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# Environmental Fiscal Measures for Scotland: learning from case studies and research to create a potential strategic approach

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This research was commissioned by SPICe on behalf of the Environment, Climate Change and Land Reform Committee in Session 5. The report aims to support consideration, in the Scottish Parliament and more broadly by policy-makers, of environmental fiscal measures in Scotland. It explains a range of different types of environmental fiscal measures that may be relevant to improving environmental outcomes in Scotland, and seeks to identify case studies and review literature in the context of key Scottish targets and commitments, to propose what a strategic approach to environmental fiscal reform *could* look like.

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# About the author

Callum Blackburn is an independent consultant with over 20 years experience of developing and delivering strategies and policies in sustainable development, waste management, climate change, energy and circular economy.

The arguments expressed in this commissioned research report are solely those of the author, and do not necessarily reflect the opinion of any other party including SPICe. All reasonable measures have been taken to ensure the quality, reliability, and accuracy of the information in this report. This report is intended to provide information and general guidance only. Any decisions made based on the information and guidance in this report are the reader's responsibility.

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# 1. Introduction

The purpose of this report is to support consideration, in the Scottish Parliament and more broadly by policy-makers, of environmental fiscal measures in Scotland, and indicate where they may be used to address the climate and ecological emergencies we face. It explains a range of different types of environmental fiscal measures that may be relevant to improving environmental outcomes in Scotland, and seeks to identify case studies and review literature in the context of key Scottish targets and commitments, to propose what a strategic approach to environmental fiscal reform *could* look like. This includes a list of principles that MSPs and other policy-makers may wish to consider to guide the identification and prioritisation of any new measures.

In the previous Parliamentary session, as part of the Environment, Climate Change and Land Reform (ECCLR) Committee's financial scrutiny, the Committee was interested in the role of environmental fiscal measures including taxes, levies and other charges. The Committee undertook some initial work to discuss the success of existing devolved measures (i.e. the carrier bag charge and landfill tax) and the potential and priorities for further devolved fiscal measures in various areas of environmental policy.

In its work programme the Committee agreed to “explore opportunities and risks of making use of new tax powers to change behaviour” and to commission research to support this work. This report supports the previous commitment to explore the opportunities and risks of new tax/charging mechanisms and also incentives to change behaviours. It may be relevant to the forthcoming work of the Scottish Parliament; in the *Tax Policy and the Budget Consultation, August 2021* the Scottish Government has stated its commitment to investigate more green taxes:

> “ The challenges facing Scotland over the course of this Parliament are significant, and generating sustainable devolved tax revenues, along with spending and capital expenditure, act as vital fiscal levers to tackle the challenges we face. For instance, we will consider how the tax powers that we have could help change behaviour supporting the transition to a net zero economy. Whilst the majority of green tax powers are reserved, we will pursue changes at every level to deliver on Scotland's climate and environmental ambitions, beginning with COP26.”

This report is structured into a number of sections covering the following information:

- an Executive Summary;
- an explanation of the main types of environmental fiscal measures;
- a brief summary of the use of environmental fiscal measures in Scotland to date;
- a discussion of the main themes emerging from a literature review;
- an illustration of six sectors and associated case studies focused on some of the specific challenges facing Scotland and the environmental fiscal measures that may be helpful in addressing them;
- and finally, the information gained from these sections is used to outline a potential strategic approach to making future changes to environmental fiscal measures in Scotland.

# 2. Executive summary

## 2.1 Key messages

For the environmental fiscal measures covered in this report the strategic aim for them has been assumed to be addressing the interlinked environmental crises of climate change and biodiversity loss, defined here in simplified terms as *Net Zero* and *Ecological Restoration*. This could mean that such measures are focused on either net zero, or ecological restoration, or both.

In this report a very broad definition of environmental fiscal measures has been used – in general terms these are measures where there is a flow of money involved, focused on addressing an environmental issue. This includes not only the traditional fiscal instruments, such as taxes, levies & duties but also grants, subsides & loans. It also includes measures that are both simultaneously a flow of money and a regulation, such as producer responsibility schemes.

In effect both “carrots” and “sticks” have been included to ensure that all fiscal possibilities are considered. These possibilities have then been funnelled down to a narrower range of measures that appear to offer the most opportunity for the Scottish Government. As a devolved government this range is much more restricted than is available to the UK Government.

With the strategic aim in mind the key findings from this research are:

- Currently there are a plethora of taxes and charges used by the UK and Scottish governments. These are trying to do various things including reducing climate change emissions and other environmental damage. This complexity perhaps reflects the wider UK tax system, which is reputed to have the longest tax code in the world. Within this complexity, various existing measures have attempted to internalise the costs to society of these emissions and other environmental impacts while effectively charges differing prices for them.

- There appear to be no “silver bullets” available, however moving towards an overarching simplified carbon tax, that could be applied universally across the economy, could be the most efficient, fair and effective tax measure in relation to supporting progress to net zero.

- The UK Emissions Trading Scheme could be seen as a proxy for a carbon tax but the long term effectiveness of trading schemes is questionable. The Scottish Government appears to have no powers to introduce a carbon tax, without the agreement of the UK Government, and so other solutions, albeit more fragmented ones, are more likely possibilities.

- Similar to the taxation landscape there are a huge range of grants and subsides provided by the UK and Scottish Government, particularly across agriculture and land management. Here the Scottish Government may have more significance and control, subject to the UK Subsidy Control Bill, and so could repurpose these to ensure delivery of the strategic aim.

- This could be even more significant as part of a “Whole Government” approach where

all government expenditure, including the £12 billion annual public procurement spend, is brought into alignment with the strategic aim. This would undoubtedly require considerable capacity building and new skills in the finance and related areas of government.

- The Scottish Government has ambitious interim emissions reduction targets for 2030 and ambitious targets for ecological restoration are expected in the Natural Environment Bill and next Biodiversity strategy. Experience shows that the introduction of new measures can often be a long process. Therefore, given the short time frame, repurposing existing fiscal measures to deliver the strategic aim may be the best course of action. This is likely to be easier than introducing new measures from a standing start; because key stakeholders are probably already involved, and budgets and government or agency staff/technical resources are likely already present managing the existing measures.

- Where introducing new measures is deemed necessary, a key consideration is not only the lead time to implementation but also the complexity – a measure that requires consultation with a few large stakeholders is going to be quicker to implement than one that involves engagement with hundreds of smaller ones. The natural resistance of industry to the introduction of changes in one part of the UK market makes the case for the Scottish Government overtly seeking to maximise benefits from measures introduced at a UK level.

- Fiscal measures must work holistically with other policies and on their own they may not drive enough change. In some areas where a major cultural change and inconvenience will be caused these measures will need to work alongside other policy measures such as skills development, support and advice, and product bans; for example this would apply to the rolling out of renewable heating systems to replace gas boilers.

- Taxation of resource use and emissions should increase but with the benefit of reduced taxation elsewhere. This is a challenge for governments because the tax base becomes less stable. The Scottish Government has already demonstrated it can manage instability from its experience with, for example, the Scottish Landfill Tax, however managing instability on multiple fronts would be a greater challenge.

- Over time the measurement of climate related emissions may move from a territorial basis to a carbon footprint basis; thereby including the embedded carbon in materials and products as well as direct emissions. This will lead to a bigger emphasis on circular economy fiscal measures, such as Extended Producer Responsibility (EPR), and this is where the Scottish Parliament arguably has a more extensive devolved remit than it does in energy. Resources for delivery in this area, along with the implications of the UK Internal Market Act may be key considerations. Lobbying for UK schemes to be favourably designed for the Scottish economy and environment, at an early stage, may therefore be important.

- EPR schemes are often fiscal measures co-designed between industry sectors and government. Applying deposits on appropriate items, such as household batteries and small electrical items, would be an easy way to engage citizens and ensure much higher collection rates for some end of life products.

- In the absence of powers to vary taxation, such as VAT rates, changes to local taxation and charges could have a significant supporting role in helping the Scottish

Government's meet its net zero and ecological restoration targets and commitments.

## 2.2 Case studies

Included in the report are six case studies that are relevant to the big challenges Scotland faces in achieving net zero and ecological restoration. Some of these relate to measures that may be forthcoming in a Scottish context and others which demonstrate the possibilities that are available. The key summary from each is as follows.

**The electrification of transport**

- This is a complex picture with a mix of vehicle bans, financial & market pressures, and infrastructure provision at play along with the use of various UK and Scottish fiscal measures.
- In relation to the purchase of Electric Vehicles (EVs), the proportion of new car sales suggests that current market mechanisms, combined with the signal providing certainty on longer term bans on internal combustion engine (ICE) vehicles, are already working for “able to pay” drivers, and there may be no reason at present to change this.
- There remains the issue of ensuring access to EVs for lower income drivers. As with all new technologies, it is likely that lower cost EVs will progressively appear on the market as costs fall. The current Energy Savings Trust (EST) EV loan scheme could be reviewed, with any necessary changes made, to help meet this need under changing circumstances.
- In terms of expanding the EV charging network, the combination of policy drivers suggests that cost reflective financial charges should be introduced on the publicly funded network. This would have two benefits: firstly, it would encourage overnight charging at home among EV owners who have that option, and secondly, it would encourage private sector investment to extend the network.
- The exceptions to this approach are,
    - Firstly, areas of Scotland where residents are less likely to have the option of off-street charging. There is likely to be a continuing need to provide publicly available chargers.
    - Secondly, as with Norway, the aim in rural Scotland should be to have a minimum number of fast chargers per set length of A road, to address range anxiety issues among potential drivers.
- Overall, although financial incentives for drivers have and will continue to encourage take up of EVs, supporting policy measures in Scotland are more likely to involve consideration of extending the charging network in specific areas, managing wider issues to minimise grid upgrade costs and associated price increases for electricity consumers, and maximising the public fleet of EVs.

**Renewable heat**

- There are a limited range of options for the Scottish Government given that the

majority of energy and tax policy instruments are reserved to the UK Government.

- While all fossil fuel heating systems will need to be decarbonised, there is some uncertainty about the best approach to achieve this for buildings connected to the mains gas network. Low carbon heating approaches should therefore initially concentrate on the replacement off-gas grid fossil fuel systems, with heat pumps seen as the favoured option.

- The UK Government has, since 2014, provided financial assistance for the installation of renewable heating systems through the Renewable Heat Incentive, and Air Source Heat Pumps have indeed been the most popular heating system supported. However, installation rates are extremely low, averaging only around 2,200 domestic systems in Scotland each year since then.

- There are non-financial barriers to the take up of heat pumps, including disruption at installation and the need for energy efficiency measures to ensure retrofitted systems are effective. A greater barrier is that of running costs; UK levies on electricity are comparatively higher at around 25% than levies and taxes on fossil fuels (before taking into account the recent dramatic increase in prices) used for heating. This means that there are unlikely to be significant gains in terms of heating costs for households retrofitting heat pumps, regardless of the scale of subsidy for the capital costs.

- Comparable countries which have been more successful in encouraging this transition have comparatively lower charges on electricity, and higher charges on fossil fuels, in addition to subsidies for renewable heating systems. The Scottish Government has already recognised the need to reduce the cost differential between electricity and fossil fuels and should continue to raise this with the UK government.

- The Scottish Government could also look to use a Heat Pump Sector Deal in tandem with Home Energy Scotland householder advice and support as additional measures to accelerate the transition and reduce overall cost.

**Product stewardship for textiles**

- The adoption of Circular Economy measures has the potential to have a major impact on global climate change emissions. Around 45% of climate change emissions are estimated to be related to consumption of products and materials. The fashion industry is estimated to be responsible for 4% of global emissions. Product Stewardship measures can help to reduce lifecycle impacts.

- In line with the EU's increased focus on textile waste, an EPR for Textiles is under consideration by the UK government. Collaborating using UK wide government resources to develop the scheme, while ensuring the design, targets and benefits are appropriate for Scotland may be an efficient approach given the time and internal resources required to develop a separate scheme.

- Scotland and the UK are unlikely to be able to significantly influence the global supply chain for clothes and textiles. The long standing French Textile EPR scheme with its product levy provides an effective European example of the beneficial impact of EPR. Focused on funding and investing in domestic collection and sorting infrastructure, plus research and development, it demonstrates a useful model to prepare for the investment and support needed to achieve higher recycling rates for textiles.

**Waste management**

- The success of the Scottish Landfill Tax has led to an increasing move to Energy from Waste (EfW) treatment for residual (non recyclable) waste.
- Climate Change emissions from EfW plants may be higher than fossil fuel gas plants and as food waste and card/paper are increasingly separated from residual waste these could become higher than the impact from landfilling waste.
- An EfW or “Incineration” tax is used in many countries and could be used in Scotland to help push more waste materials into recycling and composting with associated benefits.
- The Scottish Government has several options to address this, with an EfW tax similar to Scottish Landfill Tax being the most realistic and effective option, subject to any questions around devolved competence.
- Alternatives to this measure include exploring a minimum price mechanism, inclusion in the UK ETS, or a voluntary EfW reduction agreement with the Waste Management Sector.
- The current Scottish local authority waste & recycling systems are based on householder goodwill.
- Local authority funding pressures are forcing Councils to charge for green (compostable) waste collections; distorting the fiscal incentives for recycling.
- Direct Variable Charging (DVC) or Pay As You Throw (PAYT) mechanisms work well in other European countries and can have a significant impact on reducing residual waste and increasing recycling and food waste collections.
- Providing local authorities with the powers to introduce direct variable charges based on weight, volume or frequency of collection from householders could provide an effective fiscal incentive, support local investment in infrastructure and services while reducing climate change emissions.

**Land management**

- The replacement of the former Common Agricultural Policy (CAP) agricultural subsidy regime offers a huge opportunity to integrate biodiversity and climate change aims using incentivised support mechanisms.
- However this is a very challenging and complex area with many stakeholders and competing interests. It will take time for the Scottish Government to develop and finalise a new subsidy regime and get it operating effectively to help meet 2030 targets.
- Payments for Environmental Services (PES) schemes used in Sweden and other countries for incentivising the protection of wildlife, and Costa Rica for regenerating forestry, are successful examples of the type of incentives that could be incorporated into the new regime.
- In addition to lower emission farming practices, new taxation options may also need to be considered on the demand side for meat and dairy consumption; if current

incentives for a more plant-based diet, such as the perceived health benefits or personal environmental drivers, are not sufficient enough to change behaviour.

- While the powers to implement new taxation options of land use emissions reside at a UK level, the John Muir Trust's proposal for a Natural Carbon Land Tax is one example which could potentially be implemented at a local authority level.

- Creating the right investment framework through the Woodland Carbon Code and Peatland Code for offset money may add significantly to public funding; increasing the likelihood of ambitious climate change targets being met and enable public subsidy to be directed towards the more challenging aspects of emissions reduction, biodiversity and environmental services**.**

**An environmental tourism tax**

- The Scottish Government and some Scottish Councils have already undertaken engagement, consultation and development work in exploring tourism taxation. Edinburgh City is the local authority which is leading in the UK; already approving a Transient Visitor Levy (TVL) subject to future Scottish Parliament legislation, development of which was paused in 2020 due to the pandemic.

- The benefit of a TVL targeted at visitors is an increase in tax revenue for communities without increasing the overall tax burden on them, and it appears to be a fiscal measure that can be introduced quickly despite the new administrative arrangements required.

- However it has to be recognised that in countries where a tourist tax is applied there are often reduced rates of VAT whereas the UK has one of the highest taxed visitor accommodation sectors in Europe. This high tax burden may affect visitor numbers.

- A tourism tax is a form of specialist tax, naturally lending itself to hypothecation and ring fencing. While not fundamentally an environmental fiscal measure, having the environment as the key purpose or core of the tax may make it more acceptable to visitors and residents.

- Administration of the tax revenue by a designated body with the involvement of key stakeholders can help to provide confidence that any tax revenue is spent appropriately, and provide expertise for the ongoing monitoring and evaluation of the impact of the tax.

- A TVL may offer significant revenue for investment by Scotland's local authorities subject to the overall tax burden on visitors being considered.

- A scheme that is designed with a clear purpose, transparency, and community and stakeholder involvement in any revenue reinvestment, appears to be a necessary prerequisite for success.

## 2.3 A potential framework

There are a range of considerations that could be used when applying environmental fiscal measures. There does not appear to be any established international best practice in this area at present. In this report a suggested list of viable fiscal measures for the Scottish

Parliament, principles to apply in designing them, and constraints to be assessed, have been combined to provide a potential strategic approach for the consideration of any new measures.

## 2.3.1 Principles

Below is a suggested list of principles that are drawn from the different elements of this report, including the key literature, and the various case studies and sectors explored.

- **Proportionate**: New taxes or charges planned should be levied in proportion to the tax or charge payers' ability to pay.
- **Repurposed and/or Efficient:** New taxes or charges should maximise the economic efficiency of collection, and the cost of delivery of grants or subsidies should be equally efficient. Wherever possible it is likely to be more efficient to alter an existing fiscal measure (grant, subsidy, charge or tax) to make it fit the strategic aim rather than create a new one.
- **Increasing Revenue Percentage:** Overall there should be a move towards greater taxes/charges on resource use and activities that are damaging and a corresponding decline on taxes on employment and labour.
- **Fairness:** Any measure that reduces our resource use should also take into account citizens and business' varied circumstances and avoid discrimination against disabilities, gender, ethnicity and other characteristics.
- **Holistic Package:** Environmental fiscal measures are likely to be most effective when they are part of a package of measures that seek to work together towards a shared outcome or goal and wherever possible fiscal measures should not conflict with each other.
- **Appropriate Hypothecation**: Hypothecation in some environmental fiscal measures schemes is essential because you must reinvest the charges/levies to fund services and green infrastructure in order to achieve the purpose of the measure. In other taxes and duties, hypothecation may be key to making it both an environmental fiscal measure and acceptable to the public.
- **Route Mapped**: There is need for widespread engagement on any new or repurposed measures. Changes should be justified and, where possible, follow a predictable route map.
- **Flexible:** Revenue from environmental fiscal measures may not be stable because the need is primarily to drive change and that context does not align well with stable revenue from taxes and charges. The exceptions to this are schemes that are essentially fully hypothecated to support wholly additional programmes.
- **Good Fit:** Environmental fiscal measure outcomes should be in line with Scotland's National Performance Framework and the UN Sustainable Development Goals.

## 2.3.2 Constraints

There are a number of constraints that should be evaluated and assessed before taking

forward a new fiscal measure or a significant change to an existing one.

- **Border/Internal Market Issues**: there are practical implications of having taxes & charges radically different from the rest of the UK including border effects with England due to the land border we share.
- **Resources:** there are limited staff and technical resources within government and its agencies to implement and manage new fiscal measures, whether they are grants, subsidies or taxes.
- **Alignment**: Any fiscal measures must be aligned to a range of legal structures and agreements in place, or proposed, including the Internal Market Act 2020, the Subsidy Control Bill, Common Frameworks and the Scottish Government's Fiscal Framework.
- **UK Solution:** In some cases an ambitious approach to a Scottish fiscal measure may be desired but if the UK government is implementing a similar measure, even if this is considered to be less effective, it may be more advantageous to work with the UK measure.
- **Urgency:** for any measure considered the time for planning, development and implementation must be considered carefully with the challenge of the 2030 interim climate change targets in mind.

Incorporating the information above, the most practical fiscal measures, suggested principles, and known constraints have been visualised in the diagram below.


Source: SPICe/Blackburn Circular Solutions

# 3. Background

## 3.1 What are fiscal measures in Scotland

In the broadest sense, every action a government takes which has a financial component can be viewed as a fiscal measure, regardless of whether the measure was designed primarily to raise revenue, to influence the spending behaviour of individuals or businesses, or a mix of both. In effect a fiscal measure involves a flow of money.

In practice, discussions around environmental fiscal measures usually concentrate on a much smaller subset of measures (taxes & charges), designed specifically to influence consumer or business behaviour by varying the price of goods and services. The aim is to make sure that spending decisions better reflect environmental costs and benefits, and therefore affect environmental outcomes: in effect, this is a logical extension of the 'polluter pays' principle which is a guiding principle of Scottish law and policy underpinned by the UK Withdrawal from the European Union (Continuity) (Scotland) Act 2021.

There are two broad ways of achieving this outcome:

- Governments can increase the cost of a good or service through an additional tax/ levy/ duty or a mandated minimum price;
- Governments can decrease the cost of a good or service, or encourage less damaging activities, through grants or subsidies.

There are various types of increased costs, including taxes such as Income Tax, Corporation Tax, and specific environmental taxes such as Landfill Tax. These taxes are mainly used to pay for general public spending.

A duty is a type of tax that's charged specifically on the value of goods and services, such as VAT, Customs Duties, or a Sales Tax. And a levy is an obligatory payment to the Government or another organisation.

An example of a levy is the UK Climate Change Levy (CCL) which is chargeable on the supply of lighting, heating and power for large users. Revenue raised through the CCL is received back by businesses through a 0.3% reduction in national insurance contributions. However in practical terms a tax, levy or a duty operate in the same way and often the difference can be more semantics than real.

However there is a difference with regards to minimum prices, where the money from the minimum price flows back to the seller and not government. This happens in the case of the minimum price for a single use carrier bag in Scotland where the retailer retains the charge or fee.

Fees or charges are service focused and the term "fee" is described as follows:

> “ As for fees, these differ from taxes and duties in that they are paid to cover all or part of the cost of a service rendered. They are payable only by actual users of the service and so are not compulsory, in the sense that it is possible to avoid the charge simply by not using the service. Fees may be charged for activities relating to conservation of the environment, such as water treatment or waste collection.”
>
> European Parliamentary Research Service, 2020[1]

The decreased cost options include providing grants, subsidies or low cost finance. These are often used to encourage and support new innovations and new business models that are proven, but don’t yet make financial sense in our current economic framework. There is a timing element to these. Grants are often used for a set period of time to establish new practices whereas subsidies are more an ongoing support to compensate for where our economic model does not adequately price wider societal benefits.

Environmental fiscal measures usually do not work in isolation but are part of a package of policy measures including regulations, stakeholder engagement, advice/support, associated voluntary measures, bans and awareness campaigns. Therefore using an environmental fiscal measure, and the type of measure used, must be based on an assessment of the policy area and the best fit policy options.

## 3.2 Environmental fiscal measures in Scotland

There are a wide range of fiscal measures available to any country and its government. However in practical terms, with Scotland's devolved status, only some of these are available to the Scottish Parliament; or are available only with permission from the UK Government.

Section 80 B of the Scotland Act 1998 (as amended) provides a mechanism for the UK Parliament to devolve the necessary powers for a new national tax in Scotland, with the agreement of the Scottish Parliament – which could enable the Scottish Government to create new environmental taxes, with the agreement of the UK Government.

This mechanism was utilised for the first time in 2018 to enable the introduction of a tax on wild fisheries, via the Scotland Act 1998 (Specification of Devolved Tax) (Wild Fisheries) Order 2018 – although these tax powers have not been used at the time of writing.

Fiscal powers have changed since the Scottish Parliament was created and this is likely to continue. The Scotland Act 2016, for example, brought expanded fiscal responsibilities including Air Departure Tax, the Aggregates Levy and powers in relation to social security payments. There can be fairly frequent changes to these powers, for example the Scottish Government will now deliver winter fuel payments to those of pension age from November 2022.

There are many different types of fiscal measure in use in Scotland either by the Scottish or UK Government. Table 1 sets out a range of the incentive or expenditure measures and Table 2 sets out a range of disincentive or tax/charge measures. These lists are not meant to be exhaustive but instead set out some of the key measures in use and whether they may be available to the Scottish Parliament. These measures can also be categorised in many different ways and the Tables are just one form of classification. In layman's terms the incentives and disincentives are referred to as “carrots and sticks”.

Within the scope of this work general government expenditure, capital expenditure and public procurement related expenditure has been excluded. However these areas offer enormous opportunities to achieve Scotland's Net Zero and Ecological Restoration aim. Public procurement is one of the most significant mechanisms for changing standards and expectations that influence the wider economy. While not part of this report, the annual spend of £12.6 Billion [2] has the capacity to be repurposed to ensure that Scotland's public sector is driving the change towards better environmental outcomes, whether it is procurement of buildings, medical devices, vehicles, services, or food.

