



# Centre of Excellence for Low Carbon & Fuel Cell Technologies

## UK Experience - Automotive Sector

Andrew Whittles

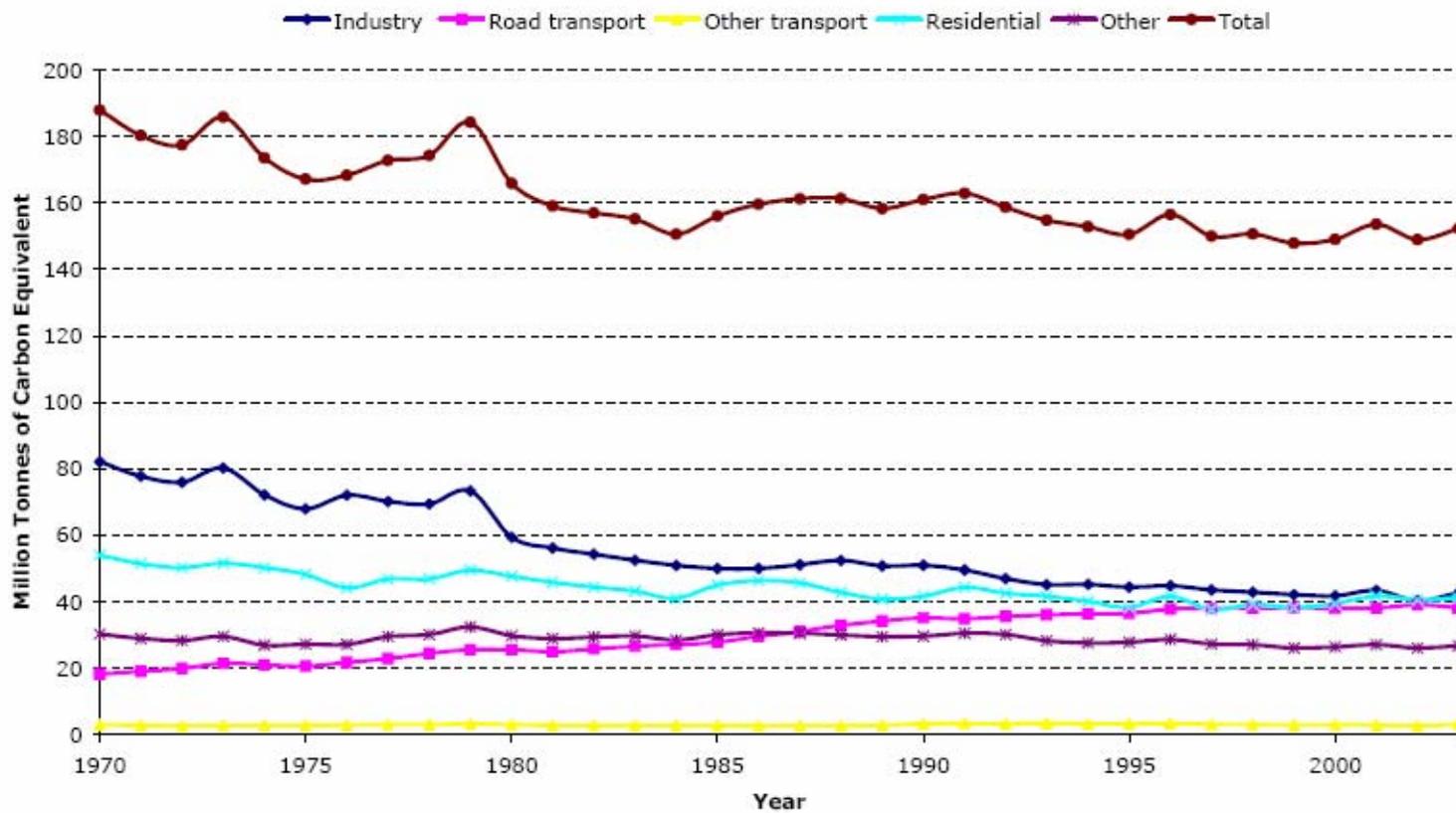
Project Development Manager

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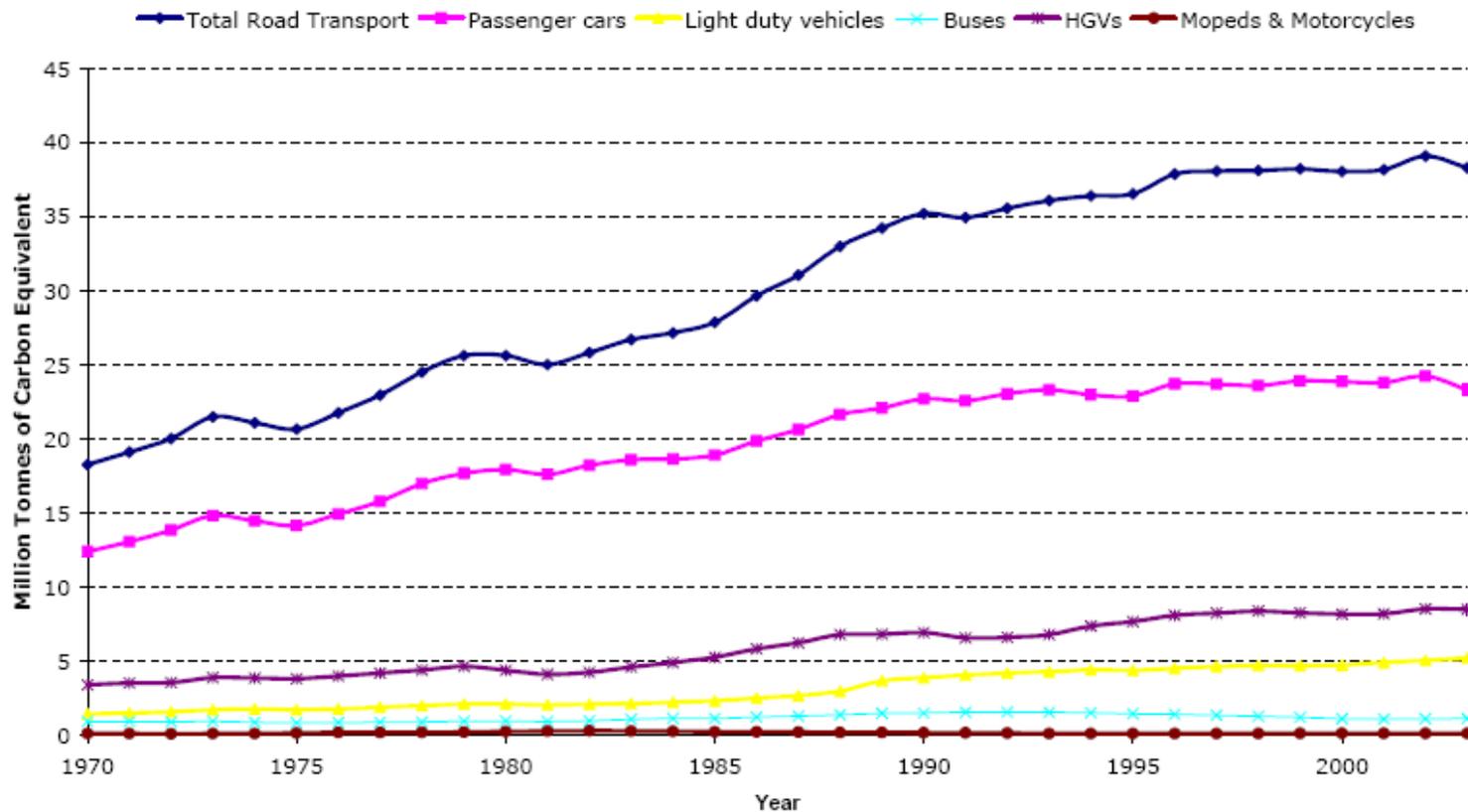
# Overview

