



An Roinn Airgeadais
Department of Finance

Budget 2022

A Review of Green Budgeting from a Tax Perspective

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Executive Summary

This review represents the first step in the Department of Finance's development of green budgeting analysis. Green budgeting is a process which seeks to consider the impacts of the budgetary process and wider fiscal policy on the transition to a more sustainable, environmental and climate friendly economy. This is an explicit recognition that the budgetary process is not neutral, but reflects long standing societal choices about how resources are deployed.

Among the main purposes for undertaking green budgeting are to make Government action on climate change more transparent to citizens and to raise awareness and understanding of the specific impacts of individual climate and environmental policies. Ultimately, it has the potential to induce policy changes that will result in improved environmental outcomes.

This paper examines the likely effects of fiscal policy on carbon emissions, considering both the positive and negative contributions made by the tax system.

In order to achieve this, this review provides a definition for green budgeting in an Irish tax policy context. It also provides an overview of Ireland's carbon emissions profile, Ireland's international and national commitments on climate action, Ireland's performance in reducing carbon emissions to date and the existing literature on environmental taxes and tax expenditures (including subsidies related to potential revenue foregone). It does not seek to address government expenditure analysis, which is undertaken separately by the Department of Public Expenditure and Reform (DPER), nor does it consider the individual carbon impacts of specific tax measures.

The review also establishes a green budgeting framework and applies this to existing tax measures and recent budgetary changes. It is intended that this methodological framework may be developed further and will be used to undertake future analysis. The development of this methodology was guided by the European Commission and OECD framework, which have been advanced by both organisations in order to encourage the development of national green budgeting strategies.

The analysis undertaken in this review demonstrates that the tax system as a whole can be considered climate positive, in monetary terms. This review also demonstrates that recent budgetary changes have improved the climate positive contribution of the tax system. This is due significantly to the positive climate effect of tax revenue measures, which outweigh the overall climate negative effects of tax expenditures. It is important that these climate negative measures are identified, while acknowledging that there may be wider societal and economic reasons for these measures to exist.

Introduction

This review seeks to analyse and develop a process for green budgeting in Ireland from a tax perspective. In order to achieve this, the review outlines a definition for green budgeting in an Irish tax policy context and establishes a starting point for Ireland's green budgeting ambitions.¹ It also outlines Ireland's domestic and international policy commitments and initiatives, which are significantly focused on reducing greenhouse gas emissions. The analysis devises a starting point for green budget tagging and applies these insights to prior Budgets and to existing tax measures, while it is also intended to apply this process to *Budget 2022*.² Previous research on the environmental implications of tax policy in Ireland are evaluated and inform this approach.

The analysis set out in this paper complements the work that has been achieved at implementing green budgeting practices on the expenditure side of the budgetary process in Ireland, such as the analysis by Cremins and Kevany (2018) for DPER and the process of accounting for climate positive expenditure measures in the Revised Estimates Volumes for Public Services, commencing with the 2019 edition.³

This paper also complements the efforts of the EU and the OECD to advance green budgeting practices at a national level. While green budgeting is becoming more established in many countries, there has been a renewed focus at an EU and OECD level to establish green budgeting practices in countries which have not previously done so, and to further develop green budgeting practices in countries that already have green budgeting processes in place. These efforts are aimed at developing in-nation practices rather than the EU and OECD prescribing a specific approach for Member States.

¹ This report was produced by Pádraig O'Sullivan and Owen Joyce in the Economic Division of the Department of Finance. The authors would like to acknowledge and thank colleagues in the Department of Finance, the Department of Public Expenditure and Reform, the CSO, the Revenue Commissioners and the Climate Change Advisory Council for their contributions and feedback on this review.

² This analysis will be published separately, along with the Budget documents.

³ DPER (2021). Available at: <https://www.gov.ie/en/collection/e20037-revised-estimates/>

Chapter 1 Defining Green Budgeting

This section provides an introductory analysis of green budgeting and seeks to provide a clear definition for green budgeting, from an Irish tax perspective. This definition is established based on existing definitions for green budgeting, while also taking account of the specific considerations for analysing Irish tax measures. In this manner, the aims of green budgeting outlined by the Climate Change Advisory Council (CCAC), which is Ireland's independent advisory body to the Irish Government and is tasked with assessing and advising Ireland's transition to a sustainable green economy, are considered.

1.1 Green Budgeting from an Irish Tax Perspective

In recognition of Ireland's green budgeting ambitions, CCAC has advised that the annual budgetary process provides an important opportunity to support climate action and to consider the impacts of wider fiscal policy on the transition to a greener and more sustainable economy.⁴ Green budgeting is identified as an important part of this process, in light of initiatives to screen and benchmark green budgeting practices of EU Member States, which commenced in 2020.

The Department of Finance defines green budgeting as follows:

“Green budgeting establishes a methodology by which governments can measure and design fiscal policy, including tax and expenditure measures, to influence individual and business behaviours towards supporting climate and environmental goals and to influence behaviour away from harmful climate and environmental activities.”

From the Department of Finance's perspective, this definition incorporates not only incremental changes in the budgetary process, but also existing tax measures. In essence, this definition takes account of two important aspects for the Department. Firstly, that tax measures are identified, as much of the green budgeting analysis that has been done to date in Ireland and across the EU and the OECD, has been expenditure focused. Secondly, that it specifies fiscal policy, and not just budgetary policy. The difference here is that budgetary policy may be considered to apply only to new and incremental budgetary changes, while fiscal policy also encompasses existing measures.

It is important that green budgeting should not only be used to assess prior budgets on a retrospective *ex post* basis and future budgets on an *ex ante* basis, but also to assess the tax system as a whole from a green budgeting perspective. This is because tax policy is changed incrementally in the Budget, unlike expenditure where allocations are established by the

⁴ CCAC (2020). Available from: https://www.climatecouncil.ie/media/climatechangeadvisorycouncil/contentassets/publications/CCAC_AnnualReview2020FINAL.pdf

Budget. It is also important to identify and analyse both the positive and negative contributions that budgetary policy, and existing tax policy, are making towards these aims.

1.2 Further definitions of Green Budgeting

Existing literature indicates that there is no fully agreed upon definition for the term green budgeting. The European Commission (EC), the Organisation for Economic Cooperation and Development (OECD) and the Department of Public Expenditure and Reform (DPER) all commonly agree that green budgeting strives for quantifiable and qualitative measures to achieve climate and environment aims, but each has varying definitions for green budgeting.

The EC (2019)⁵ establishes connections between budgetary tools and environmental and climate change goals, identifying that both budgetary policies and processes take account of and contribute to those goals. The OECD (2018)⁶ states that green budgeting seeks to use budgetary tools to help achieve environmental goals. This is achieved through incorporating evaluations of budgetary policies and assessing their coherence towards domestic and international environmental commitments. Cremins and Kevany (2018)⁷ have included ‘the environmental impact of the taxation system within the scope of green budgeting in their analysis for DPER.

While the differences appear nuanced, Cremins and Kevany (2018) focus primarily on the expenditure process and specify taxation as a separate process. EC (2019) is limited to the budgetary process and doesn’t explicitly refer to the wider fiscal process, such as the impact of existing tax measures on climate and environment. The OECD (2018) takes a holistic view of all fiscal measures and incorporates considerations for sustainable growth including international and national commitments thereby providing a variety in scope of analysis. EC (2019) considers that Cremins and Kevany (2018) take a ‘conservative’ viewpoint in assessing the scope of expenditures to be incorporated in the definition of green budgeting, by including only those expenditures which directly contributed to emissions reduction, such as expenditure on the climate action fund. However, the process chosen by Cremins and Kevany (2018) reflects a desire to identify only that expenditure which is unquestionably environmentally and climate friendly. Each of these definitions were considered in establishing the Department of Finance’s definition set out in *Section 1.1*.