It is arguable that everything a government does is intended to change behaviour in one way or another, and that there will be unintended consequences from this; from an environmental perspective, the lack of tax on aviation fuel compared to fuel for ground based public transport is perhaps an obvious example of a distortion. Avoiding these distortions is something that is discussed further in the case studies in this report.

It is worth noting at this point that changing the focus of existing measures, as with existing public procurement spend, is arguably both easier and more effective than introducing something entirely new; as long as those existing measures have the potential to influence the level of change required. The funding already exists, key stakeholders, businesses and citizens are familiar with the measures already in place and you may not need to consider the interaction between other measures as this work may have already been done. In resourcing terms, less government/government agency work and parliamentary scrutiny time is required too, meaning that changes can be introduced considerably faster.

## Table 1: Types of Environmental Fiscal Measure - Incentive focused (Carrots)

| Mechanism | Current or past examples applied in Scotland | Available to Scottish Parliament? | Comment |
|---|---|---|---|
| Grants | • New woodland planting.<br>• Piloting innovative "Circular" business models. | Yes | May have a limited impact if there is a lack of sufficient funding resources to provide scale. May also have a minimal behaviour change impact, as limited to the grant recipients only. |
| Low cost loans | Domestic insulation and renewable energy installations. | Yes | May have a limited impact due to lack of sufficient funding resources to provide scale. May also have a minimal behaviour change impact, as limited to the loan recipients only. |
| Subsidies | • Farming payments.<br>• Renewable Heat Incentive (RHI). | • Yes in certain devolved sectors such as agriculture.<br>• No, RHI is a UK measure. | • Capacity to have major impact at scale e.g. via changes to existing agriculture payments due to Scotland's geography being dominated by agriculture land.<br>• Could result in minimal behaviour change impact as a result of market barriers to take up e.g. in the case of the RHI. |
| Guaranteed prices | • Contracts for Difference for renewable electricity.<br>• Feed in Tariffs for domestic solar energy. | No | Both measures have resulted in significant increases in renewable electricity generation. However, in both these cases the funding comes from energy suppliers which results in rising electricity prices. |
| Tax & Capital Allowances | Allowances for business buying new zero-emission goods vehicles. | No | These reward beneficial investment in assets/ infrastructure or research (targeted at high earners and companies). |
| Local tax relief (Business Rates/ Council Tax) | There are Business Rate reliefs' in place for District Heating, Renewable Energy, Charities and Reverse Vending machines. | Yes | Since Business Rates and Council Tax are devolved the Scottish Government can use these to incentivise businesses and householders. |
| Other fiscal incentives | • The Price of Carbon.<br>• Ring Fenced budgets. | Some are | A range of technical measures that may be helpful when other options are constrained. |

**Table 2: Types of Environmental Fiscal Measure – Disincentive focused (Sticks)**

| Mechanism | Examples applied in Scotland and other countries | Available to Scottish Parliament? | Comment |
|---|---|---|---|
| Taxes/Duties | Differential VAT rates, specific taxes such as Landfill Tax. | Some are | VAT not available as an option but Landfill Tax and others are. Depending on the specific measure, cross-border effects may limit use in Scotland. |
| Levies | • Petrol and Diesel Levies.<br>• Climate Change Levy (CCL). | Yes but subject to UK Government approval if the levy revenue is accrued by the Scottish Government. | Acts like a Carbon Tax where used in relation to fuels and large industrial energy users. May simply be a tax called a levy e.g. Aggregates Levy. |
| Minimum Prices | Single use carrier bags. | Yes | When used have demonstrably had a significant behaviour change impact. |
| Extended Producer Responsibility | • Deposit Return Schemes.<br>• Producer Responsibility Schemes (such as for Packaging, Waste Electrical and Electronic Equipment (WEEE) and Batteries). | Yes | The Scottish Government often agrees to work on a UK basis for these. Evidence from other countries shows these offer significant behaviour change impact and emissions reduction if designed ambitiously. |
| Local Taxes and Charges | • Waste Collection Services.<br>• Tourist taxes. | Yes | Operated by Local Authorities and offer a range of opportunities. Dependent on supporting Scottish Government legislation or regulation. |
| Trading Schemes | • UK Emissions Trading Scheme.<br>• European Emissions Trading Scheme. | Unclear | Complex and their effectiveness may be questionable but in the case of emissions trading they are being used as a form of proxy for a Carbon Tax. |

## 3.2.1 Commentary on Specific Measures

Most of the measures contained in Table 1 and 2 are probably familiar to most people from their daily lives with the exception of a few. These are explained in more detail here along with specific issues to note.

**Levies**

Where a levy does not result in revenues being accrued by the Scottish Government, Scotland does have the power to introduce them; it's worth noting in this context that sometimes the term "levy" can be used where the instrument is actually a minimum price or charge. However, where a levy or tax results in such Scottish Government revenues then the UK Government must approve the proposal. The UK government has said in its Strengthening Scotland's Future, Command Paper, 2010 [3] that it would consider the extent to which any proposal might:

- create or incentivise economic distortions and arbitrage within the UK.
- create opportunities for tax avoidance across the UK.
- impact on compliance burdens across the UK.

**Guaranteed prices**

These measures can take many forms but the overall objective is to provide a guaranteed price of some sort at level which is sufficient to encourage investment, for example in new renewable energy technologies. The Feed In Tariff (FIT) mechanism was used to accelerate the take up of domestic solar PV panel installations by guaranteeing a price for all electricity generated, paid to the householder by their energy company. Without this mechanism there would be no financial incentive to install solar PV on an existing house. Since the replacement of FITs by the Smart Export Guarantee, installation rates of domestic solar systems have declined significantly. [4]

**Other fiscal incentives**

This category is a “catch all” for other incentives that a government may have at its disposal that can influence the flow of money, particularly in terms of investment. Strictly speaking some of these may not be true fiscal measures but they are worth considering, especially in a context of constrained access to other measures such differential VAT rates. They include ring fencing public budgets, so that an organisation can only spend a proportion of their own or government funding on a particular thing e.g. waste management services or energy efficiency measures. Another option is fixing a higher carbon price in a project's Cost and Benefit Analysis to encourage low emission options in the design of new infrastructure or services.

**VAT**

Value Added Tax (VAT) is an indirect tax levied on the purchase of many goods and services. It is reflected in the price paid when items are bought. VAT can either be charged at 20 per cent (standard rate), 5 per cent (reduced rate) or zero per cent (zero rated). Some items or activities can also be exempt from VAT.

Differential VAT rates offer an opportunity to support activities that are more aligned to environmental sustainability, such as reduced or zero VAT rates for energy efficiency related products, e.g. insulation. However, differential rates, if not considered carefully, can also distort incentives. For example this applies in construction activities; where building maintenance and refurbishment activities are charged at 20%, while building new houses is charged at 0%. Notwithstanding the benefits of new zero emission buildings, the maintenance or refurbishment of existing buildings is more carbon efficient than constructing new buildings and clearly has other societal benefits. This is being recognised by the construction sector:

> “ It is no longer fair to say that a new building will be more energy efficient without embodied carbon being considered as part of the decision-making process.”
>
> British Property Federation, 2021[5]

**Extended Producer Responsibility**

Extended Producer Responsibility (EPR) has various definitions but a simple one is - when responsibility for the environmental effects that products can cause in their life cycle is shared among producers and users involved with the product. EPR is often used interchangeably with terms such as Producer Responsibility and Product Stewardship. The OECD provides a useful definition of Extended Producer Responsibility (with emphasis added):

> “ Extended Producer Responsibility (EPR) as an environmental policy approach in which a producer’s responsibility for a product is extended to the post-consumer stage of a product’s life cycle. An EPR policy is characterised by: 1. the shifting of responsibility (physically and/ **or economically** ; fully or partially) upstream toward the producer and away from municipalities; and 2. the **provision of incentives** to producers to take into account environmental considerations when designing their products.”
>
> OECD, n.d.[6]

EPR schemes at an international level take many forms, but one of the most common are deposit & return schemes for drinks containers, which influences consumer behaviour by placing a value at point of purchase on what is otherwise waste. In the UK we have many EU (legacy) producer responsibility schemes for products such as packaging, electrical and electronic equipment (WEEE), batteries, and End of Life Vehicles (ELVs). The UK Government and Scottish, Welsh and Northern Ireland Governments are in the process of reviewing these on varying timescales.

**Trading schemes**

The UK Emissions Trading Scheme (ETS) is a cap-and-trade system which caps the total level of Greenhouse Gas (GHG) emissions. The UK ETS came in to force on 1 January 2021 to replace the UK’s participation in the EU ETS. The Scottish Government explains:

> “ Participants in the scheme are required to obtain and surrender allowances to cover their annual greenhouse gas emissions. Participants can purchase allowances at auction or trade them amongst themselves, which allows the market to find the most cost-effective way to reduce emissions. Industrial sectors considered at risk of carbon leakage (whereby carbon costs would make them uncompetitive prompting industry to relocate outside the country in which the ETS applies) receive a proportion of allowances for free.”
>
> Scottish Government, n.d.[7]

It covers around 100 participants in Scotland who account for 28% of Scotland's GHG emissions. It applies to energy intensive industries, the power generation sector and aviation, where the total rated thermal input exceeds 20MW, but excludes installations for the incineration of hazardous or municipal waste. [8]

There is the potential for the UK ETS to be linked to the EU ETS and there will be periodic reviews of the UK ETS Cap to ensure the cap is in line with Scotland's net zero ambitions.

There is a lot of interest in Trading Schemes as solutions to cut carbon dioxide equivalent emissions, particularly from economists who are attracted to the potential for such schemes to operate efficiently from a cost perspective. However in practice trading schemes are complex and difficult to manage. They can work well in a closed and strongly regulated environment, such as within an individual company context. However in a wider complex environment there are difficulties in obtaining sound data, avoiding loop holes for participants, effective price setting and also ensuring follow through by authorities (See section 4.3 for more information on this topic).

# 3.3 The current status of devolved environmental

# fiscal measures in Scotland

In this section a brief overview of the main devolved environmental fiscal measures is provided. These are measures that are specifically targeted to address issues of an environmental nature.

## 3.3.1 Single-use carrier bags

The single-use carrier bag charge was introduced in October 2014 at a rate of 5p and was subsequently increased to 10p [9] . The Scottish Government states that before the charge was introduced, around 800 million single use carrier bags were issued annually in Scotland.

> “ By 2015 this number had fallen by 80% and the Marine Conservation Society noted in 2016 that the number of plastic carrier bags being found on Scotland's beaches dropped by 40% two years in a row with a further drop of 42% recorded between 2018 and 2019 [10] .”

Although the charge is paid directly to the issuer of the bag, with no revenue collection by authorities, the charge has raised £2.5m for charitable purposes (however the amount of this spent in Scotland is unknown). Overall the charge has been very successful at reducing terrestrial and marine litter and has also been successful in altering citizens’ daily behaviour around resource use i.e. away from single use and towards reusable carrier bags.

Inevitably as the wider public have become more familiar with the charge the rate has had to be raised from 5p to 10p to maintain the same impact. This is a feature of behaviour change measures; the initial novelty of the change and the motivation to avoid the charge wanes over time. As a result flexibility to alter charges easily, without extensive use of resources by the Scottish Government or the Parliament, perhaps should be considered in whatever instrument or published route map is used for such measures.

## 3.3.2 Scottish landfill tax

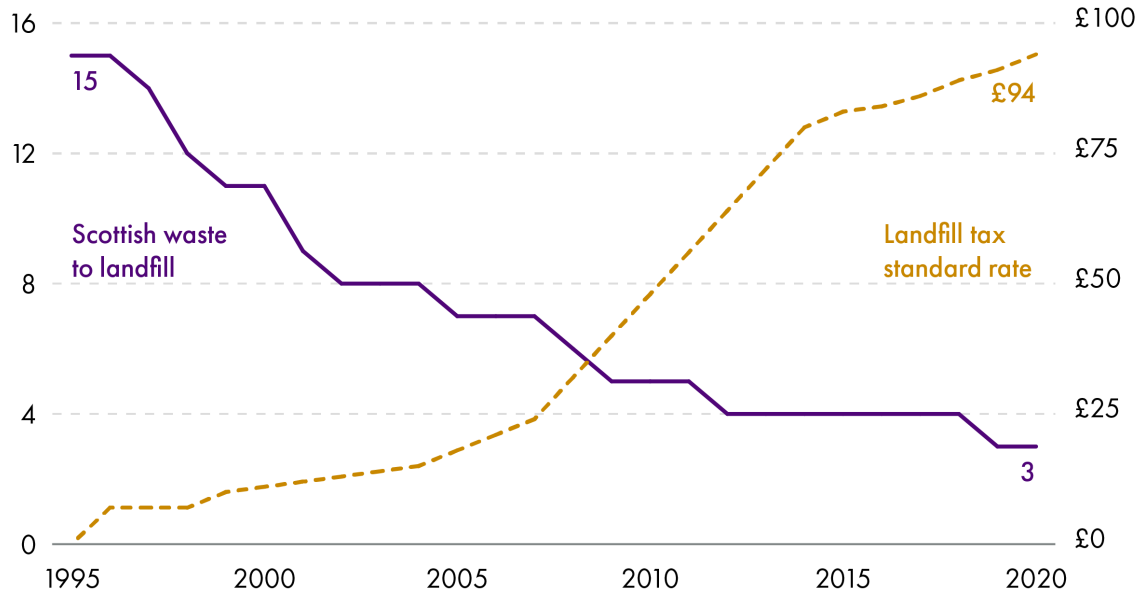
The UK Landfill Tax was devolved through the Scotland Act 2012 and the Scottish Landfill Tax (SLfT) has been in place since 1 April 2015. The Scottish Parliament sets tax rates paid on the disposal of waste at landfill and determines which waste qualifies for the tax. SLfT is a fully devolved tax collected by Revenue Scotland The current rates set by the Scottish Landfill Tax (Standard Rate and Lower Rate) Order 2021 are:

- Standard rate: £96.70 per tonne
- Lower rate: £3.10 per tonne

The Landfill Tax has been a major part of the success in driving change in Scotland's waste performance. A significant factor in this has been the escalator built into the tax rate. This effectively laid out a route map of future costs for all the stakeholders involved. Landfilling waste was therefore going to become increasingly expensive and investing in alternative solutions, such as recycling and reuse activities, would often be in waste producers own financial interest regardless of the wider environmental and societal

benefits. The chart below from the Scottish Environment Protection Agency (SEPA) demonstrates the impact of the tax. [11]

**Figure 3.3.2a: Scottish landfill in tonnes versus landfill tax rate 1995-2020**




Source: SEPA

There is also a partial hypothecation of the SLfT. The Scottish Landfill Communities Fund (SLCF) is a tax credit scheme, which encourages landfill site operators to provide contributions to Approved Bodies, who can then pass the funds onto community and environmental projects. There are six categories of environmental project that can be funded in this way. The SLCF replaced the UK scheme in Scotland in April 2015 and landfill operators cannot directly fund projects or control how the SLCF funding is spent (see Figure below).

**Figure 3.3.2b: Scottish Landfill Communities Fund (SLCF) Funding Flow**


Source: SPICe adapted from SEPA

However one of the unintended consequences of Landfill Tax and the increasing price of landfill disposal for waste is that Energy from Waste (EfW) disposal solutions have become more attractive. This is discussed further in section 5.4.

## 3.3.3 Renewable energy and energy efficiency grants/loans

There are a wide variety of low cost loans and grants made available by the Scottish

Government through the Energy Savings Trust (EST) and Zero Waste Scotland (ZWS). These include:

- EST Home Energy Scotland loan – up to £17,500 interest-free to install home renewables such as heat pumps.
- ZWS Small and Medium Enterprise (SME) Loan - interest-free loan funding of up to £100,000 for a variety of energy efficiency improvements, such as insulation, heating or double glazing. The loan can also support the installation of a variety of renewable technologies.
- EST Low Emission Support Fund for Business - offering micro businesses and sole traders, with an operating site within 20km of the forthcoming city low emission zones, a £2,500 grant towards the safe disposal of non-compliant vehicles.
- EST Used Electric Vehicle Loan (for householders and businesses) - interest-free loan for householders and businesses with up to £20,000 to cover the cost of purchasing a used electric car or used electric or plug-in hybrid electric van.

### 3.3.4 Air Passenger Duty

Air Passenger Duty (APD) was devolved by the Scotland Act 2016 and so it warrants a mention here although these devolved powers have not been used yet. The Scottish Government planned to replace it with Air Departure Tax (ADT) [12] and made provision for such a tax however the original proposals could not continue the exemption for the Highlands and Islands (related to EU laws on state aid) and were not aligned with the 2045 Net Zero target. The latest Scottish Government position is:

> “ We will engage with the UK Government on its current consultation on APD reform to find a solution that remains consistent with our climate ambitions. The UK Government will maintain the application and administration of APD in Scotland in the interim. [13] ”

APD is a per person charge, rather than per unit of fuel. Hence the impact on a passenger is the same whether they travel by a commercial airline or a private jet. It also doesn't take account of the efficiency of the individual aircraft. An escalating tax on aviation fuel may be a more equitable option and would encourage a change in aircraft operators’ behaviours but faces the challenge of operators simply refuelling aircraft elsewhere to avoid the tax.

The UK Government published the responses to its consultation on APD reform in October 2021 [14] . Environmental stakeholders called for a change from APD to a frequent flyer levy, which would directly target those generating the most emissions, however the UK Government has responded to the aviation industries’ concerns over the administrative burden created by a frequent flyer levy and has chosen to implement a revised structure to the APD international distance bands from April 2023. The bands with be set at 0-2,000 miles (short haul); 2,000-5,500 miles (long haul); and 5,500 miles (ultra long haul).

## 3.3.5 Agricultural subsidies/grants

Agricultural subsidies arise from the Common Agricultural Policy (CAP) support regime. These still operate in Scotland after leaving the EU, albeit with the funding now coming from the UK Treasury. The Scottish Government is continuing the CAP based system until a new approach has been developed, in line with the 2018 policy [15] of maintaining the stability and simplicity of the regime until 2024; with a new regime planned for implementation in 2025. This is a significant area of policy development for Scotland and the Scottish Government has made commitments to ensure the new regime aligns with environmental outcomes (see section 5.5 for more detail on this).

The existing regime is structured under two main pillars:

- Pillar 1 of the CAP is Rural Payment support to farmers' incomes. This support is provided in the form of direct payments with the majority of the payments based on a per-hectare of land basis. This makes up around 70% of the funding [16] .
- The Scottish Rural Development Programme (SRDP) delivers Pillar 2 through a range of different funding schemes; for example funding woodland creation, organic farming, and paths, amongst others. The main priorities are: enhancing the rural economy, supporting agricultural and forestry businesses, protecting and improving the natural environment, addressing the impact of climate change and supporting rural communities. This makes up the remaining 30% of the funding.

## 3.3.6 Forestry grants

The Scottish Government's Forestry Grant Scheme (FGS) [17] supports the creation of new woodlands – contributing towards the Scottish Government target of 12,000ha of new woodlands per year, rising to 18,000 hectares from 2024/5 - and the sustainable management of existing woodlands. For the Scottish Rural Development Programme 2014–2020, £252 million is estimated to have been made available through this scheme.

The support comes under eight categories, two for the creation of woodland and six for management of existing woodland. These cover agro-forestry and woodland improvement as well as the planting of various types on new woodland. Scotland was praised for the level of new planting by the Forestry Journal in 2021 [18] , when compared to other nations in the UK. However according to Scotland's Forestry Strategy 2019–2029 [19] only 3,000-5,000 hectares of this annual total will be new native woodland and so the focus appears to be primarily upon commercial woodland for economic value rather than biodiversity or ecosystem value.

## 3.3.7 Fishing subsidies/grants

The environmental impact of fishing, aquaculture and related industries is primarily managed through regulation, however since management of our seas is essential for protecting and enhancing our biodiversity it seems appropriate to include fiscal measures here too. This section highlights the main schemes.

The European Maritime and Fisheries Fund (EMFF) finished in 2020. This was a European grants scheme which supported fisheries, aquaculture, the seafood supply chain (including processing and fishing communities), wider maritime sectors and statutory data collection with specific aims including sustainable fishing/aquaculture. The Scottish Government identified in 2019:

> " Together with associated indirect assistance, EMFF could be worth up to £150m to Scotland between 2014 and 2020. [20] "

The Scottish Government's Seafood Producers Resilience Fund ran from 5 February to 7 March 2021. The fund provided support to eligible shellfish catchers and eligible shellfish and trout aquaculture undertakings. This support was provided as a result of COVID-19, and the difficult trading conditions that have resulted from the end of the transition period following the UK's withdrawal from the EU.

Grant funding is available under the one-year Marine Fund Scotland (MFS) programme, but work must be completed by 31 March 2022. There are three priorities, one of which is "*delivering a low carbon blue economy which contributes to our climate change targets and helps sustain and enhance the natural capital in Scotland's seas*" [21]

The Scottish Government's commitment to a 'Blue Economy Action Plan' [22] sets out criteria for future support. This includes overarching/public good criteria:

- Supporting collaboration, partnerships, knowledge and technical expertise which enable better decision-making, regulation, science and innovation
- Enhancing the marine environment, including its quality, reputation and its marine products
- Reductions in emissions or removal of waste

## 3.3.8 Others

There are non-environmental fiscal measures where reliefs, discounts or modulations for environmental benefit have been incorporated. Some of these are mentioned in the later sections of the report. The repurposing of existing fiscal measures could be one of the easiest routes for early and acceptable implementation of incentives/disincentives.

## 3.3.9 The post EU legal framework

At this point it is worth highlighting the impact of the UK Internal Market Act 2020 and the UK Subsidy Control Bill. The Act seeks to prevent internal trade barriers among the four countries of the United Kingdom. It could significantly restrict the Scottish Governments ability to introduce new fiscal measures different from the rest of the UK, including Minimum Prices for products. The two key principles are:

**Mutual Recognition**: A good, which complies with regulation permitting its sale in the part of the UK it is produced in or imported into, can be sold in other parts of the UK, without complying with equivalent regulation there.

**Non-Discrimination**: Regulatory requirements that discriminate against a good from another part of the UK, whether directly or indirectly, will not be enforceable

The Act does not prevent the Scottish Parliament from passing legislation, or the enforcement of any requirements on goods produced in Scotland or imported directly into Scotland from outside the UK. However, it could significantly impact on the extent to which new fiscal measures in Scotland could make a difference and achieve their intended outcomes; where the Act means requirements do not apply to goods or services produced in, or imported into, other parts of the UK before being marketed in Scotland.

There are also a number of Common Frameworks (intergovernmental agreements to set out shared UK or GB-wide approaches) being developed following the exit from the EU and these include areas such as Agricultural Support, Emissions Trading and Resources and Waste. A number of environmental Common Frameworks have been provisionally agreed and are expected to be made available for Parliamentary scrutiny in 2022 [23] . These frameworks in combination with the Internal Market Act may affect the latitude that the Scottish Government has in pursing different Land use, Circular Economy and Waste policy from the rest of the UK. Common Frameworks may also be used to agree exclusions from the UK Internal Market Act principles, which might enable policy divergence in areas that would otherwise be prevented or hindered by the Act. The UK Government has recently published a process for this [24] .

This situation is, at the time of writing this of the report, being tested by the introduction of the Single Use Plastics Regulations where Scotland is aligning with aspects of the EU Single Use Plastics (SUP) Directive. The Minister for Green Skills, Circular Economy and Biodiversity, Lorna Slater MSP, recently told the Net Zero, Energy and Transport Committee:

> “ Although we still fundamentally oppose the act, officials have been engaging on the preferred option of securing an exclusion in this policy area through a common frameworks process. Agreement has now been reached on the process by which agreements can be reached on the common framework areas that can be excluded, and UK ministers will shortly make a parliamentary statement to that effect. This is an early test of UK ministers’ commitment to acting in a way that respects the framework process. It will not make the 2020 act any more compatible with devolution, but it will allow a degree of protection for policy areas that are covered by common frameworks. If no exemption is allowed to the impact of the 2020 act, it will still be possible for any products that are produced in or imported by another part of the UK to be sold in Scotland, and hundreds of millions of pieces of plastic will still end up on our beaches. Without an exemption, the act will undermine our ban on these environmentally damaging plastic products. We will continue to work with the other UK Administrations to agree an approach to managing the implications of the act for the ban.”

