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THE BURDEN OF GREEN TAXES

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Executive Summary

This paper presents the case that green taxes and charges in Britain are currently too onerous. It shows that the price placed by the Government on a range of activities that emit greenhouse gases in 2006-07 and 2007-08 was already too high. The report also provides pioneering estimates of the effects of green taxes on people living in different local authority areas up and down the country.

The key overall finding is startling in its implications:

- Taking the British Government's and other official and academic estimates of the costs of greenhouse gas emissions, the social cost of Britain's entire output of greenhouse gases was between £2.4 billion and £16.3 billion in 2007 and between £2.3 billion and £15.9 billion in 2006.
- In 2007-08, the total burden of green taxes and charges, net of road spending, was £24.2 billion, up from £22.7 billion in 2006-07.
- That means that **in 2007-08 Britons were charged between £7.9 billion and £21.8 billion in excess green taxes, between £316 and £872 per household.** In 2006-07, Britons paid between £6.8 and £20.4 billion over and above the cost of their carbon footprint, between £274 and £814 per household. **Even on the Government's own estimate of the social cost of carbon, green taxes are too high.**
- The burden varies significantly between suburban/rural areas and urban districts. For example, residents of Maldon pay £607 per person in excess green taxes compared to residents of Camden who pay £62 each in excess green taxes (using the IPCC social cost of carbon). Out of 434 local authority areas, only five avoid excess green taxes under the IPCC estimate of the social cost of carbon, and only 12 under the DEFRA shadow price of carbon. Green taxes are not under the control of local councils, but there are large variations in the amounts people in different areas of the country have to pay.

Excessive green taxes have a number of important harms:

- Green taxes hit the poor and those on middle incomes hardest. By forcing up the price of electricity, petrol and other basic goods, green taxes make life harder for families struggling in an economic slowdown.
- They hurt the competitiveness of British firms. Firms will often lose out competing with companies in other countries that charge less in green taxes, particularly manufacturing industries that are already struggling with competition from China.
- This causes Britain to export emissions. If green taxes cause industry to relocate abroad then there will be no environmental gain and emissions may even rise if the other country's industry is less energy efficient.



The TaxPayers' Alliance does not take a view on the science behind global warming. But given that green taxes already put an excessive price on emissions, there is little justification for new taxes and regulations that aim to correct for externalities connected to climate change, such as the strengthening of the EU Emissions Trading Scheme and increases in Vehicle Excise Duty.

1. Introduction

In recent years there have been substantial increases in a variety of green taxes. Taxes on flights were doubled in 2007-08 and are projected to rise further.¹ A new Vehicle Excise Duty regime, which was sold as a simple adjustment to shift the tax burden towards less fuel efficient cars, will see revenue more than double, from £1.9 billion in 2006 to £4.4 billion in 2010.² Revenues from Fuel Duty have crept up by around a billion pounds a year over the last two years.³ Other taxes and charges such as the Landfill Tax, the European Union Emissions Trading Scheme and the Renewables Obligation are also becoming increasingly expensive for industrial customers and ordinary consumers.

Despite all these increases in green taxes and charges, and the long-standing high rates of taxes such as Fuel Duty on emitting activities, there are still proposals for further increases in green taxation. The Government is planning ongoing increases in Fuel Duty and Landfill Tax and a further 10 per cent increase in the tax on flights.⁴ Shadow Chancellor George Osborne maintains that a Conservative government "should put a floor under the price of carbon using green taxes".⁵ Liberal Democrat leader Nick Clegg has described "raising green taxes across the board" as a part of the Party's prescription for tackling climate change.⁶

Most of the subjects of green taxation also pay general taxes. For example, motor fuel is subject to VAT as well as Fuel Duty. Green taxes therefore constitute a substantial premium on the rate of tax considered fair on other goods and services. That premium is justified on the basis that activities that lead to greenhouse gas emissions cause global warming which creates a range of social harms that are not reflected in the market price. Green taxes can, therefore, correct for otherwise ignored negative externalities associated with emitting greenhouse gases. Taxes that aim to correct for negative externalities are known as Pigovian taxes.

Whether it is right to use Pigovian taxes to correct for externalities is open to debate. Economist Ronald Coase, in the Nobel Prize winning study "The Problem of Social Cost", described how Pigovian taxes would not be necessary to control externalities and produce the socially optimal result if the common assumptions in economics of zero transaction costs and properly

¹ HM Treasury, *'Budget 2008'*, Table C6, March 2008

² Hansard, House of Commons Debate, *2 July 2008: Column 905*

³ HM Treasury, *'Budget 2008'*, Table C6, March 2008

⁴ HM Treasury, *'Budget 2008'*, Paragraphs 6.30, 6.77 and 6.38, March 2008

⁵ Osborne, G. *'Speech to the Green Alliance'*, July 2008,

http://www.conservatives.com/tile.do?def=news.story.page&obj_id=145667

⁶ Clegg, N. 'Time for a social environmental revolution (part two)', March 2008,

<http://www.libdems.org.uk/environment/clegg-time-for-a-social-environmental-revolution-part-two.14036.html>

defined property rights held.⁷ State intervention would only improve the situation if it lowered transaction costs.

This implies that the proper comparison is not between some ideal government that compensates precisely for externalities and a market that ignores them but between the imperfect efforts of markets and governments to come to a socially optimal result. There are many good reasons to think that the problems of setting and implementing an efficient green tax are sufficient that a result closer to the social optimum will be obtained in the absence of green taxes.

It is useful though, to set these concerns about Pigovian taxation to one side and assess British green tax policy on its own terms; to ask the question 'if we accept that green taxes should be in place to correct for externalities associated with greenhouse gas emissions, are they set at the right level?'

The TaxPayers' Alliance does not take a view on the science behind climate change – we are not scientists. For that reason, this report will base its calculations on estimates of the externalities associated with climate change by the British Government and a range of prominent institutions and academics. Again, the idea is to test British green tax policy on its own terms.

Green taxes have become a totemic issue for Britain's main political parties. While they have retreated from aggressive rhetoric in the face of public scepticism, significant increases in a range of green taxes are still being put in place by the Government. Opposition from the other parties is muted by their own commitment to increase the scale of green taxation in the years to come.

Some have cast this as a debate between green taxes and other taxes on, for example capital and income. Given that that both green taxes and other taxes have increased in recent years, that is clearly a false dichotomy. The real problem is excessive spending by politicians, which has led to excessive taxes on income and capital as well as excessive green taxes.

Ordinary Britons – particularly the elderly poor, people in rural areas and those working in vulnerable industries – should not be unnecessarily saddled with a substantial and growing burden of green taxes. This report will establish the harms of excessive green taxes and test whether they are currently set at the level implied by the official and academic estimates of the social cost of carbon.

- **Section 2** describes the report's methodology, explains key concepts such as the 'social cost' of greenhouse gas emissions and provides national estimates of the extent that green taxes are already imposed in excess of the social cost.

⁷ Coase, R. H. 'The Problem of Social Cost', *Journal of Law and Economics*, October 1960

- **Section 3** sets out how the local estimates have been produced and provides tables showing those areas producing the most emissions, paying the most in green taxes and facing the highest burden of excessive green taxes.
- **Section 4** discusses some of the implications of the results described in sections 2 and 3. It sets out how, if green taxes are set at excessive levels, there is little justification for further attempts to correct for climate change externalities, how rural and suburban areas are paying the most in excess green taxes and how excessive green taxes have failed to reduce emissions. New options should be tried.
- **Section 5** describes the harmful effects of excessive green taxes: the price we pay for singling out, without proper justification, industrial energy use, driving and other emitting activities for additional taxation.
- **Appendix 1** discusses some of the responses to last year's report 'The Case Against Green Taxes' and describes how the methodology has since been adopted by government departments and other organisations.
- **Appendix 2** contains three local tables showing the social cost of greenhouse gas emissions, the burden of green taxes and the extent of excess green taxes in each local authority area. This provides a detailed picture of how green taxes affect different parts of the country.

2. National estimates

This report compares the social cost of Britain's greenhouse gas emissions with the amount that is charged in green taxes. That test establishes whether British green tax policy fits with the Pigovian logic and corrects for externalities.

2.1 'The Case Against Further Green Taxes'

The method in this report is a substantial expansion of that used in last year's report 'The Case Against Further Green Taxes', and includes a wider range of green taxes and charges, uses more recent estimates of greenhouse gas emissions and allows for the production of local estimates. For that reason, this paper is not readily comparable with the estimates from the earlier paper. Instead separate estimates – based on the new methodology – for 2006-07 and 2007-08 are included in this report to allow comparison over time.

2.2 The social cost

The social cost of CO₂ emissions represents the value of the harm done to the rest of the world, now and in the future, by emitting one tonne of CO₂. Green taxes can reduce the quantity of CO₂ emitted in an economy by making activities that result in emissions more expensive. If a green tax is set at the true social cost then the socially optimum amount of carbon should be emitted, i.e. emissions will be cut until the costs of emitting less are equal to the environmental benefits.

In this way, the social cost can be used as a guide for an appropriate level of tax to correct for the negative externalities that CO₂ emissions entail. The Intergovernmental Panel on Climate Change states that "if taxes were used, then they should be set equal to the SCC [social cost of carbon]".⁸

A number of academic and official estimates of the social cost of CO₂ emissions exist. The most widely-quoted estimates are summarised below:

⁸ Parry M.L., O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., 2007, *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press, Cambridge, UK.

Nordhaus



William D Nordhaus is Stirling Professor of Economics at Yale University and a member of the National Academy of Sciences. He was a member of the Council of Economic Advisers to the Carter administration in the late 1970s. The *Economist* has described him as the “father of climate-change economics”.⁹ His 2007 study¹⁰ is based upon a model which has been refined over more than 30 years.

Intergovernmental Panel on Climate Change (IPCC)



The IPCC is the United Nations body established in 1988 whose views are often described as the “scientific consensus” on climate change. Its estimate¹¹ of the social cost of CO₂ is an average (mean) of over 100 peer-reviewed studies.

Tol



Richard Tol is Senior Research Officer at the Economic and Social Research Institute in Dublin, Principle Researcher at the Institute for Environmental Studies in Amsterdam and Adjunct Professor at the Department of Engineering and Public Policy of the Carnegie Mellon University in Pittsburgh. He is an author (contributing, lead, principle and convening) of Working Groups I, II and III of the Intergovernmental Panel on Climate Change. His estimate¹² of the social cost of CO₂ is an average (mean) of 211 estimates from 47 published studies.

DEFRA



The Shadow Price of Carbon¹³ estimated by researchers for DEFRA is based around an attempt to reach a particular emissions target, namely stabilising at 450-550 ppm of CO₂-equivalent in the atmosphere. This builds on the work of the Stern Review¹⁴ and replaces the Review’s estimate of the social cost of carbon for the purposes of policy appraisal in the UK. This is necessary because the Stern Review otherwise produces the paradoxical result, in terms of policy appraisal, that the tighter your target for cutting emissions the lower your social cost should be.

⁹ Economist, “How to value a grandchild”, December 2006

¹⁰ Nordhaus, W. “The Challenge of Global Warming: Economic Models and Environmental Policy”, July 2007, http://nordhaus.econ.yale.edu/dice_mss_072407_all.pdf

¹¹ Intergovernmental Panel on Climate Change, “Climate Change 2007: Synthesis Report - Summary for Policymakers”, April 2007, http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf

¹² Tol, R.S.J. ‘The Social Cost of Carbon: Trends, outliers and catastrophes’, August 2007

¹³ Price, R., Thornton, S. & Nelson, S. ‘The Social Cost Of Carbon And The Shadow Price Of Carbon: What They Are, And How To Use Them In Economic Appraisal In The UK’, DEFRA, December 2007

¹⁴ Stern, N. et. al. ‘Stern Review: The Economics of Climate Change’, HM Treasury, 2006.

The Nordhaus, Tol and IPCC estimates were produced for 2005 and expressed in dollars, they have been converted to pounds using the 2005 conversion rate of \$1.82 = £1.¹⁵ The Tol estimate uses the social cost per tonne of carbon, which has been converted to the social cost per tonne of CO₂ by a ratio of 100:27.29 (1 tonne of CO₂ contains 0.2729 tonnes of carbon). The marginal damage and, hence, the social cost of carbon rises over time and the nominal social cost should also rise with inflation, so these 2005 estimates need to be adjusted to 2006 and 2007. The DEFRA report on the shadow price of carbon¹⁶ provides a table showing estimates for each year and the ratios between 2005, 2006 and 2007 have been used to scale up the estimates from 2005 for the years we are studying.

Table 2.2.1: Academic and official social cost estimates

	Nordhaus	IPCC	Tol	DEFRA
Social Cost of Carbon Dioxide (per ton), 2006, £	£4.24	£6.88	£3.60	£24.30
Social Cost of Carbon Dioxide (per ton), 2007, £	£4.45	£7.22	£3.77	£25.50

While the DEFRA Shadow Price of Carbon is the UK Government's estimate of the scale of tax needed to correct for the externalities associated with greenhouse gas emissions, it is based on the highly controversial Stern Review. A number of respected climate change economists have criticised the Stern Review's methodology, in particular Nordhaus and Tol, whose estimates of the social cost of carbon are used in this study:

Nordhaus:¹⁷

- Nordhaus pointed out that the study's conclusions rely entirely upon a controversial ethical assumption, that utility should be treated as equally valuable across generations.
- This assumption appears not to be shared by ordinary people who discount utility over time when, for example, planning what to leave to their children.
- A majority of the harms described in Stern occur after 2800. Under the same logic of taking costly action to prevent uncertain harms far into the future, extreme positions could be justified in, for example, foreign policy.

¹⁵ Lawrence H. Officer, "Exchange rate between the United States dollar and the British pound, 1791-2005" Economic History Services, *EH.Net*, 2006

¹⁶ Price, R., Thornton, S. & Nelson, S. *The Social Cost Of Carbon And The Shadow Price Of Carbon: What They Are, And How To Use Them In Economic Appraisal In The UK*, DEFRA, December 2007

¹⁷ Nordhaus, W. *The Stern Review on the Economics of Climate Change*, May 2007

Tol:¹⁸

- Tol, who is frequently cited within the Stern Review, called the study “alarmist and incompetent”.
- The study takes no account of the potential of adaptation to minimise the harms of climate change.
- He also accused the report of “cherry-picking”, always taking the most pessimistic estimates of potential damage from the reports it studied.
- Finally, he noted that Stern’s social cost estimate is an outlier in the marginal damage cost literature and little explanation is given to justify such an extreme estimate.

For those reasons this report will, for the national estimates, describe the results with each of the studies listed above. For the local, per person, estimates the IPCC estimate of social cost will be used as the benchmark estimate. The DEFRA estimates of total excess green taxes for each local authority are also included so that those areas which, if we accept DEFRA’s estimate of social cost instead of the IPCC’s, do not pay excessive green taxes can be seen.

2.3 Emissions

Figures for the UK’s aggregate greenhouse gas emissions are obtained from DEFRA for 2006 and 2007.¹⁹ The 2007 number is a provisional estimate but should provide a reasonable guide to actual emissions in 2007. Greenhouse gas emissions are reported in tons of carbon dioxide equivalent to account for the greater Global Warming Potential (GWP) of different greenhouse gases. These figures can be multiplied by the social cost of carbon estimates shown above to estimate the total social cost of UK emissions.

The emissions estimates, and resulting social cost of carbon estimates, are shown in the table below:

¹⁸ Tol, R. S. J. *The Stern Review of the Economics of Climate Change: A Comment*, November 2006, <http://www.fnu.zmaw.de/fileadmin/fnu-files/reports/sternreview.pdf>

¹⁹ DEFRA, *UK climate change sustainable development indicator: 2007 Greenhouse Gas Emissions, provisional figures*, March 2008

Table 2.3.1: UK Emissions, 2006 and 2007, and total social cost of carbon estimates

	Nordhaus	IPCC	Tol	DEFRA
Social Cost of Carbon Dioxide (per ton), 2006, £	4.24	6.88	3.60	24.30
Social Cost of Carbon Dioxide (per ton), 2007, £	4.45	7.22	3.77	25.50
Emissions, 2006, Mt CO ₂ -equivalent	652.3	652.3	652.3	652.3
Emissions, 2007, Mt CO ₂ -equivalent	639.4	639.4	639.4	639.4
Social cost of UK emissions, 2006, £ billion	2.8	4.5	2.3	15.9
Social cost of UK emissions, 2007, £ billion	2.8	4.6	2.4	16.3

2.4 Green taxes

There are a number of green taxes imposed in the UK:

Fuel Duty and Vehicle Excise Duty

Fuel Duty is the biggest green tax, by revenue, at around £24.9 billion in 2007-08; Vehicle Excise Duty added £5.6 billion to the cost of motoring in the same year.²⁰ VAT is also paid on motor fuel and the purchase of new cars so both Fuel Duty and Vehicle Excise Duty, in their entirety, constitute a premium on the level of taxation judged fair across a range of other products. Fuel Duty and Vehicle Excise Duty are therefore entirely green taxes except to the extent they compensate for other externalities such as road building.

These taxes have been explicitly aimed at reducing emissions. For example when the Fuel Duty escalator was introduced, it was described as a part of Britain's strategy to meet objectives agreed at the Rio Earth Summit:

"I have now decided to strengthen the March commitment by increasing road fuel duties on average by at least 5 per cent in real terms in future Budgets. This will complete Britain's strategy for meeting our Rio commitment." – Ken Clarke, Statement to the House of Commons, 1993

It has been suggested in earlier studies that Fuel Duty is not set arbitrarily high as it corrects for a number of other externalities, including noise and air pollution, road injuries and fatalities, and congestion, as well as greenhouse gas emissions. That approach has been used by the Department for Transport in assessing the external costs of various forms of transport.²¹ This table shows one account of the externalities associated with driving:

²⁰ HM Treasury, *Budget 2008*, Table C6, March 2008

²¹ Department for Transport, *The NATA Refresh: Reviewing the New Approach to Appraisal*, October 2007

Table 2.4.1: Estimated marginal external road costs (pence/vehicle km), 1998²²

Externality	Low estimate	High estimate
Operating costs	0.42	0.54
Accidents	0.82	1.40
Air pollution	0.34	1.70
Noise	0.02	0.05
Climate change	0.15	0.62
Congestion	9.71	11.16

This ignores the range of existing regulations designed to control these externalities:

- Noise and air pollution are created by a vast spectrum of industrial activity. They are controlled by regulation which limits acceptable levels of noise and particle emissions in different geographical areas. New roads are subject to stringent planning controls based on the amount of traffic they are likely to carry. Equally, regulatory standards and the requirement to fit catalytic converters control particle emissions.
- There is extensive regulation designed to control road traffic accidents: driving tests, speed limits, speed cameras and installations such as speed bumps. Many of these impose substantial costs on drivers and others are paid for as part of the process of building and maintaining roads.
- The costs of congestion, except for the costs of building and maintaining roads, are internalised within the body of road users and create an incentive to use other methods of travel or travel less. Fuel Duty is also probably not the best measure to correct for the externality of congestion. Evidence to the Institute for Fiscal Studies' Mirrlees review described it as a "very blunt instrument" for addressing the problem of congestion.²³

Pigovian taxes and regulation are substitutes as different methods of achieving the common objective of controlling externalities. Putting regulations and taxes in place to correct for the same externality is clearly disproportionate.