⁵ European Commission (2021a). Available at : https://ec.europa.eu/info/sites/default/files/economy-finance/dp140_en.pdf

⁶ OECD (2018). Available at: <https://www.oecd.org/environment/cc/Flyer-Paris-Collaborative-on-Green-Budgeting.pdf>

⁷ Cremins and Kevany (2018) on behalf of DPER. Available at: <https://igees.gov.ie/wp-content/uploads/2019/01/The-Implementation-of-Green-Budgeting-in-Ireland.pdf>

1.3 Stocktake of Ireland's Green Budgeting Progress to date

There are considerable efforts being undertaken at an EU and OECD level to develop national green budgeting reference frameworks. The European Commission is currently advancing green budgeting practices and encouraging Member States to either incorporate green budgeting practices, or update existing practices where they are in place already. As part of these efforts, the Commission are working to provide a basic toolkit for Member States.⁸ Ireland is fully engaged with EU and OECD efforts to incorporate green budgeting practices into tax analysis. This involves active engagement with the OECD's Coalition of Finance Minister's for Climate Action and the EU's Green Budgeting Expert Group, on issues such as the development of the EU Green Budgeting Reference Framework, which will be examined further in *Chapter 3*.

1.3.2 *Department of Finance*

The Department has taken some steps towards incorporating green budgeting practices. For example, in both Budget 2020 and 2021, the main environmental tax measures were identified in the published Budget documents. However, there has not yet been a clear holistic approach taken by the Department of Finance on green budgeting. This paper seeks to address this by, among other things, identifying relevant tax measures, such as the carbon tax, and developing a methodology to identify such measures in the annual budget and in the tax system. This process has started on the expenditure analysis and tax analysis is the next step.

1.3.2 *Department of Public Expenditure and Reform (DPER)*

Since the publication of the 2019 Revised Estimates Volumes for Public Services, DPER has published an annual account of climate related expenditure by Department subheading, and further by programme. The approach for identifying this spending was informed by analysis undertaken by Cremins and Kevany (2018), which outlines the methodology used in the analysis. The methodology was designed to ensure that programmes were only selected for inclusion where it is evident that all, or at least the majority of investment in the programme in question, will support improved climate and environmental outcomes. Where elements of a programme may support improved climate and environmental outcomes but it is clear that

⁸ The Commission has noted that a national Green Budget Framework (GBF) should incorporate a methodology for assessing the consistency of budgetary policies with long-term environmental goals. This was agreed to by Member States and, among other things, this process incorporates green budget tagging (GBT). The Commission have stated that while they would like to see some alignment of metrics over time, the objective is not to have a one size fits all approach. They have stated that the green budgeting process would not be prescriptive and would instead be driven by each Member State's national focus. However, the Commission have noted that some convergence would be desirable over time, for example, to have a single agreed classification across the EU for the identification of positive and negative items. Ireland has also commenced Commission organised training for Member States in 2021.

this represents only a minority of investment, the programme in question was excluded. This approach has been considered conservative by others, including the EU and OECD.

1.4 Department of Finance Methodology

This review seeks to provide a starting methodology by which the Department can identify green (or climate positive measures), and brown (or climate negative) measures in the tax system and the budgetary process, with the intention of also developing an evolving methodology to identify the impact of the tax system and undertake *ex ante* analyses of the budgetary process. The purpose of this analysis will be to use green budgeting tools to seek to assess the environmental impacts of fiscal policy and to inform the decision making process.

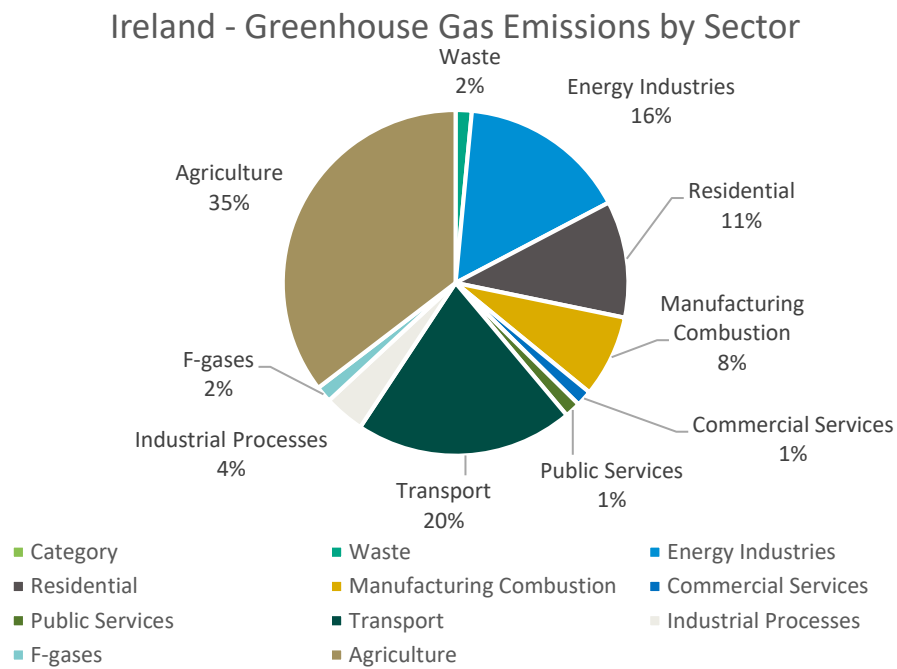
This approach is informed by the research undertaken in *Chapter 2*, and is outlined and developed in *Chapter 3*.

Chapter 2 Domestic and International Policy Considerations

This chapter outlines the domestic and international climate action policy considerations facing Ireland. These include the binding initiatives and targets, to which Ireland has committed to in addressing environmental and climate concerns. This chapter also analyses the research that has been undertaken to date on climate related tax measures in Ireland to inform the green budgeting approach taken by the Department of Finance in this review.

2.1 Ireland’s Emissions Profile

Figure 1: Ireland’s Greenhouse Gas Emissions by Sector



Source: Environmental Protection Agency (2021a)

Figure 1 highlights that agriculture represented the largest share of greenhouse gas emissions in Ireland in 2019, at 35.3 per cent, while transport is second highest at 20.3 per cent. Ireland is unique among European countries in having agriculture as its largest sector for source of emissions, and is more comparable to New Zealand in this

respect.⁹ By contrast, transport accounted for 27 per cent of all emissions in 2019 in the UK, while agriculture represented only 10 per cent.¹⁰

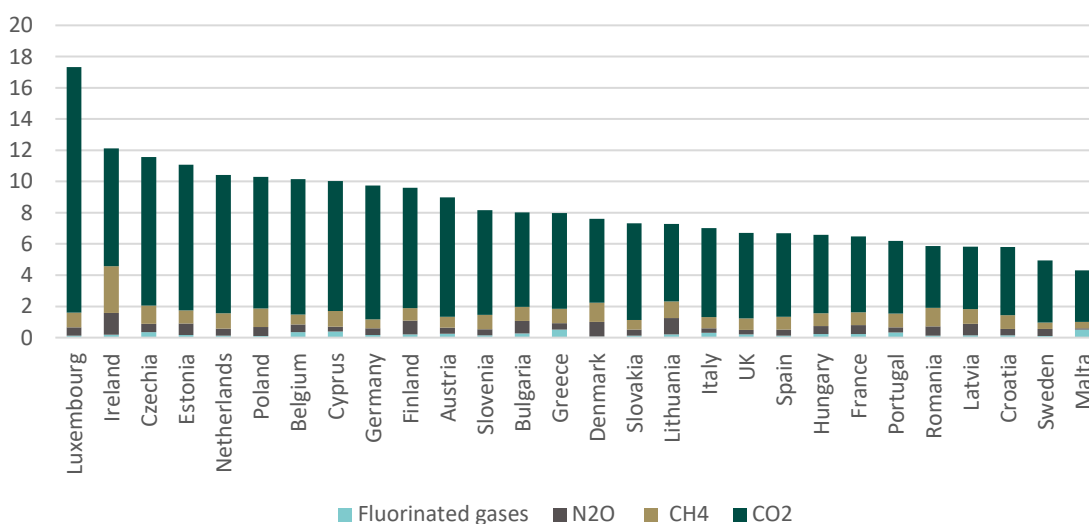
Table 1 : Ireland’s Greenhouse Gas Emissions (in Millions of Tonnes)

1990	1995	2000	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
54.4	58.7	68.5	70.3	62.0	57.8	58.8	58.6	58.1	60.4	62.5	62.1	62.5	59.8

Source: Environmental Protection Agency (2020)

Table 1 highlights the change in greenhouse gas emissions in Ireland from 1990 to 2019. The latest available data is for 2019, when total greenhouse gas Emissions were 59.8 million tonnes. This represented a 4.4 per cent reduction when compared to 2018 levels. While emissions were lower in 1990 than in 2019, they are still substantially below the 2005 peak of 70.3 million tonnes of emissions. Nonetheless, the relatively steady levels of emissions observed since 2015 highlight the significant challenges that Ireland has faced and will face in reducing greenhouse gas emissions.