The UK Subsidy Control Bill may also have an impact on subsidies applied to businesses within Scotland. The main focus of the bill is ensuring subsidies from public bodies are in compliance with a series of subsidy control principles set out in the Bill. Principle F in Schedule 1 of the bill requires “subsidies should be designed to achieve their specific policy objective while minimising any negative effects on competition or investment within the United Kingdom”. This will require the Scottish Government to consider the effect of any subsidy on competition and investment across the United Kingdom. In addition there are both environment and energy principles as extra principles in Schedule 2 of the Bill which may be relevant in terms of constraining policy options for the Scottish Government.

While this new legal framework is still to be tested and is subject to how Common Frameworks are used, taken all together it could make it challenging to introduce new environmental fiscal measures that differ from the rest of the UK.

## 3.3.10 Environmental fiscal reform in a devolved context

Action to address climate change is primarily focused on eliminating the use of fossil fuel based energy and the control of other GHGs such as methane (the types of fiscal mechanisms available to the Scottish Government under existing devolved powers are discussed previously in section 3.2). With energy policy being primarily controlled from Westminster this poses extra challenges for the Scottish Parliament – but Scotland can and has in a number of cases put in place measures which build on incentives introduced at UK level. Most obviously, the Scottish approach to enabling renewable electricity developments through the planning system has encouraged much greater than population-share development of renewable energy. Similarly, but at a smaller scale, funding for Energy Saving Trust ( EST) advisors has helped individual households access UK-wide renewable heating support.

The Scottish Government's Heat in Buildings Strategy states:

> “ Whilst regulating for emissions, heat and energy efficiency are largely devolved matters, the regulation of energy markets, fossil fuels, consumer protection and competition are reserved to the UK Government. As such, there is a risk that in exercising devolved powers we cut across into areas that are reserved to the UK Government. Given that the UK Government faces the same challenge to decarbonise heat in buildings that we face, we will engage with them ahead of introducing new legislation – as has also been recommended by respondents to the consultation – to secure agreement on changes that are necessary to the energy markets in reserved areas to ensure a just transition to zero emissions heating, or to secure further devolution of the powers needed to make such changes in Scotland.”
>
> Scottish Government, 2021[25]

The great majority of policy discussions on climate change emissions focus on energy use within the boundaries of individual countries but this focus may ignore some significant aspects. The Ellen MacArthur Foundation has calculated that climate change is caused by 55% direct emissions from energy use and 45% from embedded carbon in the materials and products we use [26] . Other organisations have come up with similar estimates. This measurement is based on the overall carbon footprint emissions of a country, which includes the emissions we are responsible for from imported products and materials we purchase. Territorial emission measurements are more limited and tend to focus on direct emissions from energy use and land use.

To decarbonise an economy there is a need to consider the overall carbon footprint of the society as you could simply “offshore” your emissions to the manufacturing industry in another country. In essence net zero cannot be achieved without addressing the embedded carbon in materials and products and adopting a Circular Economy (CE) may be essential to this.

Key benefits of a transition to a CE are commonly accepted as reduced extraction of virgin natural resources, reducing the impact on biodiversity, reducing environmental impacts on air, water and reducing climate impact. The other benefits in these challenging times are:

reduced exposure to geopolitical supply risk(s); new economic opportunities, which may include improved quality of jobs; and also greater community cohesion as supply chains become more local – e.g. through leasing, reuse and repair. The CE has been recognised in G20 reports and the EU's Circular Economy Action Plan:

> " CE measures are now a core component of both the European Union's (EU's) 2050 long-term strategy to achieve a climate-neutral Europe and China's current Five Year Plan."
>
> Greco, E., Botti, F. and Bilotta, N., 2020[27]

> " Global material use has tripled in the past few decades, and in the absence of specific measures to counter such a trend it is expected to further double by 2060."
>
> European Commission, 2019[28]

Notwithstanding the new post EU-exit legal framework mentioned above (in Section 3.3.9), Scotland has a range of devolved competences in waste and resources and the wider environment covering agriculture, forestry and land management. Scotland also measures both its territorial and footprint GHG emissions; with the decline in footprint emissions being notably less than the territorial emissions [29] . It is therefore important that, with these competences, the parliament considers the opportunity and significant role the circular economy has, and the way Scotland's carbon emissions are measured within any future environmental fiscal framework.

## 3.4 Planned environmental fiscal measures

There are a range of fiscal measures already in the pipeline for implementation within Scotland and the UK, or that are in a stage of consultation or early planning. These include UK-wide plans where the policy area is devolved and consent of Scottish Ministers or the Scottish Parliament will be required, for example EPR schemes, and where the UK Government is seeking to introduce measures that will impact on devolved areas, for example the proposed Plastic Packaging Tax. In this section what is considered to be the most relevant of these are summarised from a Scottish perspective; please note that there may be others in development that were not made aware to the author at the time of preparing this report.

The two Tables below summarise the measures that may be forthcoming and therefore may require some scrutiny by the Scottish Parliament. It may also be necessary to consider proposed measures alongside relevant Common Frameworks.

## Table 3.4.1 A summary of planned fiscal measures

| Fiscal Measure | Description | Estimated Timescale |
|---|---|---|
| Tax : Scottish Aggregates Levy | The current UK aggregates levy is £2 per tonne for aggregate material quarried or imported. A Scottish Levy replacing the UK one is planned. | Expected in 2021-26 parliament following the Final Report on options in August 2020. |
| Tax: UK Plastic Packaging Tax<br><br>This is a UK government measure without the involvement of Scottish or Welsh Governments. | This is a new tax that will apply to plastic packaging manufactured in, or imported into the UK, that does not contain at least 30% recycled plastic. | Expected April 2022. |
| Producer Responsibility: Scottish Deposit Return Scheme | 20p Deposit on drinks containers (Glass bottles, Cans, Plastic bottles). | Expected August 2023 (Regulations already passed in the Scottish Parliament). |
| Producer Responsibility: UK wide packaging reform | Revised system for responsibility for packaging on products. Will result in payments from the packaging industry to Councils to cover the costs of packaging collection through their household recycling services. | Expected 2023. |

### Table 3.4.2 A summary of UK and Scottish fiscal measures in consultation or development

| Fiscal Measure | Description | Status (in consultation or in development) |
|---|---|---|
| Scottish Subsidy: Scottish Agricultural Subsidy regime | The Scottish Government is committed to replacing the existing CAP regime with half of funding conditional on environmental impacts. | Initial consultation document issued by SG. New Act expected in 2023 and implementation in 2025. |
| UK wide Producer Responsibility: WEEE/ Batteries | UK wide schemes being reviewed with the four nations. | Consultation process planned for 2020 but delayed due to the pandemic. |
| UK Tax: VAT (partially assigned) | The Scotland Act 2016 states that receipts from the first 10p of standard rate of VAT and the first 2.5p of reduced rate of VAT in Scotland will be assigned to the Scottish Government's budget. | Timescale will be known following the Fiscal Framework Review. However assignment of a share of VAT does not enable the use of differential rates or to make any other changes to VAT policy. |
| Scottish Tax: Workplace Parking Licensing (WPL) | Employers would pay an annual levy to their local authority for parking spaces they provide to their employees. Powers to introduce WPL are included in the Transport (Scotland) Act 2019. | Publication of regulations & guidance by Transport Scotland expected in 2022. The discretionary revenue raised will fund local transport strategies. |
| UK wide Producer Responsibility: Fishing Gear | A scheme to ensure the recovery of end of life fishing gear (aligns with EU Single Use Plastics Directive). | An initial inventory report and policy options for the UK nations to be published by DEFRA in 2022. |
| UK wide Producer Responsibility: Textiles | Potential UK wide scheme options being developed. | Consultation with stakeholders by the end of 2022 on options for an Extended Producer Responsibility scheme. |
| Scottish Producer Responsibility: Minimum Single Use Cup Price | Recommendation by EPECOM to the Scottish Government. | May be included in the forthcoming Circular Economy Bill along with a range of other potential measures. |
| Scottish Tax: Transient Visitor Levy (TVL) | Would enable local authorities to apply a "tourist tax" to visitor accommodation at their discretion. | Awaiting outcome from the recent Scottish Government consultation. |

In the UK Autumn 2021 budget the chancellor announced some changes to UK wide environmental fiscal measures. Flights between airports in the UK nations will be subject to a new lower rate of Air Passenger Duty from April 2023. From April 2023, a new ultra long haul band in Air Passenger Duty for flights of over 5,500 miles will be introduced. Many commentators appeared surprised at the lack of further "Green" measures in the budget given the approaching COP26 in Glasgow (e.g. the BBC [30] ).

## 3.5 Programme for Government and the Climate Change Plan 2020 commitments

There are a range of targets and commitments contained within the Scottish Government's Programme for Government (PfG) and the Climate Change Plan 2020 update (CCPu).

Some of these come with commitments to review or examine fiscal measures. Where not already highlighted in Tables 3.4.1 and 3.4.2 the key ones for this report are raised within case studies in Section 5.

# 3.6 European Union measures

The EU is proposing a range of new measures that may influence the UK and Scotland. The most significant is the Cross Border Adjustment Mechanism (CBAM). On 14 July 2021, the European Commission adopted a proposal which will put a carbon price on imports of a targeted selection of products so that ambitious climate action in Europe does not lead to 'carbon leakage'. The Commission states that:

> " This will ensure that European emission reductions contribute to a global emissions decline, instead of pushing carbon-intensive production outside Europe. It also aims to encourage industry outside the EU and our international partners to take steps in the same direction."
>
> European Commission, 2021[31]

As the Institute of Fiscal Studies (IFS) summarises, with reference to it as a potential UK fiscal measure, one option "*... to preventing taxes in a country leading to emissions-generating activities simply moving abroad is to place a tax on imports according to their embedded and untaxed GHG emissions (or 'carbon' content). Under such a tax, there would be no tax-induced incentive for a UK producer that is selling to UK consumers to move production abroad and import into the UK, and they would not face unfair competition from a producer in a location with lower taxes on GHG emissions."* [32]

If adopted by both the European Parliament and the Council – the CBAM would, from 2023, require importers of such goods to report the direct and indirect (embedded) emissions and any carbon-related tax paid abroad for all imports. This would represent a significant increase in reporting requirements. Additional tax would start to be due from 2026 when importers of cement, iron and steel, aluminium, fertilisers and electricity would need to buy 'CBAM certificates' to cover the carbon emissions created in the production of the imports from countries that are not part of the EU ETS. See figure 3.6 below.

The implications of the CBAM are that Scottish exporters may face additional costs and administration to export these goods and services into the EU with uncertain economic impacts. There are a number of options to address this. One option is the linking of the UK ETS, which Scotland is part of, to the EU ETS, an option available under the EU-UK Trade and Cooperation Agreement (TCA). While this would provide greater alignment with the EU and would likely make the UK exempt from the CBAM this would also limit the UK's ability to design its own carbon pricing structures in the future.

If linking to the EU ETS is not pursued importers in the EU may be able to take account of any carbon price paid in the UK when determining how many CBAM certificates they need to purchase [33] . The IFS has also noted that the UK Government has indicated that it is considering a possible tax on imported emissions [32] - in effect a UK CBAM.

**Figure 3.6 - Sectors to be covered in the first phase of the EU Carbon Border Adjustment Mechanism (CBAM)**


Source: European Commission

In response to concerns raised by the Just Transition Commission about offshoring emissions and jobs the Scottish Government has responded (via the PfG 2021/22) that through the jointly-administered UK ETS, the Scottish Government will ensure that the Free Allocation system continues to appropriately protect Scottish industries from the risk of carbon leakage. The Scottish Government has also commissioned research to better understand the impacts and potential benefits of carbon border adjustment mechanisms and committed to publish a position in 2022; those companies that have already taken action to reduce GHG emissions from their products or services may be the ones that could potentially benefit.

In addition to the CBAM the EU is expanding the role of its ETS to include more industries and adopting further measures as part of its action on the Circular Economy.

The EU Circular Economy Action plan 2021 requires that member states achieve high levels of separate collection of textile waste by 2025 and boost the sorting, re-use and recycling of textiles. The European Union's Waste Framework Directive mandates that EU member states must set up separate collection for used textiles and garments by January 1st 2025, and that this waste can no longer be sent to landfill or incinerated. EPR will most likely be the financial instrument that ensures this happens.

However this is not a comprehensive list of EU measures and the situation is dynamic – EU measures in this space are likely to continue to develop. The Scottish Government may need to consider how it approaches delivery in some of these areas in relation to its policy commitment to keep pace with EU environmental standards.

# 4. Exploring opportunities for environmental fiscal reform

## 4.1 Filtering the many options

With such a wide range of fiscal measures available there is a need to focus upon those ones that have the best chance of being able to be implemented successfully and achieving the desired outcomes. A range of filters have been used to funnel this wide range of options into a smaller list of measures and case studies that could be used to inform a framework for environmental fiscal measures reform.

The aim has been to identify viable options and case studies that cover the breadth of areas covered by the Scottish Parliament, which includes for example, transport, land and sea-use, climate change, energy efficiency, biodiversity, sustainability of food supply, waste management, planning, sustainable tourism, and natural resource protection and management. This has, however, been tempered by the filtering below. The filters are as follows:

- Relevance: to major scrutiny work in the parliament such as the Programme for Government 2021/22, the Climate Change Plan 2020 update and the forthcoming Circular Economy and Natural Environment Bills;
- EU related: Measures being adopted by the European Union that Scotland may wish to follow (e.g. EU Single Use Plastics Directive or action on the collection of textiles);
- Green recovery: Relevance to “Green Recovery” opportunities and the Scottish economy;
- Magnitude: The likely magnitude of the beneficial impact of the measure or where a measure addresses a major technical challenge Scotland has;
- Evidence of market failure: where costs of an environmentally beneficial option are greater than the alternative, fiscal measures can change prices at the point of decision making by business and individual consumers to support the alternative option;
- Scottish context: Subjective assessment on issues such the complexity, difficulty, applicability, and deliverability of a particular measure in a Scottish context.

## 4.2 Determining devolved competence

The aim of this report is to provide a starting point for discussions and further more detailed research on environmental fiscal measures that offer potential solutions to Scotland’s Net Zero and Ecological Restoration objectives. This could include example measures, which are either likely to be within the Scottish Parliament’s competence, or tax measures that could support delivery of devolved environmental policy goals, but which would require the consent of the Treasury via an ‘Order in Council’ under section 80B of the Scotland Act 1998 (as amended). However this report does not attempt to assess the extent to which any particular measure would be within the Scottish Parliaments’

competence, or indeed to that of local authorities. This will be a matter for the Scottish Government and Parliament itself.

# 4.3 Identifying key themes in environmental fiscal reform relevant to Scotland

A scan of available literature from key organisations on environmental fiscal measures was undertaken as part of this report. The organisations included the UK & Scottish Governments, EU, OCED, World Bank, IMF, and a range of think tanks.

The general conclusion from the scan is that there is currently a limited amount of advice available in this area. A best practice framework of environmental fiscal measures that can be draw upon does not appear to exist, as yet. This may be due to it being an area of policy that has relatively recently been recognised as a priority in the current emergencies. Due to the many international cross border issues to consider, when a framework does emerge this may most likely be through a collective action between countries, such as we see emerging in the EU. However there are several themes and trends that are worthy of drawing out as overarching points that Scotland can learn from, summarised in the following sub-sections.

## 4.3.1 The current situation and the carbon tax debate

What is clear is that the environmental fiscal measures we have in Scotland and the UK are many, overlapping and sometimes conflicting. It is a very complex picture which would appear to benefit from simplification and rationalisation around a few key measures, for example a carbon tax that could apply a price that would reflect real world emissions and be transparent. At the time of this report, however, there is no indication that an overarching carbon tax will be pursued by the UK Government. Such a measure would, no doubt, require a major review of existing taxation and this would itself be challenging.

Any review to achieve simplification or rationalisation of taxes in Scotland would be a reserved matter. Existing subsidy and grant regimes, however, could be reviewed to reward emissions and biodiversity benefits in a more equal manner in a Scottish context.

With the major challenges of implementing a carbon tax considerable reliance is being placed on the UK ETS as a mechanism to address climate change emissions; as is the case in the EU with the EU ETS. While favoured by multinational companies and economists there are many reasons as to why future reliance on the UK ETS may not be an effective long term solution.

Emissions trading was initially created to make emissions reductions more affordable for corporations and other big polluters. However with thousands of participants of different types and a pattern of ever increasing complexity there can be many ways to game the system. There are many issues to contend with such as countries being unable to agree common rules, loopholes, double counting, selecting an annual cap mechanism etc. Carbon emission trading schemes have a lot of critics and there is a view amongst climate activists that carbon markets will not help stop climate change [34] .

Imperial College London (ICL) carried out a review of the EU ETS in 2016, reviewing a 10 year period from when it was created in 2005. At that point the European Union had been

running a carbon market to govern the GHG emissions from 12,000 power and manufacturing plants in 31 countries. While the ICL paper considered that the ETS should continue it did also conclude:

> " As an alternative policy, a carbon tax would provide more certainty and visibility for low-carbon business, therefore it should remain a potential tool for policymakers."

Scotland has had direct experience with a trading scheme when the Scottish Landfill Allowance Scheme (LAS) was introduced for Local Authorities through the Landfill Allowances Scheme (Scotland) Regulations 2005. The LAS Regulations were introduced in Scotland to deliver the landfill targets relating to a reduction in biodegradable waste set out at article 5 of the European Landfill Directive. The main driver for the Directive targets was to reduce methane emissions from landfill sites.

However the scheme was withdrawn with the introduction of the Waste (Scotland) Regulations 2012 (note there is now ban on biodegradable municipal waste going to landfill from 2025). It is worth noting that a number of challenges existed during its operation and these included the skills, technical ability and the culture of the public body participants as well as the Scottish Government's commitment to penalise Councils for failing to meet annual target allowances. This experience may be applicable to any future modification of the UK ETS should it apply to public bodies in Scotland; i.e. would a government be able to "follow through" on imposing penalties on public bodies?

However a carbon tax is also not a "silver bullet". There are justifiable concerns that carbon taxes could impact lower-income households which tend to use a higher percentage of their income on high-emission activities, such as heating homes and transportation. This could make a carbon tax a regressive tax without adequate mitigations, such as using some of the tax income to support these households. In addition extra costs from a tax may not be a big enough incentive, for those who are wealthy, to change their behaviour.

Like ETSs, carbon taxes have been criticised as measures that do not alter the underlying system but rather operate within it, which leaves some sceptical of the long-term change that they may affect.

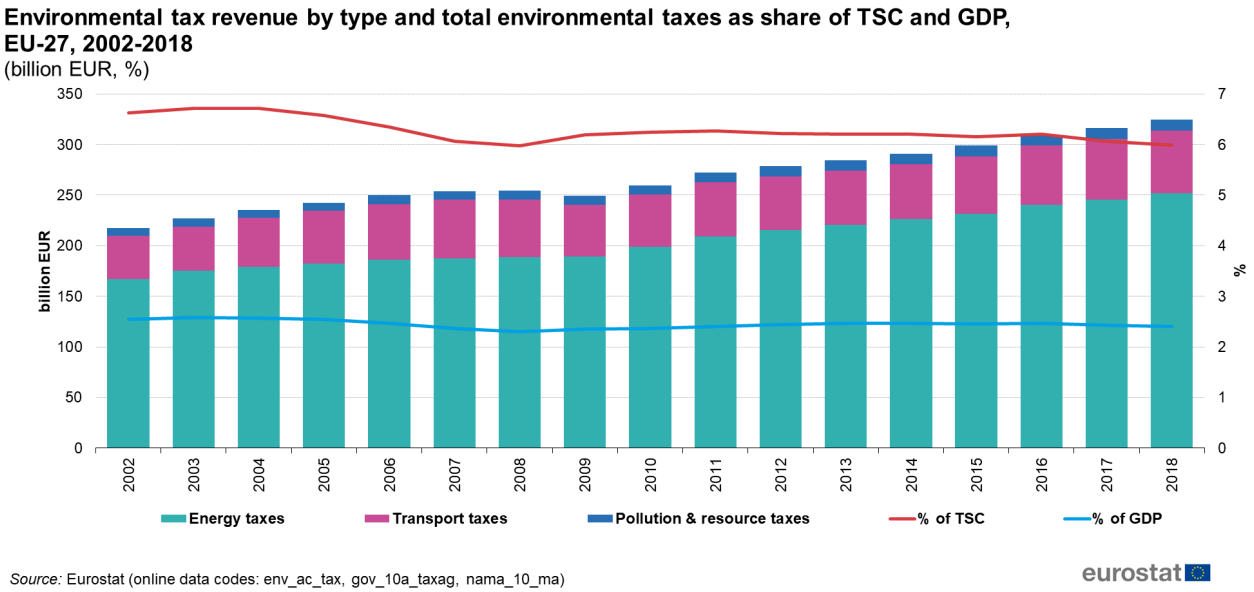
## 4.3.2 Environmental & resource versus labour & income taxation

If we are to reduce consumption of resources and move to a renewable energy powered economy we need to shift more of the taxation base from primarily labour & income/ corporate taxes to taxes on resource use and environmental damage. This is recognised by a wide range of international organisations for example the EU commissioned work to examine the potential for such a shift in 14 member states in 2015 [35] . This shift would be expected to impact overall consumption levels in the economy but may not negatively impact employment as the World Bank has previously commented on environmental taxation rates (ETR):

> " empirical studies of ETR in developed contexts—including research conducted in Canada, Denmark, and the United Kingdom—suggest negligible or positive effects on output and employment."
>
> World Bank, 2019[36]

However what is evident from the EU27 chart (Figure 4.3 below) is that this major shift has not yet started. The chart from Eurostat shows various environmental related taxes in the coloured bars and the red line shows the percentage of those taxes as a percentage of the overall Taxes and Social Contribution (TSC) raised. This shows that only 6-7% of revenue raised through total TSCs is related to environmental fiscal measures.

**Figure 4.3 – Environmental Taxes as a share of GDP and TSC for the EU27 countries**




Source: Eurostat

## 4.3.3 Mainstreaming climate change and biodiversity - a whole government approach

The Coalition of Finance Ministers for Climate Action is an international group of Finance Ministries that collaborate on strategies to integrate climate into economic and financial policies. The Coalition's 65 member countries includes the UK and represent different geographic regions and levels of economic development, and collectively account for about 39% of global energy-related $CO_2e$ emissions and 63% of global GDP (based on 2018 data). They are advocating a 'whole-of-government' approach:

> " Mainstreaming climate requires major strategic changes within Finance Ministries and large investments in capacity building."
>
> The Coalition of Finance Ministers for Climate Action, 2021[37]

This coalition has set out six Helsinki Principles to form a comprehensive strategic framework to help Ministries of Finance integrate climate policies and design actions to address the climate crisis. The coalition understands that capacity building and resources are needed within the finance departments of government to enable change to take place, however a whole government approach is needed and this may have significant benefits.

In many countries the recovery support provided by governments to their economies in relation to the pandemic has been influenced by the need to reduce the environmental impacts of that support, especially when it's to industries or sectors that are responsible for a significant element of climate impacts. This has led to some funding being tied to

environmental commitments. The Ellen MacArthur Foundation commented:

> “ When it comes to larger businesses, governments can also help guide the transition to a cleaner and more resilient recovery by attaching conditions within, for example, stimulus packages, state aid, and bailout funds. This can help increase the uptake of certain practices or technologies that contribute to a better recovery. In Austria, for example, the government has asked airlines to commit to reducing carbon emissions as a condition for its support, and in France, a EUR 7 billion package of state guaranteed loans for Air France, in which the government is a shareholder, comes with the requirement that the airline reduces domestic $CO_2$ emissions by 50% by 2024.”
>
> Ellen MacArthur Foundation, 2021[38]

There are wide-ranging conversations as part of the green recovery discussion being held internationally . Closer to home the Advisory Group for Economic Recovery produced a report with a range of recommendations in June 2020 [39] . However, there is no reason why this approach of including environmental conditions should be limited to only pandemic recovery funding. So in addition to any ongoing funding support related to the pandemic the Scottish Parliament may wish to ensure all funding and support from Scottish Government, and its agencies, is in alignment with net zero and ecological restoration. At the time of writing this report, work is ongoing within the Scottish Government to analyse future budget expenditure and how it could be better aligned with Scotland's climate change targets.

