

# UK environmental taxes: classification and recent trends

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During the spring of 2006, the Office for National Statistics (ONS) conducted a review of environmental taxes that formed the basis of a report 'Review of Environmental Taxes in the UK Environmental Accounts'. The report was recently submitted to its co-funder Eurostat and will be published shortly.

Incorporating latest National Accounts *Blue Book* 2006 data, this article summarises the main findings of the review. It contains an assessment of current and potential environmental taxes, including the treatment of emissions trading schemes, the results of a new analysis of the main sources of environmental taxes, incorporating a time series from 1993 to 2003, and a comparison of UK environmental tax revenues with member states of the EU15.

## Introduction

The Office for National Statistics (ONS) has recently conducted a review, part funded by Eurostat, of which UK taxes should be classified as environmental taxes according to international guidance developed by Eurostat and the OECD. This article summarises that review and sets out recent trends in the level and composition of environmental taxes in the UK. There is also a comparison with member states of the EU15.

ONS compiles UK Environmental Accounts as a satellite account of the main National Accounts. Satellite accounts facilitate the analysis of the wider impact of economic change. The Environmental Accounts include inputs from the environment such as the consumption of natural resources and outputs to the environment such as atmospheric emissions and waste. The accounts also feature monetary data on environmental protection expenditure by government and industry and on revenue collected through financial instruments, known as environmental taxes.

An environmental tax is defined as 'a tax whose base is a physical unit such as a litre of petrol, or a proxy for it, for instance a passenger flight, that has a proven specific negative impact on the environment' (*Eurostat, A statistical guide*, 2001, p 9). This definition has been agreed by international experts and adopted by the Statistical Office of the European Communities (Eurostat) and the Organisation for Economic Co-operation and Development (OECD). It enables analysis on the effects of taxes rather than the aims behind their introduction, that is, the aim of a tax for raising government revenue rather than reducing environmental degradation does not preclude it from being defined as an environmental tax. Nevertheless, the interpretation and use of measures of environmental taxes need care. In particular, the levels of revenues from environmental taxes do not necessarily indicate the relative importance or the success of environmental policy. High environmental tax revenues can result from high rates of taxes or high levels of environmental problems leading to a large tax base. The broad measure of revenues can also fail to capture the effect of the differential rates that encourage a shift away from higher impact behaviour.

The spring 2006 edition of Environmental Accounts, published in May 2006, identified ten environmental taxes.

Table 1

## UK environmental taxes as published in Environmental Accounts spring 2006 edition

Tax type	Tax	National accounts (ESA95) classification
Energy	Duty on hydrocarbon oils	Taxes on products (D.214)
	VAT on duty	Taxes on products (D.211)
	Fossil fuel levy	Taxes on products (D.214)
	Gas levy	Taxes on products (D.214)
	Climate change levy	Taxes on production (D.29)
	Hydro-benefit	Taxes on products (D.214)
Transport	Air passenger duty	Taxes on products (D.214)
	Vehicle excise duty (business) <sup>1</sup>	Taxes on production (D.29)
	Vehicle excise duty (households) <sup>1</sup>	Other current taxes (D.59)
Pollution	Landfill tax	Taxes on products (D.214)
Resource	Aggregates levy	Taxes on products (D.214)

<sup>1</sup> The two types of VED are not separately identified in Environmental Accounts.

Source: ONS Environmental Accounts

## UK environmental taxes, 1993–2005

Estimates of environmental taxes are published in ONS's biannual publication *Environmental Accounts* and in *UK National Accounts: the Blue Book*. Environmental tax estimates used in the Environmental Accounts are consistent with those compiled for the National Accounts. Data for these taxes come from other government sources such as HM Revenue and Customs (HMRC) and, previously HM Customs and Excise. Environmental taxes published in the National and Environmental Accounts are on an accrued basis, that is, when liability for the tax arises as opposed to when cash is actually received by HMRC. Accruals accounting is consistent with the recommendations of the System of National Accounts 1993 and the European System of Accounts 1995 (ESA95).

Government revenue from environmental taxes in 2005 was £35.0 billion. Environmental taxes, as a percentage of GDP, have been falling in recent years as economic growth exceeded growth of revenues from environmental taxes. In 2005, the proportion fell to 2.9 per cent of GDP compared with 3.5 per cent in 2000, mainly due to the decline in, or slow growth of, hydrocarbon duty and VED. Similarly, environmental taxes as a percentage of total taxes and social contributions have decreased since 2000. In 2005 they were 7.7 per cent, down from 8.3 per cent in 2004.

Duty on hydrocarbon oils such as petrol and diesel accounted for 66.8 per cent of total environmental taxation in 2005, a share that has remained broadly unchanged since 2000.

Revenue from the Landfill Tax rose by 9.1 per cent between 2004 and 2005 as a result of the policy to increase the tax rate each year. Revenue from vehicle excise duty (VED) increased by 1.0 per cent to £4.8 billion in 2005.