Figure 2: EEA Per Capita Greenhouse Gas Emissions 2019 (in Tonnes)



Note: F gases – Fluorinated Gases; N2O – Nitrous Oxide ; CH4 –Methane
 Source: Environmental Protection Agency.

⁹ New Zealand Government (2021). Available at: <https://www.stats.govt.nz/indicators/new-zealands-greenhouse-gas-emissions>

¹⁰ UK Government (2021). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957887/2019_Final_greenhouse_gas_emissions_statistical_release.pdf

Figure 2 provides a breakdown of 28 EU/EEA Member States' emissions in 2019, showing that Ireland had the second highest greenhouse gas emissions per capita at 12.12 tonnes, with only Luxembourg having higher per capita emissions.

The data highlight how Ireland has the largest share of non-CO₂ greenhouse gas emissions of the 28 Member States, at 38 per cent, with the next nearest countries being Lithuania and Denmark. This is primarily due to the relative importance of agriculture in Ireland, as gases such as methane make up a much larger share of Ireland's emissions. Agricultural emissions have proven more difficult to reduce in both Ireland and the UK historically. When only CO₂ is considered, Ireland is only the 11th highest in per capita emissions among the Member States. This suggests that while there is still substantial need for a reduction in CO₂ emissions in Ireland when compared to other Member States, it is not as significant as overall greenhouse gas emissions would suggest.

Furthermore, it is important to acknowledge that Ireland's specific greenhouse gas emissions profile and larger agricultural sector may influence the cost and potential for emissions reductions. The EU has also recognised the limited mitigation potential within agriculture in its climate policy framework for 2021 to 2030.¹¹

2.2 Domestic Policy Commitments and Considerations for Ireland

Globally, almost all countries (191) have joined the Paris Agreement which aims to hold the increase in global average temperature to 'well below 2°C above pre-industrial levels', while 'pursuing efforts to limit the temperature increase to 1.5°C'. The most recent report from the IPCC has concluded that unless deep reductions in greenhouse gas emissions occur in the coming decade, global warming of 1.5°C and 2°C will be exceeded during this century.¹²

Currently, Ireland's greenhouse gas emissions reduction goals are among the most ambitious in the world with the Programme for Government (PfG) committing to reduce emissions by 51 per cent by 2030 and to reach net zero emissions by 2050. Therefore, while recognising the need for advancing environmental concerns in all regards, reducing greenhouse gas emissions will be a central focus for the Irish Government in the coming years.

More specifically, in the 2020 PfG, the Irish Government committed to an average 7 per cent per annum reduction in greenhouse gas emissions per tonne from 2021 to 2030 (or 51 per cent over the decade, when compared to 2018 levels); to achieve zero net emissions by 2050;

¹¹ European Commission (2014). Available at: <https://www.consilium.europa.eu/en/policies/climate-change/2030-climate-and-energy-framework/>

¹² IPCC (2021). Available at: https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf

and to enshrine these commitments in legislation. This 51 per cent target has been established in legislation through the *Climate Action and Low Carbon Development (Amendment) Act 2021*.¹³

The aim of the Act is to put the country on course for climate neutrality by 2050, and its key features include:¹⁴

- putting Ireland's 2050 climate target in law;
- carbon budgets including a provision for setting sectoral targets;
- annually-revised Climate Action Plans;
- strengthened role for the Climate Change Advisory Council;
- new oversight and accountability by the Oireachtas.

The amended Act places Ireland's main climate targets on a legislative footing. In order to meet these targets, it will be key that Ireland incorporates green budgeting practices to help ensure that public funds are both supporting these legislated targets and that public funds do not jeopardise the targets, unless there is a clear acceptable reason for doing so, such as supporting wider economic and societal goals. It is also noteworthy that the placement of targets on a statutory basis also increases the potential for climate litigation.

As part of the efforts to achieve the objectives in the 2020 PfG, the Government has committed to increasing the carbon tax to €100 per tonne by 2030, representing a €7.50 annual increase (€6.50 in 2030).¹⁵ This additional revenue will be ring-fenced and will be used to ensure that the socio-economic impacts of the carbon tax are progressive, to support the low carbon transition and to support the greening of agriculture. The 2030 commitment is reflective of the CCAC's proposal to Government in its 2020 Annual Report, however the previous Council had indicated a preference for frontloading these annual increases in carbon tax. The means by which carbon tax can influence societal change and more environmentally friendly behaviour will be examined further in *Section 2.5*.

2.3 International Targets

The European Commission has recently presented its "Fit for 55" package of legislative proposals which aims to make the EU's climate, energy, land use, transport and taxation policies fit for reducing net greenhouse gas emissions by at least 55 per cent by 2030, compared to 1990 levels, and to put the EU on a pathway towards achieving climate neutrality

¹³ The CCAC will soon propose carbon budgets, in line with the legislation to comply with the 51 per cent target.

¹⁴ Government of Ireland (2021a). Available at: <https://www.gov.ie/en/press-release/aecb3-government-publishes-new-climate-law-which-commits-ireland-to-net-zero-carbon-emissions-by-2050/>

¹⁵ Government of Ireland (2021b). Available at: <https://static.rasset.ie/documents/news/2020/06/programmeforgovernment-june2020-final.pdf>

(i.e. net zero greenhouse gas emissions) by 2050.¹⁶ This proposed legislative package will enable the EU to implement its commitments under the Paris Agreement. Building upon the EU's existing climate and energy framework, the "Fit for 55" approach divides emissions under the Emission Trading System (ETS) and the Effort Sharing Regulation (Non-ETS) emissions and LULUCF (land use, land-use change, and forestry) emissions. The emission reduction targets for the ETS sectors is determined at an EU level, while non-ETS emissions are determined at the level of the EU Member States. LULUCF emissions are managed separately. Also there are a number of legislative proposals that will aim to assist with meeting the new emissions reduction targets, e.g. binding targets in the Energy Efficiency Directive.

Under the "Fit for 55" package, through a proposal to revise the Effort Sharing Regulation, Member States will be required to reduce their non-ETS emissions within a range of a 10 to 50 per cent reduction, which will be determined by economic, cost and other factors. Furthermore, emissions reduction targets cannot increase by greater than 12 per cent for each country, relative to their previous targets. Ireland's share of Effort Sharing Regulation emissions reduction is proposed to be 42 per cent, taking account of distortionary economic factors, and the limit of a 12 per cent increase on previous targets. In the event that Ireland fails to deliver this level of emission reductions, it may be necessary to purchase allowances from Member States who may have overachieved on their respective targets.

2.4 Ireland's Performance: previous Domestic and International Targets

Ireland's binding EU target for 2020 under the Effort Sharing Decision was to reduce emissions from the non-ETS sectors, i.e. agriculture, transport, built environment, waste, and non-energy intensive industries, by 20 per cent compared to 2005 levels. The latest data from the EPA indicate that Ireland achieved an overall 7 per cent reduction in emissions from these sectors and so has likely missed its 2020 target.¹⁷ Compliance may have to be achieved through the purchasing of emissions surpluses from other EU member states.