- UK Trends
- Fiscal Policy
- Planning Policy
- Regulation
- Innovation

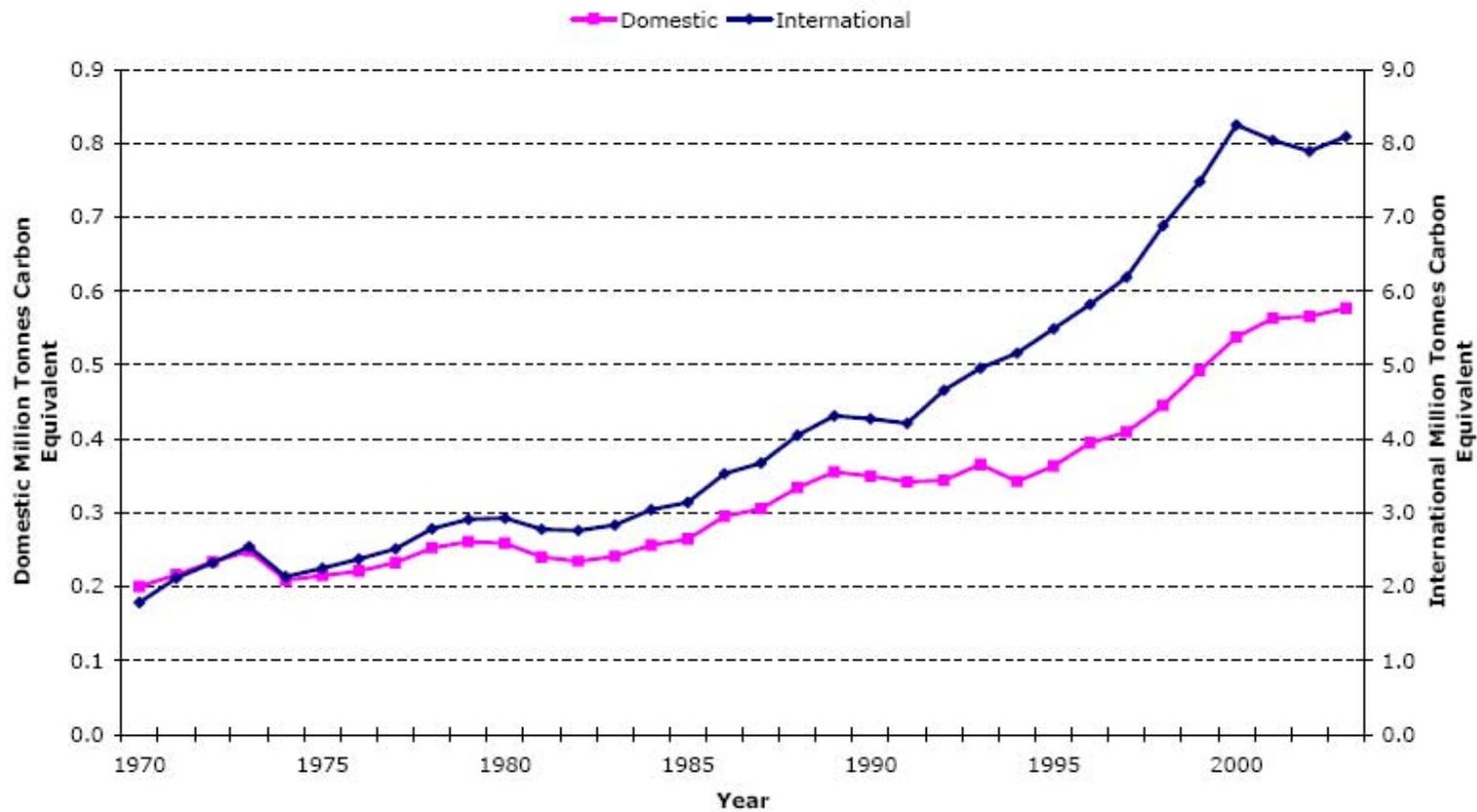
### UK CO<sub>2</sub> Emissions by End User



### CO<sub>2</sub> Emissions by Type of Road Transport



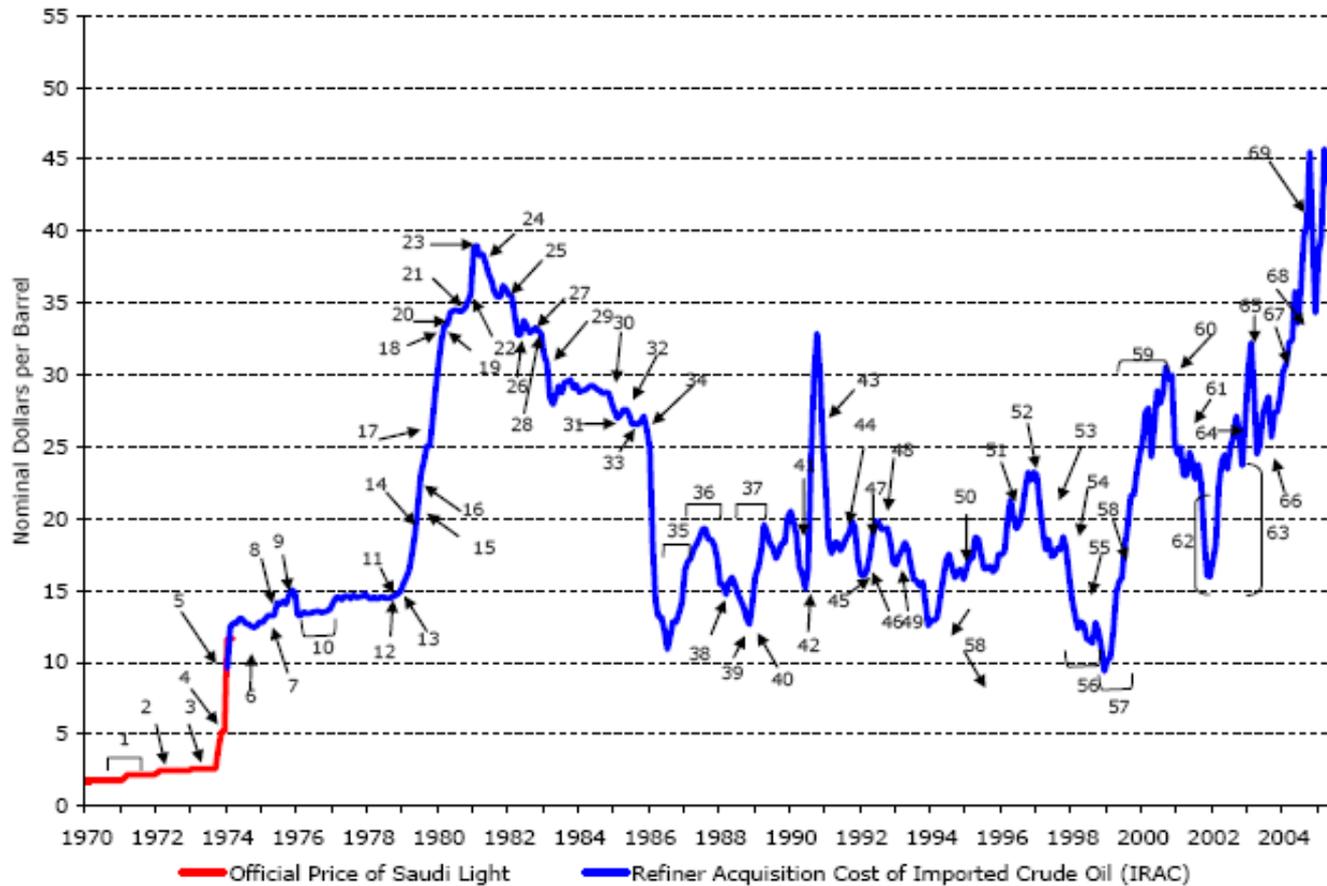
### UK Domestic and International Aviation Carbon Emissions



