National Audit Office

Environmental tax measures

HM Treasury and HM Revenue & Customs

REPORT

by the Comptroller and Auditor General

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National Audit Office

Environmental tax measures

HM Treasury and HM Revenue & Customs

Report by the Comptroller and Auditor General

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Gareth Davies
Comptroller and Auditor General
National Audit Office

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The National Audit Office study team consisted of:

Tim Bryant, Stephanie Muir, Sarah Pearcey, Matt Phelps, and Lydia Reid, under the direction of Andy Morrison.

For further information about the National Audit Office please contact:

National Audit Office
Press Office
157–197 Buckingham Palace Road
Victoria
London
SW1W 9SP

020 7798 7400

www.nao.org.uk

@NAOorguk

Key facts

4

taxes HM Revenue & Customs (HMRC) administers with an environmental objective – the Climate Change Levy, Carbon Price Support, Landfill Tax and Aggregates Levy

£3.1bn

revenue generated from the four taxes HMRC administers with an environmental objective in 2019

£31.6bn

revenue generated from fuel duty and Air Passenger Duty in 2019 – the two other taxes HMRC administers with an environmental impact

65%	reduction in recorded waste to landfill in the UK between 1997 and 2014 following the introduction of Landfill Tax
£275 million	HMRC-published estimate of the gap between Landfill Tax due in 2018-19 and the tax collected (gap was 28% of tax due)
£6 million	estimated cost of staff managing and designing environmental taxes in 2020
8	tax reliefs for 2020-21 with environmental objectives, the largest of which had an estimated cost of £70 million in 2019-20
£17 billion	total estimated 2019-20 cost for five large tax reliefs which do not have environmental objectives but are likely to impact on the government's net zero greenhouse gas emissions target

Summary

Introduction

1 The government has set ambitious environmental objectives. In June 2019, the UK passed a law committing to bring all greenhouse gas emissions to net zero by 2050. More broadly, the government's *25 Year Environment Plan*, published in 2018, set out an ambition "to leave that [natural] environment in a better state than we found it".

2 Tax measures have been an important tool in implementing environmental policy, by taxing goods or services which harm the environment and incentivising businesses and people to change their behaviour. For example, in 1996 Landfill Tax was introduced to encourage the waste management industry to switch to more environmentally friendly alternatives. Government can also use other policy tools such as regulation and spending to achieve environmental objectives, and in practice a combination of these tools may be most effective.

3 Within government, the Department for Environment, Food & Rural Affairs (Defra) has lead responsibility for all environmental policy areas apart from climate change mitigation (including net zero emissions), on which the Department for Business, Energy & Industrial Strategy (BEIS) leads. Decisions on the use of taxes to pursue policy objectives are a matter for ministers. Where ministers decide to use tax measures to support environmental goals, HM Treasury and HM Revenue & Customs (the exchequer departments) are responsible for designing the measures to achieve objectives set by ministers, and for monitoring and evaluating their impact. HM Treasury is responsible for the strategic oversight of the tax system and HM Revenue & Customs (HMRC) is responsible for administering the system. The exchequer departments are expected to consider the government's overall environmental objectives when undertaking their work.

4 HM Treasury and HMRC administer four taxes with explicit environmental objectives (referred to as environmental taxes throughout this report).

- Climate Change Levy – a tax collected by energy suppliers and paid by businesses and the public sector to encourage them to become more energy-efficient and thereby reduce greenhouse gas emissions.
- Carbon Price Support – aims to drive electricity generators to invest in low-carbon electricity by increasing the cost of the fossil fuels they use. The Climate Change Levy and Carbon Price Support raised £2.1 billion in 2019.
- Landfill Tax – a tax on landfill operators to divert waste from landfill to other less harmful methods of waste management (raised £0.6 billion in 2019).
- Aggregates Levy – a tax to encourage the use of recycled materials over the extraction of rock, sand and gravel which can damage the environment (raised £0.4 billion in 2019, including from quarry operators).

5 Other HMRC-administered tax measures can also affect the environment. In particular:

- two taxes whose primary purpose is to raise revenue – fuel duty and Air Passenger Duty – may contribute to government's commitment to reduce CO_2 emissions and improve air quality;
- some tax reliefs have an environmental purpose and reduce the amount of tax due on non-environmental taxes when taxpayers use some environmentally friendly products or services such as low-carbon vehicles and installation of energy-saving products; and
- tax reliefs introduced for other purposes. For example, VAT is charged at a lower rate of 5% on domestic fuel and power.

6 Environmental taxes may have a larger role to play in the future in view of the government's environmental goals, but this will depend on ministerial decisions. The government is planning to introduce a fifth environmental tax – the Plastic Packaging Tax – in April 2022. HM Treasury is conducting a review into how the UK's transition to a net zero economy should be funded and is due to issue the final report in 2021. The terms of reference for the review set out that the government will consider a full range of levers, including tax.

The purpose and scope of this report

7 This report examines how HM Treasury and HMRC manage tax measures with environmental objectives, including the work undertaken to design, monitor and evaluate them. It also explores how the exchequer departments use their resources to manage the relationship between the wider tax system and the government's environmental goals, including its statutory commitment for the UK to achieve net zero greenhouse gas emissions by 2050.

8 Under section 6 of the National Audit Act 1983, the Comptroller and Auditor General examines the economy, efficiency and effectiveness of the way that government departments use their resources in discharging their functions, including the management of taxes. Our assessment in this report is informed by deep dives into how the exchequer departments used their resources to administer and oversee two established environmental taxes – the Climate Change Levy and the Landfill Tax – and their approach to designing the Plastic Packaging Tax. It is not our role to assess the value for money of specific environmental tax measures or to comment on the merits of objectives set by ministers.

Key findings

Designing, administering and monitoring environmental taxes

9 Environmental taxes raise design, monitoring and review challenges because they have policy objectives beyond just raising revenue. The exchequer departments have set out tax-making policy principles for all taxes. Government's *The Green Book* requires departments to consider the design, monitoring and evaluation of tax measures, including how their impact on policy objectives can be assessed. An environmental tax can be more complicated to design because it is seeking to change behaviour, and the impact more difficult to evaluate, particularly where it overlaps with other interventions. Each exchequer department has a team to administer all four environmental taxes together, which has facilitated learning (paragraphs 1.8 to 1.10 and 1.33).

10 The design of environmental taxes follows many practices we would expect but the exchequer departments do not quantify all potential costs before recommending options. In line with expected practice, the exchequer departments provide taxpayers with several years' advance warning of measures so that they can prepare. The exchequer departments consult with stakeholders and consider compliance risks and practical implementation issues. For the new Plastic Packaging Tax, we found the departments had undertaken extensive work to understand the possible impacts of the tax, but they had not quantified the administrative costs for business. They considered which option would best balance the policy objective against the administrative burden for business and HMRC, based on research, business feedback and their experience. The exchequer departments told us it was inherently difficult to estimate taxpayers' administrative costs before introducing a new tax (paragraphs 1.11 to 1.14, and Figures 4 and 5).

11 The exchequer departments do not specify how they will measure the impact of environmental tax measures. The Chancellor of the Exchequer's speech at Budget 2020 announced the Plastic Packaging Tax would increase the use of recycled plastic in packaging by 40% – equal to carbon savings of nearly 200,000 tonnes. However, the exchequer departments did not set these as measures of success in the Tax Information and Impact Note (TIIN). More generally, we found that published TIINs for changes to environmental taxes – such as revisions to Climate Change Levy rates – briefly described but rarely quantified the environmental impact. Setting out clear metrics in TIINs, for example on carbon emissions or the production of new plastic, would assist Parliamentary scrutiny (paragraphs 1.12, 1.15 and 1.16, and Figure 4).

12 HMRC recognises it has a partial understanding of the gap between tax due and collected. HMRC's core objectives include to collect tax revenue due, and it monitors receipts on all environmental taxes. However, HMRC only has a standalone estimate of the tax gap for Landfill Tax. The other three environmental taxes are included within an illustrative tax gap estimate covering seven taxes in total. In August 2020 HMRC developed a single compliance strategy for the four environmental taxes. The strategy reflects that HMRC's work to date had focused on Landfill Tax, where it believes the risk to revenue is greatest, and that there are gaps in its understanding of the other three environmental taxes (paragraphs 1.18 to 1.24).

13 Landfill Tax has reduced the use of landfill sites significantly, but it has also incentivised more illegal waste disposal. Between 1998 and 2014 HM Treasury increased the standard rate of Landfill Tax by 700% in real terms. The increase contributed to a 65% fall in total waste to landfill by 2014, and a doubling of tax revenue. However, higher rates also incentivised the disposal of waste in environmentally harmful ways to evade tax. HMRC estimates that the misclassification of waste at authorised landfill sites and waste disposed at unauthorised sites reduced Landfill Tax revenue by around £275 million in 2018-19 (28% of the tax due). This figure does not include any tax lost from illegal exports of waste and fly-tipping. HMRC has sought to reduce tax lost by increasing its compliance resource, extending Landfill Tax so it is due on waste disposed at unauthorised sites and working more closely with other public bodies. Most recently, in 2020, government established the Joint Unit on Waste Crime in the Environment Agency, in partnership with HMRC, the National Crime Agency and others, to tackle organised waste crime (paragraphs 1.23 and 1.24, and Case Study 1).

14 HMRC's approach to evaluation provides it with limited insight into the environmental impact of taxes. HMRC has formally evaluated the impact of one environmental tax. This qualitative research, published in 2014, found that Landfill Tax had been a driver for the fall in demand for landfill. HMRC has not carried out further evaluations of the impact of environmental taxes. Instead it uses environmental data collected by third parties, feedback from stakeholders and tax receipts to assess impacts and advise ministers. This information can provide some indication of environmental impact, but it will rarely be sufficient to determine how far an environmental tax has changed behaviour. For example, BEIS statistics on energy use indicate much greater use of renewable energy in electricity generation and businesses improving their energy efficiency, but it is difficult to separate the effect of the taxes from other factors. In addition, the impact of the Aggregates Levy on the use of recycled aggregate cannot be determined from the data HMRC has collected. HMRC considers its approach to evaluation is proportionate given limited resources, methodological challenges, and because it considers that taxing environmentally harmful activity is an efficient way to raise revenue (paragraphs 1.26 to 1.35).

Managing the relationship between the wider tax system and the government's environmental goals

15 There are other taxes which the exchequer departments manage which they acknowledge have an impact on the environment. The Office for National Statistics' data show that taxes and charges on environmentally harmful goods and services raised £51.6 billion in 2019. Fuel duty raised £27.8 billion, just over half of the total. The next largest components were vehicle duties (£7.1 billion, mainly Vehicle Excise Duty, which is administered by the Driver & Vehicle Licensing Agency), Renewable Energy Obligations administered by Ofgem (£6.1 billion), and Air Passenger Duty (£3.8 billion). Neither fuel duty nor Air Passenger Duty has an explicit environmental objective set by ministers and they are therefore not managed as environmental taxes by the exchequer departments. The departments told us that they primarily measure the performance of these taxes in terms of tax revenue raised but they increasingly consider environmental impact when advising ministers. For example, HM Treasury acknowledged the environmental impact of fuel duty in 2020, when the government announced changes to fuel duty on diesel used in off-road vehicles (paragraphs 2.5, 2.6 and 2.13).

16 HMRC has limited information on the cost and impact of tax reliefs with an environmental impact. Given the government's environmental ambitions, in particular its binding net zero target, it is important that policy interventions which impact on the environment are identified and understood. Tax reliefs, as well as taxes, can have an environmental impact. While HMRC does not maintain a list of tax reliefs with specific environmental objectives, we identified eight such reliefs. The largest relief with a cost estimate is the lower rate of VAT for the installation of energy-saving equipment (£70 million in 2019-20), while four reliefs have not been costed. HMRC has not attempted to identify other tax reliefs which could impact on government's environmental goals, as it has focused on managing reliefs to deliver their stated purpose. Of the 25 tax reliefs that cost more than £1 billion a year, we identified five that are likely to reduce the cost of producing or consuming products made from or using fossil fuels, including lower VAT on domestic fuel and power. The five reliefs support other government policy objectives, such as helping to address fuel poverty. The total estimated cost of these reliefs was £17 billion in 2019-20 (paragraphs 2.7 to 2.13).

17 The exchequer departments do not centrally oversee how the tax system impacts on government's environmental goals. There are some good examples where planned new taxes and changes to existing tax measures were considered in environmental strategies developed by Defra and BEIS. But the different routes for announcing tax, regulation and spending decisions make government-wide approaches challenging to develop, and there is a need for coherence across the tax system as a whole. The strategies for clean air and clean growth did not consider all the existing taxes we would expect. While the exchequer departments work with the departments who lead on environmental strategies, they do not plot the role of the tax system in helping government achieve each of its environmental objectives or set out the interaction between the tax system and other policy tools (paragraphs 2.14 to 2.16).

18 HM Treasury's review into how the transition to a net zero economy will be funded is an important component in implementing government's environmental commitments. Achieving ambitious environmental goals will require structural shifts across the economy and the exchequer departments will need to actively consider the consequences for the tax system. Environmental policies may impact significantly on existing revenue streams, such as fuel duty. The December 2020 interim report from HM Treasury's review highlights that tax, regulation and spending are all important tools to correct market failures. It also sets out the fiscal implications of likely changes in the structure of the economy. The final report, due in 2021, will look in more detail at areas including how HM Treasury could incorporate climate considerations into fiscal events and spending reviews and how to embed the principles of the review into policy-making across government. The exchequer departments told us they will also look at the impact of other relevant tax measures which do not necessarily have the environment as a core objective, and the role carbon pricing could play in shifting business models and incentivising investment in low-carbon technologies across the economy. Alongside HM Treasury's review, BEIS is developing government's wider net zero strategy. The exchequer departments plan to work with BEIS and other stakeholders during development of the strategy to consider the mix of policy levers needed to meet net zero (paragraphs 2.17 to 2.23).

Conclusion

19 There is some evidence of the positive impact that taxes can have on the environment, but too little is known about their effect. The exchequer departments tend to focus more on the revenue that environmental taxes raise rather than the environmental impact they achieve. There are other measures – both taxes and tax reliefs – which impact on government's wider environmental objectives but which are not recognised as environmental in nature. As such, the exchequer departments do little to identify these measures, or assess their relevance to government's environmental goals, though they do consider environmental impact in some significant cases when advising ministers.

20 The scale of government's environmental ambitions, particularly on net zero, means government needs to consider every tool at its disposal if it is to succeed. The exchequer departments need to fully understand the relationship between existing taxes and these ambitions, to ensure the taxes contribute as intended, and to learn lessons for any future taxes which may support wider environmental strategies. HM Treasury's review of how the transition to net zero will be funded is an important first step in this process.

