector

Public opposition:

- opinion poll evidence

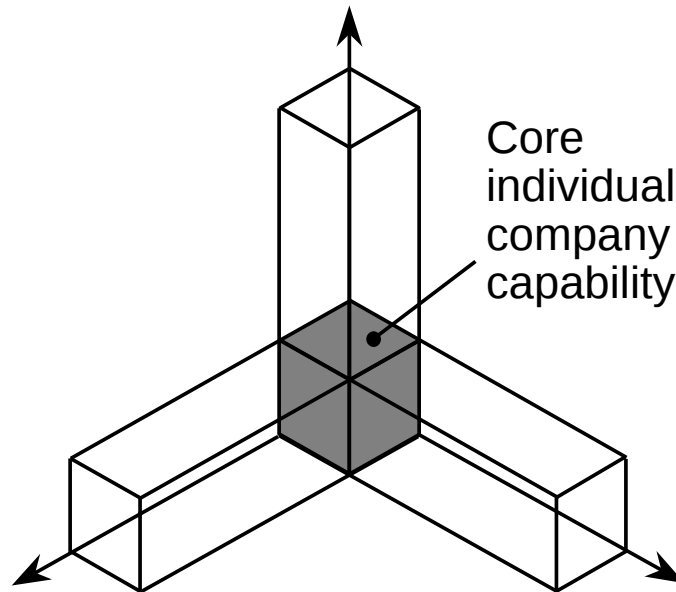
[Read the full report](#)

Collaboration

Dimensions of Supply Chain Collaboration

Vertical collaboration

Between companies at different levels in the supply chain



Horizontal collaboration

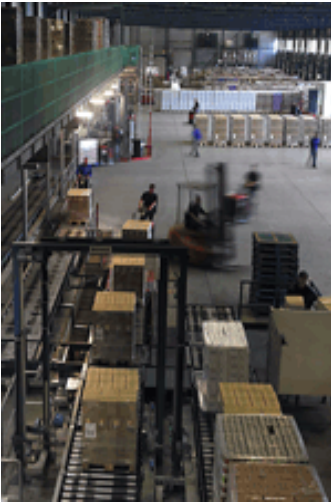
Between companies at the same level in the supply chain

Collaboration with Logistics Service Providers

Creation of partnerships

European Petrochemical Association
www.epca.be

Horizontal Collaboration



Dutch Distribution Centre
Raamsdonksveer

Kimberly-Clark + Unilever + others

KUEHNE+NAGEL

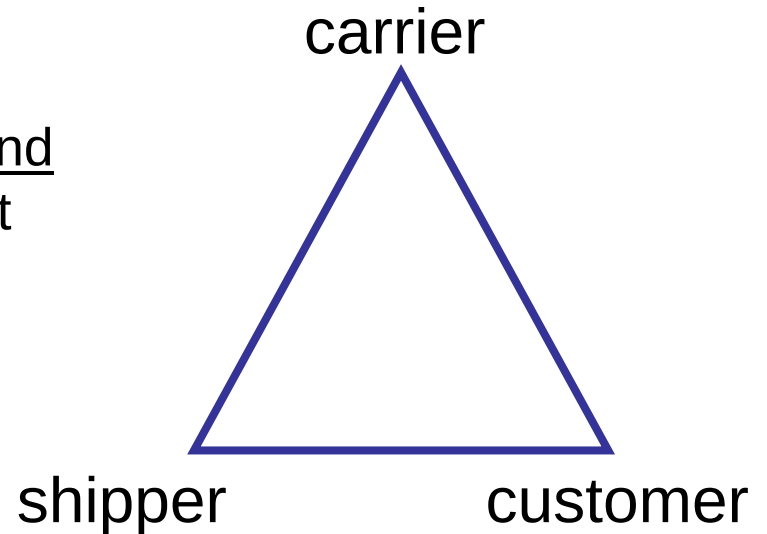
response to quick response pressures
12-15% saving in logistics costs
+ improved service quality

Collaborative initiatives gaining momentum: ELUPEG
European Logistics Users Producers and Enablers Group

Collaborative Transportation Management (CTM)

‘to promote collaboration and sharing of information between suppliers, retailers and carriers to raise service standards and cut cost in the transportation system’

Transplace, 2003



- Covers order confirmation, shipment delivery and carrier payment
- Requires *reengineering* of the whole process to ensure that the carrier is integrated within the planning and management team

Application of similar collaborative initiatives in the timber supply chain

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Heriot-Watt University
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