Studies that aim to assess comprehensively the external costs of driving too often focus purely on the negative externalities and ignore the positive externalities that are also associated with driving. These positive externalities include the following:

- Most people do not live close enough to their place of work, or all the services they need to access, to be able to walk or cycle. That means that

²² Leicester, A. "The UK Tax System and the Environment", *Institute for Fiscal Studies*, November 2006. <http://www.ifs.org.uk/comms/r68.pdf>, p. 25

²³ Institute for Fiscal Studies, 'Don't expect much extra revenue from green taxes, says study prepared for the Mirrlees Review', July 2008

if they did not drive they would need to use public transport. Many rail services and buses in urban areas are already struggling to cope with demand, despite the fact that trains only account for 7 per cent of passenger travel and buses and coaches 6 per cent, against 85 per cent who travel by car and van.²⁴ By relieving congestion on public transport networks motorists do a significant public good.

- Motorists also encourage the development of greater road transport infrastructure. Just as motorists may be inconvenienced by other drivers who create congestion on the roads, those other drivers also support a network of services that make all motorists' lives easier. If there were fewer motorists the broad network of service stations, roads, mechanics, driving instructors and other services that support driving would be less comprehensive. This kind of social benefit is known as a network effect in the economic literature.
- By driving people enable economic activity to be more geographically dispersed. That eases pressure on public services such as water and sewerage.

The net social cost of driving is likely to be significantly lower than that estimated by studies focussing purely on the negative externalities.

The only externality that we will account for, other than greenhouse gas emissions, is spending on roads. Driving necessitates public spending to build additional roads, in order to alleviate congestion, and repair wear and tear. That spending is an externality that motorists can reasonably expect to pay for. A similar analysis of the externalities associated with road transport has been used when forming policy:

"I firmly believe that motorists should bear the full costs of driving - not only wear and tear and congestion on the roads, but also the wider environmental costs. Even those of us who frequently have to drive can take steps to cut fuel consumption and we all ought to consider carefully the use of our cars." – Ken Clarke, Budget Speech, 1996

For those reasons, the only externality other than greenhouse gas emissions that this report will make allowances for is the £8.2 billion spent on road building and maintenance in 2006-07 and the £8.8 billion spent in 2007-08.²⁵ That will be subtracted from the total raised in Fuel Duty and Vehicle Excise Duty in our calculations of total green taxes.

²⁴ Department for Transport, 'Transport Statistics Great Britain: 2007 Edition', Table 1.1, 2007

²⁵ HM Treasury, 'Public Expenditure Statistical Analyses 2008', Table 5.2, March 2008

The Climate Change Levy

The Climate Change Levy is a tax on industrial energy use that raised £0.7 billion in 2007-08.²⁶ Though the tax is flawed as it fails to provide for low carbon means of producing power like nuclear and large hydro-electric plants, it is explicitly targeted at reducing greenhouse gas emissions so there are no other externalities to account for.

The Renewables Obligation

The Renewables Obligation forces energy companies to source a certain percentage of their energy from renewable sources, buy Renewables Obligation Certificates (ROCs) from renewable energy companies or pay 'buy out' fees (which are then redistributed to those who did present ROCs). It makes a substantial contribution to the price of energy and is clearly directed at reducing greenhouse gas emissions. The Renewables Obligation is not a conventional 'tax' that provides revenue for the Government to spend as it pleases. However, it does effectively charge a price on emitting activity, in the form of fossil fuel-fired electricity generation, so it should be included in trying to assess whether polluters are paying what they should to correct for the externalities associated with greenhouse gas emissions.

The value of the Renewables Obligation can be estimated by multiplying the buyout price by the size of the obligation.

Table 2.4.2: Renewables Obligation value, 2006-07 and 2007-08, £

Year	Renewables Obligation, MWh	Buyout price	Obligation Value
2006-07	21,629,676	£33.24	£719.0 million
2007-08	25,477,265	£34.30	£873.9 million

Landfill Tax

The Landfill Tax is paid by businesses and local authorities who dispose of waste at landfill sites. In 2007-08 it raised £0.9 billion.²⁷ It is designed to encourage recycling and, thereby, reduce the emissions of greenhouse gases in the creation or extraction of new raw materials. It should also correct for the emission of methane, a greenhouse gas included in our total, from landfill sites, although those emissions are also subject to regulation.

²⁶ HM Treasury, *Budget 2008*, Table C6, March 2008

²⁷ HM Treasury, *Budget 2008*, Table C6, March 2008

EU Emissions Trading Scheme

In the period under study the EU Emissions Trading Scheme imposed a relatively small burden, as the initial allowances for firms covered by the scheme were discovered to have been set quite generously and the price for emissions allowances collapsed. In particular, the change in price during 2006 and 2007 was sufficient that the price put on emissions by the Emissions Trading Scheme was never sufficiently stable that it could be expected to encourage lasting changes in behaviour. For that reason it has been left out of the estimate of total green taxes used in this study.

Figure 2.4.1: European Union Emissions Trading Scheme allowance price, €²⁸



The Emissions Trading Scheme is likely to become considerably more onerous in the years to come, however, as Phase II started in 2008. It may constitute a further, very significant, increase in the price placed on carbon emissions.

Net burden of green taxes and charges

The table below shows the net burden of green taxes and charges in 2006-07 and 2007-08.

²⁸ EEX Market Data

Table 2.4.3: The net burden of green taxes and charges in 2006-07 and 2007-08

Green tax/charge	Revenue/Cost, 2006-07, £ billion	Revenue/Cost, 2007-08, £ billion
Fuel Duty	£23.6 billion	£24.9 billion
Vehicle Excise Duty	£5.1 billion	£5.6 billion
Landfill Tax	£0.8 billion	£0.9 billion
Climate Change Levy	£0.7 billion	£0.7 billion
Renewables Obligation	£0.7 billion	£0.9 billion
Sub-total	£30.9 billion	£33.0 billion
<i>Less spending on roads</i>	<i>£8.2 billion</i>	<i>£8.8 billion</i>
Total	£22.7 billion	£24.2 billion

2.5 Excess green taxes

Comparing the social costs and the burden of green taxes and charges illustrates that they are already excessive:

Table 2.5.1: Excess Green Taxes under various social cost estimates

	Nordhaus	IPCC	Tol	DEFRA
Social Cost of Carbon Dioxide (per ton), 2006, £	4.24	6.88	3.60	24.30
Social Cost of Carbon Dioxide (per ton), 2007, £	4.45	7.22	3.77	25.50
Emissions, 2006, Mt CO ₂ -equivalent	652.3	652.3	652.3	652.3
Emissions, 2007, Mt CO ₂ -equivalent	639.4	639.4	639.4	639.4
Social cost of UK emissions, 2006, £ billion	2.8	4.5	2.3	15.9
Social cost of UK emissions, 2007, £ billion	2.8	4.6	2.4	16.3
UK Green Taxes, 2006, £ billion	22.7	22.7	22.7	22.7
UK Green Taxes, 2007, £ billion	24.2	24.2	24.2	24.2
Excess Green Taxes, 2006, £ billion	19.9	18.2	20.4	6.8
Excess Green Taxes, 2006, £ per household	797.37	728.49	814.07	273.96
Excess Green Taxes, 2007, £ billion	21.4	19.6	21.8	7.9
Excess Green Taxes, 2007, £ per household	854.19	783.34	871.58	315.81

- The excess in 2007-08 is between £7.9 billion and £21.8 billion depending upon the estimate of social cost used. That is around £316 to £872 per household.
- That is an increase from 2006-07 when excess green taxes were between £6.8 billion and £20.4 billion, around £274 to £814 per household.

3. Local estimates

3.1 Emissions

Carbon dioxide emissions estimates by local authority have been produced by DEFRA for 2005. These should provide a good proxy for the pattern of greenhouse gas emissions across the country. To produce estimates for 2006 and 2007, the 2005 carbon dioxide emissions were scaled to the national greenhouse gas emissions totals for those years. To avoid double counting, there are no estimates for county areas in England; district and unitary council areas are used.

These estimates can be combined with the estimates of social cost used in the last section to provide estimates of the total social cost of emissions in each local authority. This approach makes two key assumptions:

- The pattern of carbon dioxide emissions did not vary substantially between 2005 and 2007. I.e. those parts of the country that emitted relatively large amounts of carbon dioxide in 2005 emitted relatively large amounts in 2007. It seems unlikely that the pattern has changed substantially in just a couple of years, when the total amount of carbon dioxide emitted has been fairly stable, so this seems like a fair assumption.
- The pattern of carbon dioxide emissions is a good guide to the pattern of greenhouse gas emissions. This clearly creates some inaccuracy as, for example, areas that have a relatively large agricultural sector will often have high methane emissions but low carbon dioxide emission from a relatively small industrial base. It should, however, only make a marginal difference as carbon dioxide constitutes 85 per cent of greenhouse gas emissions and a significant portion of the remaining 15 per cent will be distributed in line with carbon dioxide emissions e.g. the nitrous oxide emissions from road transport.

These two assumptions should be borne in mind but there is little reason to believe they will unduly bias the final results. Table A2.1 in the appendix shows the emissions and social cost estimates for each local authority area for 2007.

Table 3.1.1 shows the top five and bottom five councils, by emissions:

Table 3.1.1: Local authorities with the highest and lowest emissions of greenhouse gases, 2007

Council	Emissions, 2005, kT CO ₂	Emissions estimate, 2007, kT CO ₂ -equivalent	Total social cost estimates, 2007, £ million				Rank
			Nordhaus	IPCC	ToI	DEFRA	
Redcar and Cleveland	10,035	11,894	52.9	85.9	44.8	303.3	1
North Lincolnshire	9,946	11,789	52.5	85.1	44.4	300.6	2
Neath Port Talbot	8,618	10,215	45.5	73.8	38.5	260.5	3
Birmingham	6,610	7,835	34.9	56.6	29.5	199.8	4
Leeds	5,822	6,901	30.7	49.8	26.0	176.0	5
Ballymoney	277	328	1.5	2.4	1.2	8.4	430
Alnwick	267	317	1.4	2.3	1.2	8.1	431
Moyle	172	204	0.9	1.5	0.8	5.2	432
Isles of Scilly	22	26	0.1	0.2	0.1	0.7	433
Argyll and Bute	-359	-425	-1.9	-3.1	-1.6	-10.8	434

3.2 Green taxes

The national totals for the various green taxes and charges described in section 2 are apportioned according to proxies for the emitting activities whose externalities they can correct for. None of these proxies are perfect but they provide a means of establishing a meaningful local breakdown and, so long as their limitations are kept in mind, should provide a good guide to the true burden of green taxes in each area.

Fuel Duty

The census records the number of people who drive to work in each local authority area and the average distance people in that area travel to work. Those statistics have been used to estimate the share of the total Fuel Duty bill that the residents of each local authority area pay:

- This should provide a reasonable proxy for the extent to which people pay fuel duty in their travel to work. Those who have a relatively long trip to

work, and are relatively likely to rely on their car to do so, we can reasonably expect to drive more outside the drive to work as well.

- The census data used is for 2001 so it is assumed that the relative pattern of travelling to work has remained stable in recent years. Changes in the costs of driving will affect all motorists equally and it seems implausible that new transport infrastructure since 2001 has significantly changed the balance between urban areas, where dense public transport networks and congestion on the roads make public transport an effective alternative to the car, and suburban and rural areas where public transport is not a practical alternative.
- The distance driven is not a perfect proxy for amount of fuel used. Fuel efficiency will vary with the model of car driven and, more importantly, the environment that the motorist is operating within. Driving in congested urban areas will generally use more fuel per mile. This has not been corrected for in this study and should be borne in mind, though it seems unlikely it will critically affect the final results.

Vehicle Excise Duty

As well as the distance and method of people's travel to work, the census also records the number of cars owned in each local authority area. This should provide a good proxy for the amount of Vehicle Excise Duty charged:

- Different cars are charged different amounts of Vehicle Excise Duty depending on the amount of carbon dioxide emissions they produce and the year in which they were registered. That is not accounted for in this study. However, it should only make a limited difference to the results, as car sizes are likely to average out considerably across a local authority area.

Climate Change Levy

The burden of the Climate Change Levy is distributed according to final energy consumption:

- The existence of Climate Change Agreements makes it impossible to construct a simple estimate of the burden of the Climate Change Levy in different areas. Final energy consumption will be an imperfect proxy as it fails to account for the use of different fuels and the existence of climate change agreements; however, it should provide a reasonable estimate.
- Statistics for energy use in Northern Ireland are extremely limited as they are felt to be commercially sensitive. This study works on the assumption that people and companies consume electricity and natural gas at the same per capita rate in Northern Ireland as the average in the rest of the country.

Renewables Obligation

The burden of the Renewables Obligation is distributed according to final consumption of electricity:

- Statistics for electricity use in Northern Ireland are extremely limited as they are felt to be commercially sensitive. This study works on the assumption that people and companies in Northern Ireland consume electricity at the same per capita rate as the rest of the country.

Landfill Tax

The burden of Landfill Tax is distributed according to the population of the local authority area:

- This assumes that the amount of waste sent to landfill per person is roughly equal across the country. There will be some variation between different local authority areas but the differences should be relatively minor and population probably offers a reasonable proxy.

3.3 Green tax estimates

Table A2.2 in the appendix shows estimates of the various green taxes for each local authority, produced using the methodologies described above. Table 3.3.1 shows the local authority areas paying the highest and lowest total green taxes.

Table 3.3.1: Local authorities paying the highest and lowest amount of green taxes, 2007-08

Council	Fuel Duty, 2007-08, £	Vehicle Excise Duty, 2007-08, £	Climate Change Levy, 2007-08, £	Renewables Obligation, 2007-08, £	Landfill Tax, 2007-08, £	Total Green Taxes and Charges, 2007-08, £	Rank
Birmingham	160.45	70.48	10.03	13.40	14.96	269.08	1
Leeds	159.74	59.68	7.60	10.51	10.95	248.29	2
East Riding of Yorkshire	126.91	33.65	3.71	4.35	4.81	173.35	3
Sheffield	104.57	41.37	6.05	7.41	7.86	167.13	4
Fife	99.79	31.91	5.44	5.19	5.39	147.63	5
Ballymoney	8.79	2.51	0.32	0.40	0.41	12.38	430
City of London	0.14	0.41	1.99	7.05	0.11	9.57	431
Orkney Islands	6.18	2.04	0.22	0.37	0.30	9.10	432
Moyle	5.45	1.39	0.19	0.24	0.24	7.43	433
Isles of Scilly	0.22	0.13	0.03	0.05	0.03	0.46	434

3.4 Comparison

Table A2.3 in the appendix shows, in alphabetical order, the full list of local authorities and the excess green taxes burdening the residents of those areas. Table 3.4.1 shows the local authorities with the highest and lowest excess green taxes per capita.

Population figures are obtained from the subnational population projections for each nation.²⁹ Statistics for Wales in 2007 were not available so figures from 2006 were scaled up in line with average population growth in the non-Welsh councils. The City of the London and the Isles of Scilly are not included in the population statistics, as their populations are too low to be reliably projected from the census, so they have been left out. That is why councils in this table are ranked out of 432, instead of 434 as in the earlier tables.

Interestingly, there are only five local authorities where residents are not paying excess green taxes (under the IPCC's social cost estimate) and only twelve not paying excess green taxes under the DEFRA shadow price of carbon (including the Isles of Scilly and the City of London that aren't in this table).

²⁹ Office for National Statistics, NISRA, General Register Office for Scotland, Welsh Assembly Government

Table 3.4.1: Local authorities with the highest and lowest excess green taxes per person, 2007-08

Council	Excess Green Taxes, £ million				Excess per person, IPCC social cost, £	Rank
	Nordhaus	IPCC	Tol	DEFRA		
Maldon	39	38	39	29	607	1
East Hampshire	66	63	67	44	573	2
Tynedale	36	33	36	20	560	3
Uttlesford	43	40	44	20	555	4
Waverley	66	64	67	48	547	5
Mid Bedfordshire	77	73	78	48	544	6
Rochford	46	44	46	34	540	7
Hart	51	49	52	33	539	8
Braintree	79	76	80	54	538	9
Eilean Siar	15	14	15	7	534	10
Southwark	29	23	30	-17	84	423
Kensington and Chelsea	20	15	21	-16	83	424
Islington	18	14	19	-13	72	425
Camden	20	15	22	-24	62	426
Wansbeck	14	4	17	-66	58	427
Tower Hamlets	18	11	20	-32	53	428
Westminster	17	6	20	-69	26	429
North Lincolnshire	32	-1	40	-217	-7	430
Neath Port Talbot	15	-14	22	-200	-98	431
Redcar and Cleveland	17	-16	25	-234	-116	432

4. Implications of the results

4.1 Green taxes are already excessive

The results of this study suggest that British green taxes and charges already go far beyond correcting for the externalities associated with greenhouse gas emissions. For those who aspire to make the polluter pay, their work is already more than done. If Stern is correct in arguing that climate change constitutes the “greatest market failure that the world has seen”,³⁰ that market failure has already been corrected for.

This implies that there is no justification for a broad increase in green taxes or a range of other policies that aim to correct for externalities associated with emitting greenhouse gases:

- Despite the massive burden of taxation on road transport the Government also supports the strengthening of already stringent European Union emissions regulation. That regulation is entirely unnecessary if the externalities of rising greenhouse gas emissions have already been addressed in the tax system.
- The Government’s own study has shown that aviation taxes are already excessive yet it is still looking to include airlines in the European Union Emissions Trading Scheme, making flights even more expensive.
- The Emissions Trading Scheme itself will, if it maintains a stable price in Phase II, be another attempt to correct for the externalities associated with greenhouse gas emissions. It is hard to justify putting the scheme in place when Britain already has a price placed on most emitting activities by excessive green taxes.
- Further increases in taxes on motoring, particular in Vehicle Excise Duty, are planned. These cannot be justified by the environmental costs of driving.

This study focuses on aggregate taxes and the aggregate cost of emissions, whether across the country or in a local authority area, and different activities are taxed to different extents. There might be a case that there is room to do more to correct for the externalities associated with emissions from agriculture, for example, which is currently actively subsidised. If someone is to take that line though, they have to also accept that green taxes such as Fuel Duty are currently set too high and should be reduced.

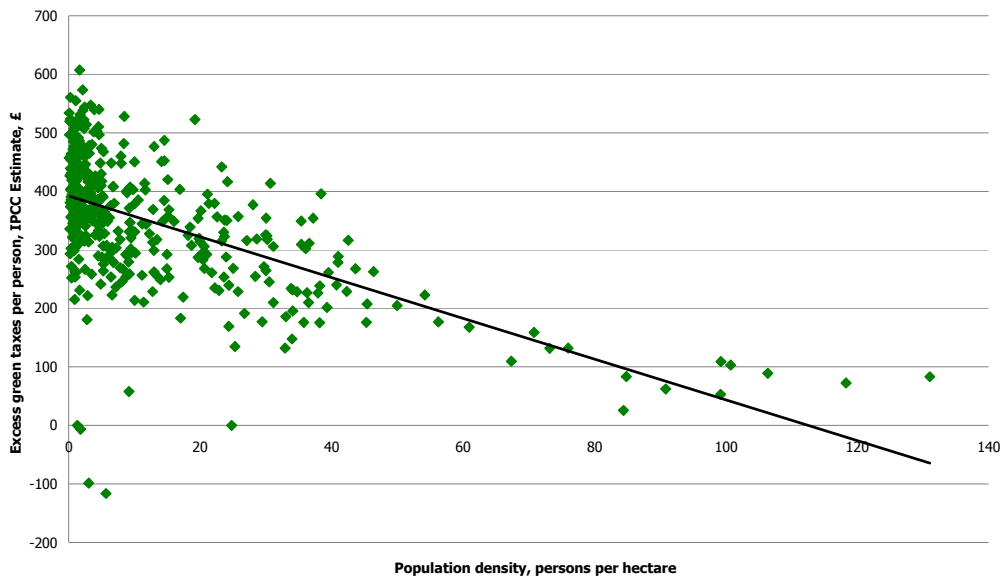
³⁰ Stern, N. et. al. *'Stern Review: The Economics of Climate Change'*, HM Treasury, 2006

4.2 The burden of green taxes falls unevenly on different parts of the country

The burden varies significantly between suburban and rural areas like Maldon whose residents pay £607 per person in excess green taxes and urban areas like Camden where residents pay £62 each in excess green taxes (using the IPCC social cost of carbon).