Recommendations

21 As custodians of the tax system, HMRC and HM Treasury are responsible for designing, monitoring and evaluating taxes, as well as ensuring they support government's wider objectives, including the environment, and raise revenue. We recommend that the exchequer departments should:

a **identify and monitor existing tax measures with a significant environmental impact.** In doing so, they should consider the likely scale of the environmental impact (which may not be reflected in the revenue raised by a tax or the cost of a tax relief) and the level of monitoring that is appropriate. Where necessary, HMRC should work with other government departments to determine how tax measures can be monitored cost-effectively and proportionately;

b **clarify and set down their approach to designing, administering and evaluating tax measures with environmental or other policy objectives.** The exchequer departments should build on existing work and formalise in tax policy-making and other relevant guidance the practical steps that their teams should take to comply with wider government guidance (such as *The Green Book* on appraisal and evaluation), including:

- establishing how the success of tax measures will be assessed against the policy objective and tax revenue; and
- monitoring impact, as well as revenue, by collecting and reporting data on the level of compliance and environmental outcomes;

c **develop clear criteria for prioritising which taxes with an impact on the environment to evaluate, taking into account risks to value for money and the costs of evaluation**. Criteria could include the amount of tax revenue, the scale of the environmental impact expected, whether the tax is new, the extent of existing information and the risk of unwanted behavioural responses to the tax (such as environmentally harmful actions). The exchequer departments should consider value for money in determining how to review whether environmental taxes are fulfilling their objectives. They should consider the adequacy of existing evidence sources to support clear conclusions, and the cost of generating evidence to cover gaps. The exchequer departments should document their approach and findings from evaluations of environmental tax measures;

d **quantify and publish the expected environmental impact of changes to taxes, where significant.** This includes, for example, publishing the expected impact on CO_2 emissions and use of plastic. They should monitor and report the actual impact of those changes over time. Where a decision is made not to publish information on the environmental impact of tax changes, this should be made explicit in Tax Information and Impact Notes;

e **work with other departments to make visible how existing tax measures affect environmental goals.** The exchequer departments should ensure the need to announce tax measures in the Budget does not act as a barrier to working with other departments to present an integrated picture of what tools are being used to deliver government's environmental goals. The exchequer departments should look to ensure the role of tax continues to be considered in strategies for environmental goals such as net zero and waste; and

f **monitor the long-term impact of government's environmental goals on tax revenue and ensure these are considered as part of risk management.** This would include estimating, and reviewing when necessary, the impact on taxes of structural shifts in the economy. In doing so, the exchequer departments should build on both the risks set out by the Office for Budget Responsibility in its fiscal risk report and HM Treasury insights gathered in reviewing how the transition to net zero will be funded.

Part One

Environmental taxes

1.1 While the primary role of the tax system is to raise revenue, tax measures can also help deliver specific government objectives by providing fiscal incentives for individuals or businesses to change their behaviour. The government has used the tax system as one of the mechanisms to support its environmental objectives, for example introducing a tax on disposing waste at landfill sites.

1.2 Ministers depend on HM Treasury and HM Revenue & Customs (HMRC) (the exchequer departments) to oversee the tax system and provide technical advice and feedback, including on environmental tax measures that HMRC administers.

1.3 In this part of the report we examine how the exchequer departments use their resources to manage environmental taxes they are jointly responsible for. As government auditors, we expect to see evidence of HM Treasury and HMRC effectively using their resources to manage environmental tax measures. **Figure 1** overleaf sets out the basic characteristics of an effective system for delivering policy objectives through the tax system, which we previously used to assess the design, administration and evaluation of tax reliefs. This part of the report sets out:

- evidence of an overarching approach, that takes account of special factors affecting environmental taxes and promotes good practice; and
- evidence of effective management in the design, administration and evaluation of environmental taxes.

1.4 Part Two examines how the exchequer departments use their resources to manage the wider relationship between the tax system and government's environmental goals.

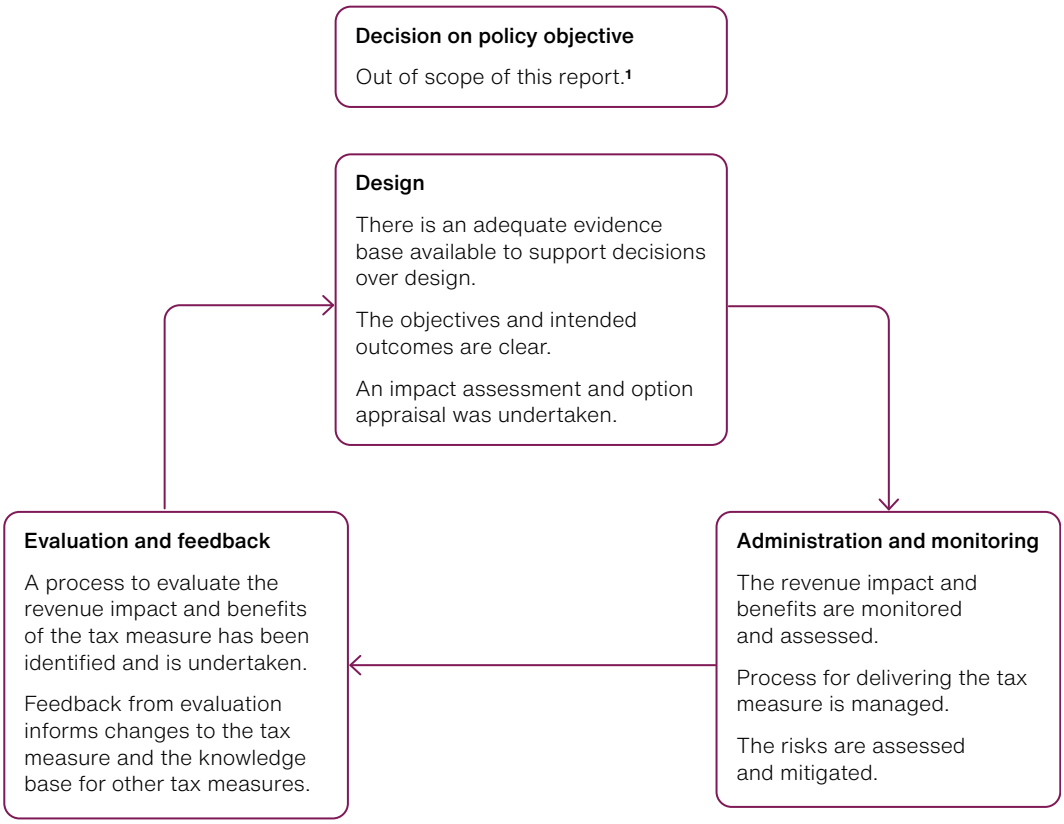
Administration of environmental taxes

1.5 HM Treasury is responsible for strategic oversight of the tax system. HMRC is responsible for delivering tax policies and maintaining the tax system, alongside its duties to collect revenue due and tackle the tax gap. The exchequer departments work in a policy partnership, with HM Treasury leading on the development of policy options and HMRC providing technical advice on the design of tax measures and leading on the administration of those measures (Appendix Three).

Figure 1

Characteristics of an effective system to design, manage and evaluate environmental tax measures

These are the key steps the National Audit Office would expect to see in an effective system



Note

1 The Comptroller and Auditor General does not comment on the merits of policy objectives.

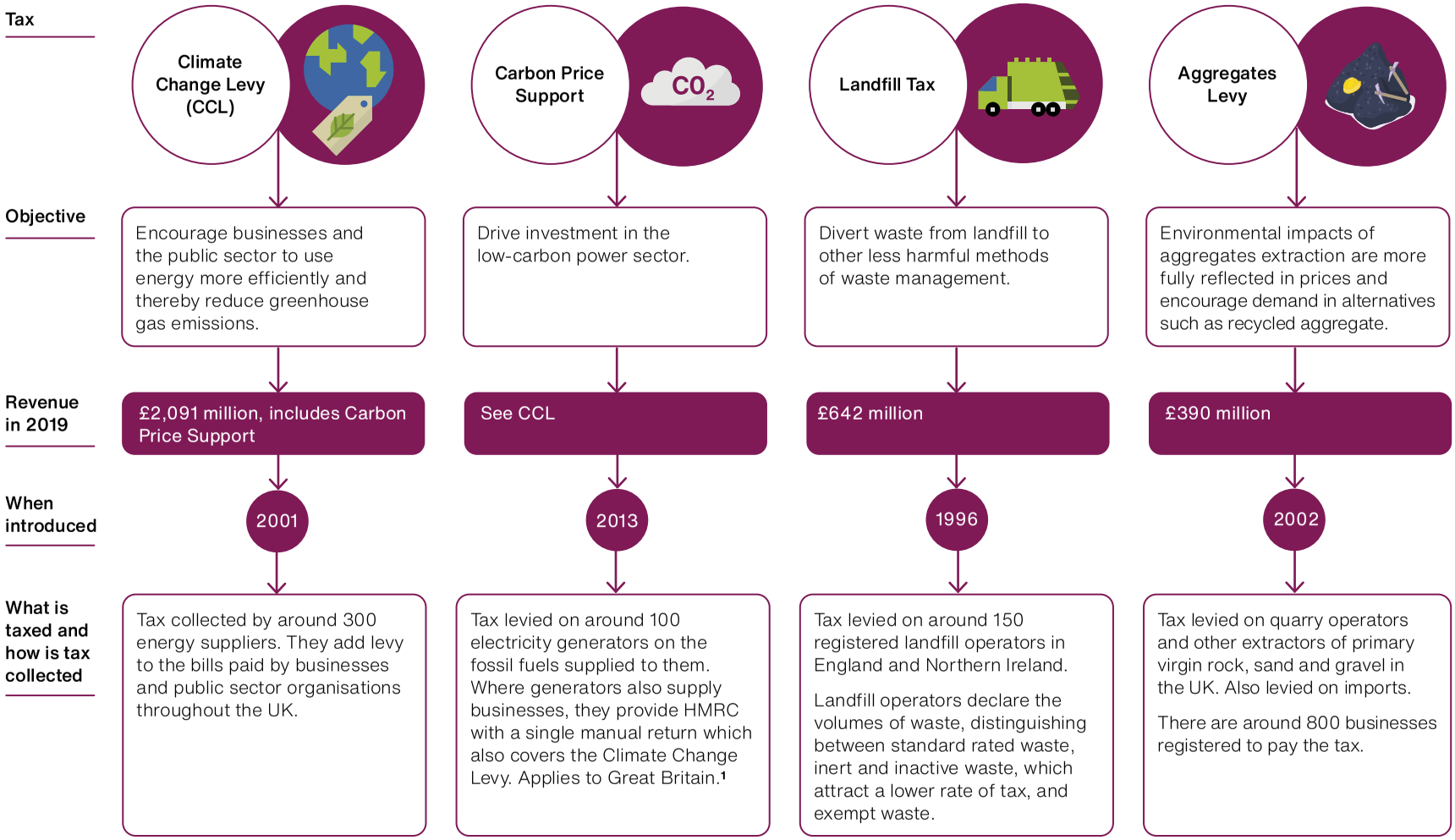
Source: National Audit Office

1.6 The exchequer departments define 'environmental taxes' they manage as those with explicit environmental objectives. Four meet this definition currently (**Figure 2**). When the first three of these taxes were introduced the governments of the time said they would be revenue-neutral as they simultaneously reduced employers' national insurance contributions. The government plans to introduce a fifth environmental tax – the Plastic Packaging Tax – from April 2022 to incentivise businesses to use more recycled material in plastic packaging.

Figure 2

Summary of the four environmental taxes in place in 2020-21

The environmental taxes in place in 2020-21 were introduced at different times and differ in scale and HM Revenue & Customs (HMRC) adopts differing approaches to collecting the tax due



Note

1 The Carbon Price Support works alongside an emissions trading scheme which limits greenhouse gas emissions of certain sectors. In January 2021, a UK emissions trading scheme was introduced as a replacement for the UK's participation of the EU Emissions Trading Scheme.

Source: National Audit Office summary of HM Revenue & Customs information, with Office for National Statistics data on revenue

1.7 Environmental taxes are normally used alongside other policy interventions including regulation. For example, the new Plastic Packaging Tax will work alongside regulations covering the amount of packaging that is produced and disposed of.

1.8 Each department has a specific team with policy responsibility for all environmental taxes. In HM Treasury, the Environment and Transport Taxes Team is responsible for the environmental taxes as well as other taxes including fuel duty and Air Passenger Duty. In HMRC, the policy team is the Excise and Environmental Taxes Team, which also covers other taxes including Air Passenger Duty. Responsibility for compliance with environmental taxes is split between HMRC's Excise and Environmental Taxes Team and its specialist compliance teams.

1.9 The exchequer departments estimate that around 90 full-time equivalent staff were involved in managing environmental taxes as at autumn 2020. Staff numbers were higher than normal as, in addition to those managing existing environmental taxes, the estimate included around 20 staff developing the new Plastic Packaging Tax and working on a possible carbon emissions tax and other options for pricing carbon.[1] Based on these figures, we estimate the full-year cost of all staff working on environmental taxes to be around £6 million (**Figure 3**).

1.10 Government's *The Green Book* requires departments to consider the design, monitoring and evaluation of tax measures, including how their impact on policy objectives can be assessed.[2] It states that monitoring and evaluation should be proportionately included in the budget and plan for managing all significant proposals when they are proposed. Where a tax is intended to incentivise behaviour change, in practice this may be challenging to monitor and review as information collected on the activity being taxed or the revenue it raises may not capture the change in behaviour. HMRC has set out principles for teams developing tax policy to consider across six areas including purpose, evidence and implementation. HM Treasury also has guidance to aid tax policy making. However, the exchequer departments do not have processes, guidance or documented good practice that set out how to put these principles into practice to meet the particular challenges of environmental taxes. Instead each department has a team to administer the four environmental taxes collectively, which helps to identify lessons and good practice. HM Treasury's and HMRC's environmental tax teams also work with other teams across the departments to build on their expertise or experience, including those administering other taxes with policy objectives, such as the Soft Drinks Industry Levy, and those who carry out specialist roles.

1 A carbon emissions tax was one of the options the government considered for replacing the UK's participation in the EU Emissions Trading Scheme, which ended in December 2020.
2 In addition to environmental tax measures, *The Green Book* also applies to other tax measures which have objectives in addition to raising revenue, for example the Soft Drinks Industry Levy. HM Treasury, *The Green Book: Central government guidance on appraisal and evaluation*, 2020.

Figure 3

Exchequer department staff managing and designing environmental taxes, as at autumn 2020

Staff in the main HM Revenue & Customs (HMRC) and HM Treasury teams that manage environmental taxes had a full-year cost of around £6 million

	Departments' estimates of number of staff[2,3]	National Audit Office (NAO) estimates of full year cost[4]
	Full-time equivalent	(£m)
HM Treasury policy	12	1.1
HMRC policy, compliance, analysts, solicitors	78	4.6
Total	**90**	**5.7**

Notes

1 The exchequer departments are HM Treasury and HMRC.

2 The exchequer departments provided estimates of staff working on environmental taxes, including compliance activities, as at autumn 2020. The estimates included the team in each department responsible for environmental taxes, plus for HMRC input from some of the department's teams that work across taxes, such as analysts, solicitors working on HMRC legislation and some compliance teams. However, data for other cross-cutting teams, such as customer insight and digital, were not available and therefore not included in the estimates. Data for compliance teams who work on criminal and civil investigations are also not included in the estimates as their input varies according to cases and is thus difficult for HMRC to estimate.

3 Numbers of policy staff were higher than normal in autumn 2020 as the exchequer departments were designing the Plastic Packaging Tax and a possible carbon emissions tax as an alternative to the emissions trading scheme the government is now introducing. HMRC had 17 policy staff working on these taxes and HM Treasury had six.

4 The exchequer departments provided average staff cost rates for 2020-21, including pay and overheads, for each grade of staff. We used these rates, and the estimated staff numbers, to estimate full-year costs. Actual costs may vary from estimate as the number of staff may change across a year.