At £0.9 billion, revenues from air passenger duty are 6.2 per cent higher than a year earlier, but remain below their 2000 peak. Revenue from air passenger duty was affected by the

downturn in the aviation industry following the terrorist attacks on 11 September 2001. Revenues from the aggregates levy were similar to those in 2004, amounting to £0.3 billion in 2005.

## Environmental taxes by tax type

### Energy taxes

Energy taxes comprise taxes on energy products used for both transport and stationary purposes. The most significant energy products for transport purposes are petrol and diesel; energy products for stationary use include fuel oils, natural gas, coal and electricity. Taxes levied on emissions of carbon dioxide (CO<sub>2</sub>) are included under energy taxes rather than pollution taxes. There are several reasons for this. First of all, it is often not possible to identify CO<sub>2</sub> taxes separately in tax statistics, because they are integrated with energy taxes, for example, via differentiation of mineral oil tax rates. In addition, they are partly introduced as a substitute for other energy taxes and the revenue from these taxes is often large compared with that from the pollution taxes. This means that including CO<sub>2</sub> taxes with pollution taxes rather than energy taxes would distort international comparisons. If they are identifiable, CO<sub>2</sub> taxes should be reported as a separate category next to energy taxes. Sulphur dioxide (SO<sub>2</sub>) taxes may be subject to the same problem as CO<sub>2</sub> taxes.

### Transport taxes

This group mainly comprises taxes related to the ownership and use of motor vehicles, for example VED. Taxes on other transport equipment, such as aircraft, and related transport services, such as air passenger duty on charter or scheduled flights, are also included here, when they conform to the general definition of environmental taxes. Transport taxes may be 'one-off' taxes related to imports or sales of

Table 2

## Government revenues from environmental taxes, 1993, 1995, 2000 to 2005

	1993	1995	2000	2001	2002	2003	2004	2005
<b>Energy</b>								
Duty on hydrocarbon oils <i>including</i>	12,497	15,360	23,041	22,046	22,070	22,476	23,412	23,346
Unleaded petrol <sup>1</sup>	4,242	5,901	12,269	1,980	0	0	0	0
Leaded petrol/LRP <sup>2</sup>	4,502	4,088	286	245	239	233	242	240
Ultra low sulphur petrol	-	-	1,162	10,800	11,149	10,857	11,303	11,271
Diesel <sup>3</sup>	3,484	5,127	32	60	0	0	0	0
Ultra low sulphur diesel	-	-	9,061	8,754	10,465	11,155	11,614	11,581
VAT on duty	2,187	2,688	4,032	3,858	3,862	3,933	4,097	4,086
Fossil fuel levy	1,331	1,306	56	86	32	0	0	0
Gas levy	240	161	0	0	0	0	0	0
Climate change levy	-	-	-	585	825	828	756	744
Hydro-benefit	22	27	42	46	44	44	40	10
<b>Road vehicles</b>								
Vehicle excise duty	3,482	3,954	4,606	4,102	4,294	4,720	4,763	4,809
<b>Other environmental taxes</b>								
Air passenger duty	-	339	940	824	814	781	856	909
Landfill tax	-	-	461	502	541	607	672	733
Aggregates Levy	-	-	-	-	213	340	328	328
<b>Total environmental taxes</b>	<b>19,755</b>	<b>23,835</b>	<b>33,178</b>	<b>32,049</b>	<b>32,695</b>	<b>33,729</b>	<b>34,924</b>	<b>34,965</b>
Environmental taxes as a percentage of:								
Total taxes and social contributions	9.0	9.3	9.3	8.6	8.7	8.5	8.3	7.7
Gross domestic product	3.1	3.3	3.5	3.2	3.1	3.0	3.0	2.9

1 Unleaded petrol includes super unleaded petrol.

2 Lead replacement petrol (the alternative to four-star petrol introduced in 2000) is lead-free.

3 Duty incentives have concentrated production on ultra low sulphur varieties.

Source: ONS, *Environmental Accounts, Blue Book 2006*

equipment, or recurrent taxes such as an annual road tax. Taxes on petrol, diesel and other transport fuels are included under energy taxes (see discussion under Energy taxes).

### Pollution taxes

This group includes taxes on measured or estimated emission to air and water, management of solid waste and noise. CO<sub>2</sub> taxes are included under energy taxes as discussed above.

### Resource taxes

Resource taxes are taxes levied on the commercial exploitation of natural resources such as water, minerals (excluding oil and gas) and forestry. However, it is not yet established whether the extraction of natural resources is in itself harmful although there is general agreement that it can lead to environmental problems such as soil erosion and pollution.