This could be a requirement of all public funding from all public bodies to demonstrate that funded plans are in alignment with Scotland's strategic environmental goals. Over time such conditions in grants could become more specific and enforceable as public bodies and their stakeholders become more familiar with this standard requirement, much as they are with contracts requiring the payment of the Minimum Wage. As Climate and Biodiversity impact measurements become more developed the overall impact of government funding could be measured and evaluated. Work underway by Zero Waste Scotland to extend their Carbon Metric measurement for waste into wider environmental impacts is one example of this. [40]

A commitment to instigate such a process for large grants has already been made in the SNP & Green Party shared policy programme:

> “ for businesses receiving grant or loan / equity funding of over £500k and for major contracts: a commitment to reduce scope 1 and 2 greenhouse gas emissions at a level consistent with Scotland’s 2045 net zero target, including requiring that a published carbon management plan for achieving such targets is made available on the company's website and submitted to the public body providing the funding. We will also consult on how to take forward these proposals in a manner that protects business viability, competitiveness and early stage businesses. We will consult on when we will introduce net zero conditionality as part of our consultation process. For the purpose of this policy, large businesses are those which employ over 250 people.”

It is also worth highlighting at this point, that GHG emissions are now well developed as a measure and so it is therefore easier to target climate change measures than those focusing on biodiversity impacts. In terms of equity, Scotland needs to achieve the same extent of common measurement with biodiversity metrics going forward so that biodiversity issues are not left behind due to a lack of metrics.

As a nation that is one of the international leaders on natural capital measures it seems a natural extension that this should cover future biodiversity metrics that fiscal measures could be based upon. The work on revising the agricultural subsidy regime and the commitment to a Natural Environment Bill by the Scottish Government may provide opportunities to address this issue.

# 5. Key sectors and associated case studies

The literature scan has yielded a number of environmental fiscal measures that have relevance to Scotland's major challenges. As mentioned in section 4.1 above a range of filters have been used to funnel a range of options into a smaller list of measures and case studies that could be used to inform a framework for environmental fiscal measures reform.

Within this section a range of fiscal measures that could be used in key sectors are highlighted, covering the breadth of the Scottish Parliament's remit. Where possible these are supplemented with relevant case studies focusing on how such example measures might support current Scottish Government objectives e.g. those set out in the current Programme for Government or the Climate Change Plan 2020 update.

## 5.1 The electrification of transport

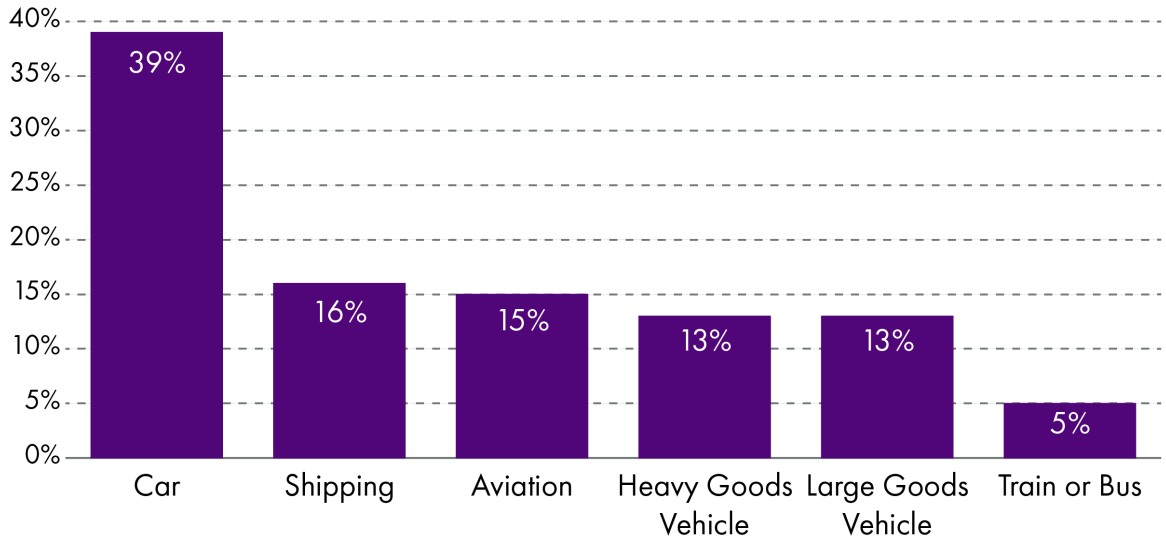
**Key Scottish Government targets/commitments:**

Bring about a green transport revolution – working towards our ambition to remove the majority of diesel buses from public transport by the end of 2023, reducing car kilometres by 20% by 2030, decarbonising Scotland's railways by 2035, and phasing out the sale of new petrol and diesel cars by 2030. - 2021/22 Programme for Government

### 5.1.1 Background

Climate Change Committee reports have consistently emphasised the importance of reducing carbon emissions from the transport sector in moving to net zero in Scotland. The graphic below in Figure 5.1.1 shows that passenger car travel is the largest single source of transport carbon emissions, accounting for 40% of the total in 2018 [41] .

**Figure 5.1.1: share of transport emissions in Scotland by mode of transport.**




Source: Scottish Government

In theory, a shift from private to public transport should offer opportunities to reduce car use and associated emissions, and the Scottish Government, as part of its commitment to reduce overall car km by 20% has committed to "publish an analysis of options to assess and identify demand management options at the local and national level to encourage the use of active travel and public transport as an alternative to cars".

Free bus travel for older people and people with disabilities has been available for many years, and consistent with the aim above, the Scottish Government is introducing free bus use for young people under the age of 22. The scheme explicitly aims to "*embed sustainable travel behaviours from a young age, open doors to new opportunities, and help to meet our target of net zero emissions by 2045*". Similarly, Austria has recently introduced KlimaTicket, offering cheap, annual integrated public transport ticket for the whole country.

Such initiatives clearly offer a financial incentive not to use cars for those who have a choice, as well as providing access to travel for those without cars. However, Transport Scotland data show that car ownership in Scotland has increased from some 1.3m vehicles in 1975, to over 3m vehicles in 2019 [42] . The same source also shows that passenger road traffic has continued to increase in recent years, despite public policy aims and initiatives designed to encourage modal shift to public transport and active travel. Although rail passenger numbers have also increased, there has been a comparatively greater fall in bus passenger numbers over the same period, meaning that total use of public transport is declining. Figure 5.1.2 provides a summary of the situation.

**Table 5.1.2 – Increase/Decrease in use by transport mode taken from Transport Scotland Summary Statistics**

| | *2014-15* | 2019-20 | Change over 1 year | Change over 5 years |
|---|---|---|---|---|
| Car Traffic (m/veh km) on all roads | 34,491 | 36,747 | 1.0% | 6.5% |
| ScotRail Passengers (millions) | 92.7 | 96.7 | -1.4% | 4.0% |
| Bus Passengers (millions) | 414 | 366 | -3.2% | -11.6% |
| Air Passengers (millions) | 24.1 | 28.9 | -1.9% | 19.9% |
| Ferry Passengers (millions) | 9.7 | 10.4 | 1.4% | 7.7% |

Transport Scotland

While it is clear that the pandemic has created massive disruption, it is not yet possible to determine the longer-term impacts on travel patterns. UK transport data for 2020 shows that weekday car travel is only very slightly below levels recorded before the pandemic, and that goods vehicle transport and weekend and holiday car travel have both increased [43] . However, the statistics also show that there has been a much stronger and sustained shift away from public transport, with train travel in November 2021 at around 70% baseline use, and bus travel at around 80%.

At the same time, media reports suggest that at least some office-based employers are embedding partial home working. It seems likely that there are multiple shifts under way, with some commuters choosing to travel by car to minimise exposure to others associated with public transport, while others are working at home to achieve the same aim.

Given the trends above, it seems likely that a significant part of achieving absolute reductions in carbon emissions from the transport sector will come from replacement of petrol and diesel vehicles with lower carbon alternatives.

Studies consistently show that total life cycle emissions from electric vehicles (EVs) are lower than from internal combustion engine (ICE) vehicles [44] , and that the comparative benefits increase as electricity grids decarbonise [45] . The UK Government has announced a ban on the sale of new ICE cars from 2030, although permitting continued sales of plug in hybrid vehicles, in support of this aim. At present, EVs are a small but rapidly growing part of the new car market, with new EVs representing 18.8% of all new registrations in November 2021 [46] – a proportion which has risen sharply throughout the last year. However, EVs continue to represent only a very small percentage of all cars on the road [47] .

As with many green technologies, capital costs of EVs are generally higher, but fuel costs are considerably lower than traditional petrol and diesel vehicles. The AA has highlighted that average petrol prices reached 142.94p per litre on the 23rd October 2021 which means that an electric vehicle journey would cost substantially less.

In addition, concerns about range and access to charging facilities are highlighted by potential users. To help address these issues, a number of measures have been introduced at UK and Scottish level (as at October 2021):

- To reduce the comparative price of EVs compared to ICE cars, a grant of £2,500 is currently applied, at point of purchase, funded by the UK Government on vehicles costing less than £35,000.
- EVs with a list price of under £40,000 are zero rated for annual UK Vehicle Excise Duty (VED).
- The Scottish Government has funded Chargeplace Scotland to widen availability of

public chargers. Availability of chargers is critical in providing comfort for potential EV drivers concerned about ability to charge their cars, particularly those without access to private driveways. Evidence shows the Scottish approach has been successful; to date Scotland has the highest number of publicly available rapid charger numbers of any UK region, and the second highest number of chargers overall on the same basis [48] . However, the same report also shows that the increase in the number of additional chargers being added in Scotland is now lower than almost all other areas.

- Around two-thirds of the charging network in Scotland is free for users at present, although this proportion is declining; hosts, most commonly local authorities, currently pay for the electricity [49] .
- The Scottish Government also provides interest free loans through the Energy Saving Trust and grants towards the installation of home chargers. Loans are available for used as well as new vehicles, helping address affordability concerns.

## 5.1.2 Case Study: Norway

Norway has been encouraging EV use since the 1990s . In addition to the commercial price, new cars in Norway are subject to other taxes based on environmental impact and also to 25% VAT. Electric vehicles are exempt from these, meaning that the price of an EV is lower at the point of sale than the comparable ICE vehicle.

Additional financial incentives include reduced prices, capped at 50% of normal, for parking in publicly run locations, and on public ferries. Further practical incentives include access to lanes normally reserved for multiple occupancy cars or buses in urban areas.

The Norwegian Government also financed the installation of (at least) two fast chargers for every 50km of main road across the country, although the electricity provided by these is up to three times the cost of that for domestic customers.

These measures have helped drive a consistently increasing take-up of EVs. Over half (54%) of all new cars sold in Norway were plug in EVs in 2020. The country expects that all new vehicles will be EVs by 2025, with the change driven by economics rather than a legislative ban. It is also notable that the success of this programme is used more widely, for example, as part of marketing by VisitNorway.

## 5.1.3 Implications and emerging issues for Scotland

The cost, in terms of tax revenue not received from the purchase of petrol and diesel cars in Norway, does not seem to be published, but must be substantial; data available suggests that it is of the order of 10,000 euro per vehicle for a standard family car (VW Golf is given as an example). However, many vehicles in the UK are leased rather than purchased, and the cost premium is much lower in these circumstances, especially when combined with lower running costs.

The Financial Times highlighted that a Treasury review has warned that hitting the UK's 2050 net zero carbon target would lead to receipts from five taxes drying up including fuel duty and vehicle excise duty; therefore concluding that road pricing looks inevitable to

replace this lost revenue [50] . Apart from concerns about the loss of revenue from both taxes on fuel and Vehicle Excise Duty (VED) there are other concerns. The implications of a rapidly growing EV fleet requiring potentially significant and costly upgrades to the electricity grid have been recognised, both in Norway and by Ofgem in the UK.

On the tax issue, there is growing recognition and emerging discussion on the potential scale of loss of income to the UK Government from widespread moves to electric vehicles. In 2019-2020, duty on fuel raised just under £28bn annually, and VED a further £6.5bn at UK level. EV users do not pay the former, and, as above, only owners of vehicles with a list price of over £40,000 pay the latter. UK wide road pricing, while perhaps politically challenging to introduce, may be viewed as the most likely replacement [51] .

Regarding grid and electricity supply implications, it is important to emphasise the importance of the pattern, not just scale, of charging demand. If more vehicles are charged at peak times, the need for electricity grid reinforcement will be much greater than if vehicles are charged overnight, when surplus capacity (and generally, lower cost and lower carbon electricity) already exists in the grid. It is also important to recognise that electricity grid upgrade costs will be paid by all customers, not just those benefiting from lower costs of EV use.

Some electricity suppliers already offer tariffs with significantly cheaper overnight charging rates which would normally encourage charging at home for EV owners who can do so. However, provision of free electricity through the public charging network creates an economic incentive for owners not to do that.

The Scottish Futures Trust has also recently looked at the need to expand the charging network to meet rapidly increasing demand, and noted that provision of free power through the Chargeplace Scotland network was hampering private sector development; as there is less incentive to install private charging facilities if the public sector is providing the same service without cost.

Given this context, it may be helpful to re-consider financial incentives available in Scotland in the round and consistency with Just Transition aims. The overall aim might be to ensure that while EV incentives are sufficient to encourage continued take-up and deliver carbon reductions, the costs for all electricity users are kept as low as possible.

There may also be a role to be played by Local Authorities with regard to additional incentives to increase EV take-up. This could be through the differentiation of parking charges for electric vehicles or perhaps the use of Low Emission Zones (LEZs) planned within our cities under the Transport (Scotland Act) 2019. However both of these measures may not be appropriate mechanisms. Reduced parking charges for EVs may not be aligned with policy measures encouraging more beneficial modes of travel and there is no provision within the 2019 Act to apply differential charges for EVs entering an LEZ.

**Electrification of Transport Summary**

- This is a complex picture with a mix of vehicle bans, financial & market pressures, and infrastructure provision at play along with the use of various UK and Scottish fiscal measures.
- In relation to the purchase of EVs, the proportion of new car sales suggests that current market mechanisms, combined with the signal providing certainty on longer term bans on internal combustion engine (ICE) vehicles, are already working for “able to pay” drivers, and there may be no reason at present to change this.
- There remains the issue of ensuring access to EVs for lower income drivers. As with all new technologies, it is likely that lower cost EVs will progressively appear on the market as costs fall. The current EST EV loan scheme could be reviewed, with any necessary changes made, to help meet this need under changing circumstances.
- In terms of expanding the EV charging network, the combination of policy drivers above suggests that cost reflective financial charges should be introduced on the publicly funded network. This would have two benefits: firstly, it would encourage overnight charging at home among EV owners who have that option, and secondly, it would encourage private sector investment to extend the network.
- The exceptions to this approach are,
    - Firstly, areas of Scotland where residents are less likely to have the option of off-street charging. There is likely to be a continuing need to provide publicly available chargers.
    - Secondly, as with Norway, the aim in rural Scotland should be to have a minimum number of fast chargers per set length of A road, to address range anxiety issues among potential drivers.
- Overall, although financial incentives for drivers have and will continue to encourage take up of EVs, supporting policy measures in Scotland are more likely to involve consideration of extending the charging network in specific areas, managing wider issues to minimise grid upgrade costs and associated price increases for electricity consumers and maximising the public fleet of EVs.

# 5.2 Renewable heat

**Scottish Government key targets/commitments:**

- Invest at least £1.8 billion over this Parliament in decarbonising homes and buildings – with the aim of converting at least 1 million homes and the equivalent of 50,000 non-domestic buildings to low or zero emission heating by 2030. - 2021/22 Programme for Government

- In Buildings, we know that around 50% of homes and non-domestic buildings will need to convert to a low or zero carbon heating system by 2030. - 2021/22 Programme for Government

- Our New Build Zero Emissions from Heat Standard will be introduced from 2024 by which point all new builds will have to have zero emissions heating systems. - Heat in Buildings Strategy

- We will stimulate adoption of zero emissions heating systems and pursue expanded investment in zero emissions heating by developing innovative solutions to leverage private capital. - 2021/22 Programme for Government

## 5.2.1 Background

Energy policy is mainly reserved to the UK Government, but the Scottish Government can and has made use of devolved levers, including the land use planning system, and provision of project specific funding to encourage investment in Scotland.

Delivering renewable energy heating systems into existing buildings is, however, a major challenge. A range of measures have been set out by the CCPu and Heat in Buildings Strategy; ensuring that new buildings from 2024 have zero emissions heating sources and meet much higher efficiency standards so less heating is required in the first place, with the overall aim of upgrading all homes by 2033.

## 5.2.2 Domestic heating and heat pumps

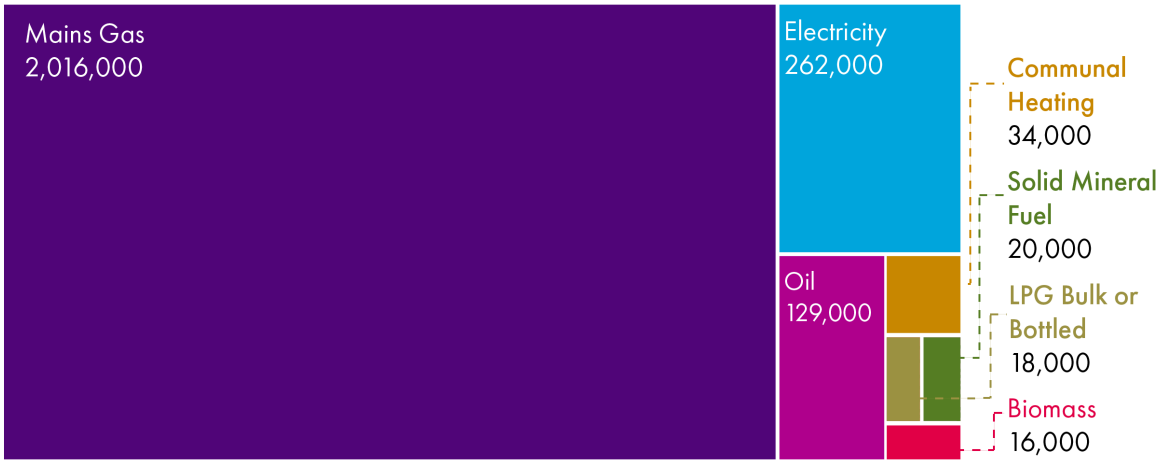
The Scottish Government's Heat in Buildings Strategy published in 2021 provides a comprehensive analysis of both the scale of challenges and current and proposed approaches to delivering a combination of energy efficiency measures and low carbon heating across Scotland:

> “ In order to meet our interim climate targets and ensure long-term delivery of our net zero objectives, by 2030 the vast majority of the 170,000 off-gas homes that currently use high emissions oil, LPG, and solid fuels, as well as at least 1 million homes currently using mains gas, must convert to zero emissions heating. By 2030, we will also need to convert the equivalent of 50,000 of Scotland's non-domestic properties. In energy terms, we will need to reduce fossil fuel consumption for heat in buildings by at least an estimated 28 TWh, of which at least 21 TWh will be natural gas.”

Despite recent price rises, mains gas remains the lowest cost heating fuel with the highest

satisfaction rates [52] , and is used by the majority of homes in Scotland, as the strategy also shows. See Figure 5.2.1 below.

**Figure 5.2.1: Breakdown of the number of Scottish homes by primary heating fuel type.**




Source: Scottish Government

The strategy then identifies low and no regrets actions around energy efficiency in all homes, and roll-out of low carbon heating first to off grid areas which currently use high carbon fuels (heating oil, LPG, solid mineral fuel). In recognition of their wider impacts, for example in relation to land use, biofuels are seen as a having a place only where other technologies are not practical. Heat pumps are highlighted as the main technology for individual houses, with district heating networks concentrated in areas of denser building. Others may see a bigger role for hydrogen boilers or district heating; for example Common Weal in their Common Home Plan suggest using a National Energy Company to install a national district heating system with renewable heat generation [53] . There is however an emerging consensus around heat pumps as the core source of low carbon heat as indicated by the recent interim report of the Heat Pump Sector Deal Expert Advisory Group [54] .

Relatively few consumers currently have the choice of joining a district heating scheme. In contrast, UK wide incentives for individual householders to install low carbon heating have been in place for some time; the current subsidy regime, the Renewable Heat Incentive, has been running since April 2014, with the option for backdating registration for householders who installed appropriate technologies after 2009.

Heat pumps are proposed by both the Scottish Government and the Climate Change Committee as a significant part of this transition to low carbon heating. While evidence shows that heat pumps, especially Air Source Heat Pumps (ASHPs), are indeed the most popular single renewable heat technology supported under the scheme, the absolute numbers are very low in comparison to the scale of challenge set out in the Heat in Buildings Strategy: Ofgem provides data on the number of installed systems registered. Registration is necessary to claim grants, and so there is a strong incentive to register.

**Figure 5.2.2 - Number of accredited domestic renewable heating systems by type in Scotland, April 2014-September 2021**

| Heating Type: | Air Source HP | Ground Source HP | Biomass | Total |
|---|---|---|---|---|
| No. of systems: | 11,100 | 1,610 | 3,725 | 16,435 |

UK Government Renewable Heat Incentive Data

Figure 5.2.2 gives an average annual installation rate of just under 2,200 domestic systems across the 7.5 years covered by the data – although a number of district heating connections and non-domestic systems have also been installed over the period, the scale of the challenge is evident in comparison to the overall aims. The Heat in Building Strategy states:

> " Recent years have seen around 3,000 renewable heating systems installed in Scotland's homes annually…. …zero emissions heat installations must scale up to provide a total of at least 124,000 systems installed between 2021 and 2026. The installation rate will need to peak at over 200,000 new systems per annum in the late-2020s –which is above the natural replacement rate for boilers"

It is clear that existing incentives are not proving sufficiently successful in encouraging take-up of low carbon heating in the domestic sector at anywhere near the target rates. However, it is important to understand the context in which these incentives are operating in order to consider options for increasing take-up, looking at both the capital costs of installing low carbon heating systems, and the associated running costs compared to traditional fossil fuel systems.

**Capital costs and payback**

The Energy Saving Trust (EST) provides estimates for installation costs of an ASHP of between £7,000 and £13,000, with the range dependent on the extent to which upgrades are required to pipes and radiators to distribute the heat produced; by comparison, EST estimates the replacement costs of a mains gas boiler at around £2,500, assuming existing distribution systems are not replaced.

The variation between these costs is obviously large, and the RHI was introduced to offset the differential. However, payback through the RHI is not straightforward; payments are made per kWh of deemed heat demand of the building, calculated on the basis of Energy Performance Certificate data, over a seven-year period. The rate per unit is determined by the technology and the total amount which can be claimed up to a cap.

The Which? consumer website suggests that, within these variables, it is possible to recoup most, or in some cases a little over, the total capital cost of installation through RHI payments. In addition, the Scottish Government, through EST, offers interest-free loans up to £17,500 for householders installing low carbon heating which help address the barrier of up-front costs. The combination of these incentives is clearly very generous in comparison to approaches in other sectors.

However, the UK Government has recently announced the next phase of support for low carbon heating will be simpler, but less generous, with a single £5,000 contribution towards capital costs only, intended to support up to 90,000 installations over three years, to be introduced from March 2022. Even if it is simpler for consumers to navigate, the new approach increases the gap in capital costs. It should, however, still be possible to combine the new UK grant with existing Scottish Government loans, as is the case just now.

### Wider barriers and running costs

However, the installation rates above clearly demonstrate that even these incentives are not sufficient to overcome actual or perceived barriers faced by potential household customers. Various research (e.g. by Ofgem [55] ) suggests that these barriers include: lack of familiarity with the systems and concern over long term running costs; as well as short term issues around the installation process; identifying suitable registered contractors; and managing any disruption associated with pipe and radiator upgrades, if needed.

Concerns around running costs are currently significant and justified. Heat pumps operate by concentrating low levels of warmth from the external environment, into higher levels of heat inside, using electricity to do so. Typically, a heat pump will provide 3-4 units of heat for each unit of electricity consumed, with the higher efficiency associated with ground rather than air source heat pumps. Real world efficiencies will also vary depending on the quality of installation and the energy efficiency of the house. For larger detached traditional houses, more common in off-gas rural areas, insulation can be a significant additional cost. EST give a benchmark figure of £10,000 for solid wall insulation for a semi-detached house, for example.