Source: National Audit Office analysis of HM Revenue & Customs and HM Treasury data

HM Treasury's design of environmental taxes

1.11 We examined how HM Treasury applied its general design approach and principles to the Plastic Packaging Tax, which will be the first environmental tax to be introduced since 2013. We also examined changes to the Climate Change Levy rates from 2019, which was the most recent major change to an established environmental tax.

1.12 HM Treasury undertook many of the design activities we would expect for any tax measure, including consulting with stakeholders, considering risks to taxpayers complying with taxes and practical implementation issues. It gave taxpayers time to prepare by giving advance warning of the tax changes – for example, announcing it would alter Climate Change Levy rates three years before the change began. HM Treasury did not set out how it would assess the impact of the new Plastic Packaging Tax or amendments to the Climate Change Levy. It did not establish the measures or data it would use to judge success. Instead planned monitoring is limited to data HMRC will collect from tax returns. This information can provide partial insight into environmental impact (**Figure 4**).

1.13 We examined the process for designing the Plastic Packaging Tax in greater depth. As HM Treasury does not have a specific framework for designing environmental taxes, we compared its design against Organisation for Economic Co-operation and Development (OECD) good practice.[3] We found that HM Treasury explored links with environmental policies which other departments were developing. It also considered the breadth of the tax, and its impact on UK competitiveness, by extending it to packaging on imports. HM Treasury has not set the Plastic Packaging Tax rate to be commensurate with environmental damage as suggested by OECD. It concluded there was inadequate information on the cost of damage caused by different types of plastic to do so practically. However, it did find information that showed that higher costs were a barrier to using more recycled plastic in packaging. Given this, HM Treasury looked at tax options to raise the price of packaging using new plastic and to incentivise greater use of recycled plastic (**Figure 5** on page 20).

1.14 HM Treasury's appraisal guidance says the costs and benefits of options should be valued and monetised where possible.[4] HM Treasury had quantified tax revenue and environmental benefits for the main options it considered for the Plastic Packaging Tax. It estimated that the option the government is adopting – a tax of £200 per tonne on plastic packaging with less than 30% recycled plastic – will increase the use of recycled plastic in packaging by 40%. It judged that a variable tax rate could increase the use of recycled plastic for some packaging by more than a single tax rate but would be more complex for business and HMRC to administer. However, HM Treasury did not quantify the costs that the estimated 20,000 business taxpayers would incur in complying with the tax for any option, though this was considered in qualitative terms. It only quantified HMRC's administration costs for the option the government is introducing. The exchequer departments told us it was inherently difficult to estimate taxpayers' administrative costs before introducing a new tax.

3 Organisation for Economic Co-operation and Development, *Environmental taxation: a guide for policy makers*, September 2011. Available at: www.oecd.org/env/tools-evaluation/48164926.pdf, accessed 4/2/21.
4 HM Treasury, *The Green Book: Central government guidance on appraisal and evaluation*, 2020, paragraph 2.16.

Figure 4

General design issues considered by HM Treasury and HM Revenue & Customs (HMRC) during design and redesign of two environmental taxes

The National Audit Office conducted case studies into the design of the Plastic Packaging Tax and changes to Climate Change Levy rates. We found HM Treasury and HMRC had considered most of the issues we would expect, but there were some important gaps including on measures of success, quantification of costs and benefits, and monitoring and evaluation

	Plastic Packaging Tax	Climate Change Levy
Context	Tax due to be introduced in 2022. HM Treasury consulted on detailed design in spring 2020	Rebalancing of levy rates so they better reflect energy content of different fuels
Issue		
Measures of success established	No	No
Tax and non-tax options considered	Yes	Not applicable
Costs and benefits of options quantified	Partial	Partial
Tax design based on behaviour change sought or cost of environmental harm	Yes	Yes
Risks to taxpayers complying and other risks considered	Yes	Yes
Impacts on different sectors, regions and people considered	Yes	Partial
Practical implementation issues considered	Yes	Not applicable
Taxpayers given appropriate notice of change	Yes	Yes
Lessons from other measures identified and considered	Yes	Yes
Plans for monitoring and evaluation, including clear baselines, established	No	No

Source: National Audit Office analysis of HM Revenue & Customs and HM Treasury documents

1.15 The exchequer departments publish a Tax Information and Impact Note (TIIN) for each tax policy change explaining the objective of the change, and its revenue and other impacts. We examined the TIINs arising from the last three Budgets. For tax changes with an environmental objective, environmental impacts were briefly described but were not generally quantified. For example, the 2020 TIIN covering changes to the Climate Change Levy rates said the levy strengthens the price signal for businesses to reduce energy consumption. It did not quantify the expected environmental benefits, including the reduction in CO_2 emissions.

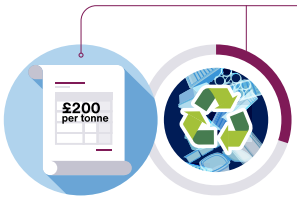
Figure 5
The design of the Plastic Packaging Tax

The Plastic Packaging Tax has been designed to achieve behaviour change while limiting administrative burdens on business and HM Revenue & Customs (HMRC)

Objective
Budget 2018 announced that the government would introduce a Plastic Packaging Tax to incentivise manufacturers to use recycled plastic.

Consultation
The announcement followed a HM Treasury call for evidence launched in March 2018 on how taxes or charges could tackle the issue of single-use plastic waste. It received 162,000 responses. HM Treasury and HMRC subsequently consulted twice on the Plastic Packaging Tax. In 2019, they received 436 written responses, and engaged with more than 200 organisations. In 2020, they received 291 written responses, and held more than 80 meetings and events.

How the tax will work
Manufacturers and importers will pay £200 per tonne on plastic packaging which does not contain at least 30% recycled plastic. This will provide an incentive for businesses to use more recycled plastic, which will increase demand. In turn this will encourage recycling and collection of plastic waste, diverting it away from landfill or incineration. Where manufacturers and importers do not include sufficient recycled plastic they will pay the tax, estimated to raise more than £200 million a year. Manufacturers and importers are expected to pass much of the tax further down the supply chain and on to consumers.



Payment of £200 per tonne plastic packaging which does not contain 30% recycled plastic

Research and analysis undertaken
To understand the packaging sector and the supply chain, the exchequer departments undertook extensive research including through consultations, meeting businesses and undertaking desk research, including on the cost of different types of packaging and the location of UK packagers. They also commissioned research to understand the type and profile of businesses handling plastic packaging.

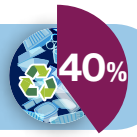
HM Treasury and HMRC identified the barriers to using recycled plastic, particularly its higher cost than new plastic, which in turn hindered the supply and quality of recycled plastic. HM Treasury analysed the differences in cost of using new plastic and 30% recycled plastic packaging and considered factors such as the price of oil which affects the gap.

Options considered for the Plastic Packaging Tax
HM Treasury assessed options which included:

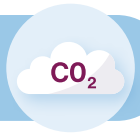
- different threshold levels of recycled plastics in packaging below which the tax would apply;
- different tax rates, including variable rates which declined as recycled content increased; and
- escalating tax rates over time.

Rationale for the option the government is introducing
In assessing the options, the main trade-offs HM Treasury considered were between levels of behaviour change, costs to business of complying with the tax, and the ease of HMRC administration. Based on its research, business feedback and its own knowledge and experience, it judged that a single tax rate of £200 per tonne would reduce the administrative burden on business and HMRC while generating behaviour change. It judged that a variable rate could reduce the use of new plastic by more than a single tax rate for some packaging but would be more complex for business and HMRC to administer. HM Treasury estimates the option the government is introducing will increase the use of recycled plastic in packaging by 40% (equal to carbon savings of nearly 200,000 tonnes).

Estimated 40% increase in the use of recycled plastic in packaging



Estimated carbon saving of nearly 200,000 tonnes



Source: National Audit Office analysis of HM Revenue & Customs and HM Treasury documents

1.16 When it introduced TIINs, the government said they would support effective scrutiny by Parliament.[5] Currently the TIINs do not include the information necessary to aid the scrutiny of the environmental impact of tax changes. There is no requirement for the exchequer departments to monitor, and report publicly, on the actual environmental impact of tax changes, and HM Treasury told us that ministers decide what is published on the impact of tax changes. The Chancellor of the Exchequer's speech at Budget 2020 announced the Plastic Packaging Tax would increase the use of recycled plastic in packaging by 40% – equal to carbon savings of nearly 200,000 tonnes. However the exchequer departments did not set these as measures of success in the TIIN.

Administration and monitoring of environmental taxes

1.17 In general, we would expect the administration, monitoring and evaluation of environmental taxes to follow the good practice set out in Figure 1. Key steps include:

- identifying, assessing and addressing risks to revenue; and
- monitoring the environmental effects of taxes.

Managing risks to revenue

1.18 One of HMRC's core objectives is to collect revenues due and bear down on avoidance and evasion. HMRC monitors tax receipts for the four environmental taxes it administers. Since 2013 revenue from the Climate Change Levy and the Carbon Price Support has increased significantly. In 2016 annual revenue from the four taxes peaked (in real terms) but has since declined as reductions in revenue from Landfill Tax have exceeded the growth in the revenue from the two energy taxes (**Figure 6** overleaf). In 2019 HMRC collected £3.1 billion from the four environmental taxes, representing around 0.5% of the total tax revenue collected by HMRC.

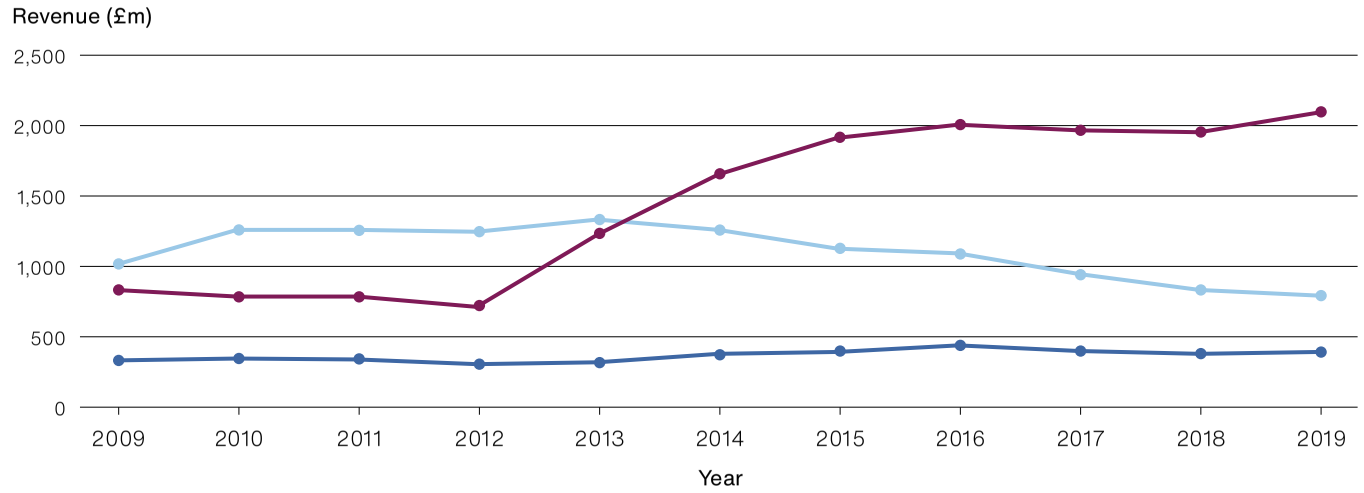
1.19 Careful interpretation is needed to understand trends in revenue from environmental taxes. For example, decreases in tax revenue could show that taxpayer compliance is declining or that an environmental tax is changing behaviour. In May 2019, the Office for Budget Responsibility (OBR) reported that Landfill Tax receipts had fallen short of many previous forecasts.[6] It said that shortfalls arose for a number of reasons, including new waste incineration plants being opened earlier than expected, and lower-than-expected inflation rates which are used to uprate tax rates.

5 HM Treasury and HM Revenue & Customs, *Tax policy making: a new approach,* June 2010.
6 Office for Budget Responsibility, *Landfill tax: Previous forecasts*, May 2019. Available at: https://obr.uk/forecasts-in-depth/tax-by-tax-spend-by-spend/landfill-tax/, accessed 4/2/21.

Figure 6

Revenue raised by the four environmental taxes, 2009–2019

Since 2014, increases in revenue from the Carbon Price Support and the Climate Change Levy have been offset by falls in Landfill Tax revenue.



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Climate Change Levy and Carbon Price Support[1]	828	783	777	707	1,222	1,648	1,905	2,002	1,961	1,951	2,091
Landfill Tax[2]	1,006	1,252	1,255	1,240	1,326	1,251	1,118	1,090	944	825	784
Aggregates Levy	328	341	334	299	314	374	385	431	391	374	390
Total	**2,162**	**2,376**	**2,367**	**2,246**	**2,862**	**3,273**	**3,407**	**3,523**	**3,296**	**3,150**	**3,265**

Notes

1 HM Revenue & Customs (HMRC) reports a single revenue value covering both energy taxes. The Carbon Price Support was introduced in 2013.

2 To provide a consistent time series, value includes the sums collected by the replacements to UK Landfill Tax introduced in Scotland in 2015 and in Wales in 2018. In 2019, HMRC collected £642 million in Landfill Tax and £3,123 million in total.

3 All values at 2019 prices.

4 Individual values may not sum to total due to rounding.

Source: National Audit Office analysis of Office for National Statistics data

1.20 HMRC's compliance approach seeks to ensure that the right taxes are paid at the right time. Its compliance activities across environmental taxes contribute to tax revenue and can help promote a level playing field if they ensure all businesses pay the tax due. Compliance activities can also change behaviour. For example, checks that businesses have correctly classified different types of waste at landfill sites can encourage more environmentally friendly waste disposal.

1.21 Beyond monitoring revenue, HMRC collects little data to understand changes in behaviour and only has a standalone estimate of the gap between tax due and collected for Landfill Tax. It considers the risks to revenue from the Climate Change Levy and the other two environmental taxes to be lower than for Landfill Tax.

1.22 In August 2020, HMRC prepared its first compliance strategy covering the four environmental taxes. The strategy sets out HMRC's high-level approach to minimising tax losses as a percentage of receipts. The strategy recognises that differences in the industry sectors covered by taxes and the structure of taxes means that risks vary for each tax. The strategy sets out the most significant risks to revenue. HMRC has a more detailed plan setting out how it is tackling the main compliance risks to Landfill Tax. It intends to develop plans for the other three environmental taxes (**Figure 7**).

Figure 7

Risks to revenue identified by HM Revenue & Customs (HMRC) in its compliance strategy for environmental taxes

HMRC identified nine key risks in August 2020

General risks applicable to the four environmental taxes	
1	Those liable for the tax not registering for the tax, either deliberately or due to a lack of awareness.
2	Errors in accounting for the tax.
3	Novel interpretations of the law to reduce liability, exploit reliefs or avoid paying tax altogether.
Risks applicable to Landfill Tax	
4	Misdescription of waste sent to landfill so the lower tax rate is incorrectly applied.
5	Discarding waste at unauthorised sites.
6	Waste being illegally exported.
7	Under declaration of volumes in records to reduce tax paid (also applies to Aggregates Levy).
Risks applicable to Aggregates Levy	
8	Misdescribing material being sold to avoid Aggregates Levy.
9	Aggregates being imported without Aggregates Levy being paid.