Figure 1  
Environmental tax by revenue type

£ billion

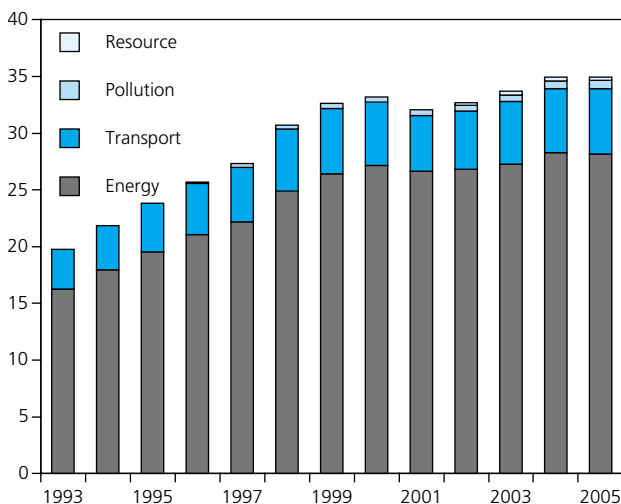


Figure 1 shows that the largest sources of environmental tax revenue are the energy taxes, which account for approximately 80 per cent of all environmental taxes. Within the energy taxes, duty on hydrocarbon oil such as petrol and diesel is by far the largest, accounting for approximately 66 per cent of all environmental taxes. The second largest sources of environmental tax revenues are transport taxes, which account for between 15 and 17 per cent of all environmental taxes. The most significant transport tax is VED, which currently accounts for around 14 per cent of all environmental taxes. Taxes on pollution (landfill tax) and resources (aggregates levy) are still relatively small and currently account for less than 3 per cent of total environmental tax revenue.

### Industry analysis of environmental tax payments

#### Total payments

To determine whether an environmental tax policy is effective, it is necessary to identify whether the polluter is paying the tax. In 2004, ONS completed a one-off look at environmental tax payments for 2001, primarily based on supply-use data, and published as 'An industrial breakdown of environmental taxes' (*Economic Trends*, No. 609, ONS 2004). This project has enabled a thorough review of the methodology used to compile that original analysis and the compilation of a 00time series from 1993 to 2003. The industry breakdown is compiled at the standard 93 industries level of aggregation used in the National Accounts Matrix for Environmental Accounting (NAMEA) plus payments by the rest of the world (non-residents). However, due to quality and disclosure concerns, published data are presented at less detailed levels of aggregation.

Since 1993, UK households have contributed between 52 and 56 per cent of all environmental taxes. This stems predominately from payments of hydrocarbon duty and VED. The most recent two years have seen a slight downturn in the contribution of households, as their proportion fell from 56 per cent in 2001 to 52 per cent in 2003. The contribution of the service sector has also remained relatively stable at between 30 and 34 per cent. Service sector contributions rose slightly in recent years to a peak of 34 per cent in 2003, largely as a result of increased landfill tax payments. The remaining sectors of the economy contribute between 12 and 14 per cent of revenue payments, with the largest remaining proportion coming from the production industries.

In 2003, households' allocation was £17.5 billion, equal to 52 per cent of all environmental taxes. The next largest source was the transport and communication industry, which recorded £6.5 billion or 19 per cent of all environmental taxes. The most significant contributory factor behind this is duty on hydrocarbon oils, the largest of all environmental taxes, with both households and the transport and communication industries consuming large volumes of petrol and diesel. Payments of UK taxes by the rest of the world (non-UK residents) reflect the payments of air passenger duty and, to a far lesser extent, payments of hydrocarbon duty by foreign road hauliers.

The industry analysis is compiled by ONS using a variety of sources including:

- UK supply-use tables
- environmental accounts energy consumption data
- International Passenger Survey data
- Driver and Vehicle Licensing Centre data

The industry analysis is available from 1993 and will be updated annually when the annual supply-use data set becomes available.