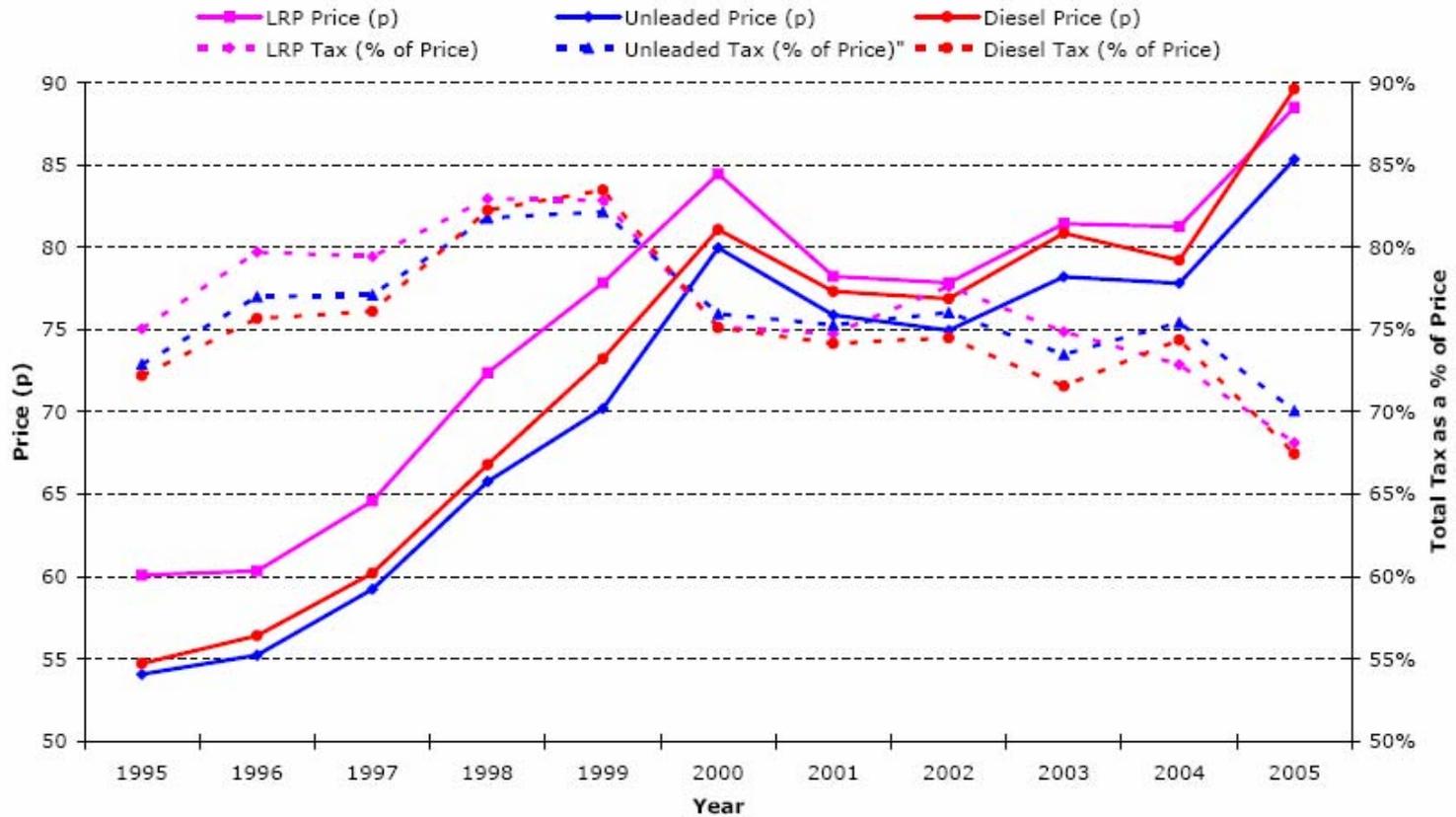
# Fiscal Policy

- Vehicle Excise Duty (VED)
- Fuel Duty
- Congestion Charging
- Road User Charging
- Carbon Trading

### Crude Oil Price Chronology



### UK Pump Prices and Total Tax as a Percentage of Price



# Planning Policy

- UK Policy and Planning
  - National and Regional Planning Guidance
  - Planning and Policy Statements e.g.PPS 23
  - Planning Agreements