From 2014-2018, increases in Ireland's emissions were seen in all sectors, with the exception of electricity.¹⁸ While economy wide emissions are considered to include those regulated under the EU ETS, most emissions reductions (over 60 per cent) in Ireland have been achieved by the 'energy industries' sector, which includes electricity generation. The ETS sectors do not

¹⁶ European Commission (2021b). Available at: [proposal-amendment-effort-sharing-regulation-with-annexes_en.pdf \(europa.eu\)](https://ec.europa.eu/energy/electricity/fit-for-55/propose/amendment-effort-sharing-regulation-with-annexes_en.pdf)

¹⁷ EPA (2021b). Available at: [Monitoring & Assessment: Climate Change: Air emissions Publications | Environmental Protection Agency \(epa.ie\)](https://www.epa.ie/publications/monitoring-and-assessment-climate-change-air-emissions-publications/)

¹⁸ National Economic Dialogue (2021). Available at: <https://assets.gov.ie/138345/06f56f38-95fb-4429-b05c-c2223f6614fd.pdf>

have a country level emissions reduction target but they contribute to the 2020 EU-wide target of a 21 per cent reduction compared to 2005 levels, which the EU is projected to achieve.¹⁹

2.5 Analysis of Research on Climate and Environmental Tax Measures

In this context of increasingly ambitious targets, the literature identifies the carbon tax as an important means of influencing societal change and behaviour towards environmental and climate targets. However, the costs of the carbon tax on lower income households are potentially significant and in the absence of mitigating measures have been identified as regressive.²⁰ Other measures such as existing fossil fuel subsidies and tax expenditures have been established with the aim of facilitating and supporting business and addressing wider social objectives. Examples of such schemes include the diesel rebate scheme and the VAT exemption for disabled vehicle users. However, these measures may inadvertently counteract the aims of the carbon tax and this needs to be considered.

De Bruin, Monaghan and Yakut (2019a)²¹ have identified that the cost of fossil fuel subsidies has consistently been six times higher than revenue from carbon tax receipts since 2014. Nevertheless, using an intertemporal Computable General Equilibrium (CGE) Model which reproduces the structure of the economy. They determined that a proposed increase in the carbon tax to €80 per tonne by 2030 would reduce non-ETS CO₂ emissions by approximately 12 per cent, from a 2005 level base year. The carbon tax is, therefore, one of the key instruments of tax policy in addressing climate change, and aims to disincentivise high carbon emitting behaviour and encourage a move to green energy.

In this case, emissions would still be approximately 50 per cent higher than the level set out in the 2030 emissions target. Furthermore, when a select group of fossil fuel subsidies were removed, emissions were still 38 per cent higher than the 2030 target. It is noted that the impact of removing all of the identified fossil fuel subsidies would be to reduce economy-wide CO₂ emissions by 20.2 per cent, by 2030, when compared to the business as usual scenario.

It is important to note that the carbon tax proposal at the time was based on the then Government commitment of €80 per tonne by 2030, while the commitment is now for €100 per tonne by 2030. If the €80 per tonne proposed carbon tax rise was also accounted for, in addition to the identified fossil fuel subsidies, this would reduce emissions by 31.3 per cent when compared to the business as usual scenario. This highlights that the relative impact of the carbon tax is greater than that of fossil fuel subsidies, when adjusting for the large monetary gap.

¹⁹ European Environment Agency Report (202). Available at: <https://www.eea.europa.eu/publications/trends-and-projections-in-europe-2020>

²⁰ Reanos and Lynch (2019). Available at: https://www.esri.ie/system/files/publications/QEC2019SUM_SA_Lynch.pdf

²¹ De Bruin et al. (2019a). Available at: <https://www.esri.ie/pubs/RS98.pdf>

The resulting impacts indicate that lower income households, in particular rural households, would be disproportionately affected, but targeted supports could offset this impact. In a similar paper, the same authors (2019b) concluded that using the hypothecated carbon tax revenue to amend the income tax system would be broadly regressive, while increasing transfer benefits to poorer households would be progressive. Bercholz and Roantree (2019) made similar conclusions, and further concluded that targeted changes to tax rates, welfare payments and child benefit would have an almost identical, highly progressive distributional pattern, but would be far less administratively costly and complex than a lump sum payment, which would also provide the same progressivity. These conclusions have informed Government policy in ensuring that the burden of carbon tax increases do not fall on lower income groups. The overall budgetary package for Budget 2021 was shown to be progressive, benefitting the lowest 40 per cent of income earners the most in proportional terms.^{22 23}

While the existing literature on specific environmental taxes is considerable, the literature on tax expenditures is more limited, as identified by Morgenroth, Murphy and Moore (2018).²⁴ The authors analysed measures such as the cycle to work scheme and the price discrepancy between petrol and diesel, and concluded that where the environmental effects of fiscal measures have not been specifically aimed at achieving environmental objectives then such effects have not been regularly quantified. This applies where fiscal measures have had both positive and negative environmental impacts and the authors indicated this should be addressed.

Finally, CSO (2021b)²⁵ analysis into fossil fuel subsidies concluded that climate harmful subsidies over the period 2015 to 2019 increased from €2 billion to €2.4 billion. However, climate positive subsidies also increased over the period, from €0.2 billion to €0.4 billion, while climate positive energy taxes remained steady at €3 billion. Furthermore, energy taxes could be expected to be higher in the coming years, in line with the commitment for annual increases in the carbon tax from 2019 onwards. While the CSO analysis suggests that overall tax policy is climate friendly, it is notable that the CSO concluded that tax policy in 2015 was more climate friendly than in 2019, when expressed monetarily.

²² Department of Finance (2020). Available at: http://www.budget.gov.ie/Budgets/2021/Documents/Budget/201013_Budget%202021%20distributional%20analysis_A.pdf

²³ ESRI (2020). Available at: <https://www.esri.ie/news/budget-2021-measures-will-benefit-lowest-income-families-most>

²⁴ Morgenroth et al (2018). Available at: https://www.researchgate.net/publication/323425386_The_Environmental_Impact_of_Fiscal_Instruments

²⁵ CSO (2021b). Available at: <https://www.cso.ie/en/releasesandpublications/er/ffes/fossilfuelsubsidies2019/>

Chapter 3

Domestic and International Policy Considerations

3.1 Developing a National Green Budgeting Reference Framework

As outlined, there has recently been a renewed push at an EU and OECD level to advance green budgeting practices as a means of addressing climate and environmental concerns. Both the EU and the OECD are currently working with Member States to develop national Green Budgeting Reference Frameworks (GBRF).²⁶ The EU is aiming for some alignment over time between Member States. However, it is not seeking a one-size fits all approach, but a Member State driven 'National Focus.'²⁷

The EU suggests that the GBRF should incorporate a methodology for assessing budgetary policy, which should incorporate three stages. These are the 'Essential (Level 1)', 'Developed (Level 2)', and 'Advanced (Level 3)' stages. Some of the considerations for each level are as follows:

- Level 1 – Climate positive revenue raising measures and expenditure only.
- Level 2 – Climate positive and negative revenue raising measures, and incorporating other environmental objectives also.
- Level 3 – All Environmental objectives, including climate, on a positive and negative basis, incorporating tax expenditures also.

Further details are provided in *Annex 1*. The EU GBRF has informed the approach that the Department of Finance have taken in developing the reference framework in this paper, which is broadly in line with Level 1 of the EU GBRF.

The Department's approach is also informed by the EU Taxonomy, which is a tool designed to "navigate the transition to a low-carbon, resilient and resource-efficient economy."²⁸ While the Taxonomy informed the general approach, given time, data and other constraints it was decided to adopt a more straightforward methodology which only considers measures which are unequivocally climate positive or climate negative, which is in line with level 1 of the EU GBRF. The Taxonomy refers to Six Environmental Objectives, which cover a range of areas related to climate, biodiversity and other environmental objectives. The Department makes use of the first two objectives, which are climate focused, in line with Level 1 of the EU GBRF.