Figure 2 Sources of environmental tax revenue

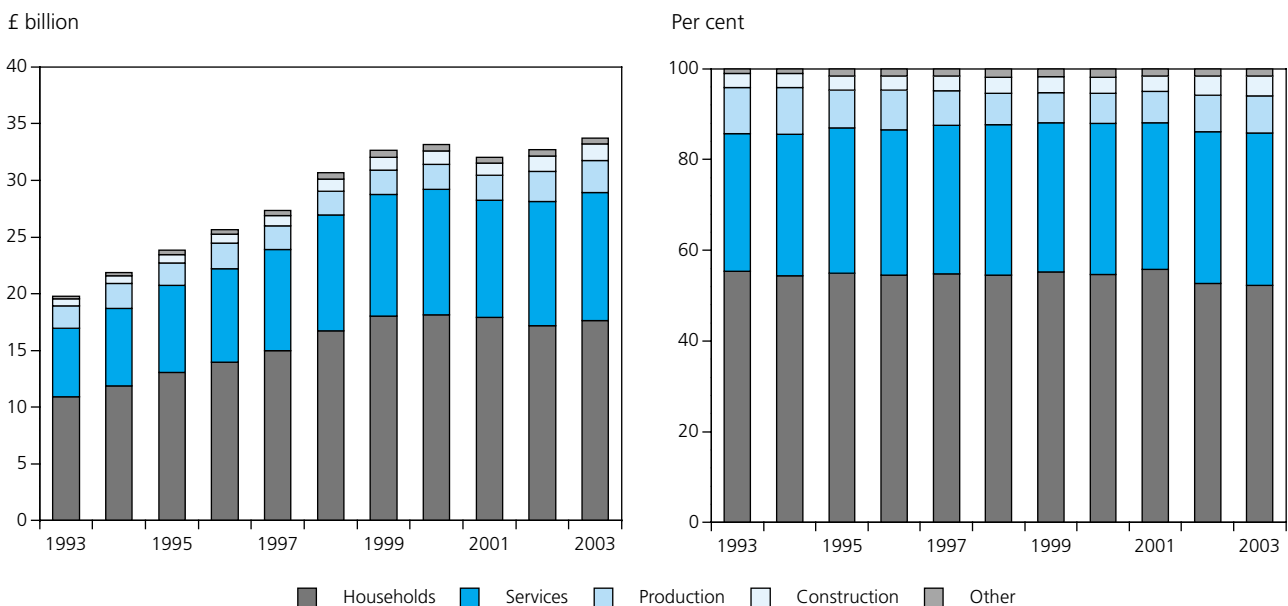


Table 3 below. The taxes are identified under the four tax themes: energy, transport, pollution and resource use. The table compares the current treatment of taxes and that

## Results of the review of environmental taxes

Conclusions resulting from the review are summarised in

Table 3

Tax or duty name	Environmental tax (yes or no)		Comment
	Spring 2006 edition	Autumn 2006 edition	
VAT on hydrocarbon duty	Yes	No	The European Commission publication <i>Environmental Taxes – A statistical guide</i> states, 'Value added type taxes (VAT) are excluded from the definition of environmental taxes. This is mainly because of the special characteristics of this type of tax. VAT is a tax levied on all products (with few exceptions), and it is deductible for many producers, but not for households. Because of this, it does not influence relative prices in the same way that other taxes on environmentally related tax bases do.'
Fossil fuel levy	Yes	Yes	The fossil fuel levy is collected on a physical unit with a proven negative impact on the environment, such as electricity generated from fossil fuels.
Gas levy	Yes	No	<i>Environmental Taxes – A statistical guide</i> states that taxes on oil and gas extraction are excluded from the definition of environmental taxes. The main reason is related to comparability between countries and over time. The revenue from these taxes is important in only a few EU/OECD countries. The tax systems also differ between countries, with different combinations of royalties, exploitation fees, special corporate tax rates and direct government ownership of extraction companies. This means that including these taxes in the definition would make comparisons of environmental and resource tax revenue very difficult. The tax revenue from oil and gas is also highly volatile, reflecting fluctuations in the prices of oil and gas, which in turn lead to distortions in the time series
Climate change levy	Yes	Yes	The climate change levy is collected on a physical unit with a proven negative impact on the environment, such as the combustion of fossil fuels.
Hydro-benefit	Yes	No	Hydro-benefit was introduced to use some of the profits from hydro-electricity generation to subsidise the cost of electricity distribution in the highlands of Scotland. The extent of the levy was based on distribution costs and not on any proxy with a proven negative impact on the environment.
Air passenger duty	Yes	Yes	Air passenger duty applies to the carriage from a UK airport of chargeable passengers on chargeable aircraft. Emissions from air transport have a proven negative impact on the environment.
Vehicle excise duty (business)	Yes	Yes	The use of a vehicle has a negative environmental impact through the generation of atmospheric emissions. Since 2001, VED has been a graduated tax based on the level of CO <sub>2</sub> emissions.
Vehicle excise duty (households)	Yes	Yes	
Landfill tax	Yes	Yes	Landfill tax payments are based on the tonnage of waste disposed at landfill sites.
Aggregates levy	Yes	Yes	While the extraction of aggregates is not necessarily harmful itself, the tax was introduced to act as an incentive to encourage the use of alternatives such as recycling and re-use.
Income tax on benefits in kind: company car benefit tax	No	Yes	The use of a vehicle has a negative environmental impact through the generation of atmospheric emissions. Since 2002, company car tax has been based on the level of CO <sub>2</sub> emissions.
Income tax on benefits in kind: company van benefit tax	No	Yes	The use of a vehicle has a negative environmental impact through the generation of atmospheric emissions.