# Planning Agreements

Low Emission Zones

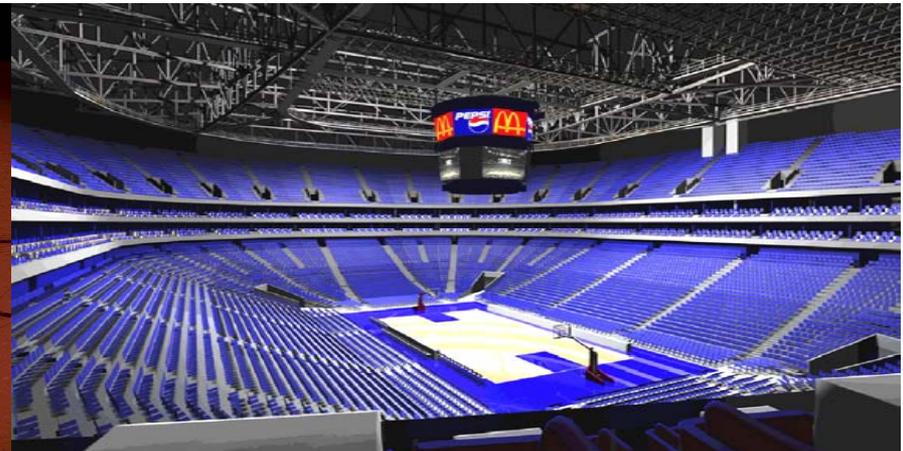
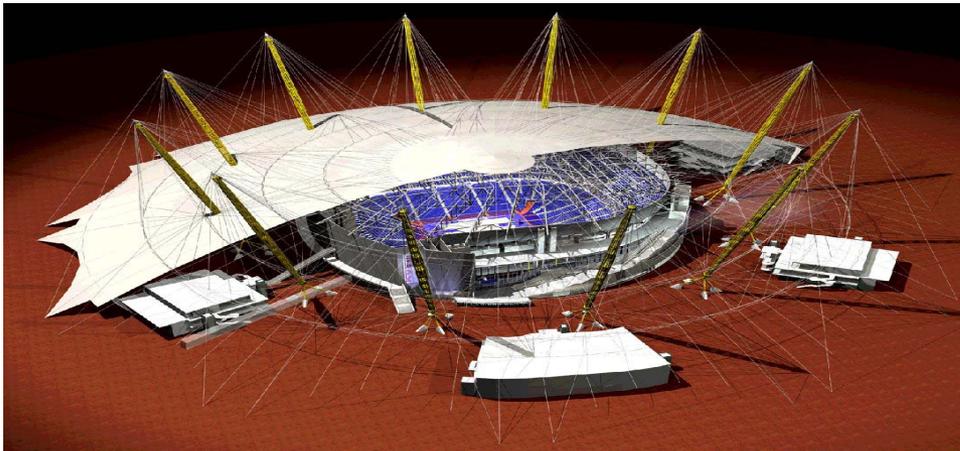
Low Emission Schemes

Low Emission Strategies

Thames Gateway London



# LYMPICS



# Regulation

- EU Vehicle Emission Standards
- Vehicle Labeling
- EU Biofuels Directive
  - Renewable Transport Fuels Obligation (RTFO)
- EU Landfill Directive
  - Landfill Allowance Trading Scheme (LATS)

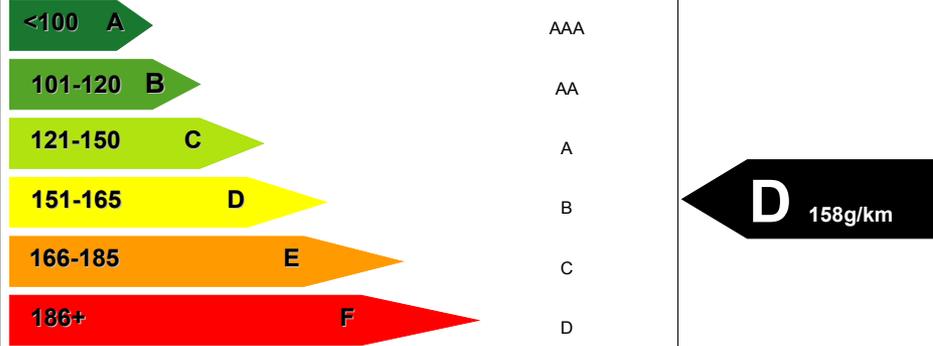
# Fuel Economy

Ford Fiesta 1.4 ZETEC



## Carbon dioxide emissions CO2 grams per kilometre

VED bands equivalents



## Running costs

### Fuel cost for 10,000 miles (16,000 km)

Calculated on a combined (town centre and motorway) drive cycle with a base fuel price of 80 pence/litre. Fuel costs may differ from this due to driving behaviour as well as other non-technical factors.

**£858**

### VED for 12 months

Vehicle excise duty (VED) or road tax is graduated according to the CO2 emissions of the vehicle and can be paid for 12 or 6 months.

**£125**

## Environmental Information

A free guide on fuel economy and CO2 emissions which contains data for all new passenger car models is available at any point of sale and on the web at: [www.vca.gov.uk](http://www.vca.gov.uk). Some specifications of this make/model may have lower CO2 emissions than this. Check with your dealer. In addition to the fuel efficiency of a car, driving behaviour as well as other non-technical factors play a role in determining a car's fuel consumption and CO2 emissions. Carbon dioxide is the main green house gas responsible for global warming.

Make/Model **Ford Fiesta 1.4 ZETEC**  
Engine capacity (cc) **1399**

Fuel type **Petrol**  
Transmission type **5 speed manual**

## Fuel Consumption

Measured according to Directive 93/116/EU

| Drive cycle                              | Litre/100km | mpg  |
|--|-------------|------|
| Urban (e.g. town centre)                 | 8.8         | 32.1 |
| Extra-urban (e.g. motorway)              | 5.4         | 52.3 |
| Combined (e.g. town centre and motorway) | 6.7         | 42.2 |

Carbon Dioxide Emissions: 158g/km

Important note: Some specifications of this make / model may have lower CO2 emissions than this. Check with your dealer.