²⁶ OECD (2020). Available at: <https://www.oecd.org/environment/green-budgeting/OECD-Green-Budgeting-Framework-Highlights.pdf>

²⁷ European Commission (2021a). Available at: https://ec.europa.eu/info/sites/default/files/economy-finance/dp140_en.pdf

²⁸ European Commission (2020). Available at: https://ec.europa.eu/info/sites/default/files/business_economy_euro/banking_and_finance/documents/20030-9-sustainable-finance-teg-final-report-taxonomy_en.pdf

While Taxonomy concepts have been utilised for this exercise, a high level approach in screening particular tax measures has been taken for this analysis.

Furthermore, the technical screening criteria used in the Taxonomy informed the Department's approach, and the following was considered when determining whether an activity could be considered climate friendly:

- That an activity makes a substantive contribution to one of the environmental objectives.
- Does no significant harm to the other two, where relevant.

Finally, it is important to note that the monetary value of each tax measure is not directly correlated to the carbon impact of each measure, i.e. a €1 increase in one measure does not necessarily have the same climate impact as a €1 increase in another measure.

3.2 Options for Department of Finance GBRF

In identifying a green budgeting approach, the Department of Finance considered three options, for the purposes of this paper, which were as follows:

Option 1

To undertake an analysis of *Budget 2022* climate positive tax revenues and a similar analysis for previous recent Budgets. This would be in alignment with DPER's current approach of examining climate positive expenditure measures. It would also be in alignment with the EU GBRF Level 1 approach. This analysis could be extended to further examine all existing climate positive tax revenues over the longer term.

Option 2

To undertake analysis of both climate positive and climate negative tax revenues and tax expenditures introduced in *Budget 2022*, and measures introduced in recent previous Budgets. This approach would not be fully in alignment with DPER or the Level 1 GBRF approach, and would be more advanced than Level 1, by incorporating elements of Level 2 (climate negative tax measures), and Level 3 (tax expenditures) of the GBRF. However, the data is available to undertake such analysis, as has been demonstrated through the Department's analysis of recent previous budgets in *Section 3.5* and from the research examined in *Section 2.5*.

This approach still aligns with the longer term goals proposed in the EU GBRF and allows for more worthwhile analysis, in consideration of Ireland's carbon emissions targets. This analysis could be extended to consider all existing positive and negative tax revenues and tax expenditures (including tax subsidies related to revenue foregone) over the longer term.

Option 3

To undertake an analysis of both the climate positive and climate negative tax measures in Budget 2022 and in recent previous Budgets, and all existing climate positive and climate negative measures. This approach would provide ample scope for analysis of the climate impacts of the tax system, and would be ambitious in scope as a first undertaking into green budgeting. Nonetheless, it reflects that this is an area of importance for the Department and that undertaking such research is important in the development of green budgeting practices in tax analysis.

Option 3 differs from the Level 1 approach recommended by the European Commission, through the consideration of climate negative tax measures and tax expenditures, which are incorporated at Level 2 and Level 3 respectively in the EU GBRF. In this manner, it is similar to *Option 2*. However, it is more advanced than this option, in that it incorporates an analysis of existing tax measures also.

Chosen Approach – Option 3

The approach chosen is in line with *Option 3* outlined above, which entails an examination of all climate positive and climate negative tax revenue raising measures and tax expenditures as changed annually in the Budget, as well as examining all existing revenue raising measures and tax expenditures (including subsidies related to revenue foregone). This is the most ambitious of the options considered, and reflects the Department's ambitions in incorporating green budgeting practices.

The rationale for going further than the Commission recommended approach is two-fold. Firstly, the significant commitment that the Government has made in the area of carbon emissions reductions in the medium term to 2030, and longer term to 2050, will require comprehensive consideration of the climate impacts of tax policy. Secondly, while this approach requires analysis of a greater range of tax measures over a longer period of time, research has already been undertaken in this area by the CSO and others, as noted in *Section 2.5*, which has been useful in aiding the research undertaken by the Department in this review.

Nonetheless, there were further considerations in choosing this approach, such as whether it would be best to align the approach with that of DPER. However, it is DPER's intention to focus on climate negative expenditures as the next step in their green budgeting process, which represents a similar approach to that undertaken in this review.

3.3 Methodology for analysis in Sections 3.4 and 3.5

For the purposes of undertaking a retrospective analysis of environmental measures in prior Budgets, it is first necessary to establish a set of criteria and a methodology for such analysis. This approach is identified in the box below.

Box 1: Department of Finance Green Budgeting Methodology

The methodology in use for this analysis considers that tax revenue raising measures and tax expenditures (including subsidies related to potential revenue foregone, e.g. with regard to excise duties) have a climate positive (or green) impact if they make a substantive contribution to one of two environmental objectives. Conversely, they will be considered to have a climate negative (or brown) impact if they make a substantive negative contribution to one of the two environmental objectives.

Two Environmental Objectives

The two environmental objectives are the first two used in the EU Taxonomy, and cover areas of concern with carbon emissions impacts.

These are:

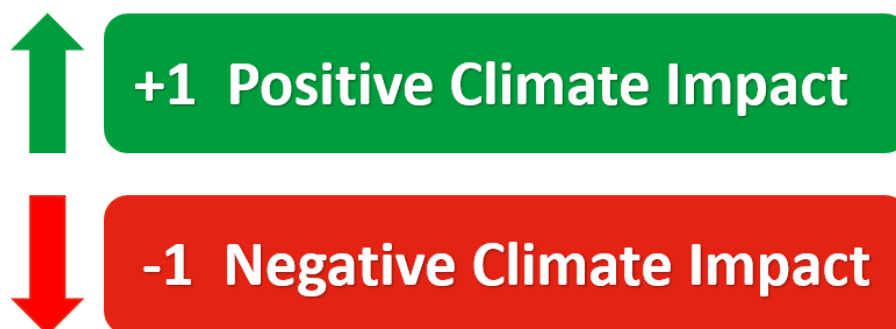
1. Climate change mitigation;
2. Climate change adaptation;

Weighting System and Method of Calculation

No specific weighting system is in place to capture the degree of environmental impact; where a measure has a positive climate impact it will have a value of +€1 and where a measure has a negative climate impact it will have a value of -€1, as illustrated in Figure 3. It is important to note that the specific carbon emissions impact of each measure is not estimated as this is not the focus of the current green budgeting approach.

For the purposes of this comparison, climate positive and climate negative tax revenue raising measures and tax expenditures are summed together, to show either the net positive or net negative climate impact.

This exercise does not prescribe this specific methodology as the ultimate means of examining environmental objectives. The establishment of such a methodology for examining fiscal policy is a longer-term project which will be developed overtime.

Figure 3: Measurement for Climate Impact in €

3.4 Analysis of the existing Climate related Tax Measures

This section encompasses an analysis of both positively and negatively climate impacting tax revenue raising measures and tax expenditures (including tax subsidies related to potential revenue foregone). The purpose of this section is to provide an overview of the standing of tax policy and to determine whether tax policy is, on balance, climate positive or negative, from a monetary perspective.

While similar exercises have been undertaken by the CSO, there has not been, to the Department of Finance's knowledge, an attempt at examining the climate focus of the tax system as a whole. Instead, tax revenues and tax expenditures have been examined in isolation. Furthermore, the CSO approach has included measures that are not controlled through the central budgetary process, such as the National Oil Reserves Agency Levy. The approach taken in this paper is to include only measures which can potentially be amended through the budgetary process and to limit the analysis to climate impacting measures, in line with the methodology outlined in *Section 3.3*.

A further difference between the Department of Finance methodology and the CSO methodology is that the CSO's focus is on subsidies which directly increase fossil fuel production and consumption. Transport and agricultural subsidies with climate impacts are not included in the CSO fossil fuel subsidies data (although transport subsidies are listed for information in the notes to the release). By contrast, the Department's methodology considers all climate impacting tax reliefs to be in scope. In addition, the CSO release on fossil fuel subsidies includes both direct budgetary transfers and tax expenditures.