Table 3 - continued

Tax or duty name	Environmental tax (yes or no)		Comment
	Spring 2006 edition	Autumn 2006 edition	
Income tax on benefits in kind: fuel benefit tax	No	Yes	The tax is on fuel consumption. The rate of tax for cars is in turn based on the vehicle's level of CO <sub>2</sub> emissions.
Income tax on benefits in kind: mileage allowance	No	No	The tax is based on income rather than an environmental negative such as the use of a car and is not an environmental tax.
Renewable obligation certificates	No	Yes	The tax is paid by electricity suppliers where the generation source is non-renewable, such as fossil fuel.
UK emissions trading scheme	No	No	Participation in the UK-ETS is on a voluntary basis; therefore any payments are also voluntary, thus ruling out the possibility that it is a tax/subsidy, as taxes comprise compulsory payments.
EU emissions trading scheme	No	Yes	The tax is paid by enterprises on the level the level of CO <sub>2</sub> they produced above and beyond their annual limit. Provisional ONS decision pending Eurostat decision.

proposed by this report for inclusion in future editions of *Environmental Accounts*.

The net effect of revisions resulting from the review is unknown at present because data are not currently available for renewable obligation certificates (ROCs) or the EU emissions trading scheme. Furthermore, a harmonised treatment of the EU emissions trading scheme has still to be agreed by EU Member States and there remains a possibility that the final decision on its treatment may differ from that proposed by ONS. Table 4 below shows the impact of the revisions as they currently stand. A final decision on the

treatment of the trading schemes will not affect data for the earlier years.

The largest single revision is the exclusion of VAT on hydrocarbon duty. This is excluded as it is a tax on a tax rather than a tax imposed directly on a unit with a proven negative impact on the environment.

The review identified new taxes, some of which should be classified as environmental taxes according to international guidance.

The proposed treatment of taxes is intended for inclusion in future editions of *Environmental Accounts*.

Table 4  
Impact of environmental tax review

£ million

	1993	1995	2000	2001	2002	2003	2004	2005
<b>Existing environmental taxes</b>								
Hydrocarbon	12,497	15,360	23,041	22,046	22,070	22,476	23,412	23,346
Fossil fuel levy	1,331	1,306	56	86	32	0	0	0
Climate change levy	–	–	–	585	825	828	756	744
Vehicle excise duty	3,482	3,954	4,606	4,102	4,294	4,720	4,763	4,809
Air passenger duty	–	339	940	824	814	781	856	909
Landfill tax	–	–	461	502	541	607	672	733
Aggregates levy	–	–	–	–	213	340	328	328
<b>Additional environmental taxes</b>								
Company car tax	1,333	1,443	1,933	1,840	1,710	1,650	1,610	...
Company van tax	10	10	20	20	20	28	30	...
Company fuel tax	185	210	565	640	560	508	500	...
Renewable obligation certificates	..	..	..	..	..	..	..	...
EU emissions trading scheme	..	..	..	..	..	..	..	...
<b>Total environmental taxes<sup>1</sup></b>	<b>18,838</b>	<b>22,622</b>	<b>31,622</b>	<b>30,645</b>	<b>31,079</b>	<b>31,937</b>	<b>32,927</b>	<b>30,869</b>
<b>Removed environmental taxes</b>								
VAT on hydrocarbon duty	2,187	2,688	4,032	3,858	3,862	3,933	4,097	4,086
Gas levy	240	161	0	0	0	0	0	0
Hydrobenefit	22	27	42	46	44	44	40	10
<b>Net revision<sup>1</sup></b>	<b>–921</b>	<b>–1,214</b>	<b>–1,557</b>	<b>–1,404</b>	<b>–1,616</b>	<b>–1,792</b>	<b>–1,997</b>	<b>...</b>

<sup>1</sup> Where known, data for additional taxes not available for 2005, while data regarding renewable obligations certificates and the EU emissions trading scheme currently are not available in all years.

## Classification of emission trading schemes in the National Accounts

The Government imposed a new obligation on electricity suppliers in April 2002 that 3 per cent of all electricity supplied must have been generated from renewable sources. Evidence of compliance with this obligation must be presented by the supplier to the regulator, the Office of Gas and Electricity Markets (Ofgem).

The UK Government has also overseen the establishment of emissions trading schemes in the UK, with the ultimate goal of achieving significant reduction in the level of greenhouse gas emissions. There are currently two emission trading schemes operating: the UK emissions trading scheme (UK-ETS) and European Union emissions trading scheme (EU-ETS). The UK-ETS was launched in April 2002 and was the world's first emissions trading scheme; the EU-ETS commenced on 1 January 2005.

National Accounts classification of both the ROCs and the emissions trading schemes is unclear in ESA95. The treatment of both has been discussed by the ONS National Accounts Classification Committee.

### Renewable obligation certificates

Since April 2002, every licensed electricity supplier is required to ensure that a specified proportion of the electricity it sells to customers in Great Britain is generated from renewable sources. Renewable energy is defined to include a wide range of sources, such as solar, wind, hydro, tide and biomass, but excludes fossil fuels and, as a matter of policy, nuclear. Although nuclear energy does not produce greenhouse gas emissions, there are other externalities detrimental to the environment.