Even considering a properly installed system in a well-insulated house, the effective cost of heat for a household given the heat pump efficiencies above, will be between one quarter and one third of the cost of a unit of electricity. The relative costs of electricity and fossil fuels in the current UK market do not encourage the use of renewable heat on this basis. At the time this report was written, the energy price cap gave a price for electricity of 21p per unit, compared to 4p per unit for mains gas: this is a ratio of around 5:1 in price terms. This ratio is at the top end of the European spread of comparator prices; across the EU, the ratio was around 3:1 in the first half of 2021 [56] , so that heat pump running costs are more attractive in other countries.

Heating oil prices are much more variable over time, but have typically been between 5p and 6p kWh equivalent in recent years and LPG is of a similar magnitude. For households using this fuel, the case for conversion is therefore stronger, but still only marginal in terms of running cost benefits.

The Scottish Government has already recognised the disincentives towards take up of heat pumps created by the imbalance between electricity and fossil fuel pricing. Options for addressing this are currently reserved to the UK Government:

- Taxing all fossil fuels, including mains gas, to better reflect their carbon content would encourage the market to deliver solutions (e.g. VAT is currently 5% on both electric and gas despite the huge carbon difference). To be consistent with social policy aims and climate justice approach, any moves which increased heating costs for groups in or at risk of fuel poverty would need to be mitigated, as part of a just transition approach.

- Removing or reducing policy costs from electricity prices would help reduce the differential between the sources of energy. Policy costs, which account for around 25% of the price of electricity in GB according to Ofgem, are almost entirely composed of subsidies for low carbon electricity generation, and are therefore within government influence. Moving some or all of these costs to general taxation would potentially reduce the cost of a unit of electricity to around 15p in 2021 prices (however it is noted that at the time of writing major price rises are planned for 2022 due to wholesale gas prices). Another option, as discussed in the Heat in Buildings

Strategy, would be to transfer of some or all of the policy costs from electricity to fossil fuels. Policy costs on mains gas bills are currently around 2.5%.

## 5.2.3 Experience of other countries

ClimateXChange carried out a recent review of other countries' approaches to heat decarbonisation for the Scottish Government [57] . In practice the focus elsewhere has also been on replacement of off-gas grid fossil fuel systems. As in Scotland and the UK, these are seen as 'low regret' actions, in contrast with the challenge of decarbonising the mains gas network, for which solutions are much less obvious.

The research shows clearly that countries which have successfully encouraged a transition towards heat pumps have done so through a combination of carrots and sticks to influence the relative price of high and low carbon heating. Most notably, all of the Scandinavian case study countries covered in the report have taxes on heating oil which are significantly higher than in the UK, and / or have banned replacement fossil fuel boilers, in addition to incentive payments for installation of renewable energy systems.

Italy has recently introduced a new scheme to close the funding gap for householders recognising that existing homes will have to be upgraded to a good standard and paying a proportion of the costs does not work fast enough. The government there will reportedly fund 110% of the cost up to €100,000. This has already led to €9 billion of investment in 2021. The householder has to pay upfront but gets the money back in tax credits over 5 years. The 110% funding enables householders to take out bank loans to cover the upfront cost.

## 5.2.4 Implications and emerging issues for Scotland

It is clear that there remains a significant gap between aspirations in relation to heat and energy efficiency and the attractiveness of take-up of heat pumps for consumers, even with the current generous subsidy regime. While each of the contributing barriers can be addressed, and in some cases are already in progress, the installation data show that progress is a fraction of Scottish Government aspirations, and an integrated approach is needed.

This is an area where Scottish Government fiscal measures may have to work in tandem with other UK fiscal and policy or regulatory measures, such as the rebalancing of the subsidies and charges on national electricity and gas supplies, as well as future bans on the installation of non renewable heating such as oil or gas boilers.

The Climate Emergency Response Group (CERG) recommends a structured approach to the accelerated deployment of heat pumps through a well designed programme of development and delivery [58] . This could follow in the footsteps of the successful Offshore Wind Sector deal which has helped lower the price of offshore wind. The Scottish Government has confirmed in its Heat in Buildings Strategy that it will respond to the final recommendations of the Heat Pump Sector Deal Expert Advisory Group following their final publication.

**Renewable Heat Summary**

- There are a limited range of options for the Scottish Government given that the majority of energy and tax policy instruments are reserved to the UK Government.

- While all fossil fuel heating systems will need to be decarbonised, there is some uncertainty about the best approach to achieve this for buildings connected to the mains gas network. Low carbon heating approaches should therefore initially concentrate on the replacement off-gas grid fossil fuel systems, with heat pumps seen as the favoured option.

- The UK Government has, since 2014, provided financial assistance for the installation of renewable heating systems through the Renewable Heat Incentive, and Air Source Heat Pumps have indeed been the most popular heating system supported. However, installation rates are extremely low, averaging only around 2,200 domestic systems each year since then.

- There are non-financial barriers to the uptake of heat pumps, including disruption at installation and the need for energy efficiency measures to ensure retrofitted systems are effective. A greater barrier is that of running costs: UK levies on electricity are comparatively higher, at around 25%, than levies and taxes on fossil fuels used for heating (before taking into account the recent dramatic increase in prices). This means that there are unlikely to be significant gains in terms of heating costs for households retrofitting heat pumps, regardless of the scale of subsidy for the capital costs.

- Comparable countries which have been more successful in encouraging this transition have comparatively lower charges on electricity, and higher charges on fossil fuels, in addition to subsidies for renewable heating systems. The Scottish Government has already recognised the need to reduce the cost differential between electricity and fossil fuels and should continue to raise this with the UK government.

- The Scottish Government could also look to use a Heat Pump Sector Deal in tandem with Home Energy Scotland householder advice and support as additional measures to accelerate the transition and reduce overall cost.

# 5.3 Product stewardship for textiles

**Key Scottish Government targets/commitments:**

- We will continue to embed circular economy principles in to the wider green recovery- Climate Change Plan update.

- End landfilling of biodegradable municipal waste by 2025, reduce the percentage of all waste sent to landfill to 5% by 2025 and recycle 70% of all waste by 2025 - Making Things Last - a circular economy strategy for Scotland

- We are currently consulting on banning a number of single use plastic items and will continue to work with the UK Government and other devolved administrations on reforms to the packaging extended producer responsibility regime - Climate Change Plan update.

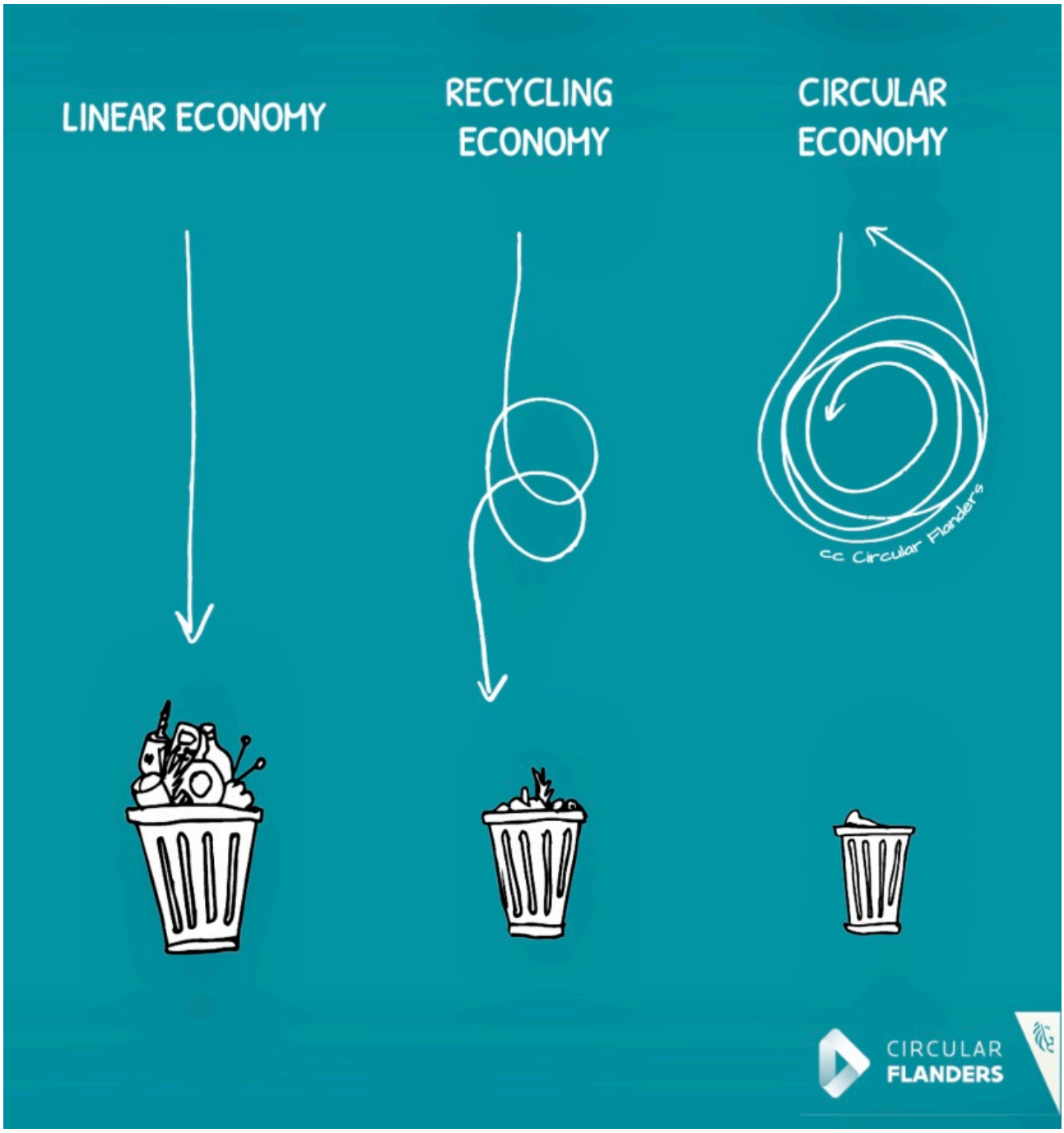
- In the first half of 2022, we will also introduce a new £2 million Textile Innovation Fund, to support businesses working in this sector to address issues associated with textile waste and throwaway culture - 2021/22 Programme for Government.

- In line with EU requirements, further promoting reuse and recycling ensure separate collection of textiles by 2025 - Climate Change Plan update.

## 5.3.1 Background

The adoption of Circular Economy measures has the potential to have a major impact on global climate change emissions. Around 45% of global climate change emissions are estimated to arise from the embedded carbon in products and basic materials such as concrete and steel, many of which are imported [59] . Figure 5.3.1 below provides a simple reminder of the benefits of a circular economy.

**Figure 5.3.1 – A representation of a linear and circular economy by Circular Flanders**




Source: Circular Flanders [60]

This becomes more important when we consider the measurement of the carbon footprint of Scotland and not just our territorial emissions. As the IFS notes:

> " The exclusion of imported emissions in the UK's targets has therefore served to flatter the UK's progress in reducing its consumption-based carbon footprint over the last few decades."
>
> Institute for Fiscal Studies, 2021[32]

Product Stewardship actions may offer the Scottish Government some of the best available fiscal measure options within devolved competence for targeting specific Circular Economy, Net Zero benefits; as long as they do not conflict with the UK Internal Market Act

2020 and are compatible with UK Common Frameworks being developed (see section 3.3.9 for further information).

Product Stewardship, whether it is delivered through an extended producer responsibility (EPR) Scheme or other mechanisms such as minimum prices, is a combined regulatory and fiscal measure that can reduce the lifecycle emissions and environmental impact of a product. An example here would be the work by the Scottish Government appointed Expert Panel on Environmental Charging and Other Measures (EPECOM) on the minimum price of a disposable coffee cup [61] . If this is 20p and the Takeaway coffee (or other beverage) is £2-3 then the charge appears to be proportionate and yet is enough to stimulate a response to avoid the charge. Alternatives are available, such as using a personal reusable “keep” cup; and potentially an alternative reusable cup system proposed by EPECOM to be introduced alongside the charge as part of a holistic policy approach.

Under Producer Responsibility regulations the producers of the material or product pay for the cost of collection and recovery of the waste from their product; this cost is ultimately paid for by consumers purchasing the product. In some cases this is a transparent charge to the consumer, such as when buying new tyres or large electrical appliances, and there is a clear recycling fee charged. However apart from these types of exceptions most of the costs currently associated with collecting and recycling of household and similar waste falls upon local authorities. The review of existing schemes and the introduction of measures to address this situation and extend producer responsibility to the benefit of council tax payers therefore makes a lot of sense. However the short term impact on businesses adapting to new schemes must also be considered.

As noted above an issue with these schemes is that there is often no financial incentive for individual consumers to participate. Applying deposits on suitable products, for example batteries and small electrical items, would be an easy way to remedy this and ensure much higher collection rates; in the UK most household batteries are still landfilled despite collection points being made available [62] . The committee on the internal market and consumer protection within the European Parliament has recognised the value of this approach by recently proposing a DRS for batteries [63] . This could also be encouraged as a voluntary measure for more products.

Scotland’s Making Things Last Strategy [64] highlighted this potential for EPR schemes and the desire for a single EPR framework:

> “ We want to stimulate debate on a more comprehensive approach to producer responsibility, through a single framework for all product types that drives choices for reuse, repair and remanufacture, while more fully exposing and addressing the costs of recycling and disposal. On individual products, we will focus on new schemes for tyres, furniture and mattresses.”

This desire for a single framework for EPR is born out of the need to simplify schemes and reduce costs for businesses and the government. There is the potential that a business could be involved in several schemes with different regulations and approaches, for example a supermarket may have to ensure compliance with a Deposit & Return Scheme for drinks containers, Packaging EPR for other packaging materials, plus EPR schemes for Household Batteries and Electronic equipment. In this case working with one consistent Scheme Administrator rather than four would be advantageous. The challenge in achieving this aim is that each scheme is designed individually for the product, the sector and its key stakeholders in a co-design process with government and regulators. If a

simplified framework is to emerge there may need to be an overarching body for all EPR schemes.

Earlier in this report the many existing UK wide EPR schemes and those that are planned or under development were noted. In this section the report focuses upon one of the planned schemes, an EPR scheme for textiles.

Bukhari et al. reported in 2018 that fast fashion has created a demand for 80 billion new garments every year [65] . The fashion industry is estimated to account for 4% of annual global carbon emissions, while textiles production leads to GHG emissions equivalent to the emissions of France, Germany and the UK [66] . According to Zero Waste Scotland, textile waste makes up just 4% of Scottish household waste but 31% of the carbon impacts [67] . DEFRA is proposing an EPR scheme for textiles and development work is already underway. The Scottish Government, with Scottish Ministers consent, could be part of a UK wide scheme or choose to introduce its own scheme using the powers in the UK Environment Act 2021. However in France EPR has been applied to textiles in the longest established scheme in Europe.

## 5.3.2 Case Study: France

Extended producer responsibility for textile products, household linen and footwear was introduced in France on 1st Jan 2007. The scheme was set up in response to the difficulties encountered in sorting and recycling operations in France. *Refashion* manages the scheme, which is accredited by the French authorities and involves three industry federations.

The scheme works by placing a fee on each new garment that is put on the market in order to help support collection & sorting, finance, research and development, and help communicate the importance of the separate collection of textiles to the general public.

The system also incentivises textiles producers with reduced annual fees, to use recycled fibres from pre- or post-consumer textile, or shoes. Those collected products which are not resold through shops and boutiques, are distributed to individuals in need, or exported for reuse, or are sent to sorting and recycling facilities to extract any further value.

One innovation resulting from this scheme is the recycling of old cotton jeans. Where collected jeans are not resalable the material can be shredded to produce an effective insulation material; sold in rolls like fibreglass loft insulation (see image below).

**Figure 5.3.2 – Insulation material made from recycled cotton jeans**

Source: Zane Selvans on Flickr

In 2020, the scheme's 4,096 members paid €36 million to *Refashion*, of which €17 million went to sorting operators, €4 million to local community projects and almost €1 million to innovative projects.

239,000 tonnes (of which 19% is footwear) was collected in 2018 representing 38% of textiles/shoes placed on the market by weight. Collection had risen from 175,000 tonnes in 2014 and from just 65,000 tonnes in 2006 [68] . So the introduction of the scheme can certainly claim to be having a significant impact. While some other European Countries may appear to have a higher collection rate, the EPR system in France provides a supportive framework for the collectors and associated businesses involved and the data may therefore be more accurate.

There are long term risks for the clothing 'reuse' stream due to the main markets being in Africa, where demand is dwindling. This is also not helped by an overall decline in clothing quality over time. This means in the future the focus is going to be increasingly on recycling fibres, which for mixed synthetic/natural materials is extremely challenging and may require new technologies. In addition to this there are economic challenges - collectors of textiles are not interested in materials that have no obvious resale, reuse or recycling value. The French EPR scheme has put in place a supportive framework where these risks and challenges can be addressed and managed in an organised way.

**The 'Eco-mobilier' Extended Producer Responsibility Scheme**

France also has a furniture EPR scheme known as Eco-mobilier (domestic furniture including mattresses) and Valdelia (professional furniture). Established in 2011 it was set up in response to the significant amounts of furniture waste which were entering landfill, a lot of which still had reuse potential.

A law sets a re-use and recycling target of 45% for waste household furniture and 75% reuse and recycling rate for workplace furniture. Although not a fiscal measure the key point about the law is that it grants access to collection points exclusively to social enterprises in order to carry out reuse activities because it realises the social value of furniture reuse.

The learning can be summed up by the following statement in a media report (emphasis added) [69] :

> “ Used textiles have to move from waste to being new resources. If we look at the European market, we are 500 million consumers each buying 10kg of textiles and footwear per year. This is five million tons a year and one third is separately collected and reused or recycled, the remaining two thirds going to household waste – 3.4 million tons incinerated or landfilled. This is dramatic, but what we have to understand is **if we want a circular model, the cost of textile and footwear collection plus sorting and recycling needs to be less than the cost of household waste management**, otherwise it won’t be profitable and it will not make any sense, but collection will be mandatory [in the EU] in 2025 in any case.”

## 5.3.3 Implications and emerging issues for Scotland

In line with the EU's increased focus on textile waste (and requirement that EU Member States must set up separate collection for used textiles by 2025), an EPR for textiles is being actively considered by the UK Government [70] . The Scottish Government may wish to influence and be part of that UK scheme as it emerges; or develop its own scheme subject to any internal resource constraints. Collaborating using UK wide government resources to develop a scheme, while ensuring the design, targets and benefits are appropriate for Scotland may be an efficient approach given the time and internal resources required to develop a separate scheme. The French Textile EPR scheme provides an effective European example of the beneficial impact of EPR.

Scotland has a rich cultural heritage in textile manufacture and still retains a range of important niche producers. These are being joined by small innovative enterprises using new leasing and renting business models for clothing.

In a similar way to France however, Scotland and the UK has limited market influence to affect the modern international supply chains of clothing and other textiles. So the collection and reuse/recycling focus of the French levy scheme may fit well with the further development and support of Scotland’s waste textile reprocessing infrastructure and associated charity sector. The challenge of increasing reliance upon limited recycling markets as solutions for textile waste requires R&D investment as well as wider sector support. A well designed EPR scheme could provide the solution and may also help

support Scotland meet its 2025 Biodegradable Municipal Waste landfill ban.

**Product Stewardship for Textiles Summary**

- The adoption of Circular Economy measures has the potential to have a major impact on global climate change emissions. Around 45% of climate change emissions are estimated to be related to consumption of products and materials. The fashion industry is estimated to be responsible for 4% of global emissions. Product Stewardship measures can help to reduce lifecycle impacts.

- In line with the EU's increased focus on textile waste, an EPR for Textiles is under consideration by the UK Government. Collaborating using UK wide government resources to develop the scheme, while ensuring the design, targets and benefits are appropriate for Scotland may be an efficient approach given the time and internal resources required to develop a separate scheme.

- Scotland and the UK are unlikely to be able to significantly influence the global supply chain for clothes and textiles. The long standing French Textile EPR scheme with its product levy provides an effective European example of the beneficial impact of EPR. Focused on funding and investing in domestic collection and sorting infrastructure, plus research and development, it demonstrates a useful model to prepare for the investment and support needed to achieve higher recycling rates for textiles.

# 5.4 Waste management

**Scottish Government key targets/commitments:**

- We will continue to embed circular economy principles in to the wider green recovery and take steps to reduce food waste through the Food Waste Reduction Action Plan delivering against our ambitious target to reduce food waste by one third by 2025 (against a 2013 baseline) - Climate Change Plan update.

- End landfilling of biodegradable municipal waste by 2025, reduce the percentage of all waste sent to landfill to 5% by 2025 and recycle 70% of all waste by 2025 - Making Things Last - a circular economy strategy for Scotland

- We will develop a route map to outline how we will deliver our waste and recycling targets in a way that maximises carbon saving potential, and are investing £70 million to make the right option the easy option for household recycling - Climate Change Plan update.

- We will consider measures to ensure new energy from waste plants are more efficient and how waste infrastructure can be 'future-proofed' for carbon capture and storage (CCS) technology - Climate Change Plan update.

- Consider the role of incineration and fiscal incentives, such as a waste tax. We will also explore the use of Scotland's devolved tax powers over Landfill Tax to ensure they are consistent with our emissions reduction targets - 2021/22 Programme for Government.

- Undertake a specific and focused piece of work to examine the range of fiscal measures used by other countries to incentivise positive behaviours and to develop proposals to go further in this area - Climate Change Plan update.

## 5.4.1 Background

International experience suggests that EPR schemes are not able to effectively address all the environmental issues relating to a product, particularly with regard to prevention or waste minimisation and toxicity, where product or material bans may be required. EPR is commonly matched with other fiscal instruments such as taxes for landfill and/or incineration, 'pay as you throw' (PAYT) or direct waste charges, in addition to regulatory measures such as landfill bans. International evidence suggests that in many of the jurisdictions which have successful EPR schemes, one or more other economic instruments are also in place contributing to incentives [71] . In this section two such fiscal measures are explored.

Within the CCPu the Scottish Government has committed to examine the range of fiscal measures used by other countries to incentivise positive behaviours and to develop proposals to go further in relation to preventing waste.

In 2019 emissions from waste in Scotland were 1.6 $MtCO_2e$, accounting for 3% of Scotland's total emissions. This is a slight (4%) decline on 2018 levels and in line with the trend of recent years in which emissions from the sector have remained largely flat, following an earlier period of steep decline. Overall, emissions from this sector have fallen

by 73% from 1990 levels according to the CCC's 2021 progress report for Scotland [72] .

However, Scotland saw a huge increase in the volume of waste being incinerated in 2019. The CCC report picks up that there are some transparency issues about EfW emissions and states:

> " The CCPu demonstrates great ambition in cutting emissions from waste to below 1 $MtCO_2e$ by 2030. This, however, does not take into account emissions from energy from waste (EfW), which, in Scotland, is recorded under electricity generation, making it difficult to compare with the CCC's ambition."

The Scottish Government has committed "*to undertake a review into the role these disposal methods play within the waste management hierarchy, and will consider options for future-proofing future EfW plants for CCS*". Going forward the CCC has asked that the Scottish Government reports emissions from EfW plants separately from power sector emissions from other sources, to make it easier to track EfW emissions [72] .

The Waste Hierarchy (see Figure 5.4.1 below) which underpins the European Waste Framework Directive, and is embedded in domestic legislation through Section 34 of the Environmental Protection Act 1990, is clear that we must find measures to push our economy to operate primarily at the top of hierarchy.

**Figure 5.4.1: The Waste Hierarchy**


Source: SPICe adapted from Scottish Government

Producer Responsibility obligations (see Product Stewardship above) can fulfil that function if they are broadly applied and are not narrowly focused on simply cost recovery for recycling. There are other measures too. Zero Waste Scotland provides grant support for business making the leap to new circular business models e.g. from selling to leasing products (as noted in Table 1). These usually incentivise the company to redesign to make longer life products and maximise their use if the business model is viable; however these opportunities could remain niche if citizens and businesses are not ready for them or other supporting features such as insurance, or financing, remain an obstacle.

These are example of incentives that influence design and use before something becomes waste. Despite these measures there still needs to be some form of incentive for recycling at the end of life, or a disincentive for waste to end up being landfilled or incinerated; effectively to push material and products away from landfill and EfW into something with less environmental emissions, less impact on biodiversity, which reduces virgin material extraction, and provides more value to the economy and increased employment.