For the purposes of this exercise, the Department of Finance did not identify any climate negative tax revenue raising measures, however both climate positive and negative tax expenditures were identified.

The types of climate positive tax revenue measures that have been examined include the various fuel excise duties and vehicle registration tax (VRT). With regard to tax expenditures, climate positive measures include relief from VRT for electric vehicles and climate negative measures include the diesel rebate scheme. Further details on the measures examined in this section are included in *Annex 3*.²⁹

The treatment of excise duties in particular formed an important part of this analysis. The gap between the excise duty rate on petrol and the excise duty rate on other fuels was considered to be a climate negative tax expenditure, due to revenue foregone, while the actual excise duties placed on such fuels were considered to be climate positive revenue measures. Overall, it is clear that the balance of tax measures is trending climate positive over time, and this positive balance has doubled from 2011 to 2019, increasing from €1.3 billion to €2.8 billion over that time frame, as illustrated in *Table 2 and Figure 4*. This suggests that the tax system as a whole is making a positive climate contribution, if considered in monetary terms.

However, it should also be acknowledged that tax expenditures are shown to be climate negative overtime and that this trend has grown since 2011. This is primarily due to a substantial number of tax reliefs providing incentives for climate negative behaviour, along with the gap between the excise duties rates applied for different fuel types.³⁰ While such measures may have legitimate social, business or other societal functions, it is still important to acknowledge the negative climate impact that such measures may have.

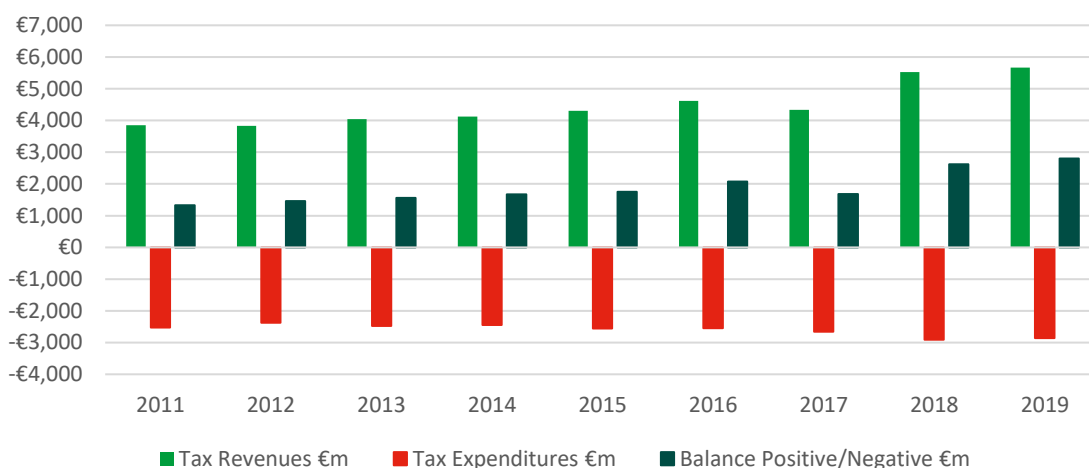
²⁹ Future analysis could consider an alternative approach for measuring the effect of tax measures which function as an intermediary in carbon emissions reduction. Such measures can have a transitional function by reducing emissions when compared to other fossil fuels, though they still contribute to carbon emissions themselves. This might include the transition to gas as a source of transport and heating fuel, and could include, for example, the Accelerated Capital Allowances scheme for Gas Vehicles and Refuelling Equipment. This tax measure is intended to reduce carbon emissions, but is considered climate negative in this analysis as it is still carbon emitting.

³⁰ It should be acknowledge that in some cases, tax subsidies were calculated in line with a base level of tax that represents the highest potential tax rate. For example, the comparison between other excise rates and the excise rate on Petrol. These measures do not represent a direct payment to taxpayers, but rather potential revenue foregone.

Table 2 : Balance of Climate focused Tax Revenues and Tax Expenditures in €m ³¹

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Tax Revenues €m	€3,853	€3,834	€4,041	€4,122	€4,309	€4,622	€4,332	€5,525	€5,667
Tax Expenditures €m	-€2,521	-€2,372	-€2,479	-€2,448	-€2,560	-€2,550	-€2,652	-€2,906	-€2,861
Balance Positive/Negative €m	€1,332	€1,462	€1,562	€1,674	€1,749	€2,073	€1,679	€2,619	€2,806

Figure 4 : Chart - Balance of Climate focused Tax Revenues and Tax Expenditures in €m



³¹ Climate positive and climate negative tax expenditures have been grouped together. There are no climate negative tax revenue measure, but these would have been grouped together with climate positive revenue measures. Overall the balance represents whether tax measures are climate positive or climate negative, in monetary terms.

Full list of Tax Measures is available in *Annex 2 – Tables A3 to A5*. Multiple sources are used, and identified in the Annex

3.5 Retrospective Analysis: Climate Measures Budgets 2019, 2020, 2021

For the purpose of this analysis, the summary of measures document published by the Department of Finance on the Budget website was used to gather data on the specific measures.³² This document outlines the expected cost of budgetary measures for the coming year and in a given full year. The full year cost was used in place of the in-year cost, as this negates the effect of measures coming into effect mid-way through a year, and thus allows for a more accurate comparison between measures.

As is clear from *Table 3*, all three budgets were considered to have a net positive climate (or green) impact, from a tax revenue and tax expenditure perspective. There has been a significant growth in the total net positive climate impact since 2019. Overall, total net green measures increased by €105.5m, or 203 per cent between *Budget 2019* and *Budget 2020*. While there was slight decline of €9.5 million or approximately 6 per cent in *Budget 2021*, the overall climate positive balance is still substantially higher than in *Budget 2019*. The most significant contributor to this increase is the growth in carbon tax revenue, due to the increase in the carbon tax per tonne in both years. This accounted for €130 million of the €157.5 million total green measures in *Budget 2020*, and €147 million of the €148 million recorded in *Budget 2021*. Examples of other measures in the Budgets include the VRT Diesel Surcharge in *Budget 2019* and the VRT Environmental Surcharge in *Budget 2020*.

A complicating factor in the analysis is that it was not possible to account for all of the positive and negative measures in the three Budgets, even where such measures were identified, as a specific costing was not provided in some cases. This was not an issue with the *Budget 2019* analysis, but arose for both climate positive and negative measures in *Budgets 2020 and 2021*. This occurred due to a difference in the way the Budget figures were presented and highlights a constraint in applying GBT to backward looking analysis.

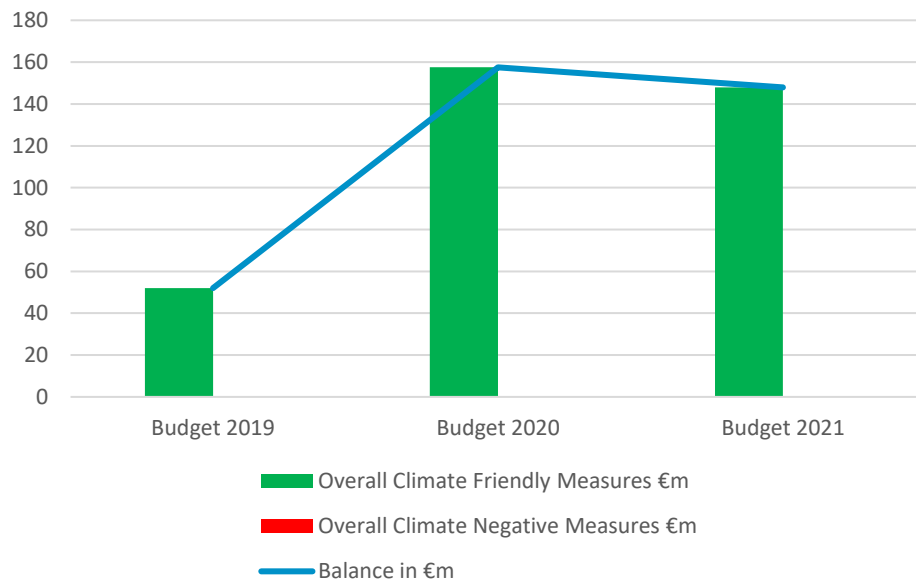
The ability to access more precise and detailed projected revenues and tax expenditures, where possible, in future budgets will be especially important in order to undertake more accurate green budgeting analysis in future. One caveat arising from this constraint, is that it is possible that the total net positive green impact from tax revenue and tax expenditures did not actually decline in *Budget 2021*, as appears to be the case. However, despite the limitations of the available data, it is still clear that the budgetary process is moving in a more climate positively direction from a tax perspective.