Source: National Audit Office summary of HM Revenue & Customs document

1.23 We examined HMRC's compliance approach for Landfill Tax and the Climate Change Levy (**Case Studies 1** and **2** on pages 26 and 27, and pages 28 and 29). HMRC considers Landfill Tax to carry considerable risks to revenue. The high tax rate has increased incentives for some to misclassify waste as inactive or inert, or to dispose of waste illegally, reducing revenue and undermining environmental objectives. HMRC has reported an estimated tax gap of around £275 million in 2018-19 from the misclassification of waste at authorised landfill sites and waste illegally disposed of at unauthorised sites. This figure does not include any revenue lost from illegal exports of waste and fly-tipping as they are outside the scope of the tax, although these elements are included in HMRC's internal assessment of overall compliance risk. HMRC has sought to reduce tax lost. Budget 2016 provided an additional £3 million over five years, which enabled HMRC to increase its compliance resource. In 2018, the tax was extended to unauthorised landfill sites with the aim of reducing the tax advantage the criminal operators of these sites had over legitimate operators. HMRC has also worked more closely with other public bodies to better understand the sector and risks to revenue. In 2020, the government established the Joint Unit on Waste Crime in the Environment Agency, in partnership with HMRC, the National Crime Agency and others, to tackle organised waste crime.

1.24 HMRC is seeking to develop its assessment of the risks to Climate Change Levy revenue as it is currently based on a partial understanding of the sector. HMRC does not have a standalone estimate of the tax gap for the levy. Instead it has made a single illustrative estimate of the tax gap (4.2%) covering the levy, the Carbon Price Support and Aggregates Levy, and four other taxes. HMRC reports that the true tax gaps are likely to vary widely across the taxes, limiting the value of the illustrative estimate.

1.25 HMRC's experience of administering the existing environmental taxes highlights lessons which it has considered as part of developing the Plastic Packaging Tax and which it will need to consider if new environmental taxes were to be introduced. In particular:

- having a good understanding of the taxed sector to identify and manage the risks to revenue;

- where a tax is based on a process, or the physical properties of a product or a material, this can make it difficult to identify what tax is due – for example, it can be difficult to gain assurance about how much landfill waste should be charged at the different rates of Landfill Tax; and
- higher tax rates can incentivise unwanted and illegal behaviours, as well as the behaviour changes the tax is seeking, and it may be necessary to monitor more than revenue to identify the tax's overall impact.

Monitoring environmental impact

1.26 Public reporting on environmental taxes is essential for Parliament to be well placed to hold ministers to account for their use of the tax system to support environmental objectives. HMRC publishes a bulletin, usually twice a year, for each environmental tax, which includes background on the tax and trends in revenue. The bulletins also report the volume of waste put in landfill and aggregates extracted and imported, based on information collected in tax returns. However, the bulletins contain no other information to help users understand the environmental effects of the taxes and only the Landfill Tax bulletin explains the objective of the tax. As the objectives of the taxes can change, it would also help readers if these were set out in each bulletin.

1.27 The exchequer departments are responsible for managing environmental taxes to achieve the environmental and other objectives set by ministers. However, the exchequer departments told us they do not lead on the identification and management of risks beyond those which might affect revenue, such as considering the different ways environmental taxes change behaviour. They use environmental data collected by third parties or feedback from stakeholders to assess impact and inform advice to ministers.

Case Study 1

HM Revenue & Customs' (HMRC's) approach to managing risks to Landfill Tax revenue

Since its introduction in 1996, Landfill Tax has reduced waste disposed at landfill but has led to unwanted behaviours and four main compliance risks, of which HMRC has reported on the size of two. HMRC is developing its approach to addressing the compliance risks

Incentives created by the tax – the tax is levied on landfill operators. The operators seek to recover the cost through charges on their local authority and business customers. The higher charges incentivise the waste industry to provide other less harmful methods of waste management, thus reducing the amount of waste that goes to landfill.

When Landfill Tax was introduced the standard rate was 3.5 times greater than the lower rate for inert and inactive waste; it is now 30 times greater. The standard rate has created a strong incentive for legitimate operators to find other routes to handle waste, including incineration, recycling and export. But it has also increased incentives for organised criminals to establish illegal sites and for the illegal exporting of waste as well as fly-tipping. The large difference in rates has also led to the misclassification of waste. The chart below shows how the legitimate and illegitimate treatment of standard waste has contributed to a rapid decline in the amounts recorded as disposed at landfill sites.

HMRC's understanding of the compliance risks arising from unwanted behaviours – HMRC reported that the gap between Landfill Tax due in 2018-19 and tax collected was £275 million. The tax gap covers tax lost from waste disposed of at unauthorised sites and misclassification of waste at authorised sites. The tax gap was equal to 28% of Landfill Tax due in 2018-19. This was the second largest tax gap (measured as a percentage of tax due) reported by HMRC for 2018-19, after hand-rolling tobacco duty (35%).

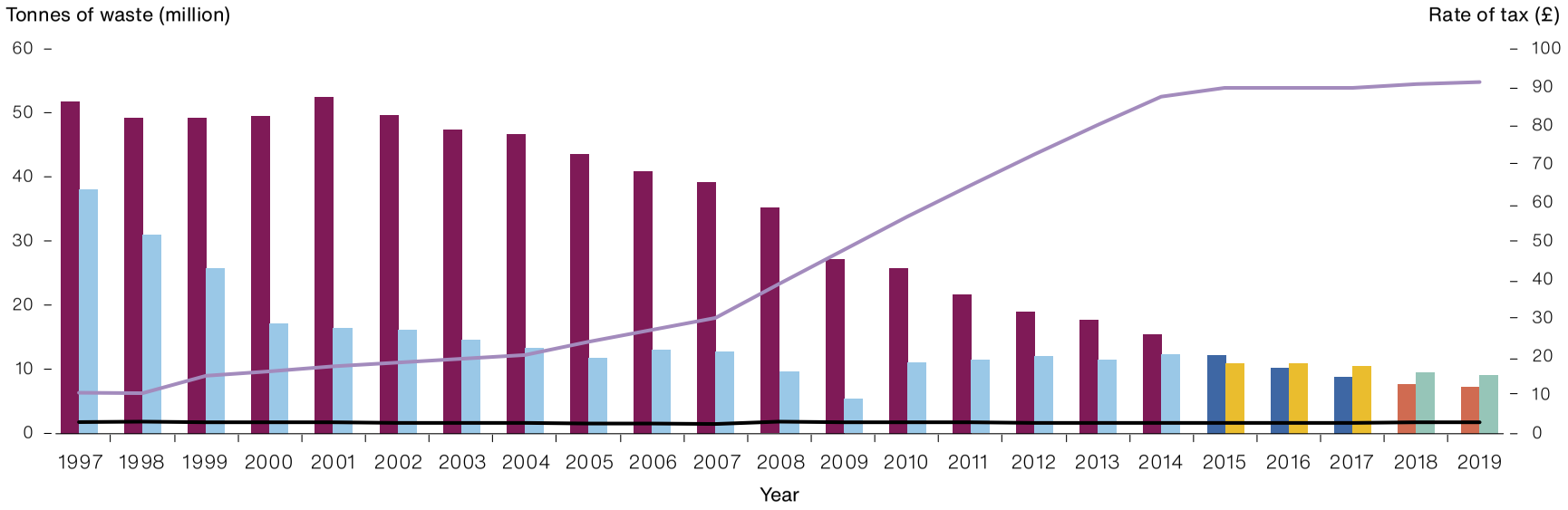
The Landfill Tax gap of £275 million does not include:

- VAT (around £50 million) which should be charged on landfill disposals as this loss is covered by HMRC's estimate of the total VAT tax gap; and
- tax lost from the illegal export of waste and fly-tipping as this waste is not within the scope of the tax.

HMRC's response to compliance risks – HMRC's response has been facilitated by Budget 2016 which provided £3 million over the period 2016-17 to 2020-21 to pay for 13 staff to tackle waste crime. HMRC's activities include:

- working with other public sector bodies to better understand: the various stages and players involved in generating, transporting and disposing of waste in landfill sites; gaps in controls; and incentives for criminal behaviour and non-compliance. Through joint work, HMRC has identified risks to revenue that it had not previously addressed. HMRC is now, for example, undertaking more checks of weighbridges and analysing the chemical composition of waste;
- learning lessons from the devolved administrations, for example, whether landfill operators could prepare a single return to meet the needs of the tax and environmental authorities. HMRC and the Environment Agency are currently seeking to address barriers stopping the prompt sharing of information and intelligence on unauthorised landfill sites in England; and
- becoming a member of the Joint Unit on Waste Crime established in 2020.

Landfill Tax rates and volumes of waste disposed, 1997–2019



Notes

1 Rates of tax at 2019 prices. Between 1998 and 2014 HM Treasury increased the standard rate of tax by 720% in real terms.

2 From 2015 waste volumes exclude Scotland as the tax was devolved, and from 2018 Wales. Bars for these years are thus shown in a different colour.

3 Some waste is also exempt – in 1997 nine million tonnes, in 2014 (last year before the tax was devolved to Scotland) seven million tonnes and in 2019 six million tonnes.

4 Landfill Tax was introduced in 1996.

Source: National Audit Office analysis of HM Revenue & Customs documents

Case Study 2

HM Revenue & Customs' (HMRC's) approach to managing risks to Climate Change Levy revenue

HMRC views the levy as low risk but is currently reconsidering its compliance approach

Incentives created by the tax – The levy is paid by energy suppliers on their business and public sector customers' consumption of energy. The suppliers pass the cost on to their customers. Higher energy costs are intended to provide users with an incentive to improve their energy efficiency and thereby reduce greenhouse gas emissions.

HMRC has no direct contact about the levy with the organisations that ultimately pay it. This limits HMRC's understanding of if, and how, the levy changes behaviour. Incentives depend on the degree to which businesses use energy and the levy applies.

HMRC's understanding of compliance risk – HMRC judges compliance risk to be low. The majority of revenue comes from large companies which HMRC generally views as wishing to be compliant. However, HMRC recognises there are risks, for example to the correct accounting for tax from errors in the suppliers' billing system and failure to understand tax rules. And it recognises that its understanding of risks to compliance is not as well developed as for Landfill Tax.

HMRC's response to compliance risks – HMRC's activities have included:

- identifying energy suppliers who are liable to account for the levy but have failed to do so and take action;
- checking that suppliers are correctly registered and the correct amount of the levy has been accounted for; and
- for larger suppliers, examining Climate Change Levy issues as part of VAT visits.

As part of its new compliance strategy, HMRC is currently considering how to develop its approach to the levy. For example, how to develop its checking of the tax paid on energy supplied to companies that have entered into climate change agreements with the Environment Agency.

Incentives provided by the Climate Change Levy

Type of energy user – examples	Incentive	Indication of scale in 2019-20
Most business users and public sector organisations	Pay the full rate of the levy which provides an incentive to improve energy efficiency. Actual impact of the levy on this group is not known.	Pay most of the levy which raised around £1 billion
Energy and trade intensive industries	The levy, along with climate change agreements, can incentivise improvements in energy efficiency. Businesses in certain sectors can enter into legally binding agreements with the Environment Agency whereby they commit to improving energy efficiency in exchange for receiving a discount on the levy thus reducing its impact on their competitiveness.	Relief estimated to cost £260 million
Mineralogical and metallurgical industries – highly intensive energy users	Levy has not provided an incentive for energy used in mineralogical and metallurgical processes (which include manufacture of cement and operation of blast furnaces) since 2014 when an exemption was introduced. The UK's tax treatment of these processes was changed so that it would be in line with tax treatments elsewhere in the EU thereby reducing any distortion of competition.	Relief estimated to cost £210 million

Source: National Audit Office analysis of HM Revenue & Customs documents

1.28 HMRC data and BEIS national statistics provide some indication there has been positive change in areas affected by environmental taxes (**Figure 8**). However, the data do not enable the exchequer departments to distinguish the effect of taxes from other factors. For:

- **Landfill Tax –** HMRC collects data on the volume of landfill waste and has some information to enable it to estimate some of the tax lost through illegal disposal (see Case Study 1). The data suggest large reductions in the use of landfill following tax increases, but some of the diverted waste is being disposed of illegally;
- **the Climate Change Levy and Carbon Price Support –** BEIS statistics show a switch from coal to renewable generation of electricity and a fall in the amount of energy industry needs to produce outputs. HMRC does not hold data, or undertake analysis, to help it understand how the taxes affect business decisions; and
- **the Aggregates Levy –** HMRC collects data on the volume of aggregate extracted and imported but does not routinely monitor levels of recycled and secondary aggregate used in construction.

1.29 In the absence of good-quality monitoring data, more detailed evaluation of the taxes is needed if the exchequer departments are to understand whether taxes are achieving wider environmental objectives effectively.

Figure 8

Indicators of environmental change in areas affected by environmental taxes

HM Treasury and HM Revenue & Customs (HMRC) (the exchequer departments) have limited data to assess the effect of taxes

Tax and date introduced	Revenue in 2019	Objective of tax	Indication of change	Commentary
	(£m)			
Climate Change Levy (2001)	2,091 – includes Carbon Price Support	Encourage businesses and the public sector to use energy more efficiently and thereby reduce greenhouse gas emissions.	**Some indication**. Department for Business, Energy & Industrial Strategy (BEIS) national statistics indicate, for example, that the amount of energy used by industry to produce a unit of output has fallen by one-third since 2000. Changes in energy intensity include but are not limited to energy-efficiency changes.	HM Treasury considers that as the levy has been in place for a long time it has had most of its behavioural effect for many businesses and thus ongoing monitoring provides limited insight into the levy's effect. Other factors affecting business energy efficiency include other government interventions.

Figure 8 *continued*
Indicators of environmental change in areas affected by environmental taxes

Tax and date introduced	Revenue in 2019	Objective of tax	Indication of change	Commentary
Carbon Price Support (2013)	See above	Drive investment in the low-carbon power sector.	**Yes**. BEIS national statistics show, for example, generation from renewable sources has increased from 15% in 2013 to 37% in 2019. Coal used to generate electricity fell from 31 million tonnes in 2013 to two million in 2019.[1]	Carbon Price Support is one of several factors which have contributed to the reduction in coal and increase in renewables, including government schemes supporting low-carbon generation, a government deadline for coal generation to be phased out by 2024 at the latest unless emissions are abated, for example through carbon capture and storage, and emissions trading.
Landfill Tax (1996)	642	Divert waste from landfill to other less harmful methods of waste management.	**Yes**. HMRC data show volume of waste going to landfill declined by 65% between 1997 and 2014 across the UK.[2] The UK met, or is on track to meet, EU Landfill Directive targets for reducing biodegradable municipal waste to landfill.	HMRC does not track where waste is diverted to as this is outside the scope of the tax. There is evidence that use of alternative forms of waste management has increased since the tax was introduced. Landfill Tax has incentivised some illegal disposal of waste.
Aggregates Levy (2002)	390	Ensure that impacts of aggregates extraction are more fully reflected in prices and encourage demand in alternatives such as recycled aggregate.	**Limited.** HMRC data indicate that there has been a small decline in aggregate extracted since the tax's introduction, with the financial crisis having a large impact. Between 2003-04 and 2007-08 the volume of taxable aggregate was stable at between 240 million tonnes and 248 million tonnes a year. A decline in the use of extracted material coincided with the 2008 financial crisis. Taxable aggregate fell to 158 million tonnes by 2012-13, before recovering to reach 228 million tonnes in 2019-20 (92% of the level in 2003-04).[3]	A wider set of regular indicators is needed to assess the levy's environmental impact, such as the level of recycled and secondary aggregate and trends in construction.