Figure 4.2.1 shows how the areas facing the largest burden from excess green taxes are those living in areas with low population density,³¹ i.e. suburban and rural areas. Metropolitan areas face a relatively low, though often still quite significant, excess burden.

Figure 4.2.1: Excess green taxes versus population density

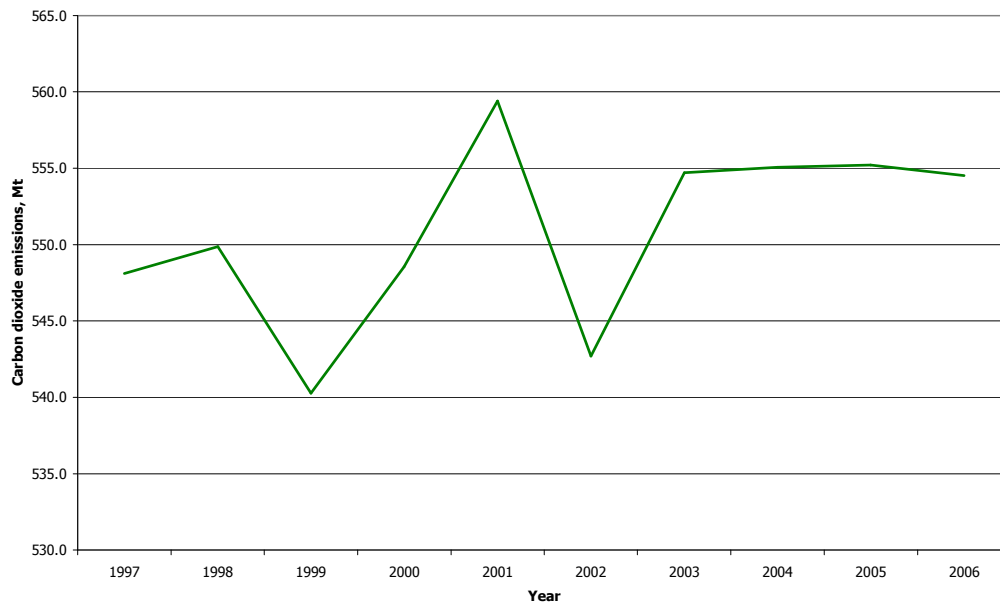


³¹ Population density statistics are obtained from Census results for England and Wales, Scotland and Northern Ireland.

4.3 Excessive green taxes have failed to deliver emissions reductions

Despite the massive burden of green taxes, significantly in excess of the social cost of British greenhouse gas emissions, there has been little progress in cutting emissions in recent years.

Figure 4.3.1: UK greenhouse gas emissions, 1997-2006, Mt CO₂-equivalent³²



Before 1997 there were cuts in emissions but these were mostly connected to a one-time 'dash for gas' with electricity generation shifting from ageing coal fired plants to newer gas fired ones. While emissions intensity is falling, there is little sign that actual emissions cuts can be delivered by present policy.

The failure of significant green taxes to deliver substantial reductions in emissions suggests that there are not cost-effective substitutes for emitting activities that people can be encouraged to switch to; the elasticities are too low. If people could, practically, avoid the substantial burden of Britain's green taxes then they would.

Policies aimed at reducing emissions should be directed, instead, at delivering new alternatives to make it more practical for people to respond to the many incentives to use less fossil fuel. That means focussing on assisting the development of new technologies, perhaps through the means of prizes for

³² DEFRA, 'Estimated emissions by source, IPCC categories, 1970-2006: carbon dioxide, methane and nitrous oxide', January 2008



delivering particular improvements, rather than trying to force people into replacing fossil fuels before alternatives are ready.

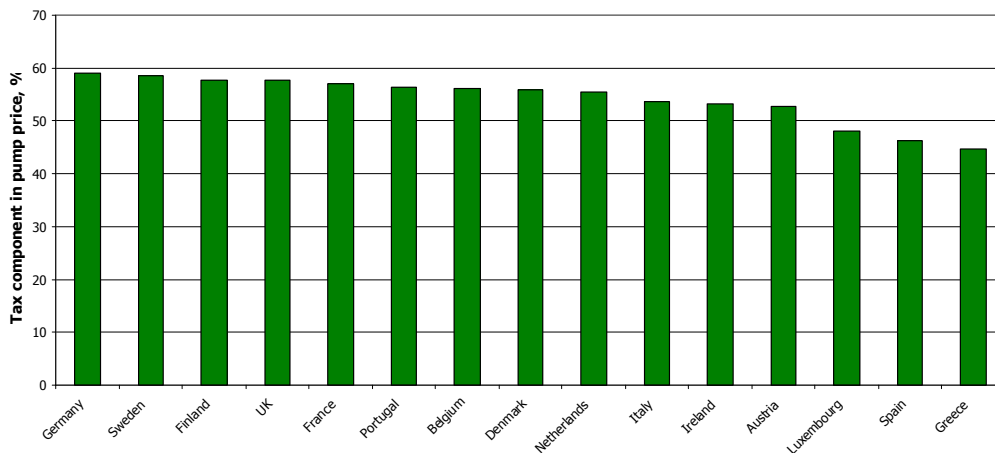
5. Problems with excessive green taxes

There are many problems with excessive green taxes and charges. This section will focus on three in particular: undermining the competitiveness of British firms, exporting greenhouse gas emissions and placing a particular burden on the poor. It will then discuss the fundamental economic distortions that make excessive green taxes unjust and inefficient.

5.1 Undermining competitiveness

British firms have to compete with those in other countries, facing different fiscal regimes. Many OECD countries take less in green taxes. For example, the proportion of the British unleaded pump price constituted by tax is the joint 3rd highest in the EU15.

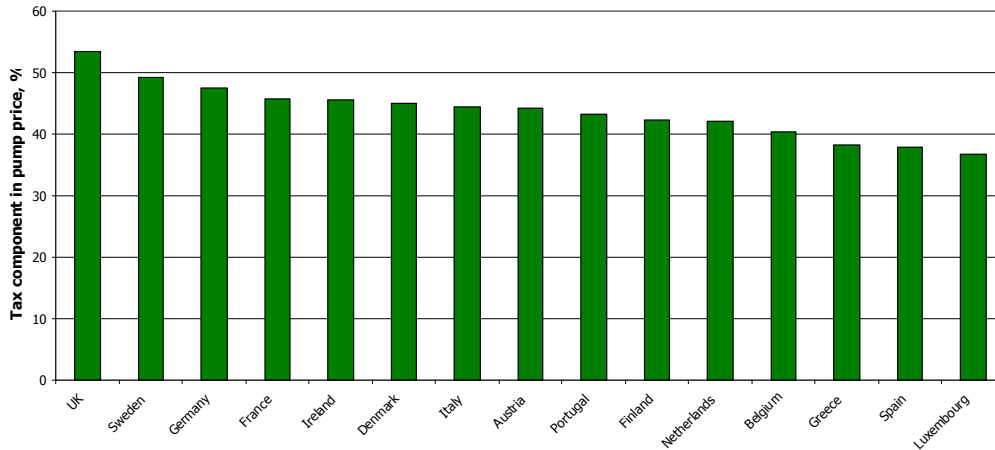
Figure 5.1.1: Tax component in the pump price of unleaded petrol in EU15 nations, per cent³³



³³ BERR, 'Energy trends and prices', Table 5.1.1, June 2008

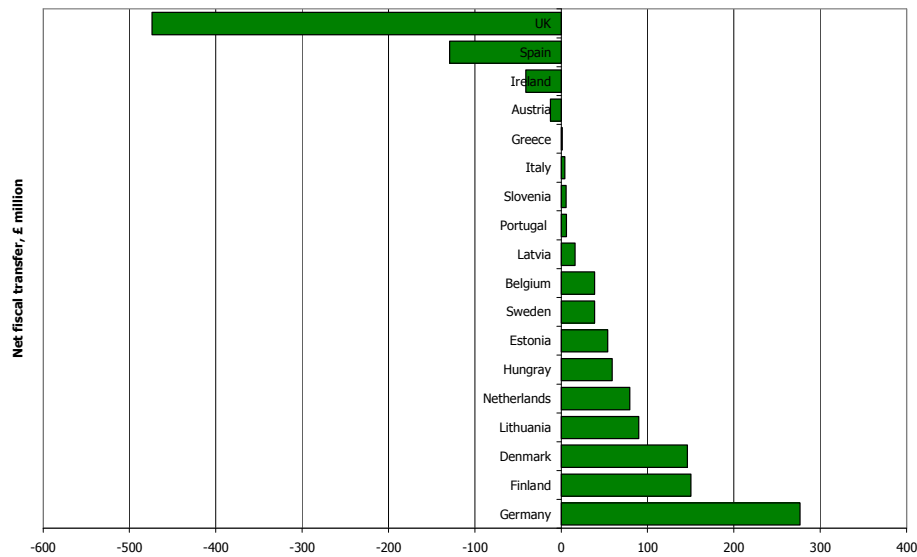
Diesel is even more heavily taxed relative to other EU countries.

Figure 5.1.2: Tax component in the pump price of diesel in EU15 nations, per cent³⁴



Britain has also paid the most under the European Union Emissions Trading Scheme. While other countries set generous allowances for their firms that required little by way of emissions cuts, Britain set relative tough restraints on emissions. The net result was a fiscal transfer of nearly £500 million from Britain to the rest of the EU. Most other European nations have profited from the scheme, as the graph below shows:

Figure 5.1.3: Estimated net contributions and receipts from the EU ETS in 2005³⁵



³⁴ BERR, 'Energy trends and prices', Table 5.2.1, June 2008

³⁵ Open Europe, 'The high price of hot air', July 2006

Taxes on motor fuels and the emissions trading scheme are just two green taxes but they hint at a broader pattern. Many of Britain's industries will not be able to compete with foreign firms on a level playing field as British companies have to live with the burden of more onerous green taxes and charges.

That picture becomes considerably starker when you compare Britain with developing countries. Firms in countries such as China do not have the burden of green taxes and many have their energy costs heavily subsidised:

- Morgan Stanley found that half of the world's population have their purchases of fuel subsidised. Thanks to subsidies the price of petrol in China was 79 cents per litre in early 2008 whereas the price in the United States was just \$1.04 per litre. British drivers paid well over \$2 per litre at the time.³⁶
- Most developing world countries face no equivalents of the EU Emissions Trading Scheme, Renewables Obligation or many of Britain's other green taxes.

There has been a steady decline in British manufacturing employment in the last decade. While there are many factors contributing to this trend, high green taxes certainly make it harder for British firms to compete and maintain manufacturing employment in the UK:

- This has almost certainly contributed to job losses. Manufacturing employment has fallen from nearly 4.5 million in 1997 to nearly 3.2 million in 2008.³⁷
- As well as leading to job losses, undermining the competitiveness of British industry is also likely to mean lower overall prosperity and harm poorer regions dependent on manufacturing, thereby increasing regional inequalities.

5.2 Exporting emissions

Another result of Britain's high green taxes relative to industrial competitors is that Britain exports more emissions. This undermines the effectiveness of green taxes. Britain's emissions intensity is relatively low. This will partly be the result of the UK economy specialising in activities that tend to produce relatively low emissions, but it is also a reflection of the relative energy efficiency of British industry. Exporting emissions to countries like China, with much higher emissions intensity, could increase total emissions.

³⁶ The Economist, *'Fuel subsidies: Crude measures'*, May 2008

³⁷ Office for National Statistics, *'UK Workforce jobs'*, LOLO, July 2008

Table 5.2.1: Emissions intensity by country for the 25 largest emitters, 2000³⁸

Country	Emissions intensity: tonnes of CO ₂ eq. / \$m GDP (PPP)
Ukraine	2,369
Russia	1,817
Iran	1,353
Saudi Arabia	1,309
Pakistan	1,074
China	1,023
South Africa	1,006
Poland	991
Australia	977
Turkey	844
Indonesia	799
Canada	793
India	768
South Korea	729
United States	720
Brazil	679
Argentina	659
Mexico	586
Spain	471
Germany	471
United Kingdom	450
Japan	400
Italy	369
France	344

A recent report for the Government found that Britain's Consumer Emissions, those produced both in the UK and abroad providing goods for UK consumers, were 762.4 Mt of CO₂ in 2004:³⁹

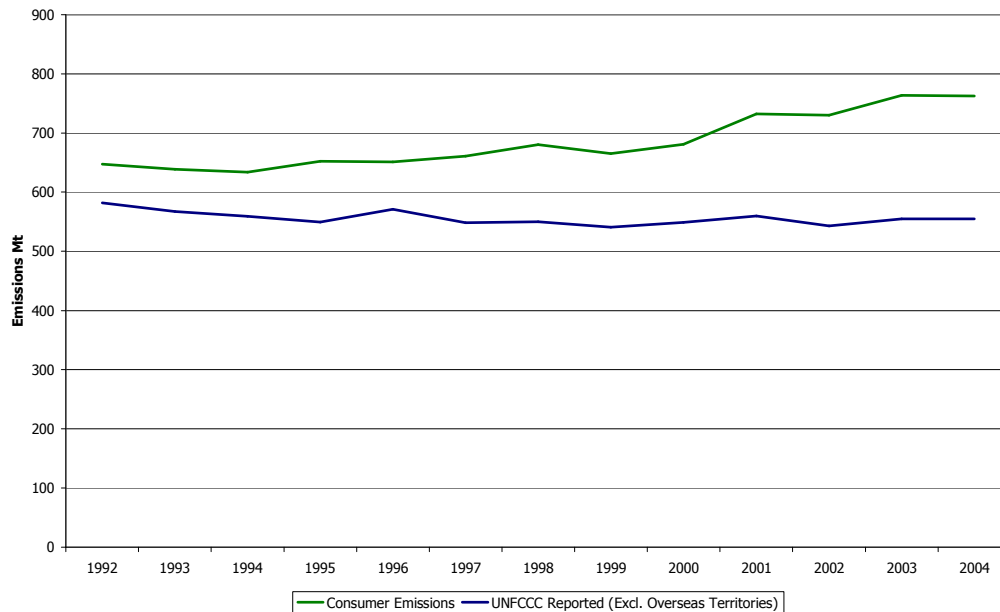
- That is 132 Mt more than the producer emissions total that is generally quoted when discussing UK carbon dioxide emissions, a measure which does not include emissions exported to other countries.
- Emissions embedded in exports, the emissions that Britain has exported to other countries, have increased from 4.3 per cent of producer emissions in 1997 to 21 per cent in 2004.

³⁸ Baumert, K. A., Herzog, T. & Pershing, J. "Navigating the Numbers: Greenhouse Gas Data and International Climate Policy", Chapter 5, http://pdf.wri.org/navigating_numbers_chapter5.pdf, World Resources Institute

³⁹ Stockholm Environment Institute & University of Sydney, 'Development of an embedded carbon emissions indicator', DEFRA, July 2008

- Emissions exports are also creating a growing gap between the emissions reported to the UN and Consumer Emissions, as can be seen in the graph below:

Figure 5.2.1: UK Consumer Emissions and UNFCCC reported emissions⁴⁰



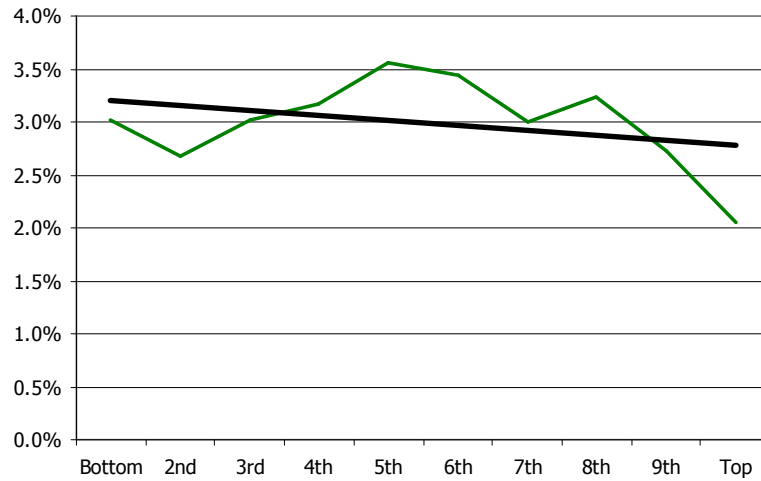
5.3 Hurting the poor

Green taxes that increase the cost of transport, electricity and other essentials impose a particular burden on the poor:

- As Figure 5.3.1 below shows, middle class and poorer households spend more of their gross income on motor oils (including petrol) than richer households, meaning that they face a greater Fuel Duty burden. Those on middle incomes face a particularly large bill, as a share of their income.

⁴⁰ Stockholm Environment Institute & University of Sydney, 'Development of an embedded carbon emissions indicator', DEFRA, pp. 21-22, July 2008

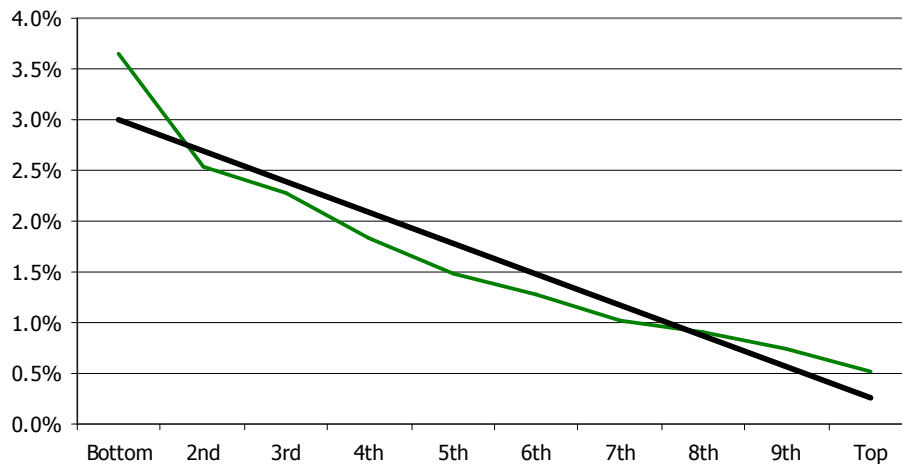
Figure 5.3.1: Spending on motor oils as a percentage of gross weekly income by household income decile, 2005-06⁴¹



- Increasing the cost of transport for poorer people, who may have a limited ability to move home, reduces their ability to find work at a diverse range of employers. This reduces economic flexibility, making poorer people more vulnerable to the economic cycle, and could create imbalances of power within the workplace if an employee cannot credibly threaten to leave and seek employment elsewhere.
- Measures, such as the Renewables Obligation, that increase the price of electricity for domestic consumers are highly regressive. As Figure 5.3.2 below shows, poorer households spend far more of their gross income on electricity than richer households.

⁴¹ Office for National Statistics, *The Effects of Taxes and Benefits on Household Income 2005-06*, Table 24, Appendix 1; Office for National Statistics, *Family Spending 2005-06*, Table A8

Figure 5.3.2: Spending on electricity as a percentage of gross weekly income by household income decile, 2005-06⁴²



- Climate change regulations now make up 14 per cent of domestic electricity bills and 3 per cent of domestic gas bills.⁴³ This will clearly have a significant impact on the finances of poorer households. It will have a particular impact on those in fuel poverty, defined as paying more than 10 per cent of their income just to heat their homes.⁴⁴
- This could contribute to excess winter mortality. In the winter of 2006-2007, 23,900 people died in excess of the number that would be expected if winter mortality followed the pattern in the warmer months and that number has been significantly higher in recent years.⁴⁵ Policies that push up domestic energy bills create an incentive for elderly people to keep their homes at a lower temperature. That can clearly translate into higher mortality rates.