³² This is an *ex post* retrospective analysis of the monetary figures applied to climate relevant tax measures in Budgets 2019, 2020 and 2021. It is based off the projected revenues and costs of these measures at the time and does not represent the final revenues or costs of these tax measures.

Table 3 : Analysis of Climate Impact in Budgets 2019, 2020, 2021 in €m

Budget Year €m	Overall Climate Friendly Measures €m	Overall Climate Negative Measures €m	Balance in €m	Growth in Green Measures €m	Percentage Growth in Green Impact
Budget 2019	52	0	52		
Budget 2020	157.5	0	157.5	105.5	202.88 per cent
Budget 2021	148	0	148	-9.5	-6.03 per cent

Figure 5 : Chart - Analysis of Climate Impact in Budgets 2019, 2020, 2021 in €m



Conclusion

This report is the first piece of analysis undertaken by the Department of Finance on green budgeting. The analysis establishes a definition for green budgeting, from the Department's perspective, and, in doing so, considers the definitions already set out at a national and international level. The existing practices and research to date provide an important context for establishing the Department's definition of green budgeting.

The analysis identifies the important domestic and international policy commitments and initiatives that Ireland has undertaken and therefore frames the approach to green budgeting within this context. In this manner, it is clear that Ireland's commitment to a 51 per cent reduction in carbon emissions by 2030 and to be climate (or carbon) neutral by 2050 are among Ireland's main environmental and climate goals, and this is reflected in the Department's approach towards green budgeting. With this in mind, this review identifies the existing literature on both climate positive and climate negative tax measures. It further examines the potential approaches to green budget tagging that have been used by the EU, OECD and others and how these could be applied in an Irish context.

This paper develops a first-step methodology for green budget tagging, and uses this methodology in undertaking separate retrospective analysis of prior Budgets. The findings indicate that the annual budgetary process over the period 2019 to 2021 has, on average, been climate positive, in a monetary sense. However, the monetary value of climate positive and negative measures is not necessarily reflective of their environmental impact, i.e. €1 of climate negative measures does not necessarily offset €1 of climate positive measures, and vice versa.

Furthermore, the review highlights how existing measures in the tax system, encompassing tax revenue raising measures, and tax expenditures (including subsidies related to potential revenue foregone), are climate positive on the whole, when measured in monetary terms. The climate positive balance, as measured in monetary terms has more than doubled from a net climate positive €1.3 billion in 2011 to €2.8 billion in 2019. Furthermore, the climate positive nature of the tax system can be expected to have improved further with budgetary changes in recent years. This positive contribution is primarily due to the climate positive impact of tax revenue raising measures, which outweigh the climate negative effects of tax expenditures. It is important that these climate negative measures are identified, while acknowledging that there may be wider societal and economic reasons for their existence.

This review clearly establishes the need for green budgeting practices, and for both *ex ante* and *ex post* analysis of tax policy measures. The continued development of green budgeting practices is an important consideration, if green budgeting practices are to be effective in helping to achieve Ireland's main climate and environmental goals.

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Annexes

Annex 1

Detailed EU & OECD Green Budgeting Reference Frameworks

Table A1: EU Green Budgeting Reference Framework

Elements of Practice	Level 1 (essential)	Level 2 (developed)	Level 3 (advanced)
Environmental Objectives	Climate Related	Climate Related Some other objectives	All objectives
Budget Items	Favourable Expenditure Favourable Revenue	Favourable items Unfavourable items	Favourable items Unfavourable items Tax Expenditures
General Government	State (incl. social contributions)	State (incl. social contributions) Subnational Government	State (incl. social contributions) Subnational Government Other (incl. State Owned Enterprises)
Methodology	Partial Tagging Methodology i.e. what is unequivocally good/bad	Tagging Methodology	Tagging Methodology Impact Assessment of Policies Method
Deliverables	Identify annual budget Reporting on Budget Execution	Identify annual budget Reporting on Budget Execution Estimates in multi annual paths	Identify annual budget Reporting on Budget Execution Estimates in multi annual paths Extra-budgetary spending reports
Governance	Ad-hoc central task force	Permanent central structure	Permanent central structure GB correspondents in various ministries/agencies
Transparency and Accountability	All deliverables are public Independent expert assessment of methodology	All deliverables are public Independent expert assessment of methodology Independent assessment of deliverables Parliamentary Discussion	All deliverables are public Independent and expert assessment of methodology Parliamentary Discussion <i>Ex post</i> review

Table A2 : OECD Green Budgeting Reference Framework

Building Block	Elements	Further detail
One Strategic Planning	<p>Defining environmental priorities, targets and benchmarks</p> <p>Linking environmental objectives to an indicators framework</p> <p>Considering long-term fiscal sustainability</p>	<p>International agreements require signatories to commit to objectives and indicators, but these must be adapted to the national level.</p> <p>The financial dimension must be integrated in adopting the strategy.</p>
Two Evidence generation and Policy Coherence	<p>Impact assessments</p> <p>Environmental cost benefit analysis</p> <p>Classifying and tagging green activities</p> <p>Environmental tax reform</p> <p>Identifying harmful spending and tax expenditure</p>	<p>Requires the development of methodologies, classifying and assessing the individual and consolidated, positive impacts and negative impacts of the Budget.</p>
Three Accountability and Transparency	<p>Green budget statement (GBS)</p> <p>Sustainability reporting</p> <p>Green dimension in spending review</p> <p>Scrutiny by independent fiscal institutions (IFIs)</p> <p>Environmental audits</p>	<p>The governance framework must ensure clarity on the impacts of decisions <i>ex ante</i> and <i>ex post</i> and enable external control.</p>
Four An enabling Budgetary Governance Framework	<p>Fiscal rules and objectives guide budget decisions</p> <p>Budget formulation is outcome and evidence-based</p> <p>Budget decisions on a multi-annual basis</p> <p>Participatory Budget Process</p>	

Annex 2

Analysis of Existing Tax Measures: Tax Revenue Measures & Tax Expenditures

All Tax Data collected from Revenue, CSO, SEAI and Department of Finance.