The level of the obligation placed on each company will be calculated as a proportion of that company's total electricity sales. Evidence of compliance with the obligation must be presented by suppliers to Ofgem. This evidence will take the form of ROCs. As part of the arrangements being put in place, these will be first issued to renewables generators on the basis of their eligible generation.

The expectation was that when the suppliers purchased electricity from the generators, they would have been given a certificate as evidence of the purchase. However, what actually happened was described as 'selling' the ROC, where suppliers subsequently and additionally traded the certificates between themselves, or via third parties, separate from the electricity to which the ROCs related. ROCs are tradable instruments and there is a market in them, where the market price theoretically reflects the additional costs of generating from renewable sources, and the certificates are a means of redistributing the costs across all suppliers. This is needed since the renewables generators tend to be clustered in geographical locations, so it is not easy for each supplier to purchase their allocation directly. In practice, therefore, the electricity may not have been supplied by the supplier that presents the ROCs to Ofgem but they will have met the additional cost of that supply.

There also needed to be an appropriate compliance incentive since, in a perfect market, companies would have preferred to pay a fine if that was cheaper than buying their ROC allocation.

This issue has been resolved through use of a 'buyout' mechanism. Suppliers will, at their discretion, be able to buy out all or part of their obligation at a price of 3p/kWh per ROC. To avoid any supplier being in breach of their statutory obligation if they exercise this option, buying out is formally a means of compliance. Breach of the obligation only occurs if the total number of ROCs presented plus the amount of buy out, undertaken by a supplier in any year, does not equate to its level of obligation. That would then be a breach of the supplier's licence conditions and subject to separate penalties imposed by Ofgem under the Utilities Act. So, in practice, just before each supplier has to prove they have met their obligation, they will purchase enough buyouts to get them up to their limit. If the market mechanism works, it should be cheaper to purchase ROCs in the market than go down the buyout route. The buyout payments are kept by Ofgem in a bank account. The money is eventually redistributed to the suppliers, according to the proportion of each supplier's presented ROCs compared with the total.

### National Accounts classification

The National Accounts Classification Committee looked at the treatment of purchasing of the ROCs and the buyout scheme and concluded that both were an imputed tax and subsidy. It could be argued that the subsidised amounts redistributed to the renewables generators are being subsidised by the electricity suppliers (or indirectly by the household/business customers as you can be sure the suppliers will pass the costs on). However, the decision to classify ROCs as taxes has been based on the fact that government organises the redistribution scheme and it is not something the suppliers would have done voluntarily.

Table 5 shows an imaginary trade where company A buys ROCs worth £1,000 from company B with an imputed payment and receipt by central government. The currency and deposit change represents the flow of money between company bank accounts.

As the value of the trade in ROCs is classified in the National Accounts as an imputed tax, the Environmental Accounts will therefore treat them as an environmental tax. It passes the criteria for an environmental tax as the tax is paid by electricity suppliers where the generation source is non-renewable, for example, fossil fuel.

Table 5  
Transactions in UK-ETS allowances

	Company A	Central government	Company B
D.21 – Taxes on production	–£1,000	+£1,000	
D.31 – Subsidies on production		–£1,000	+£1,000
F.2 – Currency and deposits	–£1,000		+£1,000

### UK emissions trading scheme

The UK-ETS was launched in April 2002 and was the world's first emissions trading scheme.

Each participant in the scheme is given an emission target and allowances (each unit equals one allowance) equal to that target. Participants can either:

- meet their target by reducing their emissions to that level
- reduce their emissions below their target and 'sell or bank' the excess allowances, or
- exceed their target and buy allowances to cover the additional emissions

There are three types of participants in the UK-ETS:

- **Direct participants.** These are voluntary participants, offered financial incentives by the Government to take on voluntary targets involving a reduction for 2002–06 against their baseline position in 1998–2000
- **Climate change agreement participants.** These are companies that already have targets set through climate change agreements and use the trading scheme either to help meet their target or sell any over-achievement. There is a restriction on the flow of allowances from these participants to the rest of the scheme
- **Others.** Anyone who wants to enter the market and trade allowances on a speculative basis

At the end of each target period, the participants must demonstrate compliance with the scheme and meet their targets. After the submission of allowances that demonstrate this, the allowances are 'retired'. Information on allocations, retirements, cancellations (distinct from retirements), transfers (within company groups) and trades (transactions between companies) is available.

The first compliance period for direct participants ran from April to December 2002, and thereafter compliance periods were annual. There is a three-month period in the following year (to end-March) in which to demonstrate compliance.

### National Accounts classification of the UK-ETS

The National Accounts Classification Committee looked at the treatment of the UK-ETS and concluded that trading in allowances was a transaction in an intangible non-produced asset. Participation in the UK-ETS is on a voluntary basis; any payments are also voluntary, thus ruling out the possibility that they are a tax/subsidy, as taxes comprise compulsory payments.