It would, obviously, be possible to attempt to compensate the poor for the impact of green taxes. The Winter Fuel Payment, of between £125 and £250 for those aged 60-79 and between £200 and £400 for those aged 80 and over, is one attempt to do this.⁴⁶ Taxing people and then returning the money in the form of benefits is not ideal, though. It is clearly a wasteful process as significant amounts will be lost to administration costs. It could also undermine claimants' sense of independence. Finally, if people are compensated for the cost of green taxes and charges then the incentives that those taxes are designed to create can often be weakened.

⁴² Office for National Statistics, *The Effects of Taxes and Benefits on Household Income 2005-06*, Table 24, Appendix 1; Office for National Statistics, *Family Spending 2005-06*, Table A8

⁴³ BERR, *UK Renewable Energy Strategy: Consultation*, June 2008, p. 231

⁴⁴ BERR, *Fuel Poverty*, <http://www.berr.gov.uk/energy/fuel-poverty/>

⁴⁵ Office for National Statistics, *News Release: Excess winter deaths fell in 2006/07*, November 2007

⁴⁶ The Pension Service, *Winter Fuel Payments*, <http://www.thepensionservice.gov.uk/winterfuel/>

5.4 Economic distortion

Excessive green taxes, not justified as a Pigovian attempt to address externalities, are an arbitrary burden on particular industries and consumers. People pay for electricity, motor fuels and other goods subject to green taxes with income that has already been taxed; companies that pay green taxes also pay corporation tax; and most green taxes are accompanied by VAT. They have already paid their fair share and additional taxes, without proper justification, constitute a deeply unfair and distorting victimisation.

Green taxes are generally deeply inefficient. They undermine the competitiveness of British industry and waste money in administration. The Government's preliminary Regulatory Impact Assessment suggests that the European Union Emissions Trading Scheme is costing £62 million per year in administrative costs to British firms and public sector bodies alone.⁴⁷ Green taxes can also foster social harm by reducing the poor to economic dependency and increasing the cost to dispersed families who want to keep in touch.

If the Pigovian justification for Britain's green taxes cannot be sustained then they are nothing but an unjust and inefficient attack on particular industries and consumers.

⁴⁷ Open Europe, *"The high price of hot air: Why the EU Emissions Trading Scheme is an environmental and economic failure"*, July 2006

Appendix 1: Responses to 'The Case Against Further Green Taxes'

This report is a sequel to last year's 'The Case Against Further Green Taxes'. That report received a variety of responses:

- The **Liberal Democrats** argued that more recent estimates of the social cost of carbon showed a higher value, and therefore the lower estimates we used were not relevant, and that fuel duty accounted for many externalities other than greenhouse gas emissions and the need to spend money on roads.⁴⁸

However, Tol's estimate of the social cost of carbon is based on a survey of over 200 estimates of the social cost, which involves studying estimates constructed over a number of years. From that review, he concludes that "there is a downward trend" in the estimates.⁴⁹ There is no evidence to substantiate the idea that estimates of the social cost of carbon are generally increasing. We had already dealt with the argument that Fuel Duty should correct for externalities other than road building and greenhouse gas emissions in the report and there is an extended discussion of this issue in Section 2 of this study.

- The **Treasury's** criticism of our report was that "in arguing against these taxes, the Taxpayers Alliance are being doubly dangerous – it would mean cuts to public services, schools and hospitals, as well as higher carbon emissions leading to accelerated climate change."⁵⁰

As we illustrated, the externalities have already been corrected for so the current level, or greater, of green taxes cannot be justified to prevent accelerated climate change. The other half of their argument is that these taxes are needed to raise revenue. That confirms our arguments that green taxes constitute an attempt to use green rhetoric to disguise increases in total taxation and victimise certain groups, such as motorists, who already pay other taxes such as VAT.

- None of the rebuttals established a genuine flaw in last year's research. Rod Liddle, writing recently in **the Spectator**, observed that:⁵¹

"Now, OK, it's a fair cop — I suppose you would not expect an organisation called the TaxPayers' Alliance to commission a study which concluded that we should all pay more in tax of one kind or another. But still, I have not seen those figures convincingly rebutted

⁴⁸ Liberal Democrats, 'TaxPayers' Alliance Wrong on Green Taxes', September 2007, <http://www.libdems.org.uk/news/taxpayers-alliance-wrong-on-green-taxes-huhne.13124.html>

⁴⁹ Tol, R.S.J. 'The Social Cost of Carbon: Trends, outliers and catastrophes', August 2007

⁵⁰ *Daily Telegraph*, 'Britons 'pay £10.2bn too much in green tax', September 2007

⁵¹ Liddle, R. 'All These Green Taxes And Rules Are Just Witless Nods To Fashion', *Spectator*, August 2008

anywhere. I suspect that they are impossible to rebut and that instead the answer will come that we have a duty to the world which well exceeds the damage we wreak upon it. Perhaps — but if so, then let's say as much, clearly."

The Government and other organisations have since adopted our methodology, further confirming its validity:

- The **Department for Transport** compared the social costs of air travel with the amount charged in green taxes. The Department established that, since the increase in Air Passenger Duty in 2007, flights have been charged green taxes in excess of their social costs by £100 million.⁵² The report used the DEFRA shadow price of carbon, produced at the end of last year, which is one of the estimates we use in this study.
- The **Institute for Fiscal Studies** has recently looked at both Fuel Duty and the Landfill Tax as part of the Mirrlees Review. It concluded that "road fuel duty is much higher in the UK than the environmental cost of vehicle emissions would appear to justify" and "UK landfill tax has been raised to levels much higher than the environmental costs of landfill justify".⁵³

The conclusion from both of our reports, that emitting activities are already excessively taxed, is increasingly supported by studies elsewhere confirming that a broad range of the most important emitting activities face taxes higher than the externalities they impose.

⁵² Department for Transport, *'Aviation emissions cost assessment 2008'*, July 2008

⁵³ Institute for Fiscal Studies, *'Don't expect much extra revenue from green taxes, says study prepared for the Mirrlees Review'*, July 2008

Appendix 2: Full Local Tables

Table A2.1: Emissions and social cost of greenhouse gas emissions by local authority, 2007

Council	Emissions, 2005, kT CO ₂	Emissions estimate, 2007, kT CO ₂ -equivalent	Total social cost estimates, £ million			
			Nordhaus	IPCC	Tol	DEFRA
Aberdeen City	1,778	2,107	9.4	15.2	7.9	53.7
Aberdeenshire	3,603	4,271	19.0	30.8	16.1	108.9
Adur	374	443	2.0	3.2	1.7	11.3
Allerdale	1,404	1,664	7.4	12.0	6.3	42.4
Alnwick	267	317	1.4	2.3	1.2	8.1
Amber Valley	1,136	1,347	6.0	9.7	5.1	34.3
Angus	994	1,178	5.2	8.5	4.4	30.0
Antrim	604	715	3.2	5.2	2.7	18.2
Ards	606	719	3.2	5.2	2.7	18.3
Argyll and Bute	-359	-425	-1.9	-3.1	-1.6	-10.8
Armagh	597	708	3.1	5.1	2.7	18.0
Arun	872	1,034	4.6	7.5	3.9	26.4
Ashfield	849	1,007	4.5	7.3	3.8	25.7
Ashford	941	1,116	5.0	8.1	4.2	28.5
Aylesbury Vale	1,237	1,466	6.5	10.6	5.5	37.4
Babergh	783	928	4.1	6.7	3.5	23.7
Ballymena	649	769	3.4	5.6	2.9	19.6
Ballymoney	277	328	1.5	2.4	1.2	8.4
Banbridge	432	512	2.3	3.7	1.9	13.0
Barking and Dagenham	928	1,099	4.9	7.9	4.1	28.0
Barnet	1,937	2,296	10.2	16.6	8.7	58.6
Barnsley	1,956	2,318	10.3	16.7	8.7	59.1
Barrow-in-Furness	563	667	3.0	4.8	2.5	17.0
Basildon	1,182	1,400	6.2	10.1	5.3	35.7
Basingstoke and Deane	1,613	1,911	8.5	13.8	7.2	48.7
Bassetlaw	1,250	1,482	6.6	10.7	5.6	37.8
Bath and North East Somerset	1,160	1,375	6.1	9.9	5.2	35.1
Bedford	1,137	1,348	6.0	9.7	5.1	34.4
Belfast	1,988	2,357	10.5	17.0	8.9	60.1

Council	Emissions, 2005, kT CO ₂	Emissions estimate, 2007, kT CO ₂ -equivalent	Total social cost estimates, £ million			
			Nordhaus	IPCC	Tol	DEFRA
Berwick-upon-Tweed	386	457	2.0	3.3	1.7	11.7
Bexley	1,402	1,662	7.4	12.0	6.3	42.4
Birmingham	6,610	7,835	34.9	56.6	29.5	199.8
Blaby	849	1,007	4.5	7.3	3.8	25.7
Blackburn with Darwen	1,240	1,470	6.5	10.6	5.5	37.5
Blackpool	818	970	4.3	7.0	3.7	24.7
Blaenau Gwent	473	561	2.5	4.1	2.1	14.3
Blyth Valley	580	688	3.1	5.0	2.6	17.5
Bolsover	1,300	1,541	6.9	11.1	5.8	39.3
Bolton	1,759	2,085	9.3	15.1	7.9	53.2
Boston	520	616	2.7	4.4	2.3	15.7
Bournemouth	930	1,102	4.9	8.0	4.2	28.1
Bracknell Forest	761	903	4.0	6.5	3.4	23.0
Bradford	3,113	3,690	16.4	26.6	13.9	94.1
Braintree	1,028	1,218	5.4	8.8	4.6	31.1
Breckland	1,071	1,269	5.6	9.2	4.8	32.4
Brent	1,474	1,747	7.8	12.6	6.6	44.5
Brentwood	689	817	3.6	5.9	3.1	20.8
Bridgend	1,419	1,681	7.5	12.1	6.3	42.9
Bridgnorth	668	792	3.5	5.7	3.0	20.2
Brighton and Hove	1,332	1,579	7.0	11.4	6.0	40.3
Bristol, City of	2,560	3,034	13.5	21.9	11.4	77.4
Broadland	933	1,105	4.9	8.0	4.2	28.2
Bromley	1,746	2,069	9.2	14.9	7.8	52.8
Bromsgrove	1,006	1,192	5.3	8.6	4.5	30.4
Broxbourne	550	651	2.9	4.7	2.5	16.6
Broxtowe	856	1,015	4.5	7.3	3.8	25.9
Burnley	625	741	3.3	5.3	2.8	18.9
Bury	1,370	1,624	7.2	11.7	6.1	41.4
Caerphilly	1,103	1,308	5.8	9.4	4.9	33.4
Calderdale	1,635	1,938	8.6	14.0	7.3	49.4
Cambridge	781	926	4.1	6.7	3.5	23.6
Camden	1,793	2,126	9.5	15.3	8.0	54.2
Cannock Chase	586	695	3.1	5.0	2.6	17.7

Council	Emissions, 2005, kT CO ₂	Emissions estimate, 2007, kT CO ₂ -equivalent	Total social cost estimates, £ million			
			Nordhaus	IPCC	Tol	DEFRA
Canterbury	921	1,091	4.9	7.9	4.1	27.8
Caradon	643	762	3.4	5.5	2.9	19.4
Cardiff	2,573	3,050	13.6	22.0	11.5	77.8
Carlisle	1,132	1,342	6.0	9.7	5.1	34.2
Carmarthenshire	1,788	2,119	9.4	15.3	8.0	54.0
Carrick	668	791	3.5	5.7	3.0	20.2
Carrickfergus	280	332	1.5	2.4	1.3	8.5
Castle Morpeth	487	577	2.6	4.2	2.2	14.7
Castle Point	400	474	2.1	3.4	1.8	12.1
Castlereagh	436	517	2.3	3.7	1.9	13.2
Ceredigion	631	748	3.3	5.4	2.8	19.1
Charnwood	1,221	1,447	6.4	10.5	5.5	36.9
Chelmsford	1,149	1,361	6.1	9.8	5.1	34.7
Cheltenham	677	803	3.6	5.8	3.0	20.5
Cherwell	1,657	1,964	8.7	14.2	7.4	50.1
Chester	1,391	1,648	7.3	11.9	6.2	42.0
Chesterfield	739	876	3.9	6.3	3.3	22.3
Chester-le-Street	325	385	1.7	2.8	1.5	9.8
Chichester	926	1,098	4.9	7.9	4.1	28.0
Chiltern	639	758	3.4	5.5	2.9	19.3
Chorley	975	1,156	5.1	8.3	4.4	29.5
Christchurch	304	360	1.6	2.6	1.4	9.2
City of London	1,600	1,897	8.4	13.7	7.2	48.4
Clackmannanshire	570	675	3.0	4.9	2.5	17.2
Colchester	1,093	1,295	5.8	9.4	4.9	33.0
Coleraine	508	603	2.7	4.4	2.3	15.4
Congleton	1,217	1,443	6.4	10.4	5.4	36.8
Conwy	844	1,000	4.5	7.2	3.8	25.5
Cookstown	694	822	3.7	5.9	3.1	21.0
Copeland	606	718	3.2	5.2	2.7	18.3
Corby	734	871	3.9	6.3	3.3	22.2
Cotswold	907	1,075	4.8	7.8	4.1	27.4
Coventry	2,230	2,643	11.8	19.1	10.0	67.4
Craigavon	813	964	4.3	7.0	3.6	24.6
Craven	575	681	3.0	4.9	2.6	17.4

Council	Emissions, 2005, kT CO ₂	Emissions estimate, 2007, kT CO ₂ -equivalent	Total social cost estimates, £ million			
			Nordhaus	IPCC	Tol	DEFRA
Crawley	799	947	4.2	6.8	3.6	24.1
Crewe and Nantwich	1,000	1,185	5.3	8.6	4.5	30.2
Croydon	1,893	2,244	10.0	16.2	8.5	57.2
Dacorum	1,020	1,209	5.4	8.7	4.6	30.8
Darlington	879	1,042	4.6	7.5	3.9	26.6
Dartford	965	1,144	5.1	8.3	4.3	29.2
Daventry	1,165	1,381	6.1	10.0	5.2	35.2
Denbighshire	723	857	3.8	6.2	3.2	21.9
Derby	1,636	1,939	8.6	14.0	7.3	49.4
Derbyshire Dales	972	1,152	5.1	8.3	4.3	29.4
Derry	834	988	4.4	7.1	3.7	25.2
Derwentside	589	698	3.1	5.0	2.6	17.8
Doncaster	2,843	3,369	15.0	24.3	12.7	85.9
Dover	911	1,080	4.8	7.8	4.1	27.5
Down	585	693	3.1	5.0	2.6	17.7
Dudley	1,820	2,158	9.6	15.6	8.1	55.0
Dumfries and Galloway	989	1,173	5.2	8.5	4.4	29.9
Dundee City	1,248	1,479	6.6	10.7	5.6	37.7
Dungannon and South Tyrone	630	747	3.3	5.4	2.8	19.0
Durham	756	896	4.0	6.5	3.4	22.9
Ealing	1,740	2,062	9.2	14.9	7.8	52.6
Easington	687	814	3.6	5.9	3.1	20.8
East Ayrshire	825	978	4.4	7.1	3.7	24.9
East Cambridgeshire	899	1,066	4.7	7.7	4.0	27.2
East Devon	1,045	1,238	5.5	8.9	4.7	31.6
East Dorset	594	704	3.1	5.1	2.7	18.0
East Dunbartonshire	639	757	3.4	5.5	2.9	19.3
East Hampshire	896	1,062	4.7	7.7	4.0	27.1
East Hertfordshire	982	1,164	5.2	8.4	4.4	29.7
East Lindsey	1,267	1,502	6.7	10.8	5.7	38.3
East Lothian	1,493	1,770	7.9	12.8	6.7	45.1

Council	Emissions, 2005, kT CO ₂	Emissions estimate, 2007, kT CO ₂ -equivalent	Total social cost estimates, £ million			
			Nordhaus	IPCC	Tol	DEFRA
East Northamptonshire	660	782	3.5	5.6	2.9	19.9
East Renfrewshire	516	612	2.7	4.4	2.3	15.6
East Riding of Yorkshire	3,180	3,769	16.8	27.2	14.2	96.1
East Staffordshire	1,033	1,225	5.5	8.8	4.6	31.2
Eastbourne	498	590	2.6	4.3	2.2	15.0
Eastleigh	881	1,044	4.6	7.5	3.9	26.6
Eden	1,593	1,888	8.4	13.6	7.1	48.1
Edinburgh, City of	3,371	3,996	17.8	28.8	15.1	101.9
Eilean Siar	340	403	1.8	2.9	1.5	10.3
Ellesmere Port & Neston	2,161	2,562	11.4	18.5	9.7	65.3
Elmbridge	939	1,113	5.0	8.0	4.2	28.4
Enfield	1,695	2,009	8.9	14.5	7.6	51.2
Epping Forest	1,291	1,530	6.8	11.0	5.8	39.0
Epsom and Ewell	356	422	1.9	3.0	1.6	10.8
Erewash	850	1,008	4.5	7.3	3.8	25.7
Exeter	961	1,140	5.1	8.2	4.3	29.1
Falkirk	3,587	4,252	18.9	30.7	16.0	108.4
Fareham	763	904	4.0	6.5	3.4	23.1
Fenland	1,094	1,297	5.8	9.4	4.9	33.1
Fermanagh	802	951	4.2	6.9	3.6	24.2
Fife	3,587	4,251	18.9	30.7	16.0	108.4
Flintshire	2,222	2,634	11.7	19.0	9.9	67.2
Forest Heath	621	736	3.3	5.3	2.8	18.8
Forest of Dean	693	822	3.7	5.9	3.1	21.0
Fylde	777	921	4.1	6.7	3.5	23.5
Gateshead	1,615	1,915	8.5	13.8	7.2	48.8
Gedling	572	679	3.0	4.9	2.6	17.3
Glasgow City	4,269	5,061	22.5	36.5	19.1	129.0
Gloucester	709	841	3.7	6.1	3.2	21.4
Gosport	373	442	2.0	3.2	1.7	11.3
Gravesham	1,678	1,989	8.9	14.4	7.5	50.7

Council	Emissions, 2005, kT CO ₂	Emissions estimate, 2007, kT CO ₂ -equivalent	Total social cost estimates, £ million			
			Nordhaus	IPCC	Tol	DEFRA
Great Yarmouth	557	660	2.9	4.8	2.5	16.8
Greenwich	1,340	1,588	7.1	11.5	6.0	40.5
Guildford	1,136	1,346	6.0	9.7	5.1	34.3
Gwynedd	932	1,105	4.9	8.0	4.2	28.2
Hackney	958	1,135	5.1	8.2	4.3	29.0
Halton	1,568	1,858	8.3	13.4	7.0	47.4
Hambleton	1,133	1,343	6.0	9.7	5.1	34.2
Hammersmith and Fulham	1,130	1,339	6.0	9.7	5.0	34.2
Harborough	889	1,054	4.7	7.6	4.0	26.9
Haringey	1,119	1,327	5.9	9.6	5.0	33.8
Harlow	570	676	3.0	4.9	2.5	17.2
Harrogate	1,661	1,969	8.8	14.2	7.4	50.2
Harrow	1,115	1,322	5.9	9.5	5.0	33.7
Hart	735	871	3.9	6.3	3.3	22.2
Hartlepool	801	949	4.2	6.9	3.6	24.2
Hastings	420	497	2.2	3.6	1.9	12.7
Havant	755	895	4.0	6.5	3.4	22.8
Havering	1,413	1,675	7.5	12.1	6.3	42.7
Herefordshire, County of	1,791	2,123	9.4	15.3	8.0	54.1
Hertsmere	921	1,091	4.9	7.9	4.1	27.8
High Peak	2,748	3,258	14.5	23.5	12.3	83.1
Highland	929	1,101	4.9	7.9	4.2	28.1
Hillingdon	2,445	2,898	12.9	20.9	10.9	73.9
Hinckley and Bosworth	964	1,143	5.1	8.3	4.3	29.1
Horsham	1,002	1,187	5.3	8.6	4.5	30.3
Hounslow	1,714	2,032	9.0	14.7	7.7	51.8
Huntingdonshire	1,856	2,200	9.8	15.9	8.3	56.1
Hyndburn	631	748	3.3	5.4	2.8	19.1
Inverclyde	575	682	3.0	4.9	2.6	17.4
Ipswich	746	884	3.9	6.4	3.3	22.5
Isle of Anglesey	665	788	3.5	5.7	3.0	20.1
Isle of Wight	909	1,077	4.8	7.8	4.1	27.5
Isles of Scilly	22	26	0.1	0.2	0.1	0.7
Islington	1,228	1,456	6.5	10.5	5.5	37.1