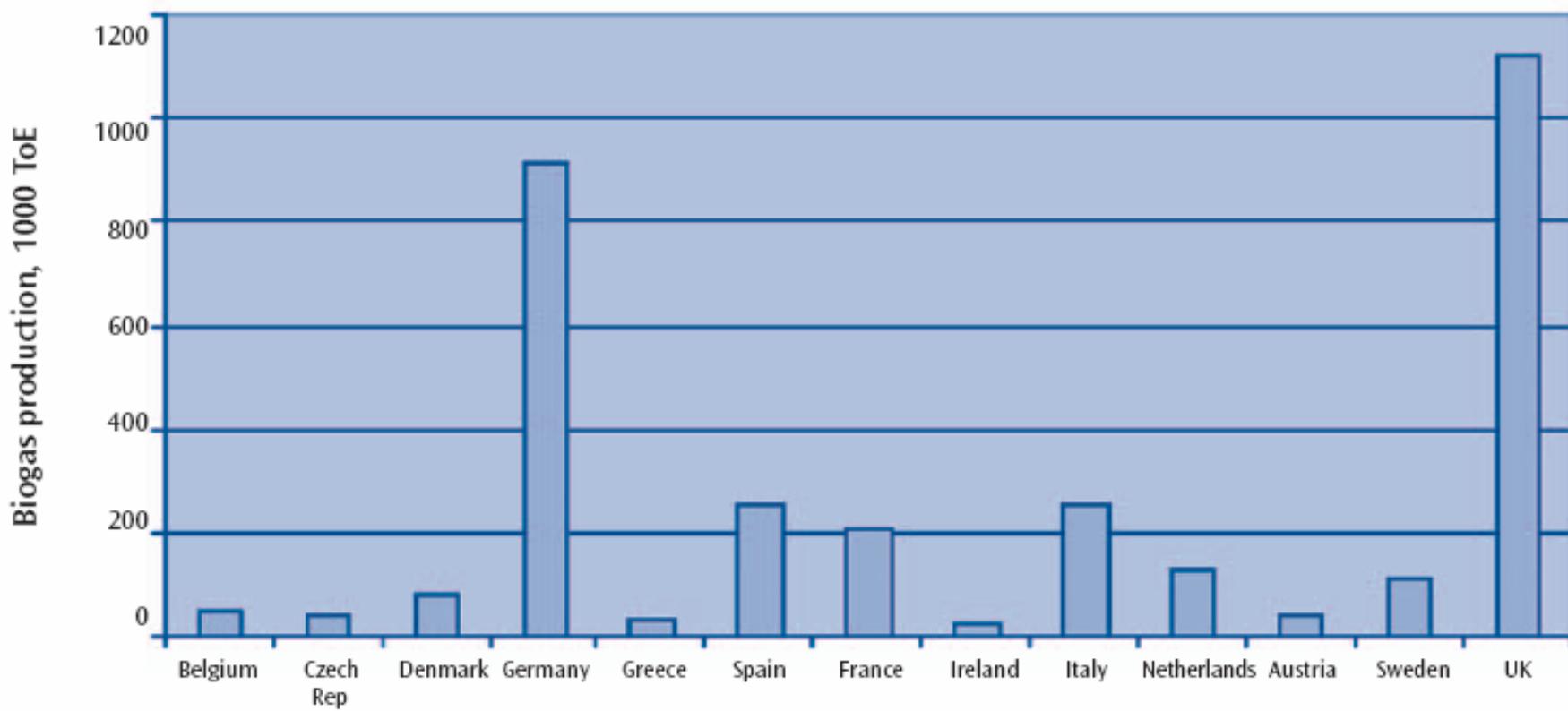




# Biogas<sub>as a</sub> road transport fuel

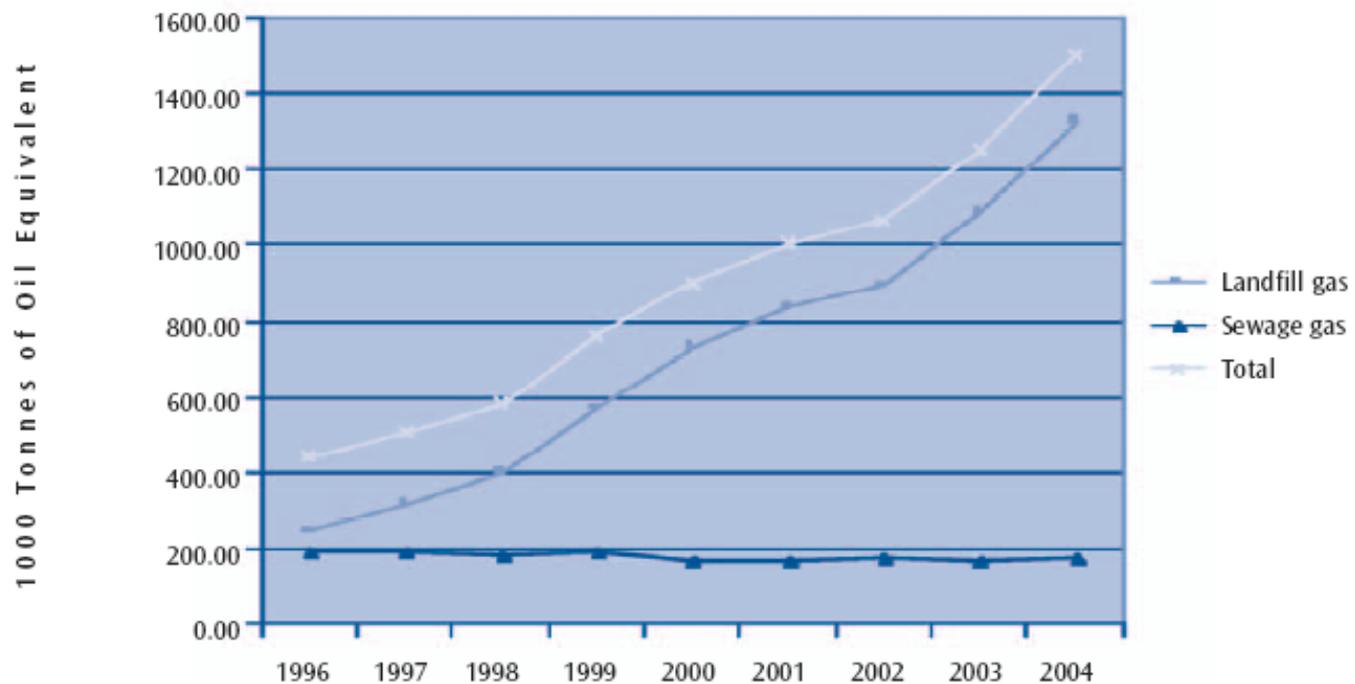
An  
assessment  
of the  
potential  
role of  
biogas as a  
renewable  
transport  
fuel