### EU emissions trading scheme

The EU-ETS is an EU Directive with the aim of reducing emissions of CO<sub>2</sub> and other greenhouse gases and combating

climate change. The scheme commenced on 1 January 2005, with the first phase running from 2005 to 2007. A second phase will run from 2008 to 2012 to coincide with the first Kyoto Commitment Period. Further five-year periods are expected subsequently.

EU Member State governments are required to set a maximum emission limit for all 'installations' covered by the scheme. This limit is referred to as the 'allowance'. The scheme operates on the basis that those exceeding their allowances will be fined, and compliance will be checked annually. The allocation issued to operators is on an annual basis, with the entity surrendering allowances at the end of the trading year equal to its emissions. Surrendered allowances are then cancelled. If the entity emits less than its allowance, it can either carry the allowance over to the following year or sell that allowance to another entity. If it emits more than its allowance, it either needs to buy allowances or will face a fine. The fine is set by the EU at €40 for phase one, rising to €100 in phase two. Payment of the fine does not release the entity from its obligation to surrender sufficient allowances to offset its emissions. No allowances can be carried between phase 1 and phase 2. So, those who exceed can purchase allowances from those who have underused theirs, creating a market in allowances. Phase 2 allowances cannot be borrowed to pay for phase 1 emissions, but it is viewed that it is highly unlikely that there will be insufficient allowances at the end of phase 1 (end-2007). This is because any shortage of allowances would have driven their price above the abatement cost, therefore making it cheaper to invest in emissions reduction technology, with the result that emissions will fall to levels below the anticipated levels.

### National Accounts classification of the EU-ETS

The National Accounts Classification Committee looked at the treatment of the EU-ETS and concluded that trading in allowances should be treated as imputed taxes and subsidies. Classification in the National Accounts was then very much dependent on whether the tax was deemed to be an EU or a UK tax and subsidy. Intra-UK transaction would be D.29 – taxes on production and D.39 – subsidies on production regardless of whether a UK or EU tax. However, transactions between the UK and the rest of the world must differ as the UK government cannot subsidise foreign companies. Therefore, if deemed a UK tax, transactions in allowances between the UK and the rest of the world would be classified as D.29 – taxes on production and D.74 – current international co-operation (see Table 6).

As the EU-ETS will be classified in the National Accounts as an imputed tax, the Environmental Accounts would therefore treat them as an environmental tax. It passes the criteria for an environmental tax as the tax is paid by enterprises on the level of CO<sub>2</sub> they produced above and beyond their annual limit.



Table 6  
Intra-UK transactions in EU-ETS allowances

	Company A	Central government	Company B
D.29 – Taxes on production	–£1,000	+£1,000	
D.39 – Subsidies on production		–£1,000	+£1,000
F.2 – Currency and deposits	–£1,000		+£1,000

UK/rest of world transactions in EU-ETS allowances if deemed to be an EU tax

	Company A	Central government	Company B
D.29 – Taxes on production	–£1,000	+£1,000	
D.39 – Subsidies on production		–£1,000	+£1,000
F.2 – Currency and deposits	–£1,000		+£1,000

UK/rest of world transactions in EU-ETS allowances if deemed to be a UK tax

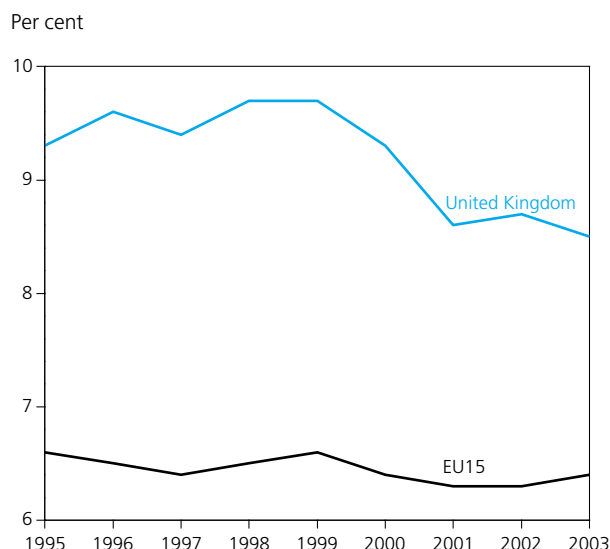
	Company A	Central government	Company B
D.29 – Taxes on production	–£1,000	+£1,000	
D.74 – International co-operation		–£1,000	+£1,000
F.2 – Currency and deposits	–£1,000		+£1,000

An international comparison of environmental taxes

Environmental issues often have transboundary implications, a fact reflected in the EU-ETS. As such, environmental taxes are a feature of many national governments’ environmental policies. This section considers environmental taxes as a percentage of total taxes and social contributions in the UK, compared with the countries of the EU15 (at the time of writing a full range of data for the EU25 was unavailable). This approach rather than, for instance, comparing environmental taxes with GDP, has been chosen to try to understand the relative importance of environmental taxes in the overall national tax framework. National differences in the composition of environmental taxes are also included in this review.