Council	Emissions, 2005, kT CO ₂	Emissions estimate, 2007, kT CO ₂ -equivalent	Total social cost estimates, £ million			
			Nordhaus	IPCC	Tol	DEFRA
Kennet	676	802	3.6	5.8	3.0	20.4
Kensington and Chelsea	1,457	1,727	7.7	12.5	6.5	44.0
Kerrier	656	778	3.5	5.6	2.9	19.8
Kettering	766	908	4.0	6.6	3.4	23.2
King's Lynn and West Norfolk	1,783	2,113	9.4	15.3	8.0	53.9
Kingston upon Hull, City of	1,746	2,069	9.2	14.9	7.8	52.8
Kingston upon Thames	899	1,065	4.7	7.7	4.0	27.2
Kirklees	3,172	3,760	16.7	27.1	14.2	95.9
Knowsley	1,339	1,587	7.1	11.5	6.0	40.5
Lambeth	1,477	1,750	7.8	12.6	6.6	44.6
Lancaster	1,090	1,292	5.8	9.3	4.9	33.0
Larne	340	403	1.8	2.9	1.5	10.3
Leeds	5,822	6,901	30.7	49.8	26.0	176.0
Leicester	2,107	2,497	11.1	18.0	9.4	63.7
Lewes	609	721	3.2	5.2	2.7	18.4
Lewisham	1,249	1,480	6.6	10.7	5.6	37.7
Lichfield	888	1,053	4.7	7.6	4.0	26.8
Limavady	300	355	1.6	2.6	1.3	9.1
Lincoln	585	693	3.1	5.0	2.6	17.7
Lisburn	972	1,152	5.1	8.3	4.3	29.4
Liverpool	2,855	3,384	15.1	24.4	12.8	86.3
Luton	1,075	1,274	5.7	9.2	4.8	32.5
Macclesfield	1,930	2,287	10.2	16.5	8.6	58.3
Magherafelt	428	507	2.3	3.7	1.9	12.9
Maidstone	1,186	1,406	6.3	10.1	5.3	35.8
Maldon	388	460	2.0	3.3	1.7	11.7
Malvern Hills	717	850	3.8	6.1	3.2	21.7
Manchester	3,371	3,996	17.8	28.9	15.1	101.9
Mansfield	594	704	3.1	5.1	2.7	18.0
Medway	1,325	1,570	7.0	11.3	5.9	40.0
Melton	449	532	2.4	3.8	2.0	13.6
Mendip	976	1,156	5.1	8.3	4.4	29.5
Merthyr Tydfil	414	491	2.2	3.5	1.8	12.5

Council	Emissions, 2005, kT CO ₂	Emissions estimate, 2007, kT CO ₂ -equivalent	Total social cost estimates, £ million			
			Nordhaus	IPCC	Tol	DEFRA
Merton	974	1,155	5.1	8.3	4.4	29.4
Mid Bedfordshire	1,157	1,372	6.1	9.9	5.2	35.0
Mid Devon	877	1,039	4.6	7.5	3.9	26.5
Mid Suffolk	847	1,005	4.5	7.3	3.8	25.6
Mid Sussex	1,021	1,210	5.4	8.7	4.6	30.9
Middlesbrough	1,195	1,416	6.3	10.2	5.3	36.1
Midlothian	544	645	2.9	4.7	2.4	16.4
Milton Keynes	1,873	2,220	9.9	16.0	8.4	56.6
Mole Valley	836	991	4.4	7.2	3.7	25.3
Monmouthshire	1,060	1,257	5.6	9.1	4.7	32.0
Moray	752	891	4.0	6.4	3.4	22.7
Moyle	172	204	0.9	1.5	0.8	5.2
Neath Port Talbot	8,618	10,215	45.5	73.8	38.5	260.5
New Forest	1,776	2,105	9.4	15.2	7.9	53.7
Newark and Sherwood	1,190	1,411	6.3	10.2	5.3	36.0
Newcastle upon Tyne	1,998	2,369	10.5	17.1	8.9	60.4
Newcastle-under-Lyme	1,039	1,232	5.5	8.9	4.6	31.4
Newham	1,567	1,858	8.3	13.4	7.0	47.4
Newport	2,077	2,462	11.0	17.8	9.3	62.8
Newry and Mourne	864	1,024	4.6	7.4	3.9	26.1
Newtownabbey	641	760	3.4	5.5	2.9	19.4
North Ayrshire	1,400	1,659	7.4	12.0	6.3	42.3
North Cornwall	942	1,117	5.0	8.1	4.2	28.5
North Devon	872	1,034	4.6	7.5	3.9	26.4
North Dorset	479	568	2.5	4.1	2.1	14.5
North Down	527	624	2.8	4.5	2.4	15.9
North East Derbyshire	825	978	4.4	7.1	3.7	24.9
North East Lincolnshire	1,864	2,209	9.8	15.9	8.3	56.3
North Hertfordshire	900	1,066	4.7	7.7	4.0	27.2
North Kesteven	877	1,040	4.6	7.5	3.9	26.5

Council	Emissions, 2005, kT CO ₂	Emissions estimate, 2007, kT CO ₂ -equivalent	Total social cost estimates, £ million			
			Nordhaus	IPCC	Tol	DEFRA
North Lanarkshire	2,689	3,188	14.2	23.0	12.0	81.3
North Lincolnshire	9,946	11,789	52.5	85.1	44.4	300.6
North Norfolk	1,040	1,233	5.5	8.9	4.6	31.4
North Shropshire	574	680	3.0	4.9	2.6	17.3
North Somerset	1,639	1,943	8.6	14.0	7.3	49.5
North Tyneside	1,481	1,755	7.8	12.7	6.6	44.7
North Warwickshire	1,271	1,506	6.7	10.9	5.7	38.4
North West Leicestershire	1,295	1,535	6.8	11.1	5.8	39.2
North Wiltshire	1,438	1,704	7.6	12.3	6.4	43.5
Northampton	1,470	1,742	7.8	12.6	6.6	44.4
Norwich	917	1,087	4.8	7.9	4.1	27.7
Nottingham	1,934	2,292	10.2	16.6	8.6	58.5
Nuneaton and Bedworth	703	833	3.7	6.0	3.1	21.2
Oadby and Wigston	325	386	1.7	2.8	1.5	9.8
Oldham	1,325	1,571	7.0	11.3	5.9	40.1
Omagh	520	617	2.7	4.5	2.3	15.7
Orkney Islands	281	333	1.5	2.4	1.3	8.5
Oswestry	333	395	1.8	2.9	1.5	10.1
Oxford	1,133	1,343	6.0	9.7	5.1	34.2
Pembrokeshire	1,228	1,456	6.5	10.5	5.5	37.1
Pendle	634	752	3.3	5.4	2.8	19.2
Penwith	407	483	2.1	3.5	1.8	12.3
Perth and Kinross	1,287	1,526	6.8	11.0	5.8	38.9
Peterborough	1,331	1,578	7.0	11.4	5.9	40.2
Plymouth	1,435	1,700	7.6	12.3	6.4	43.4
Poole	930	1,103	4.9	8.0	4.2	28.1
Portsmouth	1,277	1,514	6.7	10.9	5.7	38.6
Powys	1,112	1,318	5.9	9.5	5.0	33.6
Preston	1,061	1,258	5.6	9.1	4.7	32.1
Purbeck	449	533	2.4	3.8	2.0	13.6
Reading	1,019	1,207	5.4	8.7	4.6	30.8

Council	Emissions, 2005, kT CO ₂	Emissions estimate, 2007, kT CO ₂ -equivalent	Total social cost estimates, £ million			
			Nordhaus	IPCC	Tol	DEFRA
Redbridge	1,275	1,512	6.7	10.9	5.7	38.6
Redcar and Cleveland	10,035	11,894	52.9	85.9	44.8	303.3
Redditch	539	639	2.8	4.6	2.4	16.3
Reigate and Banstead	1,060	1,257	5.6	9.1	4.7	32.1
Renfrewshire	1,414	1,676	7.5	12.1	6.3	42.7
Restormel	1,042	1,235	5.5	8.9	4.7	31.5
Rhondda, Cynon, Taff	1,634	1,936	8.6	14.0	7.3	49.4
Ribble Valley	1,655	1,962	8.7	14.2	7.4	50.0
Richmond upon Thames	1,121	1,329	5.9	9.6	5.0	33.9
Richmondshire	588	697	3.1	5.0	2.6	17.8
Rochdale	1,574	1,865	8.3	13.5	7.0	47.6
Rochford	454	538	2.4	3.9	2.0	13.7
Rossendale	633	750	3.3	5.4	2.8	19.1
Rother	666	789	3.5	5.7	3.0	20.1
Rotherham	2,772	3,286	14.6	23.7	12.4	83.8
Rugby	2,210	2,619	11.7	18.9	9.9	66.8
Runnymede	839	994	4.4	7.2	3.7	25.4
Rushcliffe	845	1,001	4.5	7.2	3.8	25.5
Rushmoor	593	703	3.1	5.1	2.7	17.9
Rutland	1,467	1,739	7.7	12.6	6.6	44.3
Ryedale	641	760	3.4	5.5	2.9	19.4
Salford	1,878	2,226	9.9	16.1	8.4	56.8
Salisbury	998	1,182	5.3	8.5	4.5	30.2
Sandwell	2,222	2,633	11.7	19.0	9.9	67.1
Scarborough	871	1,033	4.6	7.5	3.9	26.3
Scottish Borders	750	889	4.0	6.4	3.4	22.7
Sedgefield	1,130	1,340	6.0	9.7	5.1	34.2
Sedgemoor	1,215	1,440	6.4	10.4	5.4	36.7
Sefton	1,538	1,823	8.1	13.2	6.9	46.5
Selby	1,317	1,561	6.9	11.3	5.9	39.8
Sevenoaks	1,127	1,336	5.9	9.6	5.0	34.1
Sheffield	4,138	4,905	21.8	35.4	18.5	125.1
Shepway	845	1,002	4.5	7.2	3.8	25.5

Council	Emissions, 2005, kT CO ₂	Emissions estimate, 2007, kT CO ₂ -equivalent	Total social cost estimates, £ million			
			Nordhaus	IPCC	Tol	DEFRA
Shetland Islands	456	540	2.4	3.9	2.0	13.8
Shrewsbury and Atcham	866	1,026	4.6	7.4	3.9	26.2
Slough	811	962	4.3	6.9	3.6	24.5
Solihull	1,933	2,291	10.2	16.5	8.6	58.4
South Ayrshire	722	856	3.8	6.2	3.2	21.8
South Bedfordshire	986	1,169	5.2	8.4	4.4	29.8
South Bucks	1,033	1,224	5.4	8.8	4.6	31.2
South Cambridgeshire	1,936	2,295	10.2	16.6	8.7	58.5
South Derbyshire	929	1,101	4.9	8.0	4.2	28.1
South Gloucestershire	3,150	3,734	16.6	27.0	14.1	95.2
South Hams	937	1,111	4.9	8.0	4.2	28.3
South Holland	785	931	4.1	6.7	3.5	23.7
South Kesteven	1,196	1,417	6.3	10.2	5.3	36.1
South Lakeland	1,409	1,670	7.4	12.1	6.3	42.6
South Lanarkshire	2,439	2,891	12.9	20.9	10.9	73.7
South Norfolk	1,090	1,291	5.7	9.3	4.9	32.9
South Northamptonshire	1,153	1,366	6.1	9.9	5.2	34.8
South Oxfordshire	1,348	1,598	7.1	11.5	6.0	40.7
South Ribble	895	1,061	4.7	7.7	4.0	27.0
South Shropshire	419	497	2.2	3.6	1.9	12.7
South Somerset	1,398	1,657	7.4	12.0	6.2	42.2
South Staffordshire	1,141	1,353	6.0	9.8	5.1	34.5
South Tyneside	835	990	4.4	7.1	3.7	25.2
Southampton	1,385	1,641	7.3	11.9	6.2	41.9
Southend-on-Sea	874	1,036	4.6	7.5	3.9	26.4
Southwark	1,842	2,183	9.7	15.8	8.2	55.7
Spelthorne	693	821	3.7	5.9	3.1	20.9
St Albans	1,199	1,421	6.3	10.3	5.4	36.2
St Edmundsbury	1,237	1,467	6.5	10.6	5.5	37.4
St. Helens	1,713	2,030	9.0	14.7	7.7	51.8

Council	Emissions, 2005, kT CO ₂	Emissions estimate, 2007, kT CO ₂ -equivalent	Total social cost estimates, £ million			
			Nordhaus	IPCC	Tol	DEFRA
Stafford	1,408	1,669	7.4	12.1	6.3	42.6
Staffordshire Moorlands	1,554	1,842	8.2	13.3	6.9	47.0
Stevenage	597	707	3.1	5.1	2.7	18.0
Stirling	790	937	4.2	6.8	3.5	23.9
Stockport	1,826	2,164	9.6	15.6	8.2	55.2
Stockton-on-Tees	4,775	5,660	25.2	40.9	21.3	144.3
Stoke-on-Trent	1,828	2,167	9.6	15.6	8.2	55.2
Strabane	373	442	2.0	3.2	1.7	11.3
Stratford-on-Avon	1,289	1,527	6.8	11.0	5.8	38.9
Stroud	1,120	1,328	5.9	9.6	5.0	33.9
Suffolk Coastal	943	1,117	5.0	8.1	4.2	28.5
Sunderland	2,137	2,533	11.3	18.3	9.6	64.6
Surrey Heath	747	885	3.9	6.4	3.3	22.6
Sutton	947	1,122	5.0	8.1	4.2	28.6
Swale	1,251	1,483	6.6	10.7	5.6	37.8
Swansea	1,711	2,028	9.0	14.6	7.6	51.7
Swindon	1,615	1,914	8.5	13.8	7.2	48.8
Tameside	1,454	1,723	7.7	12.4	6.5	43.9
Tamworth	444	526	2.3	3.8	2.0	13.4
Tandridge	849	1,006	4.5	7.3	3.8	25.6
Taunton Deane	895	1,061	4.7	7.7	4.0	27.0
Teesdale	293	347	1.5	2.5	1.3	8.9
Teignbridge	1,119	1,327	5.9	9.6	5.0	33.8
Telford and Wrekin	1,334	1,581	7.0	11.4	6.0	40.3
Tendring	833	988	4.4	7.1	3.7	25.2
Test Valley	1,093	1,295	5.8	9.4	4.9	33.0
Tewkesbury	1,035	1,227	5.5	8.9	4.6	31.3
Thanet	710	842	3.7	6.1	3.2	21.5
The Vale of Glamorgan	1,412	1,674	7.4	12.1	6.3	42.7
Three Rivers	742	879	3.9	6.3	3.3	22.4
Thurrock	1,956	2,319	10.3	16.7	8.7	59.1
Tonbridge and Malling	1,858	2,202	9.8	15.9	8.3	56.1

Council	Emissions, 2005, kT CO ₂	Emissions estimate, 2007, kT CO ₂ -equivalent	Total social cost estimates, £ million			
			Nordhaus	IPCC	Tol	DEFRA
Torbay	750	888	4.0	6.4	3.3	22.7
Torfaen	680	806	3.6	5.8	3.0	20.6
Torridge	504	598	2.7	4.3	2.3	15.2
Tower Hamlets	2,016	2,390	10.6	17.3	9.0	60.9
Trafford	2,227	2,639	11.7	19.1	9.9	67.3
Tunbridge Wells	745	883	3.9	6.4	3.3	22.5
Tynedale	623	738	3.3	5.3	2.8	18.8
Uttlesford	903	1,071	4.8	7.7	4.0	27.3
Vale of White Horse	1,218	1,444	6.4	10.4	5.4	36.8
Vale Royal	1,941	2,301	10.2	16.6	8.7	58.7
Wakefield	2,928	3,471	15.4	25.1	13.1	88.5
Walsall	1,912	2,267	10.1	16.4	8.5	57.8
Waltham Forest	1,089	1,291	5.7	9.3	4.9	32.9
Wandsworth	1,582	1,875	8.3	13.5	7.1	47.8
Wansbeck	3,227	3,825	17.0	27.6	14.4	97.5
Warrington	2,144	2,542	11.3	18.3	9.6	64.8
Warwick	1,321	1,566	7.0	11.3	5.9	39.9
Watford	520	616	2.7	4.5	2.3	15.7
Waveney	822	974	4.3	7.0	3.7	24.8
Waverley	759	899	4.0	6.5	3.4	22.9
Wealden	997	1,182	5.3	8.5	4.5	30.1
Wear Valley	466	553	2.5	4.0	2.1	14.1
Wellingborough	588	697	3.1	5.0	2.6	17.8
Welwyn Hatfield	928	1,100	4.9	7.9	4.1	28.1
West Berkshire	1,942	2,302	10.2	16.6	8.7	58.7
West Devon	581	688	3.1	5.0	2.6	17.5
West Dorset	861	1,021	4.5	7.4	3.8	26.0
West Dunbartonshire	594	704	3.1	5.1	2.7	18.0
West Lancashire	1,075	1,275	5.7	9.2	4.8	32.5
West Lindsey	772	914	4.1	6.6	3.4	23.3
West Lothian	1,545	1,832	8.2	13.2	6.9	46.7
West Oxfordshire	846	1,002	4.5	7.2	3.8	25.6
West Somerset	403	478	2.1	3.4	1.8	12.2
West Wiltshire	1,615	1,915	8.5	13.8	7.2	48.8

Council	Emissions, 2005, kT CO ₂	Emissions estimate, 2007, kT CO ₂ -equivalent	Total social cost estimates, £ million			
			Nordhaus	IPCC	Tol	DEFRA
Westminster	3,449	4,089	18.2	29.5	15.4	104.3
Weymouth and Portland	316	374	1.7	2.7	1.4	9.5
Wigan	2,090	2,477	11.0	17.9	9.3	63.2
Winchester	1,300	1,541	6.9	11.1	5.8	39.3
Windsor and Maidenhead	1,336	1,584	7.0	11.4	6.0	40.4
Wirral	2,005	2,377	10.6	17.2	9.0	60.6
Woking	604	715	3.2	5.2	2.7	18.2
Wokingham	1,175	1,393	6.2	10.1	5.3	35.5
Wolverhampton	1,579	1,871	8.3	13.5	7.1	47.7
Worcester	665	788	3.5	5.7	3.0	20.1
Worthing	560	664	3.0	4.8	2.5	16.9
Wrexham	1,473	1,745	7.8	12.6	6.6	44.5
Wychavon	1,419	1,682	7.5	12.1	6.3	42.9
Wycombe	1,286	1,525	6.8	11.0	5.7	38.9
Wyre	825	977	4.3	7.1	3.7	24.9
Wyre Forest	654	776	3.5	5.6	2.9	19.8
York	1,382	1,639	7.3	11.8	6.2	41.8
Total	539,429	639,385	2,845	4,616	2,410	16,304