## 5.4.2 Energy from waste

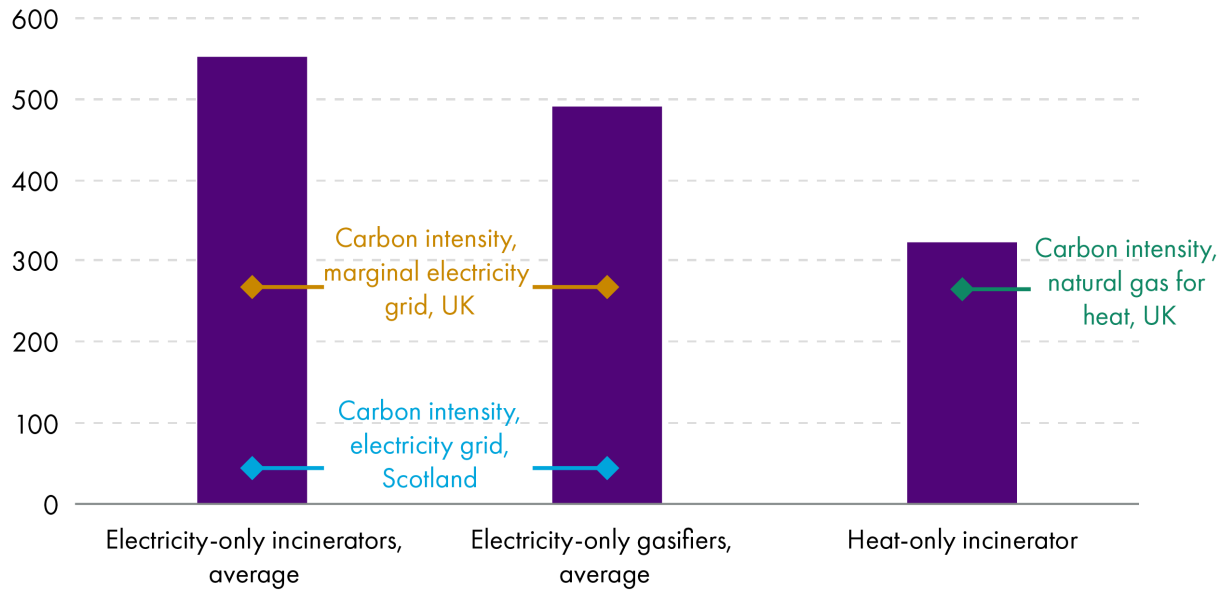
Landfill Tax has been very successful in Scotland but one consequence of its success is to make Energy from Waste (EfW) Solutions more attractive and we are witnessing a switch from landfill to EfW solutions as highlighted by 2020 SEPA Waste Data [73] :

> “ In 2020, 1.26 million tonnes of waste were incinerated in Scotland across 15 permitted incineration facilities. This was an increase of 38,000 tonnes (3.1%) from 2019. This increase is consistent with the longer term incineration trend, with 855,000 tonnes (208%) more waste incinerated in Scotland than in 2011... ...There was a 6.0% (20,000 tonnes) increase of Household and similar wastes incinerated in 2020... The increase in the incineration of Municipal wastes such as Household and similar wastes has been increasing over the last four years... This is likely the response of Scottish local authorities and waste management companies to divert waste from landfill ahead of the ban of biodegradable municipal waste to Scottish landfills in 2025. ”

Note that EfW excludes Anaerobic Digestion technologies for the treatment of food waste, which are seen as a positive way of recycling food waste into fertilizer and biogas.

A recent technical report by Zero Waste Scotland highlighted the climate impact of EfW plants in Scotland [74] . As we get better at separating food waste, paper and card from residual waste the burning of waste may exceed the $CO_2e$ from landfill. See Figure 5.4.2 for the differences in carbon emissions by plant type.

**Figure 5.4.2: Average Carbon intensity of energy from waste plants in Scotland**




Source: Zero Waste Scotland, 2021[74]

Other countries, such as Denmark, have found high levels of EfW can be a trap preventing greater levels of reuse and recycling and the European Commission has noted that "... high rates of incineration are inconsistent with more ambitious recycling targets" [75] .

Once food waste is removed EfW is reliant on fossil fuel based materials such as waste plastics to generate energy. The Scottish Government has committed to a review of the role of incineration and has launched a call for evidence. In a recent CCC progress report there is a recommendation on the introduction of a UK carbon tax (either as part of the UK ETS or a separate instrument) aimed at curbing rising emissions from Energy from Waste [76] .

All of this information is increasing the likelihood that an EfW tax of some form will be required. This could be a phased escalator approach to EfW which was successful with regards to Landfill Tax. This could be expected to start at a low rate as the cost of incineration treatment is much higher than landfill. In addition it may be possible to adjust the rate to reflect the efficiency of the plant or the waste material it accepts in terms of emissions.

Speaking in a debate in the UK Parliament in February 2020, then Parliamentary Under-Secretary of State for Environment, Food and Rural Affairs, Rebecca Pow MP said:

> " On taxing incinerators… if the wider policies set out in the resources and waste strategy do not deliver our waste ambitions, as laid out in the Environment Bill and the strategy, including higher recycling rates, the Government outlined in the 2018 Budget that we will consider introducing a tax on the incineration of waste, operating in conjunction with the landfill tax and taking account of the possible impact on local authorities"

There is no guarantee that a UK framework for EfW tax will emerge, however joint working through the Common Framework on Resources and Waste may provide a potential enabler for independent Scottish Government action. There are also cross-border issues

to consider as changes in EfW prices could encourage waste producers to move residual waste outside Scotland. This is a familiar issue, however, already in relation to the devolved management of landfill tax and in practice rates have effectively mirrored each other to avoid ‘waste tourism’ effects.

## 5.4.3 Case Study: countries with EfW taxes

There are a range of countries with a form of EfW taxes. Here are some European examples:

- There is no national landfill tax in Spain, but regulations allow autonomous regions to implement their own economic incentives to promote waste prevention and recycling. Catalonia implemented a tax on landfilling and incineration respectively in 2004 and 2008. The Catalonian tax introduced a mechanism to return part of the tax to local authorities for investment. The tax rate is set according to the quantities sent to landfill or incineration, with lower rates when a bio waste collection is implemented by the municipality and performance criteria are met. [77]
- Landfill or incineration plant operators in Flanders, Belgium must pay environmental taxes to the Flemish government. The charges provide an incentive to limit the landfill or incineration of waste as much as possible. The tax collected is used by the Mina fund to improve the quality of nature and the environment in Flanders and so in many ways it operates like the Scottish Landfill Tax Communities Fund.
- The Netherlands passed legislation in November 2019 to introduce an incineration tax on refuse-derived fuel (RDF) imported into the country. This amounts to tax of €32 per tonne of waste.

Zero Waste Europe has proposed inclusion of EfW in the EU ETS [78] with some associated policy measures, such as EfW/Landfill bans, and identifies a range of benefits including increased employment and major reduction in climate emissions. This is despite many EU states already having combined landfill and EfW taxes [79] . If the EU adopted this approach then EfW inclusion in the UK ETS is a possibility, but as previously indicated there are challenges with a Trading Scheme approach (see section 4.3).

The Danish Government and a wide majority of the Danish Parliament have entered into a political agreement aiming to secure a climate-neutral waste sector by 2030 [80] , with far more recycling and less incineration of domestic and imported waste. The agreement aims to reduce Denmark’s GHG emissions by 0.7 million tonnes $CO_2e$ by 2030, which is equivalent to removing 280,000 diesel and petrol cars from the roads, and aims to remove 80% of plastic from EfW treatment by 2030. This agreement based approach may be a possible alternative to using EfW taxation.

## 5.4.4 Charging for household waste services

In Scotland we have well-developed kerbside collection services for waste materials, delivered by the 32 Councils across Scotland. These services are primarily funded via Council Tax and provide a range of bins/boxes to allow householders to separate recyclable and compostable materials from non recyclable waste (also called “residual

waste"). Most of the waste materials/products that are not suitable for collection through these services, usually bulky items, can be taken to a local authority recycling/waste management centre or collected by a bulky/special uplift service operated by Councils and their associated partners & contractors.

This system is essentially based on goodwill. Awareness and communications on the use of the system in each local authority is the main route to encourage recycling and reuse by householders. While penalties exist for not using these services appropriately, for example contaminating recyclate materials with other wastes, they are rarely used due to the difficulty of enforcement. A Council may instead choose to withdraw recycling services from a household or business instead of trying to enforce correct use of the services.

It is well known that householders do not recycle or compost all the materials they potentially could and so a lot of "recyclates" or compostable materials are lost in non-recyclable waste collections; with a resultant negative impact on $CO_2e$ emissions. Zero Waste Scotland estimated in 2014/15 that approximately 670,000 tonnes, or just under 60% of the residual waste, is made up of waste types that could typically have been recycled with existing kerbside recycling services. [81] The UK Local Authority Recycling Advisory Committee (LARAC) notes:

> " The approach to UK kerbside recycling has been one of encouragement rather than enforcement. Recycling is perceived by many as an additional service with the residual collection as core. To achieve sustainable long term behavioural changes, recycling needs to be considered as an integrated part of the service and not an optional added extra"
>
> LARAC, 2018[82]

At a household level there are limited fiscal measures used to encourage the appropriate sorting of recyclable materials and/or discourage putting recyclable materials into non recyclable waste collections. Local authorities are in certain circumstances empowered to charge (under the Controlled Waste Regulations 1992), however those measures that are used are charging for green waste collections (e.g. Stirling Council charge £35 per annum for this service [83] ) and charging for bulky waste uplifts (e.g. Glasgow City Council charge £35 per uplift of up to 10 items that meet their acceptance criteria [84] ). Bulky uplifts can be a mixture of reusable items, recyclables and waste that cannot be used and is destined for landfill or EfW.

The application of these charges to the regular waste service could be seen as an increasing distortion or imbalance of incentives i.e. charging householders for the collection of green waste but not the non recyclable waste. While previously free, more Councils in Scotland have started charging for green waste collection services due to their own budget pressures. The Table below highlights some of the factors in a complex situation for providing local services. This provides more context to the many factors causing the imbalance in fiscal incentives.

**Table 5.4.4 – Some of the factors Impacting on Local Authority Waste Collection Services**

| Drivers for Change | Potential impact on Council services |
|---|---|
| **Decreasing Budgets** | The protection of key services elsewhere in Council's portfolios is putting pressures on waste service budgets and funding for ongoing information campaigns, which are essential for a goodwill-based system and customer knowledge of the system. |
| **Charging for Green Waste** | One of the few charges Councils are empowered under legislation to apply is for kerbside green waste collection and so this is likely to be utilised more frequently. |
| **Deposit Return Scheme** | The introduction of the DRS will reduce the amount of recyclable drinks containers collected and Council services will require to be adjusted to accommodate this. |
| **Reduced frequency of collections** | Reducing the frequency of non-recyclable waste collections, e.g. from fortnightly to every 4 weeks, is a non fiscal incentive to encourage greater householder participation in recycling and reduce costs. |
| **Food waste collection** | These are mandatory in urban areas and they are the most challenging service to get householders to participate in. However the $CO_2e$ impact is significant if food waste is left in non-recyclable waste collections. |
| **Producer Responsibility income** | The various UK wide producer responsibility schemes being reviewed may lead to payments to Councils, for example for packaging waste collected. However this is not guaranteed and each Council is not obligated to maintain existing budgets or increase them by any monies received from these schemes. |

LARAC considers that:

> “ Charging for household waste at source provides an opportunity for essential funds to be raised to support household recycling collections. Applying a higher charge for residual waste and lower or zero charge for recyclables provides a financial incentive for the waste hierarchy principles to be adopted by residents. [82] ”

Direct charging schemes, also called Pay as You Throw (PAYT), have been in place in many other countries for some time, including in Europe. As LARAC noted in their policy paper, studies have found that weight-based systems are generally the most successful for reducing residual waste; there are different ways to charge such as choice of container size (volume-based schemes), the frequency with which a container is set out for collection (frequency-based schemes), and the weight of material collected in a given container (weight-based schemes).

Some countries have decided to implement direct charging for waste collection to increase recycling by householders. Previous work by Zero Waste Scotland have shown that areas achieving a household recycling rate of 65% and above use a combination of stretching targets, comprehensive collections, incentives to recycle and some form of direct charging for residual waste collections. [85]

## 5.4.5 Case Study: direct charges

Detailed research carried out on one of the most high performing regions of Germany for recycling rates, the County of Aschaffenburg, with over 20 years experience of PAYT systems covering 173,000 residents, has shown that PAYT has a significant effect [86] . Between the period 1995 to 2000 the researchers concluded that the new fee based system reduced non–recyclable waste by 84% and increased the recycling fractions like paper & card by 15.3%, food waste by 14.6%, construction materials by 12.4% and plastics by 5.1%.

The fee in the County of Aschaffenburg consists of three elements: a basic fee for the

service, the bin collection fee and the weight of bin fee. These fees are focused primarily on the residual waste bin.

The implementation of PAYT in the County of Aschaffenburg is perhaps representative of a best practice, as the weight-based system produced particularly high collection rates of recyclable materials and should enable achievement of household recycling targets of 65%. The authors note that in Flanders, Belgium, pre-paid sacks were also used in a simplified weight-based PAYT system, significantly increasing the recycling rate to 71%.

While clearly effective, direct charging mechanisms may have some undesirable consequences especially if they are not well implemented. They could undermine some of the goodwill in the current system and encourage waste being moved to neighbouring communities or illegal dumping. The burning of waste in back gardens may become more common, a noted impact from PAYT in Ireland [87] . Increased amounts of contaminants in recyclable collections is more likely and is one way householders could avoid paying higher fees; this would have to be closely monitored. [88]

It can also be a risk to rely solely on revenues from fees which vary to generate the desired level of revenue to run a local authority waste service. It is typical for the revenues from any variable fees to cover around 30-50% of costs so as not to expose the service provider to the problem of revenue instability.

## 5.4.6 Implications and Emerging Issues for Scotland

EfW taxation and PAYT/direct charging are two tried and tested fiscal measures that have the potential to help Scotland meets its waste and climate change targets by pushing more material into recycling and composting schemes and away from residual waste solutions.

When considering an “incineration tax” it seems reasonable that the most efficient EfW plants in terms of climate related emissions should be taxed less than least efficient plants and so bandings based on the efficiency of the plant, or the emissions content of the waste used in them, may be required. It also seems appropriate to use an annual escalator as was the case with the Scottish Landfill Tax; starting low but with yearly increases to help introduce any new tax. This would also give operators and the waste industry a clear route map.

While carbon capture and storage (CCS) is suggested for EfW plants in the CCPu this seems an unlikely solution due to cost and logistics; most EfW plants are relatively small in power plant terms and so it is difficult to see how that technology could be applied across multiple small sites any time in the near future.

If Scotland is unable to implement an EfW tax directly, and an EfW is not included with in the UK ETS, then other options include a minimum price approach per tonne of waste sent to EfW or alternatively a non-fiscal measure using an agreement with the industry, similar to that used in Denmark.

While direct variable charging (DVC) would require significant engagement with householders and new investment in administration for local authorities, many Scottish Councils have already started along this path with Green Waste services being charged directly to householders.

When designing a consistent system for Scotland it may be the case that charges are applied to the majority of bin collections (residual and recycling) so that any rapid decline in residual waste does not require a complete change in the charges. Scotland's housing stock of flats and tenements, and ensuring a Just Transition would be challenges to be managed in the design of any scheme at a local level.

One other factor to consider is that there is a common misunderstanding by residents that a significant part of their Council Tax is spent on waste management when it is in fact a small element. If separated out from Council Tax they may question what other services they are receiving from their Council.

While PAYT schemes reduce residual waste and increase recycling rates they do not appear to have a significant effect on the long-term total amount of waste generated and so other measures such as EPR are required to address this. [89]

**Waste Management Summary**

- The success of the Scottish Landfill Tax has led to an increasing move to Energy from Waste (EfW) treatment for residual (non recyclable) waste.
- Climate change emissions from EfW plants may be higher than fossil fuel gas plants and as food waste and card/paper are increasingly separated from residual waste these could become higher than the impact from landfilling waste.
- An EfW or "Incineration" tax is used in many countries and could be used in Scotland to help push more waste materials into recycling and composting with associated benefits.
- The Scottish Government has several options to address this, with an EfW tax similar to Scottish Landfill Tax being the most realistic and effective option, subject to any questions around devolved competence. Alternatives to this measure include exploring a minimum price mechanism, inclusion in the UK ETS, or a voluntary EfW reduction agreement with the Waste Management Sector.
- The current Scottish local authority waste & recycling systems are based on householder goodwill.
- Local authority funding pressures are forcing Councils to charge for green (compostable) waste collections; distorting the fiscal incentives for recycling.
- Direct Variable Charging (DVC) or Pay As You Throw (PAYT) mechanisms work well in other European Countries and can have a significant impact on reducing residual waste and increasing recycling and food waste collections.
- Providing local authorities with the powers to introduce direct variable charges based on weight, volume or frequency of collection from householders could provide an effective fiscal incentive, support local investment in infrastructure and services while reducing climate change emissions.

# 5.5. Land Management

**Key Scottish Government Targets/Commitments:**

- Publish a new biodiversity strategy underpinned by a 5 year delivery plan, including changes in the way we use and manage land and our approach to protecting habitats and ecosystems -Programme for Government 2021-22.

- Support our commitment to provide £250 million over 10 years to restore 250,000 hectares of degraded peatlands by 2030 – with £22 million for the restoration of degraded peatlands in 2021-22 - Programme for Government 2021-22.

- We have met our target of 12,000 hectares of woodland creation in 2020-21, and will accelerate towards 18,000 hectares a year by 2024-25, and increase the annual native woodland creation target to 4,000 hectares - Programme for Government 2021-22.

- Introduce a Natural Environment Bill, putting in place key legislative changes and statutory targets to restore and protect nature - Programme for Government 2021-22.

- We will work with the sector and stakeholders to bring forward a consultation on the options for future agriculture and wider land use support through a Bill to replace the current Common Agricultural Policy framework for agriculture and land use support - Scottish Government and Scottish Green Party: draft shared policy programme.

- We will ensure funding within a post-CAP system is ring-fenced for tree planting, orchard creation, and woodland regeneration, as well as support for the development of rural businesses linked with forestry - Programme for Government 2021-22.

## 5.5.1 Background

Land use and its management has a huge impact on both biodiversity and climate change emissions. In Scotland around 80% of the land is classed as agricultural [90] and key biodiversity indicators, such as farmland birds, have been in continual decline since the 1970s [91] . The Scottish Government estimates subsidies were a total of £502m in 2019, [92] or 13% of the total agricultural sector income of £3.68bn. So at a sector level, subsidies are likely to be an important influence on the type of activity which takes place.

Therefore the reform of agriculture systems is seen as a critical area to halt species decline and reduce emissions, but the reform of the existing regime of subsidies has many complex issues to manage, including food production, carbon accounting, and ecological restoration, and the Scottish Government may also wish to align, where appropriate, with aspects of the new EU CAP regime.

The Scottish Government has recently undertaken an initial consultation [93] , seeking views on the recommendations of “farmer led groups”. This is part of the transition to a new land use policy and a further consultation ahead of any changes in legislation is expected in 2022.

The consultation closed on 17th November 2021 and its overview highlighted:

> “ Whilst change is needed it needs to be fair and equitable and set out in the terms of a Just Transition that ensures a sustainable future for a reformed agriculture sector. It needs to be open to the opportunities to adopt new approach to policies for agriculture and food production and realise our collective desire to ensure Scottish policy, regulatory and funding frameworks will enable investment in rural businesses and rural communities. This will enable them to lower emissions from production, be profitable, efficient and productive whilst playing their part as land managers to tackle climate change and enhance biodiversity.”

Following previous criticisms of the CAP “production” focus, changes to any subsidy regime, away from funding *production* and towards funding more *public goods* offers a unique opportunity to address climate change and biodiversity issues *(e.g.* offering payment in return for activities that enhance biodiversity or improve environmental quality). This has been recognised in the consultation:

> “ It is recognised that we are facing not just a climate emergency, but also a biodiversity crisis.....The Hill Upland and Crofting Group in particular, had an interest given the importance of High Nature Value farming in those areas. The Group was very clear that biodiversity should be recognised as an output alongside agricultural activity.”

Climate emissions arise from many sources in farming including the use of fertilizers and methane produced by livestock. Biodiversity loss can occur through habitat removal, loss of connectivity, the use of pesticides and herbicides, and the use of insensitive management practices.

In farming terms, enhancing biodiversity may include maintaining or restoring peatland, wetland and woodland creation (through natural regeneration or planting) or other habitat enhancements as well as good management. If well designed, subsidies may support emissions reduction, enhance biodiversity and wider environmental outcomes such as flood management or access for recreation.

The Scottish Government is carrying out engagement work following the consultation and will also be supporting projects through a National Test Programme which will begin in spring 2022, with up to £51m of investment over three years. This Programme is intended to help, through work with a focus group of farmers and crofters, to understand how sustainable farming can be supported and rewarded in future.

> “ This will ensure the right tools and support are in place when, from 2025, the climate and biodiversity performance of businesses will determine the level of agricultural support payments.”
>
> Scottish Government, 2021[94]

NatureScot is also currently piloting a range of approaches, including a farmer-led outcomes based approach with a small number of farmers, to inform what rural support could look like after CAP. [95]

The other nations of the UK are also reforming their subsidy regimes and England is proposing to implement a new subsidy regime, *The Path to Sustainable Farming: An Agricultural Transition Plan 2021 to 2024*. This sets out plans for phasing out direct payments by 2027 [96] and replacing these with a range of schemes, including initiatives to increase biodiversity, restore landscapes, promote animal welfare and increase productivity through investment in new equipment and technology.

The Climate Change Committee has made some key recommendations on how to achieve lower emissions in agriculture in its report - *Land use: Policies for a Net Zero UK, January 2020* and Scotland's Rural College (SRUC) has produced a report for the CCC [97] - *Non-$CO_2$ abatement in the UK agricultural sector by 2050* looking at ways emissions could be reduced in 18 on farm practices. NatureScot has also undertaken research work on case studies of alternative approaches to agricultural payment systems [98] .

Agricultural land in each country is very specific to climate, land classification, economy, culture and farming traditions, and as a result subsidy models vary. However there are a number of different payment approaches that can be used to provide subsidies to land managers which serve to enhance environmental outcomes. A 'paying for public goods' approach mentioned above means rather than simply paying for agricultural production, public money is used to pay for other things that have value to society such as flood management, enhancing biodiversity through better management practices, carbon sequestration through woodland or peatland, landscape or aesthetic value and public access for recreation. Sometimes paying for public goods is also referred to in other ways, such as paying for ecosystem services, although public goods covers a wider range of benefits e.g. access for recreation, or preservation of historical or cultural features.

Payments for public goods or ecosystem services can be designed in several different ways, e.g. paying for the cost of specific activities to be undertaken (this is the approach currently used in Scotland's agri-environment climate scheme), paying for results that are achieved as desired (as trialled by NatureScot and referred to above), auctions (e.g. as trialled by English councils and water companies for river improvements [99] ), and conservation covenants [100] , to name a few. Such alternative approaches could be considered for the new subsidy regime and SPICe have produced a useful briefing on this subject [101] .

As well as subsidies there are also some emerging taxation options. These are discussed in the following sections.

## 5.5.2 Carbon land taxes

The John Muir Trust has recently suggested a Natural Carbon Land Tax (NCLT) for Scotland [102] based on a performance certificate approach, much like there is for Energy Efficiency ratings in houses. Under the proposals land holdings over 1,000ha would be in the scheme and those with the worst performance in emission terms would compensate the best performers in a tax neutral transfer arrangement.

The Trust estimates at least 93 per cent of farms in Scotland would fall under the 1,000ha threshold and so they would therefore be exempt from the proposed taxation. Land holdings whose primary land management objective is currently sport shooting would appear to face the biggest challenge in terms of performance according to the JMT.

The Trust proposes that the NCLT be administered by local authorities through the current non domestic rates system, with exemptions for local authorities, housing associations etc. It is estimated around 60% of Scotland's land area would fall under the assessment.