**Figure 6.1: Biogas Production across Europe**

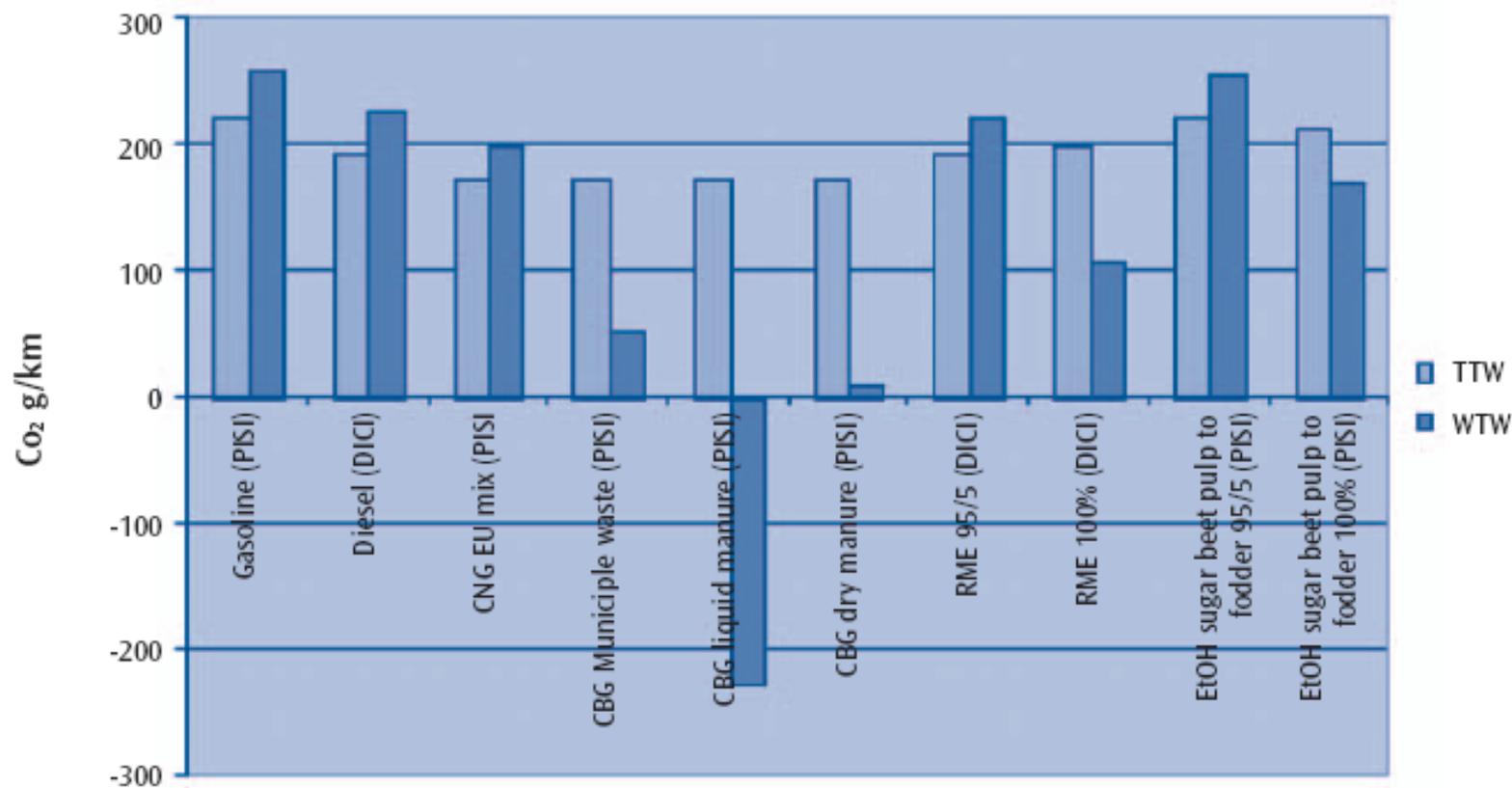


Source: Eurostat data for 2003

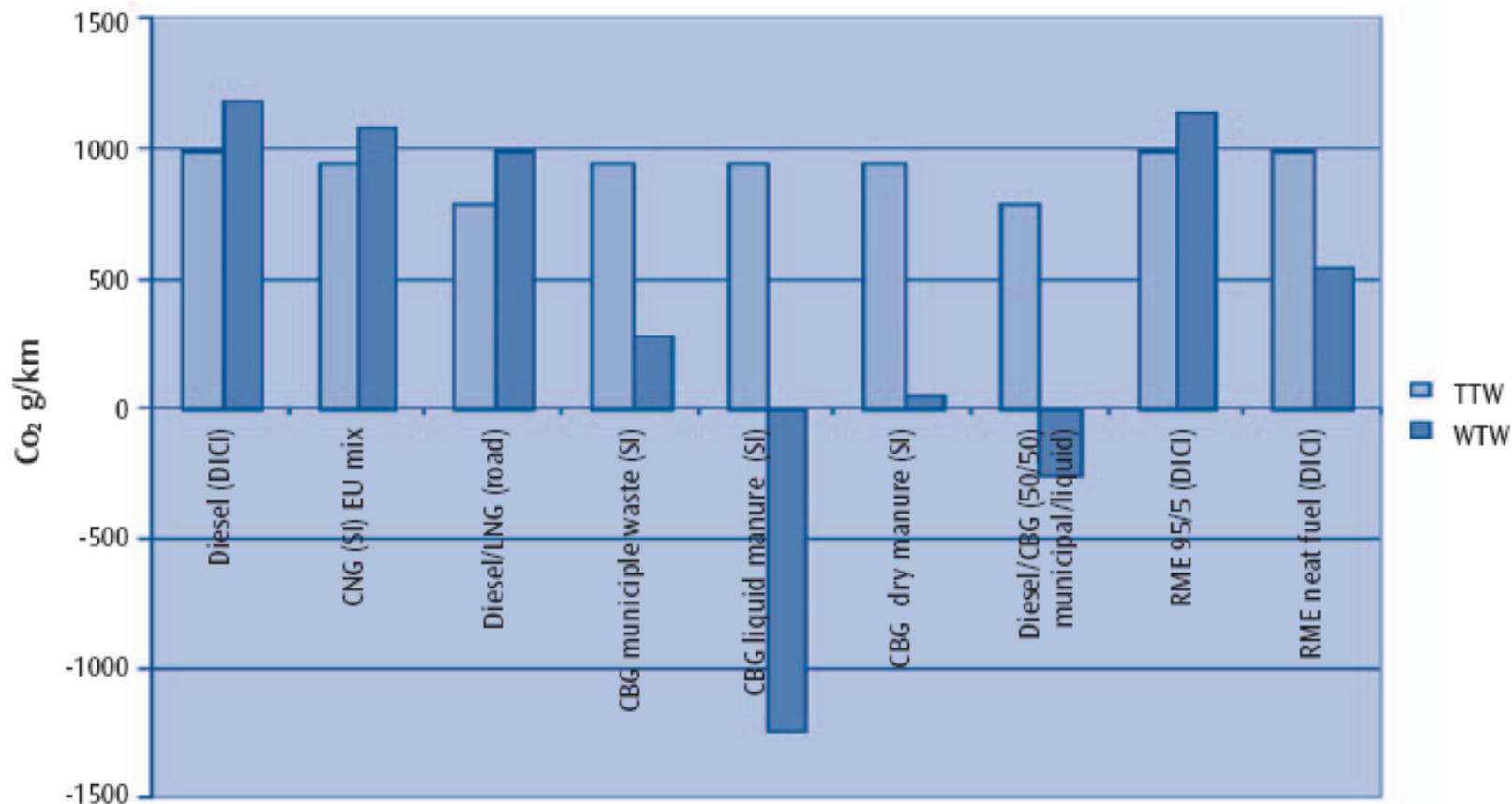
**Figure 2.2: Current Biogas Generated from Landfill and Sewage Treatment**



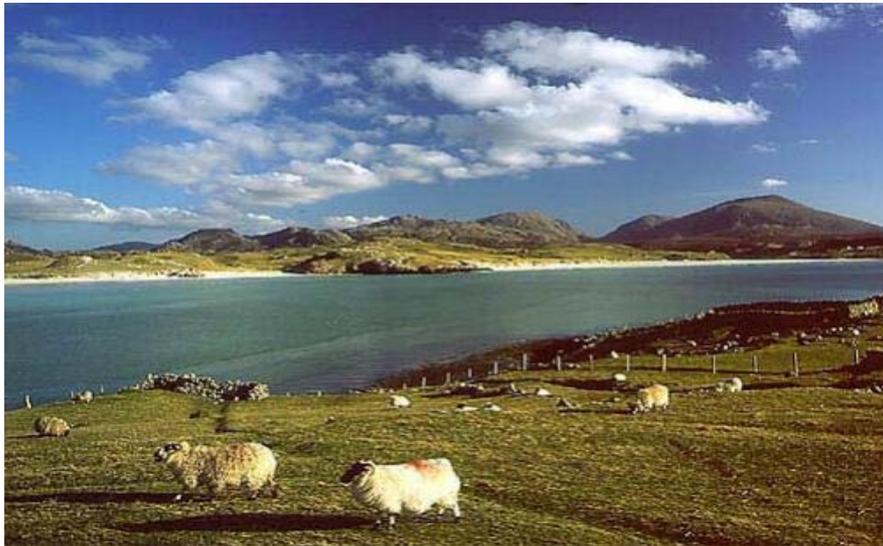
**Figure 4.1: Greenhouse Gas Emissions for a 1.6 l Passenger Car**