Notes

1 Tonnes measured in oil equivalent.

2 Due to the devolution of Landfill Tax to Scotland in April 2015, and Wales in April 2018, data from April 2015 onwards published by HMRC is prepared on a different geographical basis and is not comparable. Between 1997 and 2014 revenue from Landfill Tax increased by 127% in real terms from £551 million to £1,251 million (both values in 2019 prices).

3 Volume of taxable aggregate was low in the first year of the scheme 2002-03 (215 million tonnes).

Source: National Audit Office analysis of government documents and statistics

Evaluation and review

1.30 Evaluation is a systematic assessment which can provide information on the effectiveness of government activities to aid accountability, improve existing policies and aid the better design of future activities. HM Treasury's *The Green Book* requires that monitoring and evaluation should be proportionately included in the budget and the management plan for all significant proposals, including taxation.[7] We and the Committee of Public Accounts have previously criticised HMRC for its limited evaluation of the impact of large tax reliefs, with HMRC now using criteria to inform its evaluation of reliefs.[8] For environmental taxes, we would expect that evaluations would help the exchequer departments understand: whether the tax is achieving its objectives and changing behaviour; whether the tax is having wider effects, including unintended and undesired consequences; and whether the environmental and other benefits and costs, as well as tax revenue, are in line with expectations.

1.31 The exchequer departments told us their approach to evaluation considers a range of information, including environmental data collected by other public bodies, feedback from stakeholders and monitoring tax receipts. We asked the exchequer departments to provide assessments and evaluations they had conducted or commissioned examining the impact of the four environmental taxes. They did not provide any evidence for the Carbon Price Support and highlighted the Department for Business, Energy & Industrial Strategy's (BEIS's) evaluation of climate change agreements in relation to the Climate Change Levy.[9] They pointed to published reviews for the other taxes:

- **Landfill Tax** – in 2014 HMRC published the only independent external assessment it had commissioned of the four environmental taxes in the last 10 years. The review covered Landfill Tax and was based on 65 qualitative interviews with representatives from across the waste management sector.[10] The interviewees reported that Landfill Tax had been a driver for the fall in demand for landfill and rise in demand for alternatives. The exchequer departments have not undertaken further work on the tax's impact because they considered the findings of the 2014 review were positive and the UK was on track to meet the EU Landfill Directive targets (see Figure 8).

7 HM Treasury, *The Green Book: Central government guidance on appraisal and evaluation*, 2020, paragraphs 1.4 and 1.7.
8 HM Revenue & Customs, *Estimated Cost of Tax Reliefs*, October 2020, page 54.
9 Case Study 2 explains the link between climate change agreements and the Climate Change Levy.
10 Databuild Research & Solution, *Qualitative research into drivers of diversion from landfill and innovation in the waste management industry*, HM Revenue & Customs research report 316, April 2014.

- **Aggregates Levy** – between 2019 and 2020 the exchequer departments undertook their first review of the levy since it was introduced in 2002. The terms of reference included reviewing the impact of the levy and its objectives, which are to more fully reflect the environmental impact of aggregates extraction in prices and encourage a shift in demand to alternatives such as recycled aggregate. The review was informed by an external working group and a public consultation. The published report indicates that stakeholders held opposing views on whether the tax affected recycling levels, and on whether the rate of the tax reflected the environmental impact of aggregates extraction. From the views they collected, the exchequer departments concluded that the levy continues to play a role in achieving the government's wider environmental and mineral planning objectives. However, we saw no evidence that the exchequer departments undertook their own analysis to investigate the differing stakeholder views or provide objective evidence on the impact of the tax.

1.32 The exchequer departments' approach to evaluating the Aggregates Levy contrasts with BEIS's approach to evaluating climate change agreements. BEIS commissioned a detailed evaluation to obtain independent evidence on whether climate change agreements were achieving their objectives (**Figure 9**). These agreements provide the largest tax relief from the Climate Change Levy.

Figure 9

Summary of Department for Business, Energy & Industrial Strategy's (BEIS's) evaluation of climate change agreements

A BEIS evaluation estimated the contribution of climate change agreements to energy efficiency and industrial competitiveness

Businesses in some sectors can enter into legally binding climate change agreements whereby they commit to improving energy efficiency in exchange for receiving a discount on the Climate Change Levy, thus reducing its impact on their competitiveness.

A 2020 BEIS-commissioned evaluation examined the contribution of the agreements to their objectives to support the retention of energy-intensive industries in the UK and to improve energy efficiency. It isolated the impact of the agreements from other factors affecting energy efficiency and industrial competitiveness. It concluded the agreements were cost-effective and identified options for increasing their cost-effectiveness. The evaluators used a range of methods including macro-economic modelling, surveys and comparisons of organisations with and without agreements.

Source: National Audit Office summary of Department for Business, Energy & Industrial Strategy, *Evaluation of the second Climate Change Agreements scheme: Synthesis report*, April 2020

1.33 The exchequer departments consider the evaluation they undertake is proportionate given the challenges of:

- evaluating the impact of environmental taxes. The exchequer departments told us that it was difficult to isolate the impact of a tax as they typically operate alongside other government interventions, and external factors can also influence behaviour. For a well-established tax, the exchequer departments also said it can be difficult to identify behavioural responses if they mainly occurred when the tax was introduced. We recognise these factors and that the exchequer departments might need to work with other departments to assess the impact of tax and non-tax interventions. For a new tax, planning for evaluation at the design phase would help the exchequer departments to establish a baseline and assess its impact in the future; and

- securing internal or external resources to conduct evaluations given other competing priorities. HMRC has cut its central budget for commissioning external research, including evaluations, from £2.3 million in 2014-15 to £2 million in 2020-21 (around a 30% reduction in real terms).

1.34 The exchequer departments said that given methodological challenges, evaluation might not necessarily add insight to their consideration of taxes and the advice they give to ministers. The departments consider that further evaluation provides limited scope for practical benefits and, providing the taxes do not have a negative impact, they still represent an economically efficient way to raise revenue as they disincentivise activities that have environmental externalities.

1.35 We consider evaluation is essential for both accountability and learning, and should inform decisions on the design and level of taxes. It is important for HMRC to give sufficient prioritisation to evaluation, and demonstrate value for money in its approach. This means considering how much information is needed to conclude robustly, the cost and benefits of covering gaps, and documenting conclusions. The exchequer departments' administration of environmental taxes would be improved by bringing together the evidence they currently collect in a more systematic way, to consider whether measures are achieving their objectives and to consider the risk of environmentally harmful responses. Options for increasing the evaluation evidence they can draw on include working more closely with other departments as they plan their evaluations and supporting academics to do more research.

Part Two

Managing the relationship between the tax system and the government's environmental goals

2.1 In this part of the report we consider how HM Treasury and HM Revenue & Customs (HMRC) (the exchequer departments) use their resources to manage the wider relationship between the tax system and government's environmental goals. There are other significant tax measures which may also have an environmental impact, beyond those the exchequer departments define as environmental taxes. We set out the number and scale of measures likely to have a significant environmental impact. We examine how the exchequer departments:

- monitor the environmental impact of these measures;
- work with the rest of government to understand how tax measures impact on government's environmental goals; and
- manage the strategic alignment of the tax system with government's environmental goals and plan for the future.

2.2 The wider government context for environmental objectives is one of ambitious plans. The government's *25 Year Environment Plan*, published in 2018, sets out 10 goals to support its ambition "to leave that [natural] environment in a better state than we found it".[11] In November 2020 it published *The Ten-Point Plan for a Green Industrial Revolution* with planned government investment of £12 billion.[12] As part of a wide-ranging Environment Bill, government intends to put its environmental plans on a statutory footing.[13] Government has already enacted some specific measures. In June 2019, the UK passed a law committing to bring all greenhouse gas emissions to net zero by 2050.[14]

11 HM Government, *A Green Future: Our 25-Year Plan to Improve the Environment*, 2018.
12 HM Government, *The Ten-Point Plan for a Green Industrial Revolution: Building back better, supporting green jobs and accelerating our path to net zero*, November 2020.
13 Environment Bill 2019-21, https://services.parliament.uk/Bills/2019-21/environment.html
14 The Climate Change Act 2008 (2050 Target Amendment) Order 2019.

2.3 The Department for Environment, Food & Rural Affairs (Defra) has lead responsibility for all environmental policy areas apart from climate change mitigation (including net zero emissions), which the Department for Business, Energy & Industrial Strategy (BEIS) leads. However, as we noted in our 2020 report on *Achieving government's long-term environmental goals*, other government departments also have important roles to play in delivering the *25 Year Environment Plan*.[15] If passed in its current form, the Environment Bill will require all government departments, including the exchequer departments, to have due regard to environmental principles. The Bill contains an exemption so that HM Treasury's ability to alter tax policy to raise revenue is not undermined.[16] Responsibility for environmental policy in Wales, Scotland and Northern Ireland rests with the devolved administrations.

2.4 HM Treasury and HMRC do not have separate environmental goals for tax policy. Decisions on the use of taxes to pursue policy objectives are a matter for ministers. Both departments are expected to consider the government's overall environmental objectives when undertaking their work. They also support work to reduce the government's own environmental footprint. The departments are committed to becoming more sustainable organisations. HMRC has committed to lower its carbon emissions to net zero by 2040.

Other taxes with an environmental impact

2.5 In common with international standards, the Office for National Statistics (ONS) defines environmental taxes as those based on a physical unit that has a proven negative impact on the environment, such as a litre of petrol.[17] The definition includes six taxes administered by HMRC – the four that have an environmental objective plus fuel duty and Air Passenger Duty. Neither fuel duty nor Air Passenger Duty have a specific environmental objective and they are therefore not categorised or managed as environmental taxes by the exchequer departments. For both taxes, the exchequer departments told us that the primary measure for assessing the taxes' performance was revenue, but they increasingly consider environmental impact, including when advising ministers. In total, the six HMRC-administered taxes raised £34.7 billion in 2019, with fuel duty accounting for around 80%. The ONS definition also covers taxes and some charges administered by other departments and public bodies, and two devolved taxes, which in total generated £16.9 billion (**Figure 10**).

15 Comptroller and Auditor General, *Achieving government's long-term environmental goals,* Session 2019–2021, HC 958, National Audit Office, 11 November 2020.

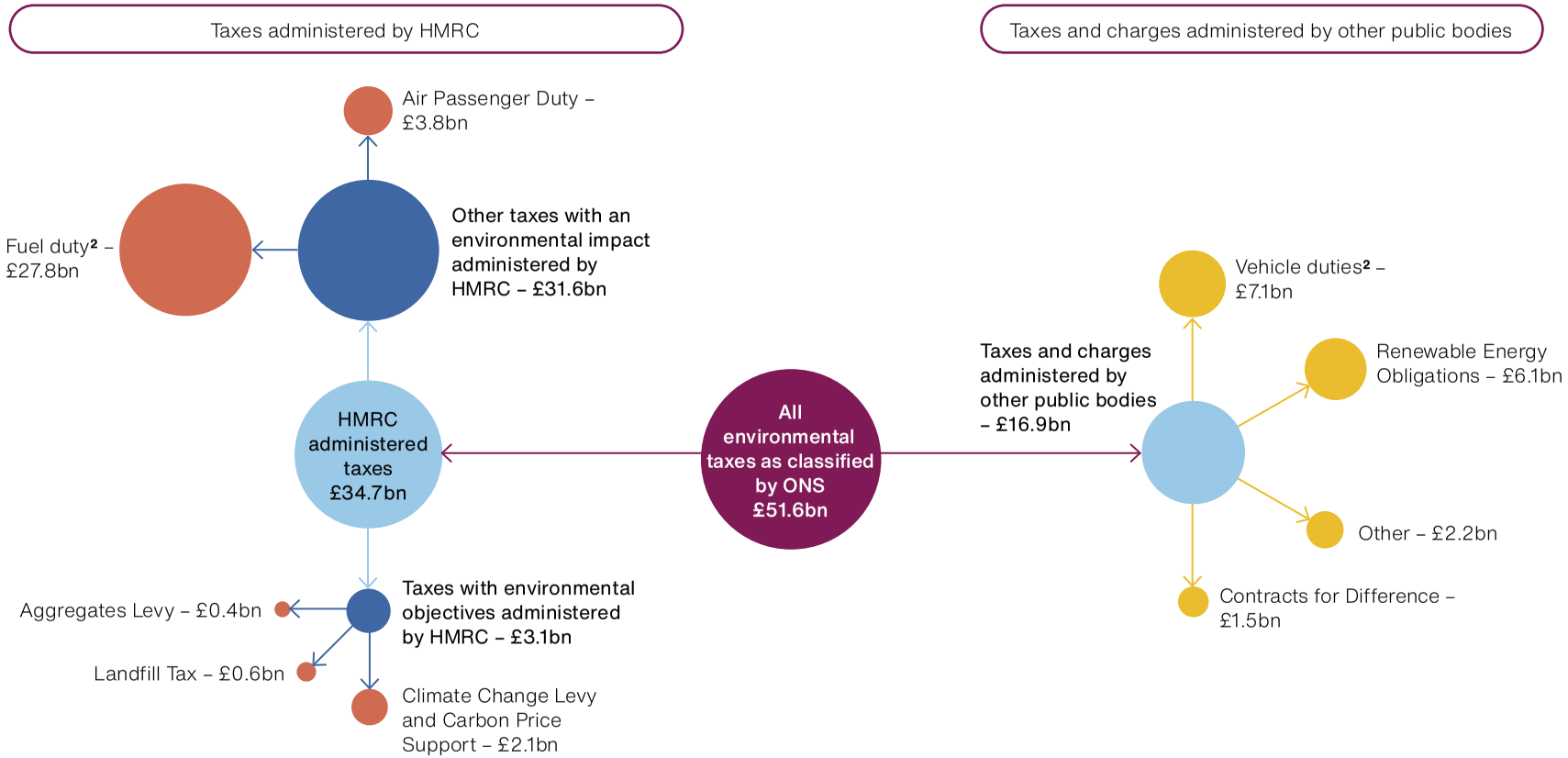
16 The Environment Bill sets out five environmental principles: 1) environmental protection should be integrated into policy-making principle; 2) preventative action to avert environmental damage principle; 3) precautionary principle; 4) environmental damage should as a priority be rectified at source principle; and 5) polluter pays principle. Taken together, these principles contribute to meeting sustainable development and environmental protection objectives. Source: Department for Environment, Food & Rural Affairs*, Environment Bill 2020 policy statement,* January 2020. There is an exemption in the Environment Bill for tax policy decisions to have due regard to the policy statement on environmental principles to ensure that HM Treasury's ability to alter tax policy to raise revenue that allows the delivery of essential public services is not undermined.

17 Office for National Statistics, *Environmental taxes,* latest release June 2020. Available at: www.ons.gov.uk/economy/environmentalaccounts/datasets/ukenvironmentalaccountsenvironmentaltaxes, accessed 4/2/21.

Figure 10

Composition of revenue from all taxes and charges based on a physical unit that has a proven negative impact on the environment, such as a litre of petrol, 2019

The £3.1 billion collected from taxes which HM Revenue & Customs (HMRC) administers and which have environmental objectives represents 6% of £51.6 billion collected from all taxes and charges that are within the Office for National Statistics' (ONS's) definition of an environmental tax[1]



Notes

1 ONS uses the UN System of Environmental Economic Accounting definition which says an environmental tax is a tax whose base is a physical unit (for example, a litre of petrol or a passenger flight) that has a proven negative impact on the environment. The definition includes taxes – and some charges – on energy, transport, pollution and resources.