Table A3 : Existing Climate Negative Tax Expenditures in the Tax System in €m									
	2011	2012	2013	2014	2015	2016	2017	2018	2019
VAT - Marine Diesel		0.1	0.2	0.1	0.0	2.3	2.7	3.2	2.7
VAT - Disabled vehicle users		16.3	15.4	18.3	20.1	25.8	24.7	27.5	26.7
VAT - Touring Coaches		2.6	4.0	5.5	6.3	10.0	9.6	8.5	8.3
VAT - Effective Lower Rate for Fuel/Energy Services *1	363.6	397.9	407.7	407.9	385.2	325.8	334.2	404.3	392.4
VAT – Auto-diesel VAT Refund *2	259.8	296.8	312.7	307.0	299.3	241.7	236.7	284.6	281.3
Carbon Tax - Repayments *2							0.9	5.7	5.5
VRT - Exemptions *3	6.6	5.9	6.8	7.6	8.6	10.2	10.4	10.3	11.1
VRT - Relief for leased cars	9.9	10.5	14.9	14.7	17.3	22.9	20.7	22.3	0.1
VRT - Remissions /repayments for drivers and passengers with disabilities	20.9	19.9	20.4	23.7	24.9	30.5	30.5	33.0	35.4
Excise - Aviation Gasoline Repayment *2								0.1	0.0
Excise - Diesel Rebate Scheme			6.3	22.0	9.9	0.6	1.3	3.5	10.3
Excise - Horticulture relief	0.7	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Excise - Lower duty on Kerosene *4	569.4	486.6	491.2	464.3	549.9	568.7	589.9	622.5	578.7
Excise - Exemption on Aviation Fuel *5	408.1	351.5	405.2	449.0	508.1	521.2	612.9	661.4	691.8
Excise - Exemption: Domestic Electricity Use *6	3.9	3.8	3.7	3.6	3.6	3.6	3.6	3.7	4.2
Excise - Repayment: Commercial Sea Navigation	7.9	9.5	9.9	11.4	10.9	12.3	11.6	13.1	13.3
Excise - Lower duty on Auto-diesel *4	294.1	292.3	309.2	322.3	356.7	384.1	380.3	414.8	422.8
Excise - Lower duty on Fuel Oil *4	45.2	42.6	38.8	35.6	32.0	31.3	31.8	27.1	24.7
Excise - Lower duty on Marked Gas Oil *4	528.5	454.5	443.4	375.5	389.2	400.4	405.7	454.9	473.0
Excise - Fuel Repayment for Disabled Drivers and Disabled Passengers						8.6	9.5	10.3	10.5
Income Tax - Multi-storey Car Parks Income Tax	24.7	2.1	7.5	2.8	1.5	1.1	0.9	0.4	0.3
Corporation Tax - ACA for Gas Vehicles *7									0.1
Total €m	2,543.3	2,393.0	2,497.3	2,471.3	2,623.5	2,601.1	2,718.0	3,011.2	2,993.2

VAT Relief on Fishing Vessels and the Fertiliser Zero Rate of VAT are not included in this analysis as these are business inputs. Any VAT incurred in the furtherance of a taxable businesses is fully recoverable. VAT is instead charged on the business supplies where the VAT is paid by the final non-taxable consumer. In circumstances where a fishing or agriculture type businesses is not VAT registered ,the VAT is effectively recovered through the application of a farmer flat rate addition (FRA - scheme to offset the cost of input VAT in this sector).

*1 – This measure is subject to an EU derogation and it is therefore cannot be amended at present. These figures were calculated by the Department of Finance, using data provided by Revenue, against a baseline of a 23 per cent VAT rate. As a 13.5 per cent rate applies, the tax expenditure is considered to represent a 9.5 per cent VAT rate gap.

*2 – Data provided by the [CSO](#). All other data in the table is gathered from Revenue or is a Department of Finance calculation, except where otherwise specified.

*3 – **VRT exemptions include:** Transfer of Residence; Vehicles Acquired Tax/Duty-Free Abroad; Transfer of Business Undertaking; Inheritance; Donations by Official Bodies, Public Authorities or Groups; Vehicles Acquired for the Official Use of an EU Institution; Transfers to the State of EU Officials; Diplomatic Agents etc.; International Air Services, etc.

*4 – Figures calculated using the Excise Rate on Petrol as a baseline.

*5 – **Excise Exemption on Aviation Fuel** is subject to an EU Derogation. Data gathered from [SEAI](#) and calculated by the Department of Finance.

*6 – Data calculated manually by Department of Finance using [SEAI Energy Flows Data](#). Approach uses a similar methodology to the CSO, but applies a baseline of €0.50 per unit (megawatt hour) for electricity supplied for business use, which applied until [31 December 2019](#).

*7 - Figures obtained from Department of Finance Tax Expenditure Report. Data for 2019 is estimated and provisional as additional returns are received over time.

Table A4: Existing Climate Positive Tax Expenditures in the Tax System

	2011	2012	2013	2014	2015	2016	2017	2018	2019
VRT - Relief for Electric Vehicles	3.2	3.5	1.7	3.2	5.8	9.1	15.6	27.9	47.9
Stamp Duty - Commercial Woodlands	10.6	8.9	8.4	12	48.8	34	39.38	66	77
Corporation Tax & Income Tax - Energy Efficient Capital Allowances*1	1.3	1	0.7	0.9	1.1	0.9	3.1	3.7	4.2
BIK - Cycle to work scheme*2	4	4	4	4	4	4	4	4	4
Income Tax - Tax saver travel pass*2	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total €m	22.6	20.9	18.3	23.6	63.2	51.5	65.58	105.1	136.6

*1 - 2019 data includes Corporation Tax element only

*2 - Figures for travel pass and cycle to work scheme are based on estimates from the Department of Finance tax expenditures report (Published with Budget documents).

Table A5: Existing Climate Positive Tax Revenue Raising Measures in the Tax System

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Excise	2122.8	2020.3	2027.5	2018.4	2114.4	2168.5	2062	2163.3	2164.3
Carbon Tax	298.2	354	388.4	385.4	419	430.3	419.6	431.1	430.5
Electricity Tax	6.9	7.1	6.3	5.5	4.5	4.6	3.6	2.5	2.3
Vehicle Registration Tax	388.4	379.4	437.3	542.1	649.6	814.2	840.6	885.3	942
Motor Tax *								977	962
Air Travel Tax	47.9	33.6	34.9	9.9	0.01	0	0	0	0
VAT - 13.5 per cent rate on Fuel	490.3	516.7	565.5	579.4	579.7	547.3	462.9	474.9	574.5
VAT – 23 per cent rate on Motor Fuels	498.6	523.4	581.4	581.4	541.8	657.6	543.0	591.1	591.1
Total €m	3853.2	3834.5	4041.2	4122.0	4308.9	4622.5	4331.7	5525.2	5666.7

* Statistics from Department of Finance databank - Pre-2018 Figures were not part of central government funding and are thus not included.

Annex 3 Tax Measures: Retrospective Analysis of Budgets 2019, 2020 & 2021

All Budgetary data collected from Department of Finance sources

Table A6: Budget 2019 Climate related Tax Measures

Budget 2019 (Full Year Costs)	Climate Positive Revenue Raising €m	Climate Positive Tax Expenditures €m	Total Climate Positive Measures €m	Climate Negative Revenue Raising €m	Climate Negative Tax Expenditures €m	Total Climate Negative Measure s €m	Total Budget Climate Pos/Neg €m
VRT - Diesel Surcharge	25		25				25
VRT – Relief Hybrid Vehicles		16	16				16
BIK – Electric Vehicles exemption		3	3				3
VAT - reduction : electronic publications		8	8				8
Corporation Tax - ACA Gas Vehicles					0	0	0
Total €m	25	27	52	0	0	0	52

Table A7: Budget 2020 Climate related Tax Measures

Budget 2020 (Full Year Costs)	Climate Positive Revenue Raising €m	Climate Positive Tax Expenditures €m	Total Climate Positive Measures €m	Climate Negative Revenue Raising €m	Climate Negative Tax Expenditures €m	Total Climate Negative Measures €m	Total Budget Climate Pos/Neg €m
Mineral Oil Tax - Diesel Rebate Scheme					No Figure Provided	No Figure	No Figure
VRT – Relief Hybrid Vehicles		No Figure Provided	No Figure				No Figure
Carbon Tax Increase: €20 – €26 per tonne	130		130				130
Electricity Tax – Equalise business rate	2.5		2.5				2.5
VRT - Environmental Surcharge	25		25				25
Total €m	157.5	0	157.5	0	0	0	157.5

Table A8: Budget 2021 Climate related Tax Measures

Budget 2021 (Full year costs)	Climate Positive Revenue Raising €m	Climate Positive Tax Expenditures €m	Total Climate Positive Measures €m	Climate Negative Revenue Raising €m	Climate Negative Tax Expenditures €m	Overall Climate Negative Measures €m	Total Budget Climate Pos/Neg €m
Carbon Tax - (Increase : €26 - €33.5 per tonne)	147		147				147
VRT - Changes	No Figure Provided		No Figure				No Figure
Motor Tax - Changes	No Figure Provided		No Figure				No Figure
Corporation Tax – ACA for Energy Efficient Equipment		1	1				1
Total (€m)	147	1	148	0	0	0	148