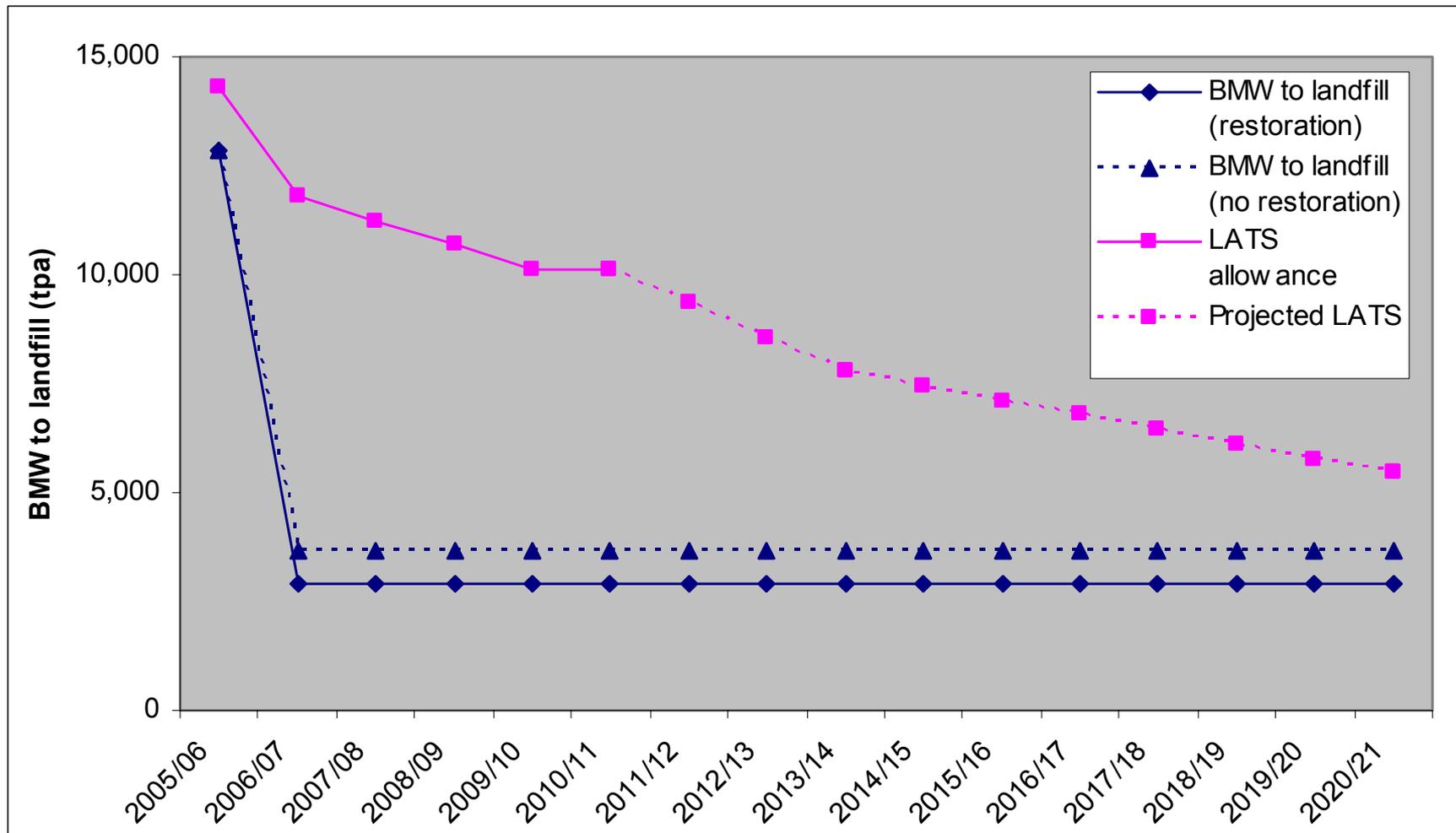
**Figure 4.3: Greenhouse Gas Emissions for 2002 Generic 38 tonne Heavy Goods Vehicle**



# Stornoway Bio-gas Plant



# Landfill Allowance Trading Scheme (LATS)



LONDON HYDROGEN PARTNERSHIP

MAYOR OF LONDON

## Strategic hydrogen infrastructure options for London to 2015

London Hydrogen Partnership

February 2007

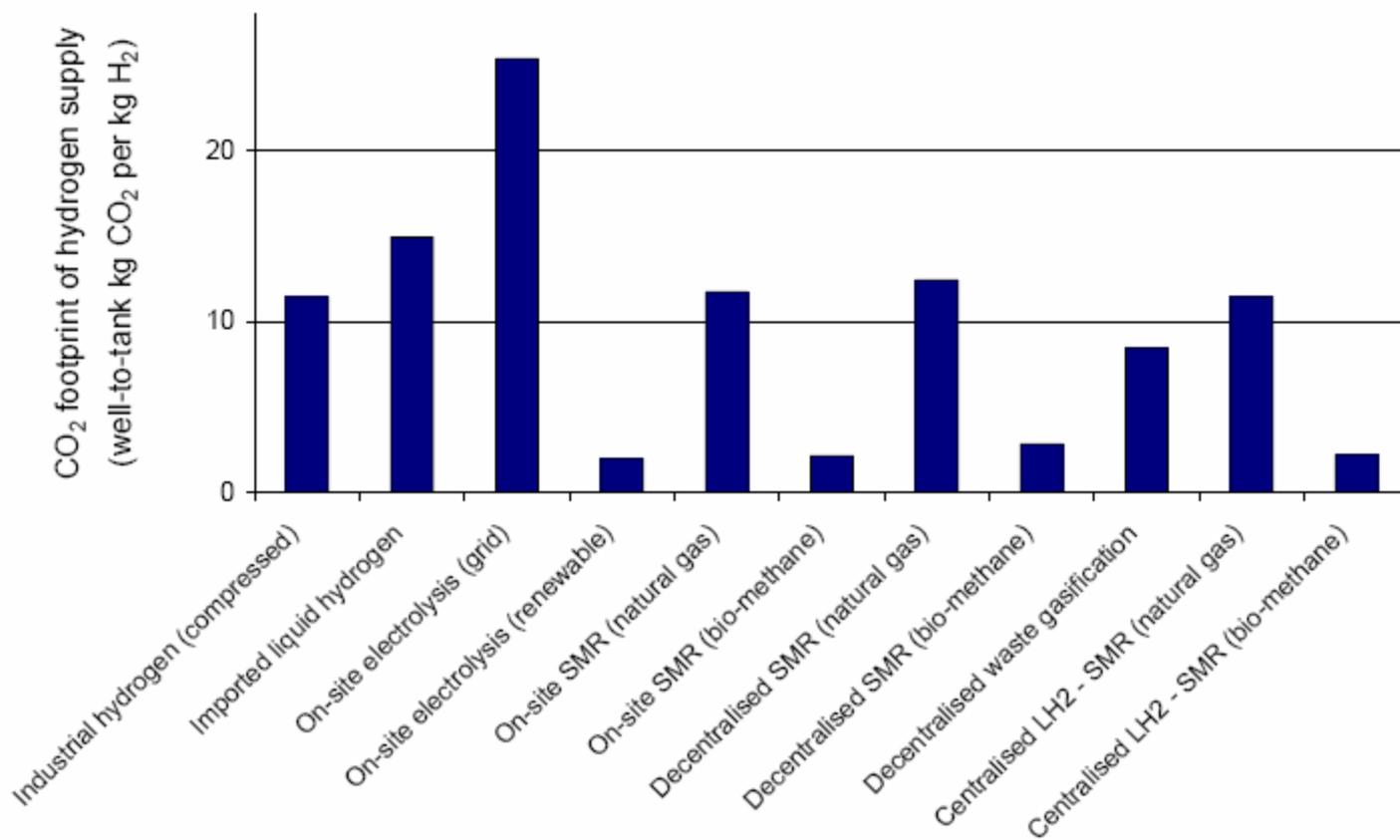
A report commissioned by the London Hydrogen Partnership and carried out by David Joffe