2 Orange shows taxes administered by HMRC. Yellow shows taxes administered by other public bodies. Department for Business, Energy & Industrial Strategy (BEIS) is responsible for the Renewable Energy Obligations (administered by Ofgem) and the Contracts for Difference. Vehicle duties are mainly Vehicle Excise Duty. HM Treasury has policy responsibility for Vehicle Excise Duty, which is administered by the Driver & Vehicle Licensing Agency. 'Other' is the total for taxes and charges which individually raised less than £1.5 billion in 2019.

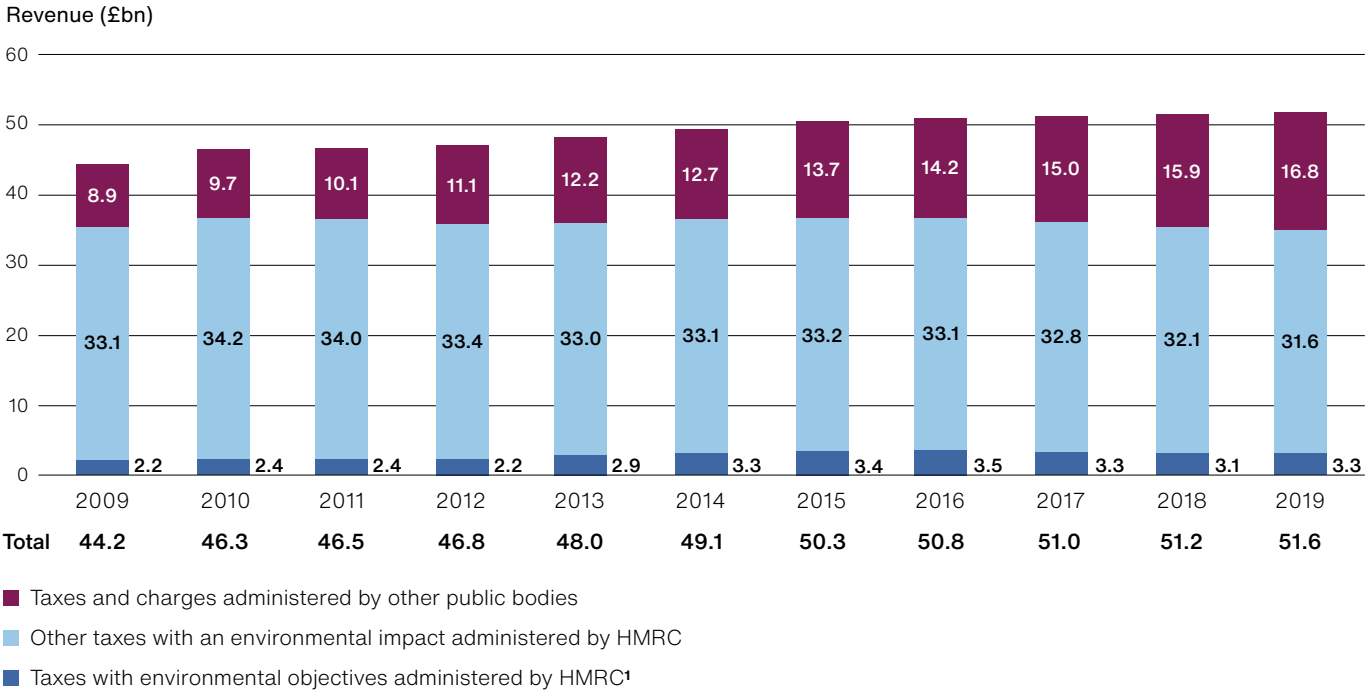
Source: National Audit Office analysis of Office for National Statistics data

2.6 Between 2009 and 2019 the total revenue from taxes with an environmental impact increased by £7.4 billion (17%) in real terms (**Figure 11**). Much of the growth was from taxes on energy which BEIS is responsible for, particularly the obligations placed on electricity suppliers to obtain electricity from renewable sources (up £4.8 billion). Appendix Four covers in more depth the composition of, and trends in, all taxes and charges covered by the ONS definition.

Figure 11

Revenue from all taxes and charges based on a physical unit that has a proven negative impact on the environment, such as a litre of petrol, 2009 to 2019

Growth in revenue since 2009 has largely come from taxes and charges which are administered by public bodies other than HM Revenue & Customs (HMRC)



Notes

1 To provide a consistent time series, values for taxes with environmental objectives administered by HMRC include the sums collected by the replacements to UK Landfill Tax introduced in Scotland in 2015 (revenue £104 million in 2019) and in Wales in 2018 (£38 million in 2019). In 2019, HMRC collected £642 million in Landfill Tax and £3,123 million in total for taxes it administers with environmental objectives.

2 All values at 2019 prices.

3 Individual values may not sum to total due to rounding.

Source: National Audit Office analysis of Office for National Statistics data

Other environmental tax measures

2.7 In February 2020 we reported on how government uses tax reliefs to support a wide range of policy objectives.[18] All tax reliefs can affect economic activity and thus may have an indirect effect on the environment, and some have a direct effect. For example, the long-standing relief from fuel duty for 'red diesel' used in off-road vehicles lowers its cost, and thus increases its use and its impact on air quality and CO_2 emissions.

2.8 Given the binding nature of government's net zero target it is particularly important that policy interventions, including tax measures, which impact on greenhouse gas emissions are identified and understood. HMRC does not maintain a list of tax reliefs with an environmental objective, and it had not identified reliefs with economic or social objectives that are likely to impact on government's environmental goals. HMRC told us that it can be difficult to assess the impact of a relief as it may be indirect or the impact might encourage one of the 10 environmental objectives set out in the government's *25 Year Environment Plan* at the expense of another. HMRC said it had focused on managing reliefs to deliver their stated purpose.

2.9 We identified eight tax reliefs in place in 2020-21 with a clear environmental objective or purpose. These were all relevant to government's wider environmental goals. The costs of four of these reliefs are unknown (**Figure 12** overleaf). HMRC has committed to developing cost estimates for more tax reliefs.[19]

2.10 We reviewed the 25 tax reliefs with economic and social objectives costing more than £1 billion in 2019-20. We identified five reliefs with a total estimated cost of £17 billion which are likely to be relevant to the government's net zero commitment as they are likely to affect the cost of producing fossil fuels or products that are made from or use fossil fuels (**Figure 13** on page 41). The five tax reliefs support a range of government policy objectives, including helping to address fuel poverty, lowering the cost of transport and assisting particular sectors of the economy. HMRC advises against aggregating the cost of different tax reliefs, but we have done so as it provides the best measure of their scale.

18 Comptroller and Auditor General, *The management of tax expenditures*, Session 2019-20, HC 46, National Audit Office, 14 February 2020.

19 In April 2019 HMRC told the Committee of Public Accounts it would reduce the number of uncosted reliefs. It has since reported new cost estimates for 72 reliefs and is planning to publish more costings in 2021 and 2022.

Figure 12

Tax reliefs with an environmental purpose

Using material published by HM Revenue & Customs (HMRC) we identified eight tax reliefs in place in 2020-21 that have an environmental objective or purpose

Relief[1,2]	Objective or purpose of relief	Relevant government long-term environmental goal[3]	Cost[4]	When introduced
			(£m)	
Lower rate of VAT on the cost of installing energy-saving material	Reduce the cost of improving residential accommodation and make it more energy-efficient	Net zero	70	1995
No income tax due from the sale of electricity generated by a domestic micro-generation system	Support renewable generation	Net zero	5	2007
Enhanced capital allowance for electric charge points[5]	Encourage the use of cleaner vehicles	Net zero and clean air	Not costed	2016
100% first-year capital allowances for zero emissions goods vehicles[5]	Encourage cleaner vehicles	Net zero and clean air	Not costed	2010
100% first-year capital allowance for cars with low CO_2 emissions[5]	Encourage cleaner vehicles	Net zero and clean air	Not costed	2002
100% first-year allowance for plant or machinery for gas refuelling stations[5]	Encourage cleaner vehicles	Net zero and clean air	Not costed	2002
Renewable obligation certificates – income from selling and gains from holding certificates from domestic micro-generation are not subject to tax	Support renewable generation	Net zero	Negligible	2007
Exemption from income tax and national insurance contributions for equipment to allow a car to run on road fuel gas	Encourage the use of cleaner vehicles	Net zero and clean air	Negligible	2003

Notes

1 In October 2020, HMRC reported costs for 186 tax reliefs with economic and social objectives – it did not have the data to report costs for a further 153.

2 Analysis excludes those reliefs that apply to environmental taxes. Two uncosted reliefs with environmental objectives were removed from April 2020. The reliefs provided enhanced capital allowances for energy- and water-saving technology.

3 National Audit Office (NAO) assessment.

4 Costs are the value of the relief to the taxpayer. Costs will therefore change if tax rates are altered. The amount of tax revenue gained if reliefs were to be removed is likely to be lower than costs as some taxpayers may change their behaviour in response and there may be wider economic impacts. The cost estimate for lower rate of VAT on the cost of installing energy-saving materials is an estimate for 2019-20 based on previous years' actual data. Cost estimate for the relief on the sale of electricity generated by a domestic micro-generation system is for 2018-19. Both estimates are at 2019-20 prices.

5 Capital allowances can reduce the Corporation Tax companies pay.

Source: National Audit Office analysis of published HM Revenue & Customs documents

Figure 13

Large tax reliefs that are likely to affect the cost of producing or consuming products made from or using fossil fuels

We identified five large reliefs costing more than £1 billion[1]

Relief	Objective of relief	Cost in 2019-20[2]	When introduced
		(£bn)	
Reduced rate of VAT on supply of domestic fuel and power[3]	Reduce fuel poverty	5.0	1994
Zero rate of VAT on domestic passenger transport, including UK portion of scheduled flights[4]	Lower cost of domestic transport	4.8	1973
Fuel duty not charged on kerosene used as heating fuel	Reduce fuel poverty	2.5	1984
Reduced rate of fuel duty on diesel used in off-road vehicles (known as 'red diesel')	Support sectors such as agriculture and rail	2.4	1959 or earlier
Accelerated capital allowances on plant and machinery for the oil and gas sector[5]	Encourage investment in UK oil and gas	2.1	2002
Total for the five reliefs[6]		**16.8**	

Notes

1 In October 2020 HM Revenue & Customs (HMRC) reported data showing there were 25 tax reliefs which had economic and social objectives and were estimated to cost more than £1 billion. There are also structural tax reliefs that define the boundaries and thresholds of the tax system and cost more than £1 billion. We have not reviewed these reliefs as they do not generally support policy objectives. However, some structural reliefs may impact on environmental objectives.

2 Costs are the value of the relief to the taxpayer. Costs will therefore change if tax rates are altered. The amount of tax revenue gained if reliefs were to be removed is likely to be lower than costs as some taxpayers may change their behaviour in response and there may be wider economic impacts. Most cost estimates are for 2019-20 and are projections based on previous years' actual data. Estimate for kerosene used as heating fuel is for 2017-18. All estimates are at 2019-20 prices.

3 The relief applies to fuel and power from all sources of energy, including renewables.

4 The relief applies to forms of transport that are considered environmentally friendly, such as trains and buses, and air travel, which is not.

5 First-year allowances of 100% are available for almost all capital expenditure by the oil and gas sector. The sector pays a higher tax rate on profits (paragraph 2.11). The cost of the relief includes some decommissioning costs. HMRC estimates this could be around £0.4 billion.

6 HMRC advises against aggregating the cost of different tax reliefs, but we have done so as it provides the best, if an imperfect, measure of their scale.

Source: National Audit Office analysis of HM Revenue & Customs documents

2.11 Differential tax rates can be used to support government's environmental objectives. We identified two such rates on taxes administered by HMRC:

- the oil and gas sector pays a higher rate of Corporation Tax at 30% and an additional charge of 10% on a company's ringfenced profits from UK operations; and
- the Income Tax paid on a company car increases with CO_2 emissions, with more tax due on a diesel car.[20]

Rates of Vehicle Excise Duty are also higher on more polluting cars registered since 2001. HM Treasury has policy responsibility for the duty, which is administered by the Driver & Vehicle Licensing Agency.

2.12 We asked HMRC what it had done to assess the impact of two of the eight tax reliefs with environmental objectives in place in 2020-21. It had not reviewed either. Assessments undertaken by other public bodies had informed HM Treasury's decision to remove two other tax reliefs with environmental objectives from April 2020. These reliefs had promoted energy- and water-saving technologies for business. In 2017, the Office of Tax Simplification said the schemes should be reformed so that their benefits to taxpayers were not outweighed by the burden of claiming.[21] HM Treasury told us a 2018 review commissioned by BEIS found the largest of the reliefs had limited impact on the uptake of technology. HM Treasury said that the savings from closing the reliefs (around £100 million a year) would help fund a BEIS programme supporting industrial energy transformation.

2.13 The exchequer departments have recognised some reliefs have environmental impacts even where this is not a specific objective. For example, the 2020 HM Treasury consultation on restricting the use of the 'red diesel' relief from fuel duty said that for government to reach its environmental objectives it needs to ensure the tax system incentivises reductions in the use of polluting fuels. And in 1997, when the government last revised the VAT relief on domestic fuel reducing it from 8% to 5%, it estimated the change would increase annual CO_2 emissions by 0.24 million tonnes (0.15% of the total at that time).[22]

20 Diesel cars are exempt from the supplement if their emissions of nitrogen oxides (NOx) are no greater than 80mg/km.
21 Office of Tax Simplification, *Simplification of the corporation tax computation*, July 2017, paragraphs 4.130 and 4.131.
22 *Hansard HC*, 10 June 1997 cols 404-405W, available at: https://publications.parliament.uk/pa/cm199798/cmhansrd/vo970610/text/70610w11.htm#70610w11.html_sbhd6

The extent to which the tax system supports government's environmental objectives

Environmental strategy and the role of the tax system

2.14 Government is setting out strategies for delivering the 10 broad long-term environmental goals of the *25 Year Environment Plan*. The number, scope and status of these strategies are set out in more detail in our report on *Achieving government's long-term environmental goals*.[23] We examined key recent strategies in areas where existing tax measures have an impact on environmental goals, to see the extent to which tax measures were included in the published strategies alongside other policy measures. In the main, tax measures were mentioned and in some cases this included a brief consideration of their impact or their interaction with other policy measures (**Figure 14** overleaf). However, the Clean Air Strategy does not consider fuel duty more widely, and the tax does not feature in either of the strategies for mitigating and adapting to climate change.

2.15 Tax policy changes are announced at Budgets rather than through documents published by other government departments because tax announcements are highly market-sensitive and there is a need to ensure coherence across the tax system as a whole. This makes it difficult for spending and tax-raising departments to develop and publish combined approaches announcing new policies. Government's environmental strategies therefore do not announce new tax measures or changes to existing taxes, though departments can still discuss potential policy levers, including tax measures. There are some good examples in the strategies we reviewed where new taxes and changes to existing tax measures which had already been announced were considered, and other relevant departments can be involved in the development of tax measures. For example, the 2018 resources and waste strategy considered the developing plans for the Plastic Packaging Tax. The 2019 Clean Air Strategy considered the widespread use of the relief on fuel duty for specific uses of diesel (the 'red diesel' relief) and its impact on clean air. A first call for evidence on use of red diesel had been announced in Spring Budget 2017. Following on from the Clean Air Strategy, in Budget 2020 HM Treasury announced that to improve air quality and reduce CO_2 emissions the government would restrict entitlement to red diesel, and it began a further consultation. The change is expected to increase revenue by up to £1.6 billion a year. The resources and waste strategy, the Clean Growth Strategy, and the integrated energy and climate plan all indicate that government plans to consider use of taxation, alongside regulation and spending, as a tool to deliver them.