Over the period 1995 to 2003, the member states of the then EU15 levied a variety of environmental taxes. These range from ‘traditional’ energy taxes such as those on petrol and diesel, to others that address specific environmental issues. For instance, in response to the burden on landfill, Ireland has introduced a plastic bag tax and Denmark has applied tax to both plastic and paper bags. In response to a different environmental pressure, the Netherlands and Sweden have both introduced an aviation noise tax.

Figure 3  
Environmental taxes as a percentage of total taxes and social contributions



However, in all the countries included here, the composition of environmental tax types levied is broadly similar, with the majority of revenues derived from energy taxes. Transport taxes were the second most significant environmental taxes type, with pollution and resource taxes making up the remainder. During the period 1995 to 2003, total environmental tax revenues have generally risen across the EU15, although as a proportion of total taxes and social contributions they have remained broadly stable.

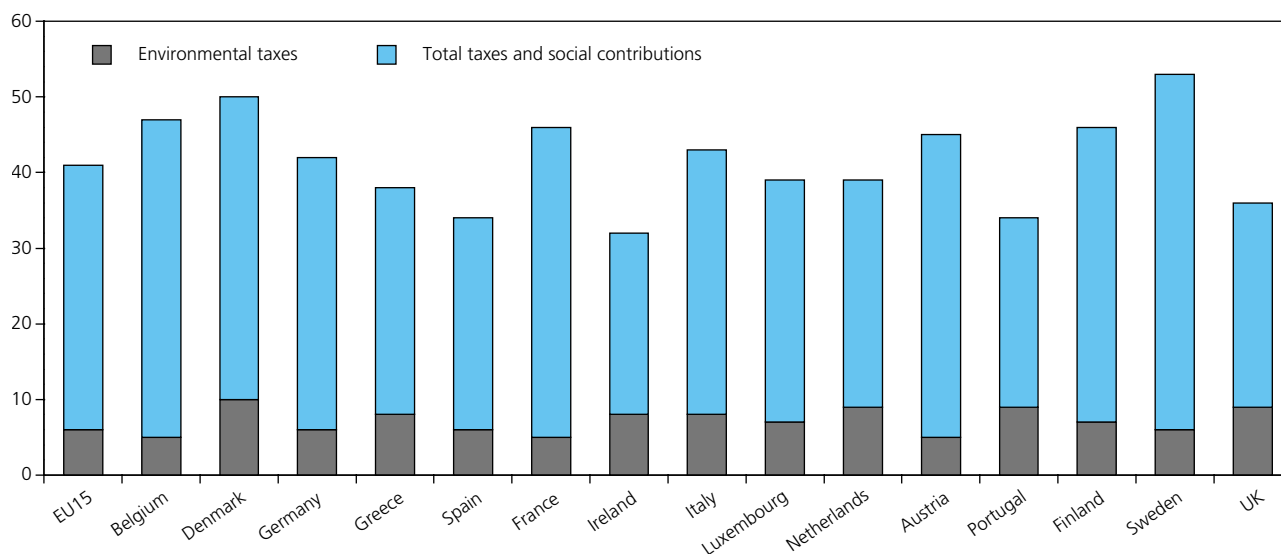
The environmental taxes data have been sourced from the Eurostat website (downloaded on August 9 2006). Information regarding the particular taxes levied in individual countries has been taken from the OECD website (downloaded 25 October 2005).

Figure 3 shows total environmental taxes as a percentage of total taxes and social contributions in the UK and EU15. The UK level is higher than the EU15 in all years by a maximum of 3.2 percentage points in 1998 and a minimum of 2.2 percentage points in 2003. The UK data follow a path that rises in the late 1990s to a peak of 9.7 per cent in 1998 and 1999, before falling to 8.5 per cent in 2003. It reflects the adoption and subsequent cessation of the fuel escalator and the negative impact of the 11 September 2001 terrorist attacks in the USA on transport-based revenues.

Data for the EU15 follow a similar if shallower path, with a noticeable drop between 1999 and 2000. This was driven by falls in that year of total taxes and social contributions for some members of the EU15, particularly France and Germany. Growth in the EU15 since 2000 has been more subdued than in the UK, due to more evenly matched increases in environmental and total taxes which, between 2000 and 2003, were up 5.3 and 5.5 per cent, respectively. In contrast, over the same period, total taxes and social contributions in the UK rose 10.3 per cent and environmental taxes rose 1.7 per cent.

Figure 4  
**Total taxes and social contributions including environmental taxes as a percentage of GDP**  
 (average 1995 to 2003)

Per cent



Overall, the UK has one of the highest levels of environmental tax as a percentage of total taxes and social contributions. However, as Figure 4 shows, the UK has one of the lowest percentages of total tax to GDP.

## Conclusion

This article has described a range of environmental taxes introduced in recent years to address particular policy issues identified by government.

These taxes are part of a general movement towards taxes which address specific environmental issues across the EU15.

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