It is possible that similar outcomes as desired by this proposed tax could be achieved through a revised subsidy regime i.e. encourage the movement away from land uses and

land management that produce higher emissions. Experience with taxation and subsides, however, does suggest that individuals and businesses are more motivated to avoid a charge than gain a benefit and so land holders may respond more strongly to a NCLT than a measure in the future subsidy regime, depending upon the level of charges and payments involved (for example, this human behavioural trait is why EPECOM proposed a 20p minimum price for takeaway beverage cups as a more effective measure than the current voluntary discounts offered for reusable cups by many coffee chains). Using a tax or charge measure should also cost the public less than a subsidy. In principle, subsides and taxes should not compete or conflict, when considering both a tax and subsidies to achieve similar outcomes in land management.

## 5.5.3 Taxing meat consumption

This topic is complex and subject to developing measurements of climate change and the biodiversity impact of different farming methods. The United Nations Environment Programme (UNEP) has recognised that our global food production system is the primary driver of biodiversity loss [103] and the United Nations Food and Agricultural Organisation estimates that livestock production alone is responsible for around 14.5% of total anthropogenic GHG emissions. [104]

The CCC has recommended a 20% shift away from all meat and dairy products in diets by 2030 and recently made the following recommendation to the Scottish Government:

> “ Set out plans to deliver Scotland's guidelines on healthy eating, to encourage a healthy, balanced and sustainable diet. This should include measures to encourage a reduction in the consumption of meat and dairy products e.g. through better information and labelling, the public sector taking the lead and development of an evidence-based strategy on diets. [72] ”

From 2008 to 2019, average meat consumption per capita per day in the UK decreased from 103·7 g to 86·3g per day, including an absolute reduction in red-meat consumption of 13·7 g, an absolute reduction in processed meat consumption of 7·0 g, and a 3·2 g increase in white-meat consumption. [105] Meat consumption effectively dropped by around 17% in a decade in the UK and this trend is expected to continue as vegetarianism and veganism become more common and meat eaters choose to eat less meat. This is a trend without any significant government intervention.

Another factor supporting this trend is the level of food inflation that is being experienced since the Covid pandemic. Global food prices increased by 23% from December 2020 to 2021 [106] and with meat being one of the most expensive food items consumption may drop further.

Along with CCC guidance, a published and then withdrawn UK Government report - The Net Zero: principles for successful behaviour change initiatives [107] suggested that the key here is the use of various supporting policy measures such as changing public procurement and including “nudge” factors to normalise diets with less meat. For example, governments promoting vegan and vegetarian options in the public catering and food establishments it is responsible for.

Influencing diet is perhaps a controversial issue for governments but a precedent has

already been set by the Soft Drinks Industry Levy (or Sugar Tax). However the above report notes:

> " It will be important to maintain a narrative of genuine fairness to maintain public support. For example, an unsophisticated meat tax would be highly regressive. Moreover, narratives must avoid alienation of mainstream dietary choices, or demonisation of the livestock sector, which will ultimately be the solution rather than the problem. [107] "

## 5.5.4 Biodiversity and forestry expansion

Integration of greater biodiversity into agriculture is perhaps one of the biggest challenges as this can create conflict with conventional farming practices. This includes the challenges from the reintroduction of animals such as beavers and sea eagles as well as increasing forestry on agricultural land to meet reforestation targets, something that will be necessary to meet the ambitious forestry targets highlighted at the start of this section. Traditionally farmers have sought compensation for damage to their livestock or land from protected species, or sought licences for them to be killed. Other countries have attempted to change that relationship by rewarding farmers for certain species sharing their land.

## 5.5.5 Case Study: Sweden conservation performance payments

This information is taken from an EU commission study on conservation performance payments. [108] The Swedish conservation performance payment scheme for lynx and wolverine was first introduced in 1996. The objective of this scheme is the protection and preservation of both species which are endangered due to habitat loss and illegal hunting. It is targeted at areas of Sami reindeer herding in the north of Sweden - typically forest and tundra and has been taken up widely across the 51 Sami communities.

Payments are made according to the number of lynx and wolverine offspring observed each year as a proxy for the total population – the payments can therefore be thousands of Euros per animal. The level of payment is determined according to the cost of the damage that each lynx or wolverine offspring is expected to cause throughout their lifetime.

Both lynx and wolverine populations have increased since the scheme was introduced, despite ongoing hunting pressure, and a study in 2015 showed that the wolverine population had doubled in a decade with the payment regime being instrumental in that outcome. [109]

The payments are financed publicly by the Swedish Government and managed by the Swedish Environmental Protection Agency. The monitoring framework is very detailed and requires annual carnivore inventories each winter. Prior to this approach a compensation scheme rewarded the Sami herders for the number of dead reindeer resulting from carnivore kills. The old approach was not contingent on conservation outcomes such as the population of lynx or wolverine. The revised payment system has created greater engagement from the community despite the added burden of regular animal surveys. [110]

Other countries are using similar approaches. In Mexico, ranchers are paid between $50 and $300 if camera-traps record a jaguar, puma, ocelot, or bobcat on their land. And

wildlife reserve managers in the USA are increasingly interested in using this model in “buffer zones” around the boundary of their wildlife reserves to prevent the persecution of wildlife. [111]

## 5.5.6 Case Study: Costa Rica payments for ecosystem services

Costa Rica has a long track record of using payments to support forest restoration and enhancement. Costa Rica was a country that cleared much of its forests, but has now almost doubled the total size of its forests [112] and is seen as a role model for others to follow. It won the Earthshot Prize for the *Protect and Restore Nature* category in 2021. The Earthshot Prize was launched by Prince William and The Royal Foundation in 2020, taking inspiration from President John F. Kennedy’s Moonshot, which united millions of people around the goal to put man on the moon. The winning project is a Ministry of Environment programme paying citizens to restore the natural ecosystems that led to its rainforest revival.

The historical context:

> “ In the 1940s, 75% of Costa Rica was covered in rainforests. Following the arrival of loggers, much of the land was cleared to grow crops and livestock. It is unclear just how much land was lost, but it is thought that between a half and a third of forest cover was destroyed by 1987. Following this devastation, the government intervened to restore and preserve the forests. In 1996, the Costa Rican government made it illegal to chop down forest without approval from authorities and the following year it introduced the Payments for Environmental Services (PES) Program. Today, close to 60% of the land is once again forest and the landscape is home to around half a million plant and animal species.”
>
> Konyn, 2021[113]

The Payment for Environmental Services (PES) scheme works together with Forestry Law and the National Conservation Areas System in Costa Rica. More than 18,000 families [114] have benefited from the programme, with an investment of $524 million in the PES projects and covering more than 1.3 million hectares [114] . These service payments are split into four different functions covering carbon sequestration, watershed protection, biodiversity preservation, and scenic beauty.

The programme is funded through Costa Rica's fuel tax and water charge, as well as Certificates of Conservation of Biodiversity, carbon credits, and strategic alliances with the public and private sector. However, the country's biggest challenge is to secure long-term financial sustainability and the scheme is significantly over subscribed. Between 2010 and 2015, 79% of the financing for the PES program has come from fuel tax and 6% from a water fee with only 2% coming from private initiatives [115] . With the move away from fossil fuels and reduced fuel tax revenue likely there is a need to lever in more private investment.

The growing global carbon offset market is being seen as a major potential revenue source for the future and Costa Rica has attracted $135m in investment from private companies, international organisations and other governments in the last 2 years [116] .

## 5.5.7 Implications and learning for Scotland

The replacement of the former CAP agricultural subsidy regime offers a huge opportunity to integrate biodiversity and climate change aims using incentivised support mechanisms. However this is a very challenging and complex area within many stakeholders and competing interests. It will take time for the Scottish Government to develop and finalise a new subsidy regime and get it operating effectively to help meet 2030 targets.

While this is happening, and the sector is focused in engaging with the development of the new regime, there is an opportunity to also explore other taxation alternatives such as that proposed by the John Muir Trust. The taxation of meat consumption appears to be recognised as very challenging and its objectives may be better addressed in other ways.

Scotland could learn from Sweden's experience in designing incentives for biodiversity within the new subsidy regime. Sweden's scheme works in an extremely remote and geographically challenging area requiring physical surveys by experts. With the advent of new camera trap technology, wildlife sighting payments could be used to encourage conservation of key species and new introductions; rather than schemes that compensate for damage. This could change the relationship between land managers and wildlife to one where the presence of wildlife is seen more positively.

More land is needed for forestry and native woodland in Scotland to meet the ambitious Scottish Government targets and commitments highlighted at the start of this section and this could involve consideration of successful PES schemes such as the one in Costa Rica. Costa Rica is focusing upon attracting new carbon and conservation related finance to magnify or replace public funding and this could be a positive next step for Scotland too.

Similarly, finance mechanisms are needed to scale up peatland restoration to meet Scottish Government commitments – with the CCC recently recommending that the existing target of restoring 20,000 hectares per year needs to be significantly increased to 50,000 hectares per year to support emissions trajectories in the CCPu [72] .

With the Woodland Carbon Code and Peatland Code and proposals like The Route Map from the £1 Billion Scottish Conservation Finance Project [117] (a SEPA and Scottish Wildlife Trust initiative) there is an emerging standards framework, and capacity for further mechanisms to be explored, that could attract private and international finance in carbon offsetting and other environmental service payments. The UK Woodland Carbon Code is a quality assurance standard for woodland creation projects in the UK, and generates independently verified carbon units. Similarly, the Peatland Code is a voluntary certification standard for UK peatland projects wishing to market the climate benefits of peatland restoration. Increasing private funding to the land use, agriculture and forestry sector may increase the likelihood of ambitious climate change targets being met and enable public subsidy to be directed towards the more challenging aspects of emissions reduction, biodiversity and environmental services.

There are, however, still ethical questions to be addressed in this emerging market over how these new investment opportunities will deliver real additionality in carbon sequestration and biodiversity, blend public and private finance and address the many land ownership issues in Scotland; for example the Scottish Land Commission has urged caution in decisions by land owners and managers regarding transferring carbon rights or options in a "fledgling market" with less than full awareness of the implications and risks [118] .

Directing any $CO_2e$ offsets sought from Scottish Public bodies into Scottish projects could also support this fledgling market and new guidance issued by the Scottish Government and Sustainable Scotland Network in October 2021 states that “For any offsetting that is carried out on emissions that are within Scotland’s territorial boundary natural sequestration projects within Scotland should be prioritised.” [119]

It should also be recognised that the investment required for ecological restoration could be enormous. The Green Finance Institute thinks Scotland has a funding gap of £15 billion - £27 billion between 2022 and 2030 [120] .

**Land Management Summary**

- The replacement of the former Common Agricultural Policy (CAP) agricultural subsidy regime offers a huge opportunity to integrate biodiversity and climate change aims using incentivised support mechanisms.
- However this is a very challenging and complex area with many stakeholders and competing interests. It will take time for the Scottish Government to develop and finalise a new subsidy regime and get it operating effectively to help meet 2030 targets.
- Payments for Environmental Services (PES) schemes used in Sweden and other countries for incentivising the protection of wildlife, and Costa Rica for regenerating forestry, are successful examples of the type of incentives that could be incorporated into the new regime.
- In addition to lower emission farming practices, new taxation options may also need to be considered on the demand side for meat and dairy consumption; if current incentives for a more plant-based diet, such as the perceived health benefits or personal environmental drivers, are not sufficient enough to change behaviour.
- While the powers to implement new taxation options of land use emissions reside at a UK level, the John Muir Trust's proposal for a Natural Carbon Land Tax is one example which could potentially be implemented at a local authority level.
- Creating the right investment framework through the Woodland Carbon Code and Peatland Code for offset money may add significantly to public funding; increasing the likelihood of ambitious climate change targets being met and enable public subsidy to be directed towards the more challenging aspects of emissions reduction, biodiversity and environmental services.

# 5.6 Environmental tourism tax

**Key Scottish Government targets/commitments**

- We are committed to reforming Council Tax to make it fairer, working with the Scottish Green Party and COSLA to oversee the development of effective deliberative engagement on sources of local government funding, including Council Tax, that will culminate in a Citizens' Assembly - 2021/22 Programme for Government.

Local taxes and charges may offer opportunities to change behaviour and increase investment in infrastructure and services that support Net Zero and Ecological Restoration; especially where those opportunities do not exist at a national level. The Scottish Government has already made a commitment in the Programme for Government 2021/22 to reform Council Tax and to engage on future sources of local government funding.

Previously in this report several local environmental fiscal measures have been touched upon; including applying charges to the EV charging network and correcting the distortion in householder waste service charges. In this section a new fiscal measure for Scotland is explored, one which is commonly used in other countries and prior to the pandemic it was being widely discussed as a new tax or levy option. Commonly referred to as a "tourist tax" it is primarily a source of local government funding.

## 5.6.1 Background

There has been a great deal of interest in some form of tourist tax from Scottish local authorities that are facing major visitor related pressures on their services and infrastructure. However legislation from Holyrood would be required for Councils to be able to introduce such a tax. The Scottish Government launched a national discussion on a "tourist tax" from November 2018 to January 2019 [121] .

In 2020, following the national discussion, the Scottish Government then went on to consult upon a discretionary Transient Visitor Levy (TVL) or "Tourist Tax". Edinburgh Council also launched its own consultation on a tourist tax at the end of 2018. As a result of that the Council voted in favour of introducing a TVL with a £2-per-night charge; added to the price of any room for the first week of a stay.

This Edinburgh City TVL was projected as having the potential to raise £11.6m to £14.6m per year but as noted above it would need new legislation from the Scottish Parliament to implement. The Scottish Government announced in March 2020 that development of this legislation had been "halted" in light of the pandemic. The consultation by the Scottish Government stated that the revenues from such a tax could be focused upon "tourism related activities including responding to tourism pressures". If this was focused on the pressures from tourism that increase climate change emissions and cause environmental damage then this could be categorised as a potential environmental fiscal measure.

The tourist tax or levy is common in other countries. A recent report, the *Destination Sustainability Movement White Paper: Destination funding and the impact of tourism taxes on European cities and urban communities* [122] discovered that:

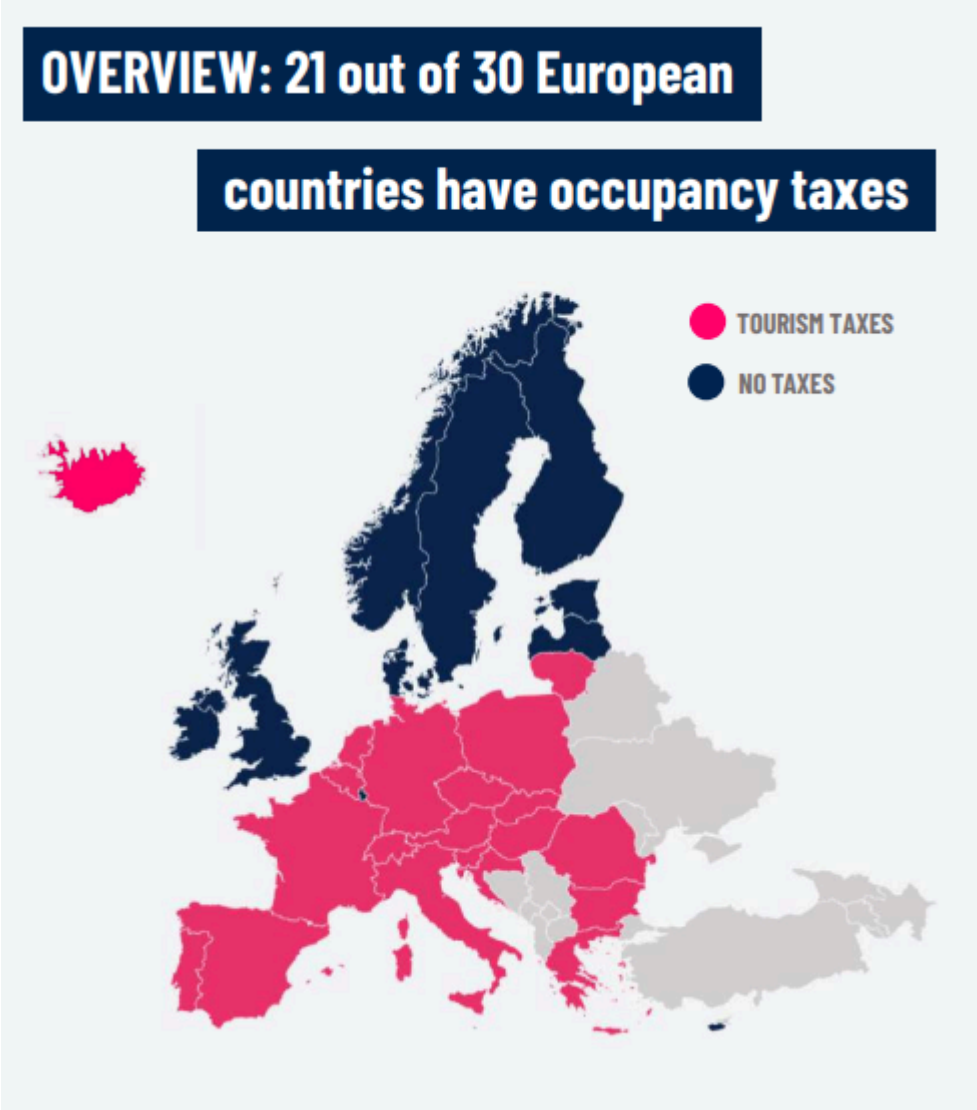
> “ Twenty one out of the 30 European nations covered in our research have implemented taxes on visitors while only nine have not – mainly in the Nordics and in the Baltics. Many member states have implemented their taxes since the year 2000 and the majority are taxing according to the number of overnight stays per person at the city level.”

The report also notes that that tourists and residents favour taxes with purpose and studies reveal that there is “strong backing and a higher willingness to pay.... if taxes have clear regenerative and/or an environmental purpose.”

While in the current pandemic crisis the focus is on packages of support for the tourism sector, and internationally many tourist taxes have been suspended, the introduction of new tourism taxes in the future could be used to build resilience and boost a green recovery if focused strongly on the environment.

Of the 21 European countries with taxes (see Figure 5.6.1 below ), most are based on a “per person per night rate”. The Scottish Government sought responses for the various options for structuring a tax in its consultation in 2019 but a summary of this information has not yet been published at the time of this report.

**Figure 5.6.1 – Countries with tourism taxes in Europe**




Source: Group NAO and Global Destination Sustainability Movement [122]

## 5.6.2 Case Study: Spain

Within Europe there are two examples that Scotland could perhaps learn from as both are acting as a form of environmental fiscal measure or visitor “eco tax”. These cover the Balearic Islands and Barcelona in Spain. The previously mentioned White Paper provides a useful summary of these.

In the Balearic Islands there is a Sustainable Tourism Tax (called ITS). The tax is charged for those over 16 visiting Mallorca, Menorca, Ibiza, or Formentera. The revenue raised is spent on a mixture of tourism related objectives but the largest element is spent on environmental projects. The ITS was launched in 2016 and is focused upon the following purposes, Environment, Sustainable Tourism, Cultural Heritage, Scientific Research, Training & Employment, and Social Renting.

A key feature of the tax is the transparency of where it is spent. A website details all the projects funded and you can search by project and see the revenue invested, for example in 2018 Mallorca received over €9 million in project funding and since the start of the tax nearly €34m has been spent on projects on the island with over €17millon being in the “Environment” category [123] . In addition there are further measures to give visitors and residents confidence on where the tax raised is spent:

> “ The tax rates range from a per night charge of €1 to €4 in high season or €0.25 to €1 in low season depending on the type of accommodation. Prices are up to 75% lower if you're travelling in the low season, from November to April. The tax also drops by 50% after your eighth night on the island.”
>
> Group NAO and Global Destination Sustainability Movement , 2020[122]

Due to the strong environmental element the tax seems to be frequently described as if it is an environmental fiscal measure. This is demonstrated by travel websites' description of the tax, for example “The money raised from the 'eco tax' will go towards the protection of resources on the islands” [124] .

Barcelona has perhaps one of the best known examples of a tourist tax in Europe. In 2012, La Generalitat de Catalunya established an accommodation tax, which was adopted by the city of Barcelona. The tax revenues are ring-fenced for regenerative purposes and countering the externality costs of tourism on the city. 50% of the revenues collected go to Barcelona City Council and the remaining 50% to the Catalonia Government.

Differentiated tax rates are applied to locations which are intended to even out the concentration of visitors across the city. The highest tax rate costs €3.50 per person per day as from January 2021. The fee is calculated based on the type of accommodation. From 2012 till 2019 the White Paper notes that Barcelona received €72.7 million from this tax.

The revenue in Barcelona is used to subsidise projects aimed at developing and protecting the environment, stimulating sustainable tourism, restoring and protecting historical heritage, financing scientific research and sustaining coexistence and development of neighbourhoods, cultural and creative activities and tourism innovation.

The Turisme de Barcelona Consortium was set up in 1993 by Barcelona Municipal Council, the Barcelona Official Chamber of Commerce, Industry and Shipping and the Barcelona Promotion Foundation. The Consortium works to promote the city as a tourist destination and is a decision body for where the tax revenue is spent. A further

stakeholder body - The Tourism Council (Consell Turisme i Ciutat) - was formed in 2016 as a representative body of institutions, community groups, industry representatives, academic experts and city council members which provides advice to the City of Barcelona on the use of the tax.

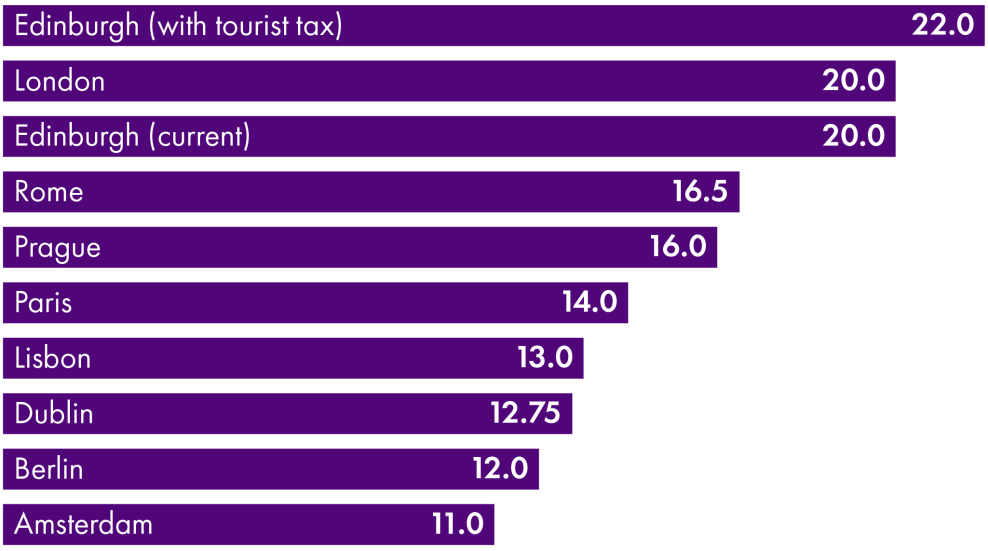
The tax does not appear to have reduced tourism, as visitors to Barcelona have continued to grow during the period 2013-2019. However, in 2020 the City approved a further surcharge on top of the existing tourism tax to help mitigate the effects of the Covid pandemic. This surcharge goes straight to the municipality and will increase progressively over a 4 year period from €0.75 to €1.25 per night. This extra charge commenced in June 2021.

## 5.6.3 Implications and emerging issues

The Scottish Government and some Scottish Councils have already undertaken engagement and development work in exploring tourism taxation. The UK *All Parliamentary Group for Hospitality* produced a report in 2019 [125] which noted that across the UK it was Edinburgh City that had made the most progress towards introducing a tax and - "*In Edinburgh surveys taken of visitors and businesses have suggested a favourable response to a tourist tax*."

The benefit of a TVL targeted at visitors is increasing tax revenue for communities without increasing the overall tax burden on them. However it has to be recognised that in countries where a tourist tax is applied there are often reduced rates of VAT, whereas the UK has one of the highest taxed visitor accommodation sectors in Europe. This may lead to a higher tax burden overall without a tourist tax being added. Modelling of the proposed Edinburgh City TVL shows this impact in comparison to other European destinations in Figure 5.6.3. This therefore requires careful consideration.