# Bio-Hydrogen from Waste



Figure 2 Well-to-tank CO<sub>2</sub> emissions for different pathways



# Innovation

- Early Adoption of New Technology
- Strengthen Supply Chains
- Forward Commitment
- Competitive Advantage
- Carbon Offsetting Tools and Strategies



MODEC CHASSIS CAB





# Carbon Offsetting Strategy Toolkit



cenex

ARUP

Carbon Reduction Measures - Worldwide

## ARUP

**Search Terms >>**

Country :

Keyword :

<< Search >>

<< Reset >>

**User Notes >>**

Please select a country from the drop down menu on the left and enter a keyword if desired. To add a new record, press the 'add a new record' button at the bottom of this form. To delete a record, press the 'delete a record' button at the bottom of this form. V1.0

This database is fully searchable - by either keyword or country - or a combination of the two.

Pressing print will print the 'current' records (ie - the records left after the filter has been applied) If print is pressed before the filter has been applied ALL records will be printed in report format.

**Search Results >>**

ID : 1

Country : Albania

Policy Approach : Fiscal

Measure : Carbon tax

Status : Under Investigation

Description : Introduction of a carbon tax

Impact Type : Fuel Efficiency - Technical

Mode : Cars, Road Freight, Buses

Sources : Third National Communication to the UNFCCC (p. 82)

Technical Information : [No information provided]

Cost : -

Projected Percentage Reduction by 2010 : -

Project Lead : Government Agency

**Record Information >>**

445 Records returned with search terms :

**Data Navigation >>**

Record 1 of 445

**Print Options >>**

HINTS >>

445 to-date

## Carbon Neutral Cities - Sheffield



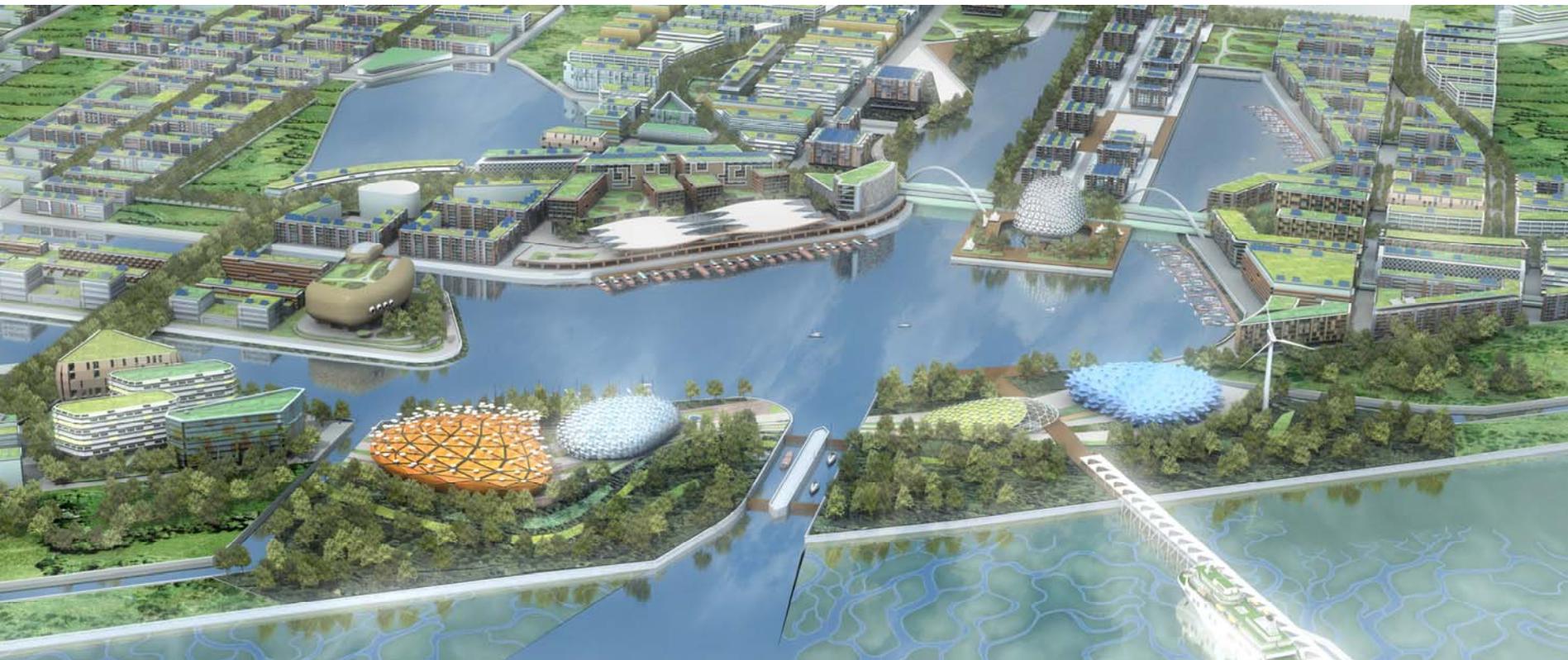


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# Integrated Resource Management (IRM)

A systems approach to Masterplanning



**Dongtan (China) - The Worlds First Eco-City**



# Centre of Excellence for Low Carbon & Fuel Cell Technologies

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