Table A2.2: Green taxes by local authority, £ million, 2007-08

Council	Fuel Duty, 2007-08, £ million	Vehicle Excise Duty, 2007-08, £ million	Climate Change Levy, 2007-08, £ million	Renewables Obligation, 2007-08, £ million	Landfill Tax, 2007-08, £ million	Total Green Taxes and Charges, 2007-08, £ million
Aberdeen City	30.8	18.6	2.8	3.8	3.2	59.0
Aberdeenshire	102.7	24.8	4.5	3.7	3.5	139.0
Adur	16.0	6.2	0.5	0.6	0.9	24.3
Allerdale	32.5	9.5	1.9	2.1	1.4	47.4
Alnwick	14.6	3.3	0.3	0.4	0.5	19.1
Amber Valley	33.7	12.3	1.5	1.9	1.8	51.2
Angus	36.7	10.6	1.1	1.7	1.6	51.8
Antrim	12.9	4.4	0.6	0.7	0.7	19.0
Ards	22.8	7.6	0.9	1.1	1.1	33.1
Argyll and Bute	30.0	8.4	1.0	1.5	1.4	42.2
Armagh	15.2	5.1	0.6	0.8	0.8	22.4
Arun	42.2	15.5	1.2	1.5	2.2	62.6
Ashfield	27.0	10.2	1.1	1.6	1.7	41.6
Ashford	45.3	11.6	1.0	1.4	1.6	60.9
Aylesbury Vale	75.6	19.9	1.4	2.0	2.5	101.3
Babergh	35.2	10.3	0.8	1.2	1.3	48.7
Ballymena	16.8	5.7	0.7	0.9	0.9	24.7
Ballymoney	8.8	2.5	0.3	0.4	0.4	12.4
Banbridge	14.8	4.2	0.5	0.6	0.6	20.6
Barking and Dagenham	24.9	11.7	1.2	2.1	2.5	42.4
Barnet	51.8	29.1	2.7	3.3	4.8	91.6
Barnsley	52.5	18.8	2.6	2.7	3.3	80.0
Barrow-in-Furness	14.5	5.6	0.9	1.3	1.1	23.4
Basildon	57.7	17.1	1.6	2.4	2.5	81.2
Basingstoke and Deane	62.5	18.3	1.8	2.4	2.3	87.2
Bassetlaw	35.9	10.9	1.5	1.9	1.6	51.8
Bath and North East Somerset	46.3	18.0	1.6	2.2	2.6	70.6
Bedford	51.0	15.4	1.4	2.0	2.3	72.0
Belfast	25.8	17.8	3.3	4.1	4.2	53.1
Berwick-upon-Tweed	9.3	2.5	0.3	0.5	0.4	13.0
Bexley	50.2	21.3	2.0	2.3	3.3	79.1

Council	Fuel Duty, 2007-08, £ million	Vehicle Excise Duty, 2007-08, £ million	Climate Change Levy, 2007-08, £ million	Renewables Obligation, 2007-08, £ million	Landfill Tax, 2007-08, £ million	Total Green Taxes and Charges, 2007-08, £ million
Birmingham	160.4	70.5	10.0	13.4	15.0	269.1
Blaby	28.9	10.4	0.8	1.1	1.4	42.6
Blackburn with Darwen	24.5	10.4	1.8	2.2	2.1	41.0
Blackpool	24.8	11.3	1.3	1.8	2.2	41.4
Blaenau Gwent	13.6	5.5	0.7	0.8	1.1	21.7
Blyth Valley	28.4	7.1	0.8	0.9	1.2	38.5
Bolsover	22.0	6.8	1.9	0.9	1.1	32.7
Bolton	63.4	23.0	2.4	3.1	4.0	95.9
Boston	13.0	5.8	0.6	1.0	0.9	21.2
Bournemouth	41.3	16.8	1.4	2.2	2.5	64.1
Bracknell Forest	39.9	13.0	1.0	1.8	1.7	57.4
Bradford	86.2	36.6	5.1	5.8	7.2	140.8
Braintree	64.4	15.6	1.2	1.8	2.0	84.8
Breckland	50.8	13.9	1.0	1.8	1.9	69.4
Brent	30.3	18.4	2.2	3.3	4.0	58.2
Brentwood	24.1	8.2	0.7	0.9	1.0	34.9
Bridgend	40.5	12.1	1.8	2.0	2.0	58.3
Bridgnorth	19.2	6.3	0.6	1.0	0.8	27.9
Brighton and Hove	63.7	21.0	2.0	3.0	3.8	93.4
Bristol, City of	67.0	34.7	3.8	5.6	5.8	116.8
Broadland	42.9	14.2	1.2	1.3	1.8	61.4
Bromley	60.5	30.8	2.4	2.9	4.5	101.2
Bromsgrove	34.0	10.9	0.8	0.9	1.3	48.0
Broxbourne	27.6	10.0	0.7	1.1	1.3	40.7
Broxtowe	28.2	10.9	1.0	1.1	1.6	42.7
Burnley	16.4	7.0	0.9	1.2	1.4	26.9
Bury	47.6	17.2	1.8	2.0	2.8	71.4
Caerphilly	40.4	14.8	1.7	1.9	2.6	61.5
Calderdale	44.6	17.0	2.2	2.6	2.9	69.2
Cambridge	16.4	8.4	1.2	1.9	1.7	29.7
Camden	8.9	10.5	2.6	4.9	3.0	29.9
Cannock Chase	30.4	9.5	0.9	1.0	1.4	43.2
Canterbury	44.2	13.4	1.2	1.6	2.1	62.5
Caradon	31.1	8.9	0.6	1.0	1.2	42.8

Council	Fuel Duty, 2007-08, £ million	Vehicle Excise Duty, 2007-08, £ million	Climate Change Levy, 2007-08, £ million	Renewables Obligation, 2007-08, £ million	Landfill Tax, 2007-08, £ million	Total Green Taxes and Charges, 2007-08, £ million
Cardiff	65.8	26.5	3.8	4.8	4.7	105.4
Carlisle	27.3	9.6	1.3	1.7	1.5	41.5
Carmarthenshire	60.1	17.8	2.1	2.7	2.6	85.3
Carrick	29.1	9.5	0.7	1.2	1.3	41.8
Carrickfergus	10.6	3.5	0.4	0.6	0.6	15.3
Castle Morpeth	21.7	5.5	0.8	0.6	0.8	29.3
Castle Point	37.3	10.0	0.6	0.8	1.3	49.9
Castlereagh	12.8	6.7	0.8	1.0	1.0	21.4
Ceredigion	28.4	8.1	0.7	1.1	1.1	39.4
Charnwood	47.7	16.0	1.7	2.2	2.3	69.8
Chelmsford	67.0	18.5	1.3	2.1	2.4	91.3
Cheltenham	26.9	11.5	1.0	1.6	1.7	42.7
Cherwell	54.2	15.1	1.7	2.2	2.0	75.1
Chester	44.8	12.8	1.3	2.6	1.8	63.3
Chesterfield	22.6	9.1	1.1	1.5	1.5	35.8
Chester-le-Street	20.3	5.2	0.4	0.4	0.8	27.2
Chichester	36.9	13.2	1.2	1.6	1.6	54.4
Chiltern	36.7	11.7	0.9	1.0	1.4	51.7
Chorley	38.6	11.0	0.9	1.1	1.5	53.2
Christchurch	13.6	5.2	0.4	0.6	0.7	20.5
City of London	0.1	0.4	2.0	7.0	0.1	9.6
Clackmannanshire	13.4	4.4	0.9	0.9	0.7	20.3
Colchester	59.5	16.4	1.3	2.1	2.4	81.7
Coleraine	16.7	5.0	0.7	0.8	0.9	23.7
Congleton	42.0	11.2	1.3	1.2	1.4	57.0
Conwy	35.8	11.4	1.0	1.3	1.7	51.2
Cookstown	7.9	3.0	0.4	0.5	0.5	24.2
Copeland	21.5	6.5	1.0	0.7	1.1	30.8
Corby	10.7	4.4	1.2	1.5	0.8	18.6
Cotswold	34.8	10.4	0.8	1.2	1.2	48.5
Coventry	58.1	24.3	3.2	4.4	4.6	94.5
Craigavon	16.2	6.7	1.0	1.2	1.2	26.6
Craven	20.2	5.9	0.6	0.8	0.8	28.4
Crawley	29.9	10.3	1.1	1.9	1.5	44.7
Crewe and	34.2	11.6	1.2	1.8	1.7	50.5

Council	Fuel Duty, 2007-08, £ million	Vehicle Excise Duty, 2007-08, £ million	Climate Change Levy, 2007-08, £ million	Renewables Obligation, 2007-08, £ million	Landfill Tax, 2007-08, £ million	Total Green Taxes and Charges, 2007-08, £ million
Nantwich						
Croydon	55.7	29.5	2.8	3.7	5.1	96.7
Dacorum	49.5	16.1	1.4	1.8	2.1	70.8
Darlington	30.4	8.7	1.3	1.4	1.5	43.2
Dartford	26.7	9.1	1.0	1.4	1.3	39.5
Daventry	33.3	9.0	0.8	1.3	1.1	45.3
Denbighshire	31.1	9.7	0.9	1.2	1.4	44.3
Derby	46.3	19.1	2.6	3.3	3.4	74.6
Derbyshire Dales	25.1	8.3	1.1	1.4	1.1	36.9
Derry	15.7	7.1	1.3	1.6	1.6	26.8
Derwentside	26.6	7.3	0.9	0.9	1.3	37.0
Doncaster	83.2	24.8	3.3	4.1	4.4	119.7
Dover	32.6	10.3	1.3	1.3	1.6	47.0
Down	20.9	6.0	0.8	0.9	1.0	29.4
Dudley	68.2	29.9	2.8	3.4	4.7	109.0
Dumfries and Galloway	43.6	14.4	1.9	2.6	2.3	64.7
Dundee City	18.3	10.0	1.9	2.4	2.2	34.7
Dungannon and South Tyrone	13.2	4.3	0.6	0.7	0.7	24.9
Durham	31.2	7.6	1.0	1.2	1.3	42.3
Ealing	48.8	23.7	2.5	3.6	4.6	83.1
Easington	23.6	6.9	0.9	1.1	1.4	34.0
East Ayrshire	38.7	9.9	1.4	1.4	1.8	53.2
East Cambridgeshire	35.8	9.0	0.7	1.0	1.1	47.6
East Devon	40.4	14.4	1.1	1.5	1.9	59.3
East Dorset	34.1	11.2	0.8	1.0	1.3	48.3
East Dunbartonshire	28.3	10.7	0.9	1.1	1.6	42.8
East Hampshire	52.9	14.0	1.0	1.4	1.7	71.0
East Hertfordshire	55.9	16.1	1.2	1.8	2.0	77.0
East Lindsey	39.9	14.0	1.4	2.1	2.0	59.4
East Lothian	30.7	8.5	1.8	1.3	1.4	43.8
East Northamptonshire	35.8	9.0	0.7	1.0	1.2	47.6
East Renfrewshire	27.4	9.1	0.8	0.8	1.4	39.4

Council	Fuel Duty, 2007-08, £ million	Vehicle Excise Duty, 2007-08, £ million	Climate Change Levy, 2007-08, £ million	Renewables Obligation, 2007-08, £ million	Landfill Tax, 2007-08, £ million	Total Green Taxes and Charges, 2007-08, £ million
East Riding of Yorkshire	126.9	33.7	3.7	4.4	4.8	173.4
East Staffordshire	31.3	10.5	1.4	2.1	1.6	46.8
Eastbourne	21.1	8.2	0.8	1.1	1.4	32.5
Eastleigh	43.4	13.9	1.1	1.5	1.8	61.7
Eden	19.6	6.0	1.2	1.3	0.8	28.9
Edinburgh, City of	61.0	34.6	5.0	7.4	6.9	114.7
Eilean Siar	13.6	2.4	0.2	0.4	0.4	17.0
Ellesmere Port & Neston	26.2	8.2	8.1	1.9	1.3	45.6
Elmbridge	36.2	15.6	1.3	1.6	1.9	56.5
Enfield	47.8	24.2	2.2	3.1	4.2	81.5
Epping Forest	37.6	14.6	1.2	1.4	1.9	56.7
Epsom and Ewell	17.7	7.9	0.6	0.7	1.0	27.9
Erewash	28.8	10.9	1.1	1.4	1.7	43.9
Exeter	24.3	9.9	1.6	1.6	1.7	39.1
Falkirk	41.8	13.2	7.6	2.2	2.2	67.0
Fareham	42.6	12.8	0.9	1.5	1.7	59.4
Fenland	30.9	9.2	1.1	1.5	1.3	44.0
Fermanagh	18.3	5.4	0.7	0.9	0.9	25.4
Fife	99.8	31.9	5.4	5.2	5.4	147.6
Flintshire	59.3	16.3	2.6	3.0	2.3	83.4
Forest Heath	19.6	6.3	0.6	1.2	0.8	28.4
Forest of Dean	30.8	9.6	0.8	1.3	1.2	43.7
Fylde	21.6	8.1	1.0	1.2	1.1	33.0
Gateshead	41.2	13.5	2.3	2.7	2.9	62.5
Gedling	28.6	11.4	0.9	1.1	1.7	43.7
Glasgow City	58.3	31.3	5.9	9.3	8.8	113.5
Gloucester	26.9	10.8	1.0	1.7	1.7	42.1
Gosport	18.5	7.1	0.6	0.9	1.2	28.2
Gravesham	32.2	9.6	2.3	1.4	1.5	46.9
Great Yarmouth	29.8	8.4	0.7	1.2	1.4	41.4
Greenwich	28.1	15.3	2.0	2.2	3.3	50.9
Guildford	48.9	15.9	1.3	1.8	2.0	69.9
Gwynedd	39.9	11.8	1.1	1.8	1.8	56.3

Council	Fuel Duty, 2007-08, £ million	Vehicle Excise Duty, 2007-08, £ million	Climate Change Levy, 2007-08, £ million	Renewables Obligation, 2007-08, £ million	Landfill Tax, 2007-08, £ million	Total Green Taxes and Charges, 2007-08, £ million
Hackney	10.8	9.5	1.4	2.1	3.1	26.8
Halton	29.5	10.3	1.6	2.3	1.8	45.5
Hambleton	36.8	10.2	0.9	1.4	1.3	50.7
Hammersmith and Fulham	10.3	10.3	1.6	2.7	2.5	27.3
Harborough	34.7	9.7	0.8	1.1	1.2	47.4
Haringey	19.0	13.2	1.7	2.2	3.3	39.3
Harlow	21.5	7.8	0.9	1.4	1.2	32.7
Harrogate	57.3	17.3	1.7	2.2	2.3	80.8
Harrow	43.0	19.8	1.8	1.9	3.2	69.6
Hart	40.5	11.3	0.8	1.0	1.3	54.8
Hartlepool	23.9	6.5	1.2	1.5	1.4	34.5
Hastings	20.8	7.4	0.7	1.0	1.3	31.1
Havant	36.2	12.4	1.0	1.3	1.8	52.6
Havering	53.9	22.4	1.7	2.4	3.4	83.8
Herefordshire, County of	55.7	20.4	1.9	2.8	2.7	83.4
Hertsmere	26.8	10.8	1.0	1.4	1.4	41.3
High Peak	28.9	9.4	3.1	2.2	1.4	44.9
Highland	76.6	20.1	2.5	4.9	3.2	107.1
Hillingdon	58.0	24.6	3.3	4.8	3.7	94.3
Hinckley and Bosworth	34.1	11.6	1.1	1.4	1.5	49.8
Horsham	55.8	15.9	1.2	1.7	1.9	76.3
Hounslow	37.3	18.1	2.1	3.6	3.3	64.3
Huntingdonshire	79.9	18.7	1.6	2.8	2.4	105.4
Hyndburn	16.8	6.8	0.8	0.9	1.2	26.6
Inverclyde	20.5	6.0	0.8	1.1	1.3	29.7
Ipswich	24.2	10.5	1.0	1.8	1.8	39.3
Isle of Anglesey	25.8	7.2	0.7	0.9	1.0	35.8
Isle of Wight	25.5	13.4	1.3	1.7	2.0	43.8
Isles of Scilly	0.2	0.1	0.0	0.0	0.0	0.5
Islington	7.5	8.8	1.8	3.3	2.7	24.0
Kennet	31.6	8.8	0.7	1.2	1.1	43.4
Kensington and Chelsea	8.6	10.5	2.1	4.0	2.4	27.5

Council	Fuel Duty, 2007-08, £ million	Vehicle Excise Duty, 2007-08, £ million	Climate Change Levy, 2007-08, £ million	Renewables Obligation, 2007-08, £ million	Landfill Tax, 2007-08, £ million	Total Green Taxes and Charges, 2007-08, £ million
Kerrier	31.5	10.0	0.7	1.3	1.4	44.8
Kettering	29.2	9.0	0.9	1.1	1.3	41.5
King's Lynn and West Norfolk	47.0	15.5	2.0	2.4	2.1	69.0
Kingston upon Hull, City of	39.3	15.7	2.9	3.8	3.7	65.4
Kingston upon Thames	29.3	14.5	1.2	1.7	2.3	48.9
Kirklees	95.4	34.6	4.4	5.0	5.9	145.3
Knowsley	28.0	10.0	1.8	2.6	2.3	44.7
Lambeth	17.7	15.2	2.2	3.1	4.1	42.3
Lancaster	37.9	12.1	1.3	1.6	2.1	55.0
Larne	9.8	2.8	0.4	0.5	0.5	13.7
Leeds	159.7	59.7	7.6	10.5	11.0	248.3
Leicester	38.0	19.2	3.4	4.5	4.3	69.3
Lewes	29.7	10.1	0.7	1.1	1.4	42.9
Lewisham	26.9	16.6	1.7	2.4	3.8	51.4
Lichfield	38.7	11.3	0.9	1.2	1.4	53.6
Limavady	9.2	2.6	0.4	0.5	0.5	13.6
Lincoln	19.8	7.0	0.9	1.3	1.3	30.4
Lisburn	24.2	10.0	1.3	1.6	1.7	44.3
Liverpool	68.3	26.8	4.3	6.1	6.7	112.1
Luton	45.9	16.0	1.6	2.2	2.8	68.5
Macclesfield	55.0	18.6	2.0	2.4	2.3	80.2
Magherafelt	13.1	3.6	0.5	0.6	0.6	18.3
Maidstone	57.5	16.3	1.3	1.9	2.1	79.1
Maldon	31.0	7.7	0.5	1.0	0.9	41.0
Malvern Hills	26.6	9.1	0.6	0.8	1.1	38.1
Manchester	55.1	23.8	4.8	7.2	6.0	96.8
Mansfield	23.9	8.9	0.9	1.3	1.5	36.5
Medway	98.2	24.9	1.9	2.7	3.8	131.5
Melton	18.7	5.5	0.6	0.8	0.7	26.3
Mendip	35.1	12.1	1.1	1.6	1.6	51.4
Merthyr Tydfil	13.1	4.4	0.6	0.7	0.9	19.6
Merton	27.0	16.0	1.4	1.9	2.9	49.1
Mid Bedfordshire	63.4	15.2	1.1	1.5	1.9	83.1