**Figure 5.6.3: Comparison of tourist taxes with a proposed Edinburgh transient visitor levy (Tourist Tax + VAT per night (€))**




Source: Group NAO and Global Destination Sustainability Movement , 2020[122]

There is also the concern that such taxation, once collected from accommodation providers, will disappear into the general revenue budget of councils without a clear benefit to those involved. The UK All Party Parliamentary Group noted *“There is also distrust of what the revenues from a tourist tax will be used for, as it is assumed the revenue will just be used to replace current council spending, and initial rates will be increased.”*

Edinburgh Council's proposals were welcomed by Edinburgh Chamber of Commerce but they appealed for more information about how the money will be spent. Its CEO, Liz McAreavey, said:

> “ After consulting our members, we found broad support for the principle of a transient visitor levy, support which increases further if funds were ring-fenced and re-invested entirely in the city's infrastructure. What we require now is some more detailed information from City of Edinburgh Council as to exactly what they propose to do with the funds raised via a TVL. [126] ”

A tourism tax is a form of specialist tax, naturally lending itself to hypothecation and ring fencing, and therefore aggregating it with other sources of revenue appears to be a good way to lose support from both residents and visitors alike. This perhaps stresses the importance of the clarity of purpose and transparency of the Balearic Islands model where the establishment of the tax has led to a ring-fenced fund that is administered by a body that includes key stakeholders. There is transparency of where the money raised has been spent and the first and most important investment category is the Environment. Any newly created tax regime may wish to make that broad “Environment” category into something more specific in relation to the crisis we face with regards climate change and biodiversity loss.

Another feature of a TVL is it appears to be something that can be introduced quickly despite the new administrative arrangements required. The digitalisation of accommodation booking may facilitate that and some countries have arrangements agreed with companies such as Airbnb to automate the collection of accommodation related taxes. If a TVL is introduced, monitoring, evaluation and analysis of the impact of it from the beginning may be beneficial to ensure the stated objectives are being met.

**An Environmental Tourism Tax Summary**

- The Scottish Government and some Scottish Councils have already undertaken engagement, consultation and development work in exploring tourism taxation. Edinburgh City is the local authority which is leading in the UK; already approving a Transient Visitor Levy (TVL) subject to future Scottish Parliament legislation, development of which was paused in 2020 due to the pandemic.

- The benefit of a TVL targeted at visitors is increasing tax revenue for communities without increasing the overall tax burden on them and it appears to be a fiscal measure that can be introduced quickly despite the new administrative arrangements required.

- However it has to be recognised that in countries where a tourist tax is applied there are often reduced rates of VAT whereas the UK has one of the highest taxed visitor accommodation sectors in Europe. This high tax burden may affect visitor numbers.

- A tourism tax is a form of specialist tax, naturally lending itself to hypothecation and ring fencing. While not fundamentally an environmental fiscal measure, having the environment as the key purpose or core of the tax may make it more acceptable to visitors and residents.

- Administration of tax revenue by a designated body with involvement of key stakeholders can help to ensure trust that tax revenue is spent appropriately and provide expertise for the ongoing monitoring and evaluation of the impact of the tax.

- A TVL may offer significant revenue for investment by Scotland’s local authorities subject to the overall tax burden on visitors being considered.

- A scheme that is designed with a clear purpose, transparency, and community and stakeholder involvement in any revenue reinvestment appears to be a necessary prerequisite for success.

# 6. A potential framework for environmental fiscal measures

## 6.1 Strategic Aims

When using environmental fiscal measures we need an overall strategic aim in mind. It has been assumed in this report that the overarching strategic aim is focused on the climate and biodiversity emergencies we face, two enormous and interlinked challenges.

This aligns with the vision of Scotland's Environmental Strategy - *By 2045: By restoring nature and ending Scotland's contribution to climate change, our country is transformed for the better - helping to secure the wellbeing of our people and planet for generations to come*. [127]

So irrespective of any binding agreements or legalisation & policy the strategic aim could be described as, for the purposes of simplicity, *Net Zero* and *Ecological Restoration*.

Other objectives, such as creating an environment that supports human health, a circular and resource efficient economy, using only renewable energy, and marine pollution reduction, could also be considered but these may in fact be subsets of these first two overarching aims. Environmental fiscal measure outcomes should be in line with Scotland's National Performance Framework and the UN Sustainable Development Goals and so alignment here may be sufficient to address wider objectives and integrate with the broader wellbeing economy agenda.

More specific objectives and targets on the path to *Net Zero* and *Ecological Restoration* could be the Climate Change Plan update 2020 and the forthcoming Biodiversity Strategy, and key environmental legislation such as existing climate legislation and the forthcoming Natural Environment Bill, and Circular Economy Bill.

Using the Strategic Aim, and specific objectives and targets as the starting point it is possible to provide a conceptual framework that incorporates lessons from the practical fiscal measures discussed earlier in the report and also some key principles and constraints. This could be a useful starting point to think about future changes to Scotland's fiscal measures.

## 6.2 The practical fiscal measures

Within the case studies contained in this report a range of fiscal measures were discussed and in practical terms the ones most readily available to the Scottish Parliament are:

- Devolved Taxes and Subsidies
- Grants & Low Costs loans
- Product Stewardship – Extended Producer Responsibility & the use of minimum prices/minimum charges

- Local Taxes and Charges
- Carbon Pricing Mechanisms

This does not preclude new devolved tax and subsidy additions as UK constitutional matters evolve, for example if VAT was to be devolved in a meaningful way following a review of the Fiscal Framework then differential VAT rates may appear in this list. This list also does not consider any constraints brought about by the new legal frameworks on exit from the EU.

The Scottish Government could also choose to pursue UK-wide fiscal measures through Common Frameworks, as discussed for example in relation to an incineration or EfW tax, or seek permission for a new fully devolved fiscal instrument using the process set out in the Scotland Act. Both of these options may be viable but require UK Government approval and/or collaboration.

# 6.3 Principles

Unlike regular taxation, environmental fiscal reform appears to be in the early stages of development and so this section suggests a range of principles for initial consideration. Over time, sound principles and a framework for environmental fiscal measures may develop internationally as the urgency of the situation drives change; this may come from the EU or other international organisations researching this topic.

Many of the principles in this area may mirror wider tax policy and at the time of this report the Scottish Government has just consulted upon a new tax framework. [128] The principles here may also provide a useful starting point for considering those for environmental fiscal measures.

Below is a suggested list of principles that are drawn from the different elements of this report, including the themes in key literature, and the various case studies and sectors explored. This has also been informed, where relevant by other sources, including the Scottish Government consultation mentioned above and *EU Commission Report - Capacity Building, Programmatic Development and Communication in the field of Environmental Taxation and Budgetary Reform 2017* [129] .

## 6.3.1 Proportionate

New taxes or charges planned should be levied in proportion to the tax or charge payers' ability to pay.

This is a commonly used general taxation principle and ideally any new taxes and charges should be progressive where it is possible to do so, i.e. that the proportion of tax/charge paid should reflect the relative income or wealth of the payer. With taxes and charges related to resource consumption there should be an alternative to that consumption so that the tax can be avoided, or at least reduced, through less resource use therefore driving beneficial behaviour change.

For example, drawing from the case studies above, charging EV users for using the public EV charging network would seem proportionate and fair and they may also have the ability to avoid that charge. Charges for household waste services may also be proportionate

because the total annual charge would be relatively modest, as well as resulting in a corresponding reduction in Council tax, however here there is more likelihood of householders that would struggle to pay the charges and so mitigation measures may be required to assist them.

The Just Transition Commission has made recommendations regarding the issue that any costs of transition to a low carbon economy must be fairly distributed. The Scottish Government initial response within the PfG 2021/22 is *“Any additional costs for consumers associated with emissions reduction must be linked to ability to pay”.*

## 6.3.2 Repurposed and/or efficient

New taxes or charges should maximise the economic efficiency of collection, balancing revenue generation against the cost of collection. The cost of delivery of grants or subsides should be equally efficient. Wherever possible it is likely to be more efficient to alter an existing fiscal measure (Grant, Subsidy or Tax), including removing conflicting subsidies, to make it fit the Strategic Aim rather than create a new one; for example, as discussed in the land management section above, the Scottish Government is currently in the process of reforming agricultural subsidies so that the climate and biodiversity performance of businesses will determine the level of subsidy. If new measures are introduced then these should be efficient to collect or disburse, with minimal administrative impact, and convenient for businesses and citizens.

## 6.3.3 Increasing revenue percentage

Overall there should be a move towards greater taxes/charges on resource use and activities that are damaging and a corresponding decline on taxes on employment and labour. The effect will be an overall unchanged tax burden but a re-alignment to reduce the level of resource use and emissions.

## 6.3.4 Fairness

A wellbeing economy has ‘an equitable distribution of wealth, health and wellbeing, while protecting the planet's resources for future generations and other species’ [130]. Zero Waste Scotland's Decoupling Advisory Group stated that:

> “ Achieving a wellbeing economy will require an absolute, permanent and just reduction in Scotland's resource use at a rate fast enough to ensure it remains within critical local and global ecological limits.”
>
> Zero Waste Scotland, 2020[131]

This wellbeing economy approach should also take into account citizens and business’s varied circumstances including geography and the varying ability to avoid environmental charges and taxes; and avoid discrimination against disabilities, gender, ethnicity and other characteristics.

## 6.3.5 Holistic package

Environmental fiscal measures are likely to be most effective when they are part of a package of measures that seek to work together towards a shared outcome or goal. This often includes other elements such as complementary regulations, awareness campaigns, and advice and support packages. A further aspect is that any fiscal measures do not conflict with each other.

For example, as discussed in the section on waste management, charging an annual fee for green waste collection and not one for non recycled waste to a household is a distortion of the incentives we may wish to see applied. Another example is applying the cost of decarbonising our energy supplies onto the low carbon energy source rather than on the high carbon energy sources, in this case inflating the cost of low-carbon electricity instead of high- carbon gas supplies.

## 6.3.6 Appropriate Hypothecation

Hypothecation in some environmental fiscal measures such as EPR & DRS schemes is essential because you must reinvest the charges/levies to fund services and green infrastructure. In other taxes and duties hypothecation may also be relevant, for example as with a tourism tax such as TVL, where hypothecation may be the key to making it both an environmental fiscal measure and acceptable to the public. Minimum prices or charges tend by their nature to be retained by the business or organisation required to apply the charge, however there can be encouragement to use any profits for green investment e.g. as with the carrier bag charge.

## 6.3.7 Route mapped

There is need for widespread engagement on any new or repurposed measures. Citizens and businesses must know if they are liable to pay a charge or tax, the amount to be paid and when it is to be paid. Changes should be justified and, where possible, follow a predictable path.

Governments must be open and transparent about their decision making and likely future of any subsidy/grant mechanism, EPR scheme or tax. For example, the certainty of the Landfill Tax escalator enabled the industry and waste producers to plan action years ahead.

However, the ability to change minimum prices or deposits to respond to changing market conditions should also be considered in the legal instruments used. Minimum prices for items such as single use carrier bags and coffee cups may have to increase to accommodate inflation, and also the reduced behavioural response over time from citizens. Therefore, such a change should be easy to administer.

## 6.3.8 Flexible

Revenue from environmental fiscal measures should generally not be stable because the

need is primarily to drive change and that context does not fit well with stable revenue. The exceptions to this are schemes that are essentially fully hypothecated such as EPR, DRS and perhaps a tourism tax/TVL as described above, where there may be long periods of stability and then review. These schemes are primarily designed to recognise the externalities or impact of an activity that is having to be managed and ensure appropriate revenue compensation for it, but also hopefully leading to a reduced impact and a better environmental and economic solution overall.

Those exceptions aside, setting a tax or charge at a level that continues the current level of behaviour to produce consistent revenue is not aligned to the strategic aims here. Both government and companies (where we are considering minimum prices) should be aware from the outset that they are operating in a dynamic but route mapped environment and adjust to this over time.

A tax, charge, subsidy, or grant mechanism may no longer be required if it is successful in changing the behaviour it is aimed at addressing; or if it is replaced by something else, such as a ban on an activity. We are familiar with this redundancy principle in grant schemes but less so in taxes and charges. The European Parliament's Research Service states:

> “ [...]environmental taxation is an instrument of behavioural modification and therefore seeks to transform the economy. This means that it affects existing balances. In terms of budgetary yield, environmental taxation brings an increase in revenue, although that tends to diminish as behaviour patterns gradually alter. [132] ”

This diminishing tax yield situation may be offset by a Route Map approach as discussed above, which could include expected tax increases if they are justified.

### 6.3.9 Good Fit

Delivering fiscal measure outcomes should be in line with Scotland's National Performance Framework and the UN Sustainable Development Goals. This fit could also include the fostering of greater resilience that has been recognised as a necessity following the Covid-19 pandemic, as part of a ‘green recovery’. For example fiscal measures that encourage greater reliance on Scottish resources or create the opportunity for more resources (primary and secondary) to be retained within Scotland may be a good fit in this regard.

## 6.4 Constraints

In addition to a Strategic Aim and a sound set of principles other issues to consider are the constraints on the application of any kind of framework. Here a number of constraints are set out that should be evaluated and assessed before taking forward a new fiscal measure or a significant change to an existing one.

### 6.4.1 Border and internal market issues

There are practical implications of having taxes and charges radically different from the rest of the UK and England in particular due to the land border we share; which may

enable the easy and cheap transportation of materials or wastes to avoid taxes and charges. For example this has been a key consideration with regard to Scottish Landfill Tax rates. This aspect should be tested and mitigations considered.

### 6.4.2 Resources

There are limited staff and technical resources within government and its agencies to implement and manage new fiscal measures, whether they are support grants, subsidies or taxes. These resources may have to be increased but regardless of the resources available, any measures have to be impactful to justify the alternative cost of potentially using these resources elsewhere. Broader-based fiscal measures, for example utilising one overarching carbon tax rather than several smaller taxes to achieve the same aims, are likely to be more resource efficient, as is repurposing an existing fiscal measure.

### 6.4.3 Alignment

Any fiscal measures must be aligned to a range of legal structures in place, or proposed, including the Internal Market Act 2020, the Subsidy Control Bill, Common Frameworks and the Scottish Government's Fiscal Framework.

In addition the Scottish Government may choose to make a policy commitment that aligns with some EU environmental fiscal measures, as per the Environmental Strategy where there is the objective to maintain or exceed EU environmental standards [127] ; for example an EPR for textile waste and implementation of the DRS to meet the 90% recycling rates for plastic drinks containers would align with the EU's own Circular Economy Action Plan. There may be economic or trade considerations, such as the EU-UK Trade and Cooperation Agreement, or other benefits driving the consideration of EU alignment.

### 6.4.4 UK Solution

In some cases, an ambitious approach to a Scottish fiscal measure may be desired but if the UK Government is implementing a similar measure, even if this is considered to be less effective, it may be more advantageous to work with the UK measure. This may particularly apply to Extended Producer Responsibility Schemes, where historically the UK ambition for achieving impact is often less than in Scotland, but the cooperation on a UK-wide approach may offer other compensating benefits; such as lower cost of development, faster implementation, easier enforcement, and also the opportunity cost of using internal resources more beneficially elsewhere.

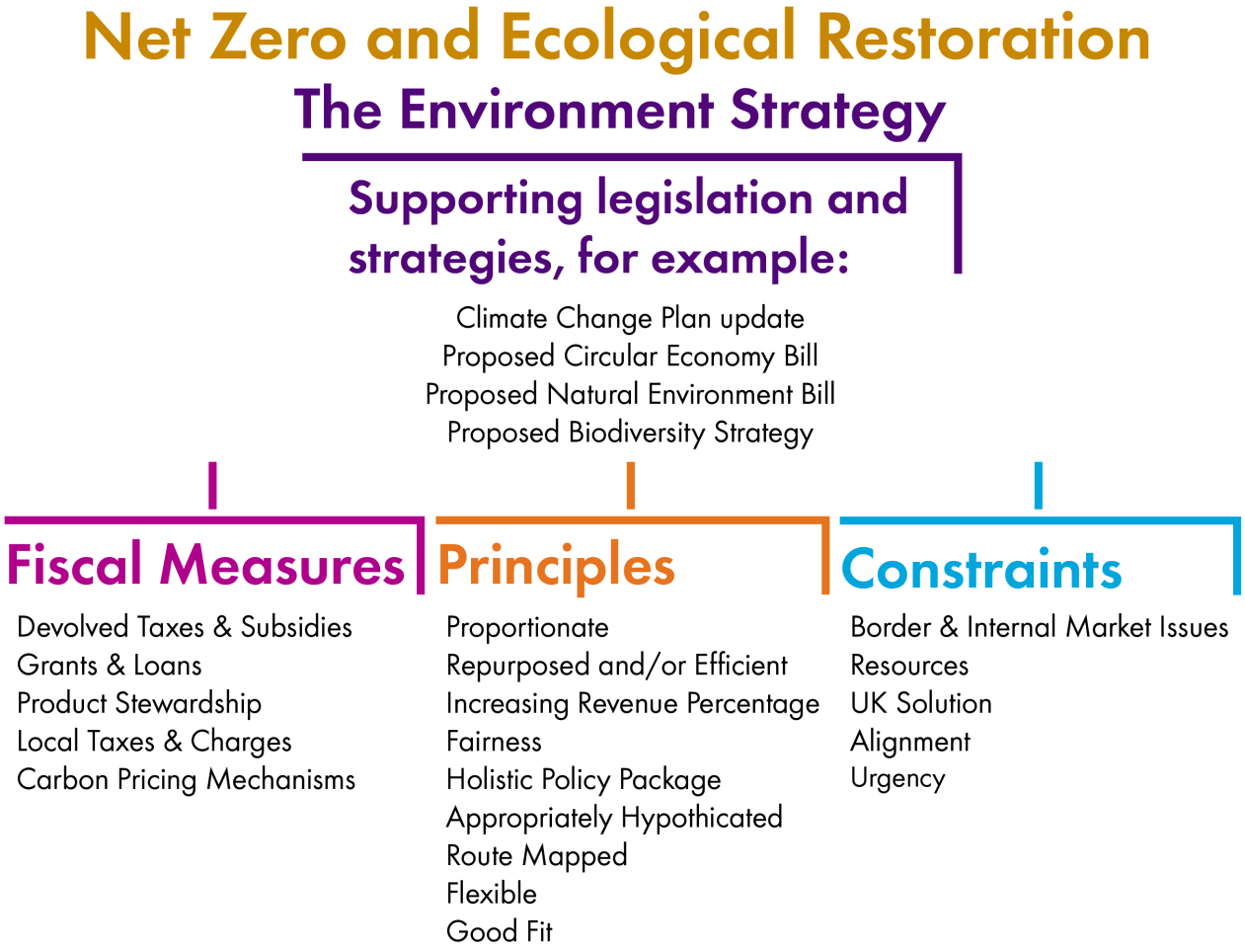
### 6.4.5 Urgency

Governments are running out of time to implement changes before irreparable damage is done and so for any measure considered the time for planning, development and implementation must be considered carefully, particularly with the challenge of the 2030 interim climate change targets in mind. Long lead in times may make some fiscal

measures unviable.

## 6.5 Visualisation of a potential framework

Incorporating the information above: the Strategic Aim, the most practical fiscal measures, emerging principles, and known constraints have been visualised in the diagram below.




Source: SPICe/Blackburn Circular Solutions

# 7. Conclusions

- Currently there are a plethora of taxes and charges used by the UK and Scottish Governments. These are trying to do various things including reducing climate change emissions and other environmental damage. This complexity perhaps reflects the wider UK tax system, which is reputed to have the longest tax code in the world. Within this complexity, various existing measures have attempted to internalise costs to society of these emissions and other environmental impacts while effectively charges differing prices for them.

- There appear to be no “silver bullets” available, however moving towards an overarching simplified carbon tax, that could be applied universally across the economy, could be the most efficient, fair and effective tax measure in relation to supporting progress to net zero.

- The UK Emissions Trading Scheme could be seen as a proxy for a carbon tax but the long term effectiveness of trading schemes is questionable. The Scottish Government appears to have no powers to introduce a carbon tax of its own and so other solutions, albeit more fragmented ones, are more likely possibilities.

- Similar to the taxation landscape there are a huge range of grants and subsides provided by the UK and Scottish Government, particularly across agriculture and land management. Here the Scottish Government may have more significance and control, subject to the UK Subsidy Control Bill, and so could repurpose these to ensure delivery of the Strategic Aim.

- This could be even more significant as part of a “Whole Government” approach where all government expenditure, including the £12 billion annual public procurement spend, is brought into alignment with the Strategic Aim. This would undoubtedly require considerable capacity building and new skills in the finance and related areas of government.

- The Scottish Government has ambitious interim emissions reduction targets for 2030 and ambitious targets for ecological restoration are expected in the Natural Environment Bill and next Biodiversity strategy. Experience shows that the introduction of new measures can often be a long process. Therefore, given the short time frame, repurposing existing fiscal measures where possible to deliver the Strategic Aim may be the best course of action. This is likely to be easier than introducing new measures from a standing start; because key stakeholders are probably already involved, and budgets and government or agency staff/technical resources are likely already present managing the existing measures.

- Where introducing new measures is deemed necessary a key consideration is not only the lead time to implementation but also the complexity – a measure that requires consultation with a few large stakeholders is going to be quicker to implement than one that involves engagement with hundreds of smaller ones. The natural resistance of industry to the introduction of changes in one part of the UK market makes the case for overtly seeking to maximise benefits from measures introduced at a UK level.

- Fiscal measures must work holistically with other policies and on their own they may not drive enough change. In some areas where a major cultural change and inconvenience will be caused, these measures will need to work alongside other

policy measures such as skills development, support and advice, and product bans; for example this would apply to the rolling out of renewable heating systems to replace gas boilers.

- Taxation of resource use and emissions should increase but with the benefit of reduced taxation elsewhere. This is a challenge for governments because the tax base becomes less stable however the Scottish Government has perhaps already demonstrated it can manage some instability from its experience with the Scottish Landfill Tax.
- Over time the measurement of GHG emissions may move from a territorial basis to a carbon footprint basis; thereby including the embedded carbon in materials and products as well as direct emissions. This will lead to a bigger emphasis on Circular Economy fiscal measures, such as EPR, and this is where the Scottish Parliament arguably has a more extensive devolved remit in policy than it does in energy. Resources for delivery in this area, along with the implications of the UK Internal Market Act may be key considerations. Lobbying for UK schemes to be favourably designed for the Scottish economy and environment, at an early stage, may be important.
- EPR schemes are often fiscal measures co-designed between industry sectors and government. Applying deposits on appropriate items, such as household batteries and small electrical items, would be an easy way to engage citizens and ensure much higher collection rates for some end of life products.
- In the absence of powers to vary taxation, such as VAT rates, changes to local taxation and charges could have a significant supporting role in helping the Scottish Government's meet its net zero and ecological restoration targets and commitments.

# Glossary

**CAP** – Common Agricultural Policy

**CE** – Circular Economy

**CfD** – Contracts for Difference

**CHP** - Combined Heat and Power

**$CO_2e$** – Carbon dioxide equivalent emissions or climate change emissions

**DEFRA** – UK Department for Environment and Rural Affairs

**DVC -** Direct Variable Charging for waste

**EfW** - Energy from Waste

**EPECOM** – Expert Panel on Environmental Charging and Other Measures

**EPR** – Extended Producer Responsibility

**EST** – Energy Savings Trust

**EU** – European Union

**ETS** –Emissions trading Scheme

**EV**- Electric Vehicle

**FITS** – Feed In Tariff Scheme

**GHG** – Greenhouse Gas

**Green Waste** – compostable garden waste such as hedge clippings and grass cuttings

**HMRC** – Her Majesty's Revenue and Customs

**ICE** – Internal Combustion Engine

**LAS** - Landfill Allowance Scheme

**MSW** - Municipal Solid Waste (waste from households, as well as other waste which, because of its nature or composition, is similar to waste from households)

**Non- Recyclable Waste (Residual Waste)** – material that is currently not recyclable or compostable and therefore is sent to landfill or a residual waste treatment process. Note that non recyclable waste may also include recyclable or compostable material that has not been correctly sorted by householders and businesses.

**PAYT** – Pay as You Throw

**PES** – Payments for Environmental or Ecosystem Services

**Residual Waste** – see Non- Recyclable Waste

**RHI** – Renewable Heat Incentive

**SEPA** - Scottish Environment Protection Agency

**TVL** – Transient Visitor Levy

**VAT** – Value Added Tax

**ZWS** - Zero Waste Scotland

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