23 See footnote 15.

Figure 14

Summary of references to taxes in government strategies supporting its environmental goals prepared since 2017

Consideration of the role of tax measures was strongest in the resources and waste strategy

25-year goal(s)	Strategy documents	Coverage of tax measures
Clean air	Department for Environment, Food & Rural Affairs: Clean Air Strategy 2019	Limited references to a specific relief applied to fuel duty and proposed changes. No mention of other existing taxes which may impact on clean air, such as the Climate Change Levy, fuel duty in general or Air Passenger Duty. International comparators mention use of tax breaks to support future technologies and a tax relief on mineral fertiliser.
Mitigating and adapting to climate change	Department for Business, Energy & Industrial Strategy: The UK's Draft Integrated National Energy and Climate Plan 2019	Lists most relevant taxes and their role. But there is limited consideration and coverage of a minority of relevant taxes, such as petroleum revenue tax,[2] or of the impact of tax reliefs.
	HM Government: Clean Growth Strategy (2017)	Refers to the impact of Landfill Tax, and briefly mentions the Climate Change Levy and Carbon Price Support. No consideration of fuel duty or Air Passenger Duty. Refers to plans to review incentives on specific technologies, including tax treatments such as reliefs.
Minimising waste Using resources from nature more sustainably and efficiently	HM Government: Our Waste, Our Resources: A Strategy for England (2018)	Frequent references to Landfill Tax and the proposed Plastic Packaging Tax, with an explanation of the impact they have (or are expected to have). Consideration of how taxes may change in the future, for example that government may consider the introduction of a tax on the incineration of waste.

Notes

1 We examined strategies prepared since 2017 in areas where existing tax measures have an impact on environmental goals.

2 A tax on the profits from oil and gas production.

Source: National Audit Office analysis of government strategy documents

2.16 The exchequer departments have had some involvement in the creation of government's environmental strategies. Any decisions on published strategies, associated policies or how tax strategy aligns with these are for ministers to take. The exchequer departments hold regular discussions with other government departments who lead on these strategies. However, they have not developed a coordinating approach or oversight to plot the role of the tax system in helping government achieve each of its environmental objectives such as net zero. Taxation will rarely be the only policy lever needed to achieve an environmental objective, and the interaction between the tax system and other policy tools should be considered.

The long-term influence of environmental goals on the UK's tax strategy

2.17 Achieving ambitious environmental goals such as net zero will require structural shifts across the economy over the next 30 years. The scale of the shift is likely to impact broadly across the tax system. The exchequer departments will need to actively consider the consequences both for taxes which specifically support environmental goals, and for tax bases more widely to manage the risks to the sustainability of tax revenues.

2.18 Our report on *Achieving net zero* found that the UK's greenhouse gas emissions will exceed government's shorter-term targets without further action to close the gap.[24] These targets are set at a level that is less ambitious than will be required to achieve net zero. In November 2019 HM Treasury opened a review, which is due to conclude in 2021, into how the transition to net zero should be funded. The review is considering the full range of government levers, including tax. The review's December 2020 interim report highlights the importance of using tax, alongside regulation and spending, as a tool to correct market failures.[25] The final report, due in 2021, will look in more detail at areas including how HM Treasury could incorporate climate considerations into spending reviews and fiscal events and how to embed the principles of the net zero review into policy-making across government. The exchequer departments told us the final report will also look at the impact of other relevant tax measures which do not necessarily have the environment as a core objective, and the role carbon pricing could play in shifting business models and incentivising greater investment in low carbon technologies across the economy. The report will sit alongside the comprehensive net zero strategy which BEIS plans to publish in 2021, and which is explained in more detail in our report on *Achieving net zero*.

24 Comptroller and Auditor General, *Achieving net zero*, Session 2019-2021, HC 1035, National Audit Office, 4 December 2020.
25 HM Treasury, *Net Zero Review: Interim report*, December 2020.

2.19 Research institutes and bodies advising government have called for tax to play a more significant role in government plans to achieve its environmental targets.

- In September 2011, the Institute for Fiscal Studies published the Mirrlees review, a detailed examination of the UK tax system. It described taxes as "among the most important economic instruments available to deal efficiently with pollution and thereby help protect the environment". It also noted that "it remains a pity that no serious, comprehensive and public review and analysis of the potential options in this area have been undertaken".[26]
- In May 2020, the Climate Change Committee set out six principles for a resilient recovery to COVID-19, one of which was to "strengthen incentives to reduce emissions when considering tax changes".[27]
- In September 2020, the Institute for Government criticised the limited link between climate change objectives and tax policy to date. It called for HM Treasury to publish a "tax roadmap to net zero", showing taxpayers how and when taxes might change.[28]

2.20 Environmental goals may also impact on existing environmental taxes. The exchequer departments have identified that changes in the sectors affected by environmental taxes, and in government's objectives, will require them to consider the future of two of the four existing environmental taxes. The exchequer departments are aware that the Climate Change Levy has not kept pace with changes in government priorities and changes in the energy sector. The 2003 EU Energy Taxation Directive informed the original design of the levy, and this focuses on energy efficiency rather than reductions in greenhouse gases. Since the levy's introduction the energy sector has moved to a more decentralised system with more generators and suppliers. The future role of Carbon Price Support is also unclear as the government is ending unabated coal generation by 2024 at the latest. The exchequer departments understand the main effect of the tax to date has been to incentivise reductions in coal generation. They consider the tax may continue to have a role in the future, for example by increasing the incentives for more efficient use of gas.

26 Institute for Fiscal Studies, *Tax by Design, the final report from the Mirrlees Review,* September 2011, pages 231 and 245.
27 Climate Change Committee, *Take urgent action on six key principles for a resilient recovery,* May 2020, www.theccc.org.uk/2020/05/06/take-urgent-action-on-six-key-principles-for-a-resilient-recovery/
28 Institute for Government, *Net zero: how government can meet its climate change target,* September 2020, pages 42 and 73.

2.21 Future tax revenues may also be affected by other government policies which, for example, impact on an activity that is taxed. For example, in 2019 the Office for Budget Responsibility stated "in the longer term the continued trend toward alternatively fuelled vehicles will weigh on receipts [of fuel duty]. The government's 2017 decision to ban the sale of petrol and diesel cars by 2040 would, under a continuation of the current tax system, ultimately reduce receipts to zero".[29] Government subsequently announced that the UK will end the sale of new petrol and diesel cars and vans by 2030, 10 years earlier than planned, which is likely to accelerate the impact. The government said that it would need to ensure that revenue from motoring taxes keeps pace with this change.[30] More broadly, HM Treasury's December 2020 interim report on net zero stated that changes in the structure of the economy will have fiscal implications, identifying limited risks to PAYE and Corporation Tax revenues from high-polluting sectors. The report also set out risks to revenue from taxes that are wholly dependent on the consumption of fossil fuels or emission of greenhouse gases. These taxes, which include fuel duty, raised £37 billion in 2019-20.

2.22 The set of taxes on energy illustrates the potential value of an overarching perspective and understanding of the overall impact and incentives taxes create, which the exchequer departments do not currently have. Analysis by the Organisation for Economic Co-operation and Development (OECD) in 2019 shows there are some differences in the levels of taxation on energy (**Figure 15** overleaf).[31] Some of the variation is due to the objectives of tax measures which cover particular types of energy use. For example, the revenue-raising fuel duty drives the high tax on road transport. Some forms of energy – notably natural gas – are taxed at different levels depending on how they are used. Variations in taxation may provide different incentives to energy users and lead users to price the cost of CO_2 emissions differently, with different impacts for the environment.

2.23 In January 2021, the exchequer departments told us that they were developing plans to better incorporate environmental considerations into the fiscal system. Building on the December 2020 net zero review interim report, they told us that they intended to provide a framework to support future decisions. HM Treasury intends to provide additional clarity about how government might approach decisions in the period of transition to net zero to ensure an equitable balance of costs and benefits across different parts of society. As BEIS is developing the wider net zero strategy, the exchequer departments plan to work with it, and other stakeholders, to consider the mix of policy levers needed to meet net zero.

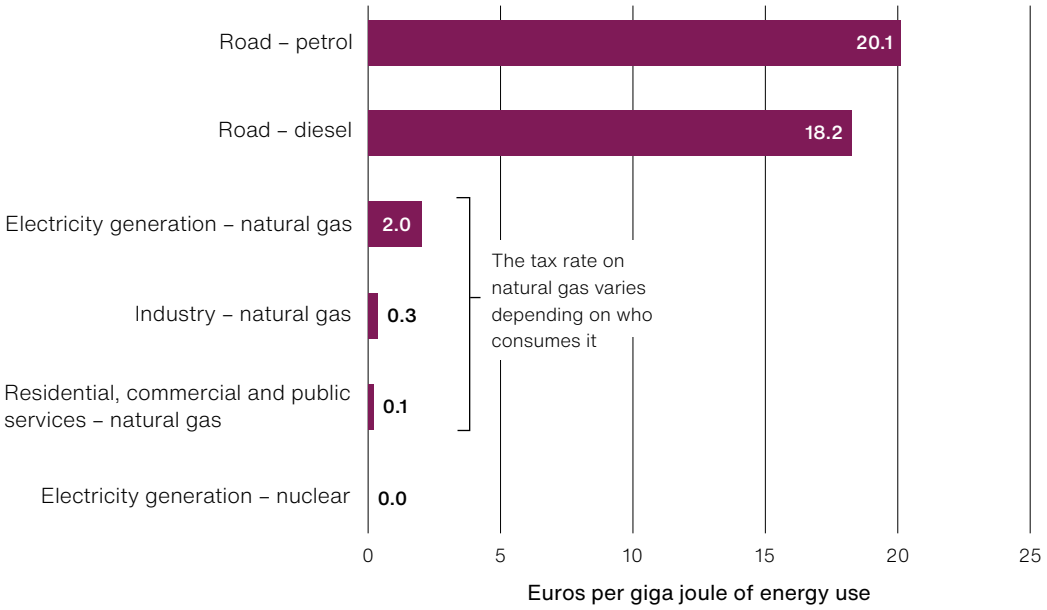
29 Office for Budget Responsibility, *Fiscal risks report,* July 2019, page 82.
30 See footnote 12.
31 Organisation for Economic Co-operation and Development, *Taxing Energy Use 2019: Country Note – United Kingdom,* 2019.

Figure 15

UK tax levels for energy use, by sector and type of energy, as at 2018

Effective tax rates differed across the six largest types of energy use

Sector and energy type



Notes

1 The effective tax rate is the sum of fuel excise taxes, explicit carbon pricing (EU Emissions Trading Scheme), and electricity excise taxes, net of applicable exemptions, rate reductions and refunds as at 2018.

2 In 2019 the Organisation for Economic Co-operation and Development (OECD) reported summary data for more than 20 types of energy use in 2016. The six shown accounted for around 60% of all energy use.

3 OECD allocated energy to the sector where the primary energy is used, such as electricity generation.

Source: National Audit Office presentation of Organisation for Economic Co-operation and Development data

Appendix One

Our audit approach

1 See **Figure 16** overleaf.

Figure 16
Our audit approach

The objective of government

HM Treasury: design sustainable taxes, benefits and pensions, consistent with sound public finances.

HM Revenue & Customs (HMRC): collects revenues due and bears down on avoidance and evasion.

The government's 25 Year Environment Plan, published in 2018, set out an ambition "to leave that [natural] environment in a better state than we found it".

How this will be achieved

HMRC and HM Treasury (the exchequer departments) responsibilities include: advising on the design of environmental tax measures administered by HMRC; and managing those measures to deliver environmental and other objectives.

Our study

Under section 6 of the National Audit Act 1983, the Comptroller and Auditor General (C&AG) examines the economy, efficiency and effectiveness of the way that government departments use their resources in discharging their functions. Our study therefore examined the effectiveness with which the exchequer departments used their resources, primarily staff, to manage environmental tax measures across all stages of their lifecycles. Our role is not to conclude on the value for money of individual tax measures.

Our evaluative criteria

- The exchequer departments have a good understanding of the range of environmental tax measures they need to administer and manage.
- The exchequer departments design environmental tax measures effectively to deliver environmental and other objectives.
- The exchequer departments administer, monitor and evaluate environmental tax measures effectively to deliver environmental and other objectives.

Our evidence (see Appendix Two for details)

- We conducted case studies of: two established environmental taxes; an environmental tax currently being designed; and two tax reliefs.
- We analysed the composition and trends in revenue from environmental taxes.
- We held meetings with officials at HMRC and HM Treasury.
- We drew on existing National Audit Office evidence.
- We consulted with stakeholder groups and academics.
- We reviewed published and internal exchequer department documents.

Our conclusions

There is some evidence of the positive impact that taxes can have on the environment, but too little is known about their effect. The exchequer departments tend to focus more on the revenue that environmental taxes raise rather than the environmental impact they achieve. There are other measures – both taxes and tax reliefs – which impact on government's wider environmental objectives but which are not recognised as environmental in nature. As such, the exchequer departments do little to identify these measures, or assess their relevance to government's environmental goals, though they do consider environmental impact in some significant cases when advising ministers.

The scale of government's environmental ambitions, particularly on net zero, means government needs to consider every tool at its disposal if it is to succeed. The exchequer departments need to fully understand the relationship between existing taxes and these ambitions, to ensure the taxes contribute as intended, and to learn lessons for any future taxes which may support wider environmental strategies. HM Treasury's review of how the transition to net zero will be funded is an important first step in this process.

Appendix Two

Our evidence base

1 We conducted our examination of environmental tax measures between July 2020 and November 2020. Our audit approach is outlined in Appendix One.

2 We conducted case studies of two of the four established environmental taxes administered by HM Revenue & Customs (HMRC) – the Climate Change Levy and Landfill Tax. We selected these taxes based on criteria including: level of revenue; evidence of behaviour change; complexity of the tax; and links with other policy instruments. For both the case studies we assessed the effectiveness of the management of the tax by HMRC and HM Treasury (the exchequer departments), considering issues such as: monitoring arrangements; management of risks, including to revenue; and consideration of impact. We also assessed the exchequer departments' approach to evaluating and reviewing the tax. We undertook a more focused assessment of the two other environmental taxes – the Carbon Price Support and Aggregates Levy – including to test the points arising from our case studies. We collected evidence for our case studies and other assessments through interviews, analysis of data and document reviews. We asked the exchequer departments to provide assessments and evaluations they had conducted or commissioned which had examined the impact of the four environmental taxes.

3 We conducted a case study of an environmental tax HM Treasury was in the process of designing – the Plastic Packaging Tax. We assessed: how HM Treasury had identified and assessed options for the tax; how it had undertaken the detailed design of the tax; and how it had consulted on the tax. Our assessment was informed by factors the Organisation for Economic Co-operation and Development (OECD) has said should be considered when designing environmental taxes.[32]

4 We conducted two case studies of tax reliefs that support the government's environmental objectives – lower rate VAT on installation of energy-saving equipment and 100% first-year capital allowance for cars with low CO_2 emissions. We selected the two case studies based on criteria including: cost of the relief; evidence of behaviour change; and the tax being relieved. Our assessment focused on how HMRC had managed risks, tracked the cost and assessed the impact of the reliefs.