Council	Fuel Duty, 2007-08, £ million	Vehicle Excise Duty, 2007-08, £ million	Climate Change Levy, 2007-08, £ million	Renewables Obligation, 2007-08, £ million	Landfill Tax, 2007-08, £ million	Total Green Taxes and Charges, 2007-08, £ million
Mid Devon	25.9	8.1	0.7	1.1	1.1	36.8
Mid Suffolk	40.2	10.9	0.8	1.4	1.3	54.7
Mid Sussex	53.7	15.5	1.1	1.4	2.0	73.7
Middlesbrough	32.4	9.4	1.3	2.1	2.1	47.3
Midlothian	20.2	7.3	0.7	0.8	1.2	30.2
Milton Keynes	77.2	22.1	2.3	4.2	3.2	108.8
Mole Valley	27.1	10.7	1.0	1.2	1.2	41.2
Monmouthshire	35.4	9.9	1.1	1.3	1.3	49.1
Moray	34.5	8.2	1.4	1.5	1.3	46.9
Moyle	5.5	1.4	0.2	0.2	0.2	7.4
Neath Port Talbot	38.1	11.9	3.9	4.2	2.1	60.2
New Forest	62.6	21.2	9.7	2.3	2.6	98.3
Newark and Sherwood	39.3	11.2	1.4	1.7	1.6	55.3
Newcastle upon Tyne	51.8	17.1	2.9	3.9	4.0	79.6
Newcastle-under-Lyme	30.7	12.1	1.2	1.2	1.9	47.1
Newham	19.6	12.1	2.2	2.9	3.7	40.6
Newport	31.3	12.0	2.4	3.4	2.1	51.1
Newry and Mourne	20.6	7.2	1.0	1.3	1.3	31.6
Newtownabbey	18.8	7.4	1.0	1.2	1.2	28.7
North Ayrshire	46.1	10.9	2.4	2.5	2.1	64.0
North Cornwall	28.8	9.2	0.8	1.5	1.2	41.6
North Devon	22.1	9.3	1.0	1.4	1.3	35.1
North Dorset	22.5	7.4	0.6	0.8	0.9	32.2
North Down	19.5	7.9	0.9	1.1	1.2	29.7
North East Derbyshire	30.9	10.5	1.0	1.3	1.5	45.2
North East Lincolnshire	37.4	12.8	3.4	2.6	2.4	58.5
North Hertfordshire	48.7	13.3	1.1	1.5	1.8	66.4
North Kesteven	36.9	10.6	0.9	1.4	1.4	51.3
North Lanarkshire	76.0	24.6	3.4	4.5	4.9	113.3
North Lincolnshire	49.1	15.4	13.4	3.9	2.3	84.1

Council	Fuel Duty, 2007-08, £ million	Vehicle Excise Duty, 2007-08, £ million	Climate Change Levy, 2007-08, £ million	Renewables Obligation, 2007-08, £ million	Landfill Tax, 2007-08, £ million	Total Green Taxes and Charges, 2007-08, £ million
North Norfolk	34.7	11.3	1.4	1.6	1.5	50.5
North Shropshire	22.5	6.7	0.6	1.0	0.9	31.7
North Somerset	70.3	22.0	1.9	2.3	2.9	99.2
North Tyneside	51.6	15.1	2.2	2.7	2.9	74.5
North Warwickshire	23.5	7.1	0.9	1.4	0.9	33.8
North West Leicestershire	33.4	9.8	1.3	1.7	1.3	47.5
North Wiltshire	53.8	15.0	1.2	1.9	1.9	73.8
Northampton	56.1	19.1	2.0	3.2	3.0	83.3
Norwich	20.4	9.7	1.5	2.1	1.9	35.5
Nottingham	38.6	17.7	3.0	4.3	4.1	67.6
Nuneaton and Bedworth	33.4	11.8	1.0	1.4	1.8	49.3
Oadby and Wigston	14.9	5.7	0.5	0.6	0.9	22.6
Oldham	42.4	17.0	2.0	2.4	3.3	67.0
Omagh	12.4	4.2	0.6	0.7	0.7	18.6
Orkney Islands	6.2	2.0	0.2	0.4	0.3	9.1
Oswestry	13.5	4.1	0.3	0.5	0.6	19.0
Oxford	20.1	10.2	1.7	2.5	2.1	36.5
Pembrokeshire	41.4	11.9	5.9	2.9	1.7	63.7
Pendle	18.3	7.6	0.9	1.1	1.4	29.3
Penwith	19.5	6.1	0.4	0.8	1.0	27.8
Perth and Kinross	48.5	14.0	1.4	2.3	2.1	68.2
Peterborough	44.7	14.8	1.6	2.7	2.4	66.2
Plymouth	63.6	20.7	2.1	3.3	3.7	93.2
Poole	38.4	15.8	1.4	2.1	2.1	59.8
Portsmouth	40.4	15.2	1.7	2.9	2.9	63.0
Powys	46.3	14.6	1.3	1.8	1.9	65.9
Preston	29.9	11.0	1.3	1.9	2.0	46.1
Purbeck	15.6	5.3	0.5	1.0	0.7	23.0
Reading	33.5	13.1	1.5	2.6	2.2	52.8
Redbridge	41.0	20.9	1.7	2.0	3.7	69.1
Redcar and Cleveland	46.9	11.6	5.6	3.4	2.1	69.6
Redditch	23.8	8.3	0.8	1.1	1.2	35.2

Council	Fuel Duty, 2007-08, £ million	Vehicle Excise Duty, 2007-08, £ million	Climate Change Levy, 2007-08, £ million	Renewables Obligation, 2007-08, £ million	Landfill Tax, 2007-08, £ million	Total Green Taxes and Charges, 2007-08, £ million
Reigate and Banstead	41.5	15.4	1.2	1.7	1.9	61.7
Renfrewshire	42.7	14.0	1.9	2.6	2.6	63.7
Restormel	32.4	10.2	1.3	2.3	1.5	47.6
Rhondda, Cynon, Taff	63.4	19.3	2.5	2.6	3.6	91.3
Ribble Valley	19.6	6.5	1.3	1.3	0.8	29.5
Richmond upon Thames	33.7	17.4	1.6	2.1	2.6	57.5
Richmondshire	18.2	5.0	0.5	0.6	0.7	25.0
Rochdale	43.4	16.7	2.0	2.5	3.1	67.7
Rochford	36.0	9.3	0.6	0.9	1.2	48.0
Rosendale	20.3	6.4	0.9	1.1	1.0	29.7
Rother	28.1	9.9	0.9	1.1	1.3	41.2
Rotherham	65.2	22.0	3.8	3.3	3.8	98.1
Rugby	28.4	9.7	1.8	1.9	1.3	43.1
Runnymede	25.3	9.7	0.8	1.2	1.2	38.2
Rushcliffe	39.9	12.1	1.0	1.1	1.6	55.8
Rushmoor	30.6	10.0	0.8	1.3	1.4	44.1
Rutland	14.1	4.0	1.0	1.2	0.5	20.9
Ryedale	18.2	5.8	0.6	0.9	0.8	26.3
Salford	42.2	16.6	2.2	3.2	3.3	67.4
Salisbury	40.6	13.2	1.1	1.6	1.8	58.2
Sandwell	40.2	20.9	3.1	4.1	4.3	72.6
Scarborough	27.1	9.5	1.2	1.6	1.6	40.9
Scottish Borders	37.8	11.2	1.3	1.7	1.7	53.6
Sedgefield	26.8	7.5	1.3	1.3	1.3	38.3
Sedgemoor	35.5	12.1	1.2	1.7	1.6	52.0
Sefton	73.0	24.4	2.4	2.9	4.3	106.9
Selby	36.9	8.6	1.6	1.6	1.2	49.8
Sevenoaks	40.0	13.5	1.0	1.4	1.7	57.5
Sheffield	104.6	41.4	6.0	7.4	7.9	167.1
Shepway	33.4	9.9	0.9	1.9	1.5	47.6
Shetland Islands	11.6	2.3	0.5	0.6	0.3	15.2
Shrewsbury and Atcham	31.6	10.4	1.0	1.3	1.5	45.6

Council	Fuel Duty, 2007-08, £ million	Vehicle Excise Duty, 2007-08, £ million	Climate Change Levy, 2007-08, £ million	Renewables Obligation, 2007-08, £ million	Landfill Tax, 2007-08, £ million	Total Green Taxes and Charges, 2007-08, £ million
Slough	28.6	11.1	1.2	1.4	1.8	44.1
Solihull	57.2	21.8	2.2	2.6	3.1	86.8
South Ayrshire	37.6	10.4	1.3	1.6	1.7	52.5
South Bedfordshire	46.4	13.0	1.1	1.4	1.7	63.6
South Bucks	22.3	8.4	0.8	1.1	0.9	33.6
South Cambridgeshire	55.5	16.5	1.7	2.2	2.0	77.8
South Derbyshire	31.3	9.4	1.0	1.4	1.2	44.4
South Gloucestershire	80.8	29.1	2.5	4.1	3.8	120.2
South Hams	32.8	9.8	1.0	1.5	1.3	46.4
South Holland	25.8	9.0	0.8	1.4	1.2	38.2
South Kesteven	53.3	13.9	1.3	2.0	1.9	72.3
South Lakeland	35.2	11.7	1.5	1.7	1.6	51.6
South Lanarkshire	80.6	25.8	3.1	4.2	4.6	118.3
South Norfolk	43.9	13.7	0.9	1.6	1.7	61.9
South Northamptonshire	43.8	10.4	0.7	1.2	1.2	57.3
South Oxfordshire	55.2	16.3	1.3	2.4	2.0	77.2
South Ribble	32.1	11.3	1.1	1.3	1.6	47.4
South Shropshire	15.5	5.0	0.3	0.5	0.6	22.0
South Somerset	48.7	17.8	1.6	2.3	2.3	72.6
South Staffordshire	39.6	12.7	1.1	1.0	1.6	56.0
South Tyneside	40.7	10.1	1.2	1.4	2.3	55.9
Southampton	45.7	19.3	1.9	3.4	3.3	73.5
Southend-on-Sea	49.6	15.5	1.4	2.0	2.5	70.9
Southwark	14.3	13.2	2.5	5.0	3.7	38.5
Spelthorne	24.5	11.2	0.8	1.3	1.4	39.1
St Albans	49.2	15.5	1.2	1.5	2.0	69.3
St Edmundsbury	38.2	11.4	1.8	1.7	1.5	54.5
St. Helens	44.8	15.5	2.6	2.3	2.7	67.9
Stafford	41.9	13.6	1.3	1.6	1.8	60.2
Staffordshire Moorlands	30.4	10.9	2.1	1.4	1.4	46.2
Stevenage	26.7	8.0	0.8	1.3	1.2	37.9

Council	Fuel Duty, 2007-08, £ million	Vehicle Excise Duty, 2007-08, £ million	Climate Change Levy, 2007-08, £ million	Renewables Obligation, 2007-08, £ million	Landfill Tax, 2007-08, £ million	Total Green Taxes and Charges, 2007-08, £ million
Stirling	29.5	8.6	1.4	1.5	1.3	42.3
Stockport	75.7	29.4	2.7	3.5	4.4	115.6
Stockton-on-Tees	61.7	15.8	5.6	3.5	2.7	89.3
Stoke-on-Trent	41.4	19.5	2.8	3.1	3.7	70.5
Strabane	8.5	3.0	0.5	0.6	0.6	13.1
Stratford-on-Avon	51.3	14.8	1.1	1.7	1.7	70.6
Stroud	41.2	13.2	1.2	1.5	1.7	58.7
Suffolk Coastal	39.6	13.7	1.0	1.7	1.8	57.7
Sunderland	66.2	20.1	3.1	3.9	4.3	97.5
Surrey Heath	36.3	10.8	0.8	1.1	1.2	50.2
Sutton	37.1	18.6	1.3	1.8	2.8	61.6
Swale	46.1	12.6	1.6	2.3	1.9	64.4
Swansea	65.0	20.5	2.5	3.0	3.4	94.4
Swindon	46.9	18.5	2.1	3.5	2.8	73.7
Tameside	44.2	17.9	2.1	2.6	3.3	70.1
Tamworth	24.9	7.5	0.7	1.0	1.1	35.3
Tandridge	28.6	10.1	0.7	0.9	1.2	41.5
Taunton Deane	30.7	11.4	0.9	1.4	1.6	45.9
Teesdale	9.7	2.7	0.3	0.4	0.4	13.4
Teignbridge	41.7	13.8	1.0	1.4	1.9	59.7
Telford and Wrekin	48.2	15.8	1.8	2.6	2.4	70.8
Tendring	48.2	14.2	1.1	1.6	2.1	67.3
Test Valley	45.4	13.4	1.1	1.6	1.7	63.0
Tewkesbury	25.2	9.3	1.0	1.3	1.2	38.0
Thanet	32.8	11.3	1.0	1.3	1.9	48.4
The Vale of Glamorgan	37.8	12.2	1.9	1.7	1.8	55.5
Three Rivers	28.4	10.0	0.8	1.0	1.3	41.4
Thurrock	49.8	14.8	7.1	3.1	2.2	76.9
Tonbridge and Malling	44.1	12.7	3.0	1.4	1.6	62.9
Torbay	30.1	12.6	1.1	1.6	2.0	47.4
Torfaen	21.7	8.3	1.0	1.2	1.4	33.6
Torridge	18.1	6.6	0.5	0.8	0.9	26.8
Tower Hamlets	8.0	8.4	2.4	7.0	3.0	28.7

Council	Fuel Duty, 2007-08, £ million	Vehicle Excise Duty, 2007-08, £ million	Climate Change Levy, 2007-08, £ million	Renewables Obligation, 2007-08, £ million	Landfill Tax, 2007-08, £ million	Total Green Taxes and Charges, 2007-08, £ million
Trafford	54.3	21.4	3.4	4.9	3.2	87.0
Tunbridge Wells	39.2	11.8	0.9	1.5	1.6	55.0
Tynedale	29.1	6.5	1.0	1.3	0.9	38.8
Uttlesford	35.5	9.2	0.8	1.1	1.1	47.6
Vale of White Horse	42.0	13.9	1.2	1.9	1.8	60.8
Vale Royal	49.2	14.0	1.3	1.6	1.9	68.0
Wakefield	79.7	27.6	3.7	4.7	4.8	120.4
Walsall	46.3	21.5	2.6	3.2	3.9	77.4
Waltham Forest	26.2	15.4	1.6	2.0	3.3	48.5
Wandsworth	22.5	18.7	2.3	3.2	4.0	50.6
Wansbeck	18.8	5.0	5.5	1.0	0.9	31.2
Warrington	64.9	20.1	2.5	2.9	2.9	93.3
Warwick	41.4	14.5	1.4	2.3	1.9	61.4
Watford	21.2	8.2	0.7	1.3	1.2	32.7
Waveney	34.7	11.0	1.1	1.8	1.7	50.3
Waverley	51.4	14.9	1.1	1.3	1.8	70.5
Wealden	60.5	18.0	1.1	1.5	2.1	83.2
Wear Valley	19.2	5.5	0.6	0.7	0.9	26.9
Wellingborough	23.6	7.5	0.8	1.1	1.1	34.1
Welwyn Hatfield	28.7	10.7	1.1	1.6	1.5	43.5
West Berkshire	57.6	18.0	1.6	2.6	2.2	81.9
West Devon	21.1	5.8	0.5	0.7	0.7	28.9
West Dorset	30.1	10.9	0.9	1.4	1.4	44.7
West Dunbartonshire	21.4	6.5	0.9	1.2	1.4	31.3
West Lancashire	36.2	11.4	1.3	1.6	1.7	52.1
West Lindsey	31.4	9.0	0.8	1.1	1.2	43.4
West Lothian	52.1	14.4	1.9	2.5	2.5	73.4
West Oxfordshire	39.7	11.7	0.9	1.5	1.5	55.3
West Somerset	9.5	4.0	0.5	0.7	0.5	15.2
West Wiltshire	40.2	13.5	2.1	2.0	1.8	59.6
Westminster	7.0	10.4	4.7	10.9	2.8	35.6
Weymouth and Portland	18.5	6.1	0.5	0.7	1.0	26.7
Wigan	85.7	28.0	2.9	3.4	4.6	124.6

Council	Fuel Duty, 2007-08, £ million	Vehicle Excise Duty, 2007-08, £ million	Climate Change Levy, 2007-08, £ million	Renewables Obligation, 2007-08, £ million	Landfill Tax, 2007-08, £ million	Total Green Taxes and Charges, 2007-08, £ million
Winchester	47.3	13.0	1.2	1.8	1.6	64.9
Windsor and Maidenhead	46.3	16.7	1.5	2.1	2.0	68.6
Wirral	76.7	28.2	3.0	3.8	4.8	116.4
Woking	31.8	10.9	0.8	1.4	1.4	46.2
Wokingham	59.9	19.3	1.3	1.9	2.3	84.6
Wolverhampton	40.3	18.7	2.5	3.2	3.6	68.3
Worcester	27.7	9.5	1.0	1.4	1.4	41.0
Worthing	26.2	10.1	0.9	1.2	1.5	39.9
Wrexham	37.6	12.7	2.3	3.0	2.0	57.5
Wychavon	47.8	14.4	1.3	1.7	1.7	66.9
Wycombe	61.4	20.0	1.5	2.1	2.5	87.4
Wyre	32.7	11.0	1.0	1.3	1.6	47.7
Wyre Forest	31.4	11.0	0.9	1.2	1.5	46.0
York	46.1	16.4	2.1	2.4	2.8	69.7
Total	16,124	5,600	700	874	900	24,198

Table A2.3: Excess green taxes by local authority, 2007-08

Council	Excess Green Taxes, £ million				Excess per person, IPCC social cost, £	Rank
	Nordhaus	IPCC	Tol	DEFRA		
Aberdeen City	50	44	51	5	211	395
Aberdeenshire	120	108	123	30	453	66
Adur	22	21	23	13	349	242
Allerdale	40	35	41	5	375	193
Alnwick	18	17	18	11	523	13
Amber Valley	45	41	46	17	343	254
Angus	47	43	47	22	394	156
Antrim	16	14	16	1	262	355
Ards	30	28	30	15	361	220
Argyll and Bute	44	45	44	53	497	31
Armagh	19	17	20	4	300	314
Arun	58	55	59	36	375	191
Ashfield	37	34	38	16	294	321
Ashford	56	53	57	32	468	53
Aylesbury Vale	95	91	96	64	522	16
Babergh	45	42	45	25	482	38
Ballymena	21	19	22	5	308	300
Ballymoney	11	10	11	4	336	260
Banbridge	18	17	19	8	364	215
Barking and Dagenham	37	34	38	14	207	398
Barnet	81	75	83	33	227	387
Barnsley	70	63	71	21	281	336
Barrow-in-Furness	20	19	21	6	259	359
Basildon	75	71	76	46	420	107
Basingstoke and Deane	79	73	80	38	459	63
Bassetlaw	45	41	46	14	366	212
Bath and North East Somerset	65	61	65	36	343	255
Bedford	66	62	67	38	399	146
Belfast	43	36	44	-7	135	415
Berwick-upon-Tweed	11	10	11	1	374	195
Bexley	72	67	73	37	302	312

Council	Excess Green Taxes, £ million				Excess per person, IPCC social cost, £	Rank
	Nordhaus	IPCC	Tol	DEFRA		
Birmingham	234	213	240	69	210	397
Blaby	38	35	39	17	380	183
Blackburn with Darwen	34	30	35	3	214	394
Blackpool	37	34	38	17	240	374
Blaenau Gwent	19	18	20	7	254	365
Blyth Valley	35	34	36	21	414	120
Bolsover	26	22	27	-7	290	327
Bolton	87	81	88	43	308	301
Boston	18	17	19	5	284	334
Bournemouth	59	56	60	36	349	240
Bracknell Forest	53	51	54	34	450	71
Bradford	124	114	127	47	229	385
Braintree	79	76	80	54	538	9
Breckland	64	60	65	37	464	58
Brent	50	46	52	14	168	412
Brentwood	31	29	32	14	406	131
Bridgend	51	46	52	15	346	248
Bridgnorth	24	22	25	8	428	96
Brighton and Hove	86	82	87	53	325	273
Bristol, City of	103	95	105	39	228	386
Broadland	56	53	57	33	434	89
Bromley	92	86	93	48	287	332
Bromsgrove	43	39	43	18	426	101
Broxbourne	38	36	38	24	403	135
Broxtowe	38	35	39	17	318	288
Burnley	24	22	24	8	246	371
Bury	64	60	65	30	325	275
Caerphilly	56	52	57	28	302	313
Calderdale	61	55	62	20	276	340
Cambridge	26	23	26	6	191	402
Camden	20	15	22	-24	62	426
Cannock Chase	40	38	41	25	402	137
Canterbury	58	55	58	35	368	204
Caradon	39	37	40	23	444	80

Council	Excess Green Taxes, £ million				Excess per person, IPCC social cost, £	Rank
	Nordhaus	IPCC	Tol	DEFRA		
Cardiff	92	83	94	28	261	358
Carlisle	36	32	36	7	306	306
Carmarthenshire	76	70	77	31	391	162
Carrick	38	36	39	22	392	159
Carrickfergus	14	13	14	7	323	278
Castle Morpeth	27	25	27	15	507	27
Castle Point	48	47	48	38	523	14
Castlereagh	19	18	19	8	269	343
Ceredigion	36	34	37	20	438	85
Charnwood	63	59	64	33	361	221
Chelmsford	85	81	86	57	497	30
Cheltenham	39	37	40	22	330	269
Cherwell	66	61	68	25	440	83
Chester	56	51	57	21	428	97
Chesterfield	32	29	33	13	292	325
Chester-le-Street	25	24	26	17	460	60
Chichester	50	46	50	26	424	103
Chiltern	48	46	49	32	510	23
Chorley	48	45	49	24	429	93
Christchurch	19	18	19	11	397	149
City of London	1	-4	2	-39	-	-
Clackmannanshire	17	15	18	3	314	296
Colchester	76	72	77	49	415	118
Coleraine	21	19	21	8	341	256
Congleton	51	47	52	20	503	28
Conwy	47	44	47	26	392	160
Cookstown	21	18	21	3	518	19
Copeland	28	26	28	12	362	218
Corby	15	12	15	-4	223	389
Cotswold	44	41	44	21	485	36
Coventry	83	75	85	27	245	372
Craigavon	22	20	23	2	222	391
Craven	25	23	26	11	419	108
Crawley	41	38	41	21	379	184

Council	Excess Green Taxes, £ million				Excess per person, IPCC social cost, £	Rank
	Nordhaus	IPCC	Tol	DEFRA		
Crewe and Nantwich	45	42	46	20	359	224
Croydon	87	80	88	39	238	376
Dacorum	65	62	66	40	448	73
Darlington	39	36	39	17	357	226
Dartford	34	31	35	10	344	253
Daventry	39	35	40	10	444	79
Denbighshire	40	38	41	22	394	157
Derby	66	61	67	25	255	363
Derbyshire Dales	32	29	33	7	408	125
Derry	22	20	23	2	181	405
Derwentside	34	32	34	19	369	202
Doncaster	105	95	107	34	327	271
Dover	42	39	43	20	367	205
Down	26	24	27	12	353	234
Dudley	99	93	101	54	306	305
Dumfries and Galloway	60	56	60	35	381	181
Dundee City	28	24	29	-3	169	411
Dungannon and South Tyrone	22	19	22	6	359	222
Durham	38	36	39	19	385	174
Ealing	74	68	75	31	223	390
Easington	30	28	31	13	299	316
East Ayrshire	49	46	49	28	387	170
East Cambridgeshire	43	40	44	20	492	32
East Devon	54	50	55	28	380	182
East Dorset	45	43	46	30	507	26
East Dunbartonshire	39	37	40	23	355	230
East Hampshire	66	63	67	44	573	2
East Hertfordshire	72	69	73	47	514	21
East Lindsey	53	49	54	21	347	244
East Lothian	36	31	37	-1	330	268

Council	Excess Green Taxes, £ million				Excess per person, IPCC social cost, £	Rank
	Nordhaus	IPCC	Tol	DEFRA		
East Northamptonshire	44	42	45	28	491	33
East Renfrewshire	37	35	37	24	392	158
East Riding of Yorkshire	157	146	159	77	437	86
East Staffordshire	41	38	42	16	351	237
Eastbourne	30	28	30	17	294	322
Eastleigh	57	54	58	35	452	67
Eden	21	15	22	-19	293	323
Edinburgh, City of	97	86	100	13	183	404
Eilean Siar	15	14	15	7	534	10
Ellesmere Port & Neston	34	27	36	-20	331	266
Elmbridge	52	48	52	28	369	201
Enfield	73	67	74	30	234	379
Epping Forest	50	46	51	18	369	200
Epsom and Ewell	26	25	26	17	354	233
Erewash	39	37	40	18	331	267
Exeter	34	31	35	10	253	366
Falkirk	48	36	51	-41	241	373
Fareham	55	53	56	36	487	34
Fenland	38	35	39	11	378	187
Fermanagh	21	19	22	1	302	310
Fife	129	117	132	39	324	276
Flintshire	72	64	73	16	426	100
Forest Heath	25	23	26	10	366	210
Forest of Dean	40	38	41	23	460	61
Fylde	29	26	30	9	346	247
Gateshead	54	49	55	14	256	362
Gedling	41	39	41	26	347	245
Glasgow City	91	77	94	-16	132	416
Gloucester	38	36	39	21	316	290
Gosport	26	25	27	17	318	287

Council	Excess Green Taxes, £ million				Excess per person, IPCC social cost, £	Rank
	Nordhaus	IPCC	Tol	DEFRA		
Gravesham	38	33	39	-4	332	264
Great Yarmouth	38	37	39	25	390	164
Greenwich	44	39	45	10	176	409
Guildford	64	60	65	36	448	72
Gwynedd	51	48	52	28	406	130
Hackney	22	19	22	-2	89	422
Halton	37	32	38	-2	268	347
Hambleton	45	41	46	16	472	50
Hammersmith and Fulham	21	18	22	-7	103	421
Harborough	43	40	43	21	484	37
Haringey	33	30	34	6	132	418
Harlow	30	28	30	16	357	227
Harrogate	72	67	73	31	418	111
Harrow	64	60	65	36	279	338
Hart	51	49	52	33	539	8
Hartlepool	30	28	31	10	302	311
Hastings	29	27	29	18	318	285
Havant	49	46	49	30	395	153
Havering	76	72	77	41	314	295
Herefordshire, County of	74	68	75	29	381	180
Hertsmere	36	33	37	14	346	246
High Peak	30	21	33	-38	231	381
Highland	102	99	103	79	457	64
Hillingdon	81	73	83	20	292	324
Hinckley and Bosworth	45	42	45	21	397	150
Horsham	71	68	72	46	522	15
Hounslow	55	50	57	12	226	388
Huntingdonshire	96	89	97	49	531	11
Hyndburn	23	21	24	7	257	361
Inverclyde	27	25	27	12	306	304
Ipswich	35	33	36	17	271	342
Isle of Anglesey	32	30	33	16	434	90
Isle of Wight	39	36	40	16	258	360
Isles of Scilly	0	0	0	0	-	-

Council	Excess Green Taxes, £ million				Excess per person, IPCC social cost, £	Rank
	Nordhaus	IPCC	Tol	DEFRA		
Islington	18	14	19	-13	72	425
Kennet	40	38	40	23	477	43
Kensington and Chelsea	20	15	21	-16	83	424
Kerrier	41	39	42	25	395	154
Kettering	37	35	38	18	392	161
King's Lynn and West Norfolk	60	54	61	15	374	196
Kingston upon Hull, City of	56	50	58	13	195	401
Kingston upon Thames	44	41	45	22	262	356
Kirklees	129	118	131	49	295	320
Knowsley	38	33	39	4	219	392
Lambeth	34	30	36	-2	109	420
Lancaster	49	46	50	22	315	294
Larne	12	11	12	3	345	250
Leeds	218	198	222	72	261	357
Leicester	58	51	60	6	176	410
Lewes	40	38	40	25	399	144
Lewisham	45	41	46	14	159	413
Lichfield	49	46	50	27	472	49
Limavady	12	11	12	5	321	281
Lincoln	27	25	28	13	288	330
Lisburn	39	36	40	15	315	293
Liverpool	97	88	99	26	202	400
Luton	63	59	64	36	316	289
Macclesfield	70	64	72	22	421	106
Magherafelt	16	15	16	5	339	258
Maidstone	73	69	74	43	480	40
Maldon	39	38	39	29	607	1
Malvern Hills	34	32	35	16	431	91
Manchester	79	68	82	-5	148	414
Mansfield	33	31	34	19	313	297
Medway	125	120	126	91	476	44
Melton	24	22	24	13	457	65
Mendip	46	43	47	22	394	155

Council	Excess Green Taxes, £ million				Excess per person, IPCC social cost, £	Rank
	Nordhaus	IPCC	Tol	DEFRA		
Merthyr Tydfil	17	16	18	7	288	331
Merton	44	41	45	20	205	399
Mid Bedfordshire	77	73	78	48	544	6
Mid Devon	32	29	33	10	388	169
Mid Suffolk	50	47	51	29	510	24
Mid Sussex	68	65	69	43	501	29
Middlesbrough	41	37	42	11	269	344
Midlothian	27	26	28	14	322	280
Milton Keynes	99	93	100	52	407	128
Mole Valley	37	34	37	16	422	105
Monmouthshire	43	40	44	17	452	68
Moray	43	40	44	24	464	57
Moyle	7	6	7	2	356	229
Neath Port Talbot	15	-14	22	-200	-98	431
New Forest	89	83	90	45	476	45
Newark and Sherwood	49	45	50	19	399	145
Newcastle upon Tyne	69	62	71	19	230	382
Newcastle-under-Lyme	42	38	42	16	307	302
Newham	32	27	34	-7	110	419
Newport	40	33	42	-12	236	377
Newry and Mourne	27	24	28	5	253	367
Newtownabbey	25	23	26	9	285	333
North Ayrshire	57	52	58	22	385	176
North Cornwall	37	34	37	13	388	168
North Devon	30	28	31	9	298	317
North Dorset	30	28	30	18	416	115
North Down	27	25	27	14	320	282
North East Derbyshire	41	38	41	20	389	166
North East Lincolnshire	49	43	50	2	267	348
North Hertfordshire	62	59	62	39	478	41

Council	Excess Green Taxes, £ million				Excess per person, IPCC social cost, £	Rank
	Nordhaus	IPCC	Tol	DEFRA		
North Kesteven	47	44	47	25	417	112
North Lanarkshire	99	90	101	32	278	339
North Lincolnshire	32	-1	40	-217	-7	430
North Norfolk	45	42	46	19	411	123
North Shropshire	29	27	29	14	446	78
North Somerset	91	85	92	50	417	113
North Tyneside	67	62	68	30	315	291
North Warwickshire	27	23	28	-5	367	207
North West Leicestershire	41	36	42	8	402	138
North Wiltshire	66	62	67	30	468	52
Northampton	76	71	77	39	350	238
Norwich	31	28	31	8	210	396
Nottingham	57	51	59	9	176	408
Nuneaton and Bedworth	46	43	46	28	357	225
Oadby and Wigston	21	20	21	13	351	236
Oldham	60	56	61	27	253	368
Omagh	16	14	16	3	272	341
Orkney Islands	8	7	8	1	336	261
Oswestry	17	16	18	9	401	142
Oxford	31	27	31	2	177	406
Pembrokeshire	57	53	58	27	451	70
Pendle	26	24	26	10	264	351
Penwith	26	24	26	15	375	192
Perth and Kinross	61	57	62	29	403	133
Peterborough	59	55	60	26	333	263
Plymouth	86	81	87	50	324	277
Poole	55	52	56	32	379	185
Portsmouth	56	52	57	24	263	352
Powys	60	56	61	32	427	99
Preston	40	37	41	14	279	337

Council	Excess Green Taxes, £ million				Excess per person, IPCC social cost, £	Rank
	Nordhaus	IPCC	Tol	DEFRA		
Purbeck	21	19	21	9	422	104
Reading	47	44	48	22	309	299
Redbridge	62	58	63	31	229	383
Redcar and Cleveland	17	-16	25	-234	-116	432
Redditch	32	31	33	19	384	177
Reigate and Banstead	56	53	57	30	403	136
Renfrewshire	56	52	57	21	305	308
Restormel	42	39	43	16	374	194
Rhondda, Cynon, Taff	83	77	84	42	328	270
Ribble Valley	21	15	22	-21	263	353
Richmond upon Thames	52	48	52	24	265	350
Richmondshire	22	20	22	7	385	173
Rochdale	59	54	61	20	262	354
Rochford	46	44	46	34	540	7
Rossendale	26	24	27	11	362	219
Rother	38	35	38	21	403	134
Rotherham	83	74	86	14	292	326
Rugby	31	24	33	-24	266	349
Runnymede	34	31	34	13	379	186
Rushcliffe	51	49	52	30	446	77
Rushmoor	41	39	41	26	442	82
Rutland	13	8	14	-23	215	393
Ryedale	23	21	23	7	390	163
Salford	58	51	59	11	235	378
Salisbury	53	50	54	28	429	94
Sandwell	61	54	63	5	186	403
Scarborough	36	33	37	15	307	303
Scottish Borders	50	47	50	31	426	102
Sedgefield	32	29	33	4	325	274
Sedgemoor	46	42	47	15	371	199
Sefton	99	94	100	60	339	259
Selby	43	39	44	10	478	42

Council	Excess Green Taxes, £ million				Excess per person, IPCC social cost, £	Rank
	Nordhaus	IPCC	Tol	DEFRA		
Sevenoaks	52	48	52	23	417	114
Sheffield	145	132	149	42	249	370
Shepway	43	40	44	22	402	139
Shetland Islands	13	11	13	1	519	18
Shrewsbury and Atcham	41	38	42	19	398	148
Slough	40	37	40	20	311	298
Solihull	77	70	78	28	344	251
South Ayrshire	49	46	49	31	415	117
South Bedfordshire	58	55	59	34	468	54
South Bucks	28	25	29	2	386	171
South Cambridgeshire	68	61	69	19	448	75
South Derbyshire	39	36	40	16	398	147
South Gloucestershire	104	93	106	25	364	216
South Hams	41	38	42	18	459	62
South Holland	34	31	35	14	378	188
South Kesteven	66	62	67	36	473	48
South Lakeland	44	40	45	9	376	190
South Lanarkshire	105	97	107	45	315	292
South Norfolk	56	53	57	29	448	74
South Northamptonshire	51	47	52	22	522	17
South Oxfordshire	70	66	71	36	511	22
South Ribble	43	40	43	20	371	198
South Shropshire	20	18	20	9	431	92
South Somerset	65	61	66	30	383	178
South Staffordshire	50	46	51	22	435	88
South Tyneside	51	49	52	31	323	279
Southampton	66	62	67	32	268	346

Council	Excess Green Taxes, £ million				Excess per person, IPCC social cost, £	Rank
	Nordhaus	IPCC	Tol	DEFRA		
Southend-on-Sea	66	63	67	44	396	152
Southwark	29	23	30	-17	84	423
Spelthorne	35	33	36	18	367	209
St Albans	63	59	64	33	448	76
St Edmundsbury	48	44	49	17	428	98
St. Helens	59	53	60	16	299	315
Stafford	53	48	54	18	388	167
Staffordshire Moorlands	38	33	39	-1	344	252
Stevenage	35	33	35	20	414	121
Stirling	38	36	39	18	401	140
Stockport	106	100	107	60	356	228
Stockton-on-Tees	64	48	68	-55	254	364
Stoke-on-Trent	61	55	62	15	229	384
Strabane	11	10	11	2	252	369
Stratford-on-Avon	64	60	65	32	508	25
Stroud	53	49	54	25	443	81
Suffolk Coastal	53	50	54	29	401	141
Sunderland	86	79	88	33	283	335
Surrey Heath	46	44	47	28	528	12
Sutton	57	53	57	33	288	328
Swale	58	54	59	27	414	119
Swansea	85	80	87	43	349	241
Swindon	65	60	66	25	318	286
Tameside	62	58	64	26	268	345
Tamworth	33	31	33	22	416	116
Tandridge	37	34	38	16	418	110
Taunton Deane	41	38	42	19	352	235
Teesdale	12	11	12	5	439	84
Teignbridge	54	50	55	26	396	151
Telford and Wrekin	64	59	65	30	365	214
Tendring	63	60	64	42	412	122
Test Valley	57	54	58	30	469	51

Council	Excess Green Taxes, £ million				Excess per person, IPCC social cost, £	Rank
	Nordhaus	IPCC	Tol	DEFRA		
Tewkesbury	32	29	33	7	367	208
Thanet	45	42	45	27	327	272
The Vale of Glamorgan	48	43	49	13	350	239
Three Rivers	38	35	38	19	407	129
Thurrock	67	60	68	18	400	143
Tonbridge and Malling	53	47	55	7	408	126
Torbay	43	41	44	25	306	307
Torfaen	30	28	31	13	303	309
Torridge	24	22	25	12	345	249
Tower Hamlets	18	11	20	-32	53	428
Trafford	75	68	77	20	319	283
Tunbridge Wells	51	49	52	33	465	56
Tynedale	36	33	36	20	560	3
Uttlesford	43	40	44	20	555	4
Vale of White Horse	54	50	55	24	429	95
Vale Royal	58	51	59	9	405	132
Wakefield	105	95	107	32	295	319
Walsall	67	61	69	20	239	375
Waltham Forest	43	39	44	16	177	407
Wandsworth	42	37	44	3	132	417
Wansbeck	14	4	17	-66	58	427
Warrington	82	75	84	28	385	175
Warwick	54	50	55	21	372	197
Watford	30	28	30	17	354	232
Waveney	46	43	47	25	367	206
Waverley	66	64	67	48	547	5
Wealden	78	75	79	53	517	20
Wear Valley	24	23	25	13	366	211
Wellingborough	31	29	31	16	381	179
Welwyn Hatfield	39	36	39	15	332	265
West Berkshire	72	65	73	23	436	87
West Devon	26	24	26	11	463	59
West Dorset	40	37	41	19	386	172

Council	Excess Green Taxes, £ million				Excess per person, IPCC social cost, £	Rank
	Nordhaus	IPCC	Tol	DEFRA		
West Dunbartonshire	28	26	29	13	288	329
West Lancashire	46	43	47	20	389	165
West Lindsey	39	37	40	20	419	109
West Lothian	65	60	66	27	359	223
West Oxfordshire	51	48	51	30	475	46
West Somerset	13	12	13	3	334	262
West Wiltshire	51	46	52	11	363	217
Westminster	17	6	20	-69	26	429
Weymouth and Portland	25	24	25	17	368	203
Wigan	114	107	115	61	348	243
Winchester	58	54	59	26	486	35
Windsor and Maidenhead	62	57	63	28	408	127
Wirral	106	99	107	56	319	284
Woking	43	41	44	28	451	69
Wokingham	78	75	79	49	482	39
Wolverhampton	60	55	61	21	232	380
Worcester	37	35	38	21	377	189
Worthing	37	35	37	23	354	231
Wrexham	50	45	51	13	341	257
Wychavon	59	55	61	24	467	55
Wycombe	81	76	82	49	473	47
Wyre	43	41	44	23	365	213
Wyre Forest	43	40	43	26	410	124
York	62	58	64	28	298	318
Total	21,353	19,582	21,787	7,894	-	-