32 Organisation for Economic Co-operation and Development, *Environmental taxation: a guide for policy-makers*, September 2011. Available at: www.oecd.org/env/tools-evaluation/48164926.pdf

5 These case studies tell us how HMRC has administered the two tax reliefs. The basis for selecting the case studies means they do not provide representative evidence on the way HMRC administers all tax reliefs with environmental objectives. We were however able to test our findings against those of our February 2020 report covering the exchequer departments' management of tax reliefs with economic and social objectives.[33] HMRC has a common approach to managing all tax reliefs which support government objectives.

6 We analysed data on revenue generated by environmental taxes. We used calendar year data that are published by the Office for National Statistics (ONS). The data cover the four taxes the exchequer departments administer and define as environmental taxes as they have environmental objectives, and other taxes and charges based on a physical unit that has a proven negative impact on the environment (such as a litre of petrol). ONS publishes nominal data so we used the Gross Domestic Product deflator to convert data to 2019 prices, which is the last year covered by ONS data.

7 We estimated the cost of staff in the main HMRC and HM Treasury teams that are responsible for managing the four environmental taxes the departments administer, including the cost of compliance staff. Our estimate also included staff designing new environmental taxes. It was not possible to obtain data to estimate the cost of those staff that manage other environmental tax measures.

8 HMRC does not have a list of all tax measures that have environmental objectives or support the government's environmental goals. We therefore examined HMRC's published list of tax reliefs and its annual overview of tax legislation and rates to identify such tax measures. We drew on this analysis to select our case study tax reliefs (paragraph 4).

9 Through our Tax Centre with the University of Birmingham we held a workshop in which we discussed issues of particular importance to environmental tax measures, drawing on academic research. Topics included factors that are important for the design of environmental taxes and tax reliefs which support environmental objectives. Attendees and contributors included:

- Kim Scharf, Professor of Economics, Head of the Economics Department at the University of Birmingham and Editor of *International Tax and Public Finance*;
- Professor Robert Elliott, University of Birmingham;
- Dr Arun Advani, University of Warwick, CAGE Research Centre and Institute for Fiscal Studies;
- Dr Johannes Lohse, University of Birmingham; and
- Dr Claire Crawford, University of Birmingham and Institute for Fiscal Studies.

33 Comptroller and Auditor General, *The management of tax expenditures*, Session 2019-20, HC 46, National Audit Office, 14 February 2020.

10 We interviewed a range of organisations and individuals with an interest in environmental tax measures, including:

- Professor Stephen Smith, University College London;
- Chartered Institute of Taxation, including members of its Climate Change Working Group;
- Divya Seshamani, Council for Sustainable Business;
- Institute for Government;
- Office for Budget Responsibility; and
- Office for National Statistics.

11 We conducted a series of meetings with HM Treasury and HMRC officials. And we reviewed a range of their internal and published documents related to the management of environmental tax measures. We also held meetings with the Department for Business, Energy & Industrial Strategy, the Department for Environment, Food & Rural Affairs and the Environment Agency.

12 We drew on past National Audit Office work, including our July 2020 report on the tax gap.[34]

34 Comptroller and Auditor General, *Tackling the tax gap*, Session 2019–2021, HC 372, National Audit Office, July 2020.

Appendix Three

Roles and responsibilities for environmental tax measures

1 This appendix explains the accountability arrangements for tax measures as these are different from government spending. The roles and responsibilities of HM Treasury and HM Revenue & Customs (HMRC) (the exchequer departments), ministers and Parliament for tax measures are summarised in **Figure 17**.

2 Ministers account to Parliament for tax policy decisions and policy objectives they seek to achieve through the tax system, including the objectives they set for environmental tax measures. Parliamentary oversight of tax policy is exercised during the passage of the Finance Bill (which enacts part of the Budget), and the work of the Treasury Select Committee.

3 Ministers depend on the exchequer departments to oversee the tax system and provide technical advice and feedback, including on the environmental tax measures that HMRC administers. In practice:

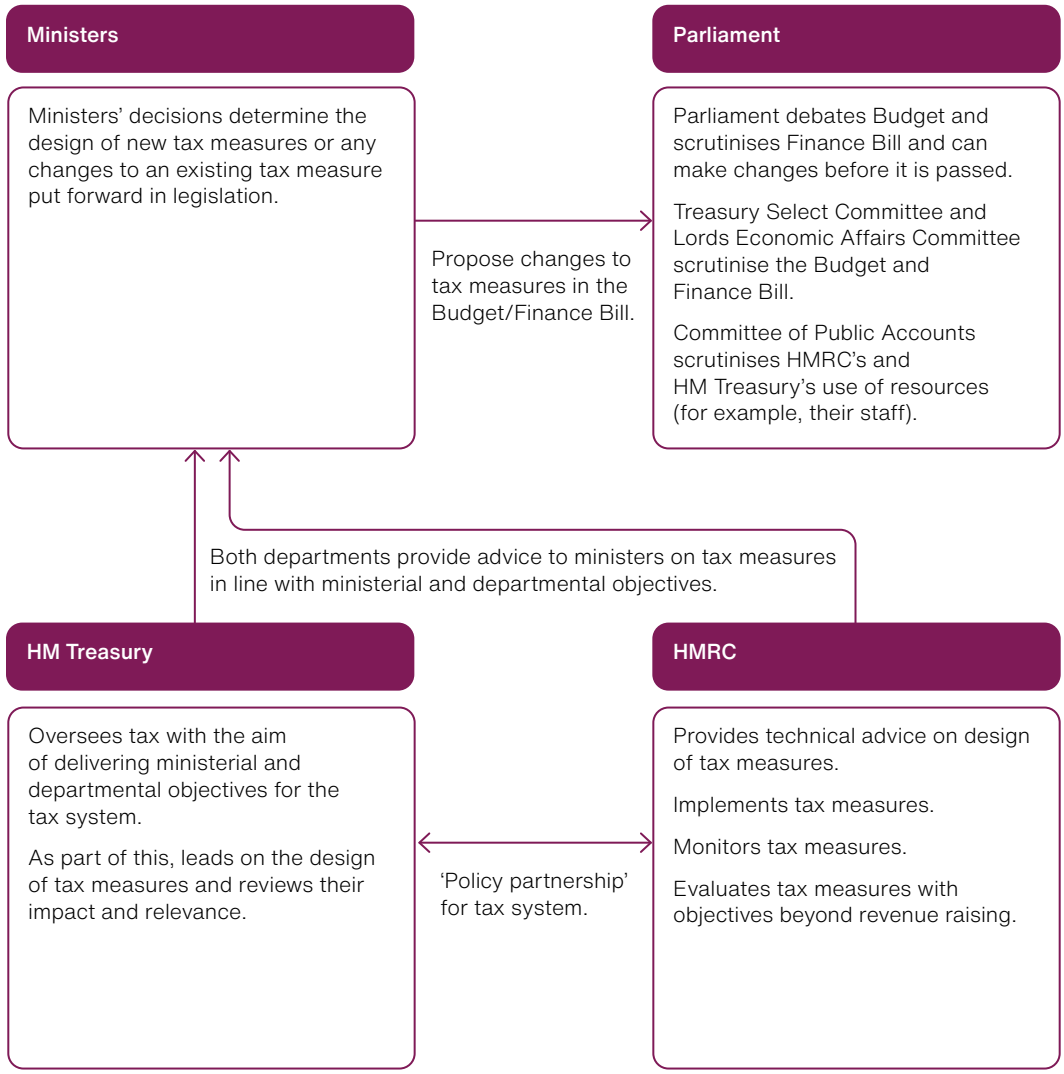
- HM Treasury is responsible for strategic oversight of the tax system, including the design of tax measures. HM Treasury officials (and explicitly the principal accounting officer) are responsible for considering the effectiveness of tax policies and providing evidence-based advice to ministers;
- HMRC is responsible for delivering tax policies and maintaining the tax system, alongside its duties to collect revenue due and tackling the tax gap. It also leads on the evaluation of tax measures; and
- the exchequer departments work in a policy partnership such that they are both involved throughout the lifecycle of a tax measure.

4 Both accounting officers of HM Treasury and HMRC are accountable to the Committee of Public Accounts for the economic, efficient and effective use of their resources in discharging their responsibilities.

5 Tax legislation, including the legislation covering environmental tax measures, is debated and approved by Parliament before it takes effect. Tax measures can only be changed through legislation. In contrast, Parliament considers government's spending plans twice a year, and a department has flexibility to transfer resources between its different activities without Parliament's approval.

Figure 17
Roles and responsibilities for tax measures

Ministers, HM Treasury and HM Revenue & Customs (HMRC) have responsibilities for tax measures



Note

1 The exchequer departments (HM Treasury and HMRC) share an analysis function, whose responsibilities include predicting the impact of changes to tax measures proposed in the Budget and producing statistics on taxes.

Source: National Audit Office summary of responsibilities

Appendix Four

Levels of environmental taxation as reported by the ONS

1 The Office for National Statistics (ONS) publishes annual data on the revenue from taxes based on a physical unit that has a proven negative impact on the environment, such as a litre of petrol. We analysed the latest data ONS published in June 2020.[35] Data on aggregate revenue from environmental taxes need to be interpreted with care. Lower levels of revenue can reflect a choice to limit the use of taxes or the success of taxes in reducing environmentally undesirable behaviour.

Revenue growth has been due to non-HMRC administered taxes

2 In 2019, taxes and charges covered by the ONS definition generated £51.6 billion of revenue, of which £34.7 billion came from taxes administered by HM Revenue & Customs (HMRC). Most of the remainder was accounted for by taxes and charges which are the responsibility of the Department for Business, Energy & Industrial Strategy (BEIS) and Vehicle Excise Duty, which HM Treasury has policy responsibility for and is administered by the Driver & Vehicle Licensing Agency (Figure 10).

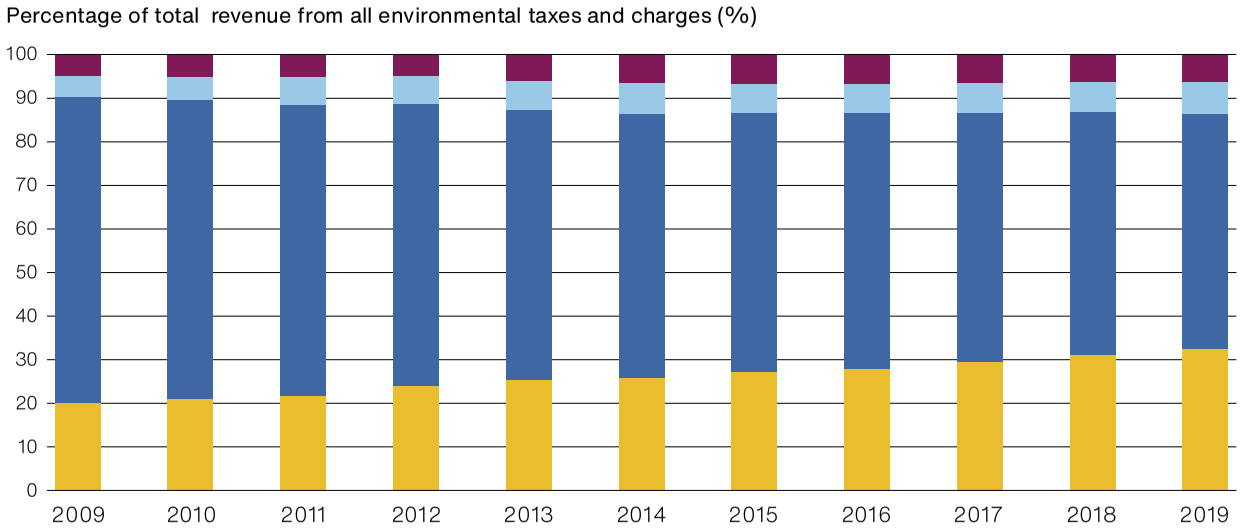
3 Between 2009 and 2019, revenue from taxes and charges which are administered by other public bodies increased by £7.9 billion in real terms, exceeding the £7.4 billon growth in revenue from all taxes and charges covered by the ONS definition. Over this period revenue from the HMRC-administered Air Passenger Duty rose by £1.6 billion, with revenue from HMRC-administered fuel duty falling by £3.1 billion – these taxes do not have environmental objectives (**Figure 18**).

35 Office for National Statistics, *Environmental taxes,* Latest release June 2020. Available at: www.ons.gov.uk/economy/environmentalaccounts/datasets/ukenvironmentalaccountsenvironmentaltaxes, accessed 4/2/21.

Figure 18

Environmental taxes – revenue split between HM Revenue & Customs (HMRC)-administered taxes and non-HMRC–administered taxes and charges

Revenue from non-HMRC-administered taxes and charges rose from £8.9 billion in 2009 to £16.8 billion in 2019, increasing their share of total revenue from all environmental taxes and charges from 20% in 2009 to 33% in 2019[1]



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Taxes with environmental objectives administered by HMRC[2] (£bn)	2.2	2.4	2.4	2.2	2.9	3.3	3.4	3.5	3.3	3.1	3.3
Air Passenger Duty – administered by HMRC[3] (£bn)	2.2	2.5	3.0	3.1	3.3	3.5	3.4	3.4	3.5	3.6	3.8
Fuel duty – administered by HMRC[3] (£bn)	30.9	31.8	31.0	30.3	29.7	29.6	29.8	29.8	29.2	28.5	27.8
Taxes and charges which are administered by other public bodies (£bn)	8.9	9.7	10.1	11.1	12.2	12.7	13.7	14.2	15.0	15.9	16.8
Total	**44.2**	**46.3**	**46.5**	**46.8**	**48.0**	**49.1**	**50.3**	**50.8**	**51.0**	**51.2**	**51.6**

Notes

1 Includes revenue from all taxes and charges based on a physical unit that has a proven negative impact on the environment, such as a unit of petrol.

2 To provide a consistent time series, values for taxes with environmental objectives administered by HMRC include the sums collected by the replacements to UK Landfill Tax introduced in Scotland in 2015 (revenue £104 million in 2019) and in Wales in 2018 (£38 million in 2019). In 2019, HMRC collected £642 million in Landfill Tax and £3,123 million in total for taxes it administers with environmental objectives.

3 Fuel duty and Air Passenger Duty are shown separately as, unlike the other HMRC-administered taxes included in this figure, they do not have environmental objectives.

4 All values in the data table at 2019 prices. Individual values may not sum to total due to rounding.

Source: National Audit Office analysis of Office for National Statistics data

Energy taxes account for three-quarters of revenue

4 ONS categorises environmental taxes and charges as energy, transport, and pollution and resource taxes. Between 2009 and 2019, revenue from energy taxes and charges has accounted for 72% to 75% of all revenue from environmental taxes and charges, with transport taxes and charges accounting for 22% to 24%. Taxes and charges categorised as pollution and resource, which includes the Landfill Tax and Aggregates Levy, accounted for 2% to 3%.

5 The largest energy tax is fuel duty. The £3.1 billion reduction in fuel duty between 2009 and 2019 was more than offset by the growth of other energy taxes and charges, in particular revenue from the Renewable Energy Obligations grew by £4.8 billion.

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