Carbon Assessment of the Scottish Budget 2024-25

Scottish Government
Riaghaltas na h-Alba

High-Level Carbon Assessment of the 2024-25 Budget

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1. Introduction

1. This assessment is based on the expenditure data presented in the 2024-25 Budget and fulfils the statutory requirement under Section 94 of the Climate Change (Scotland) Act 2009 to report upon the emissions impact of expenditure proposals.
2. It provides a limited overview of emissions and does not, for example, provide any indication as to the consequential impact of specific policies. Annex G of the Scottish Budget instead provides a taxonomy assessment of the alignment of spend to Scottish Government Environmental Objectives and Emissions Targets.
3. Policies and expenditure under this assessment will only include their short run impacts. Care should therefore be taken in interpreting this assessment. For example, the assessment of the construction of a cycleway would include emissions generated in the construction, but would not capture the reduction in emissions from any resulting modal shift.
4. This assessment is presented in the backdrop of the improvements to the taxonomy presented in Annex G as a results of recommendations of the Scottish Government and Parliament's Joint Budget Review. These improved assessments will better help to incorporate Climate Change in budget decisions as well as demonstrate how SG spend achieves its climate objectives..

1.1. Scope of Assessment

5. The high-level carbon assessment of the Budget captures the emissions associated with the Scottish Government's purchase of goods and services. It is a consumption-based measure that covers direct emissions (e.g. the production of gravel for roads constructed by the Government or generation of electricity used by Government) and also any imported emissions that are generated in producing the direct and indirect goods and services that the Government purchases.
6. As mentioned above, the assessment does not take account of 'second-round' emissions. While we do include emission impacts associated with Government spend and its supply chain, we do not count the emissions or savings associated with all of the outcomes arising from this spending. For example, while the Carbon Assessment could include an estimate of the carbon associated with the cost of constructing a road, the carbon associated with the subsequent use of the road is not included. This is better captured in Annex G of the Scottish Budget.
7. The Scottish Government also uses a range of other tools, during the policy development stage, to quantify emissions impacts over the policy/project lifetime. These tools include Strategic Environmental Assessments. The Environmental Assessment (Scotland) Act 2005 requires that every qualifying public plan, programme and strategy is considered for its likely environmental effects and, where likely to be significant, opportunities to avoid adverse impacts are sought and positive ones enhanced. Results are published in the Environmental Reports within the Strategic Environmental Assessment

database: Environmental assessment: Strategic Environmental Assessment (SEA) - gov.scot (www.gov.scot)[1]

8. Further tools include Environmental Statements, which are required to assess the environmental effects of certain public and private projects under the Roads (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017, which update the requirements in the Roads (Scotland) Act 1984. The Carbon Account for Transport also provides a balance sheet for Scotland's greenhouse gas emissions, and the expected emissions impacts of major transport infrastructure projects and regulatory measures. The latest Transport Carbon Account is available at the following link: Carbon Account for Transport - No. 12: 2020 Edition[2]
9. The combined effect of Scottish Government policies to reduce emissions over the period to 2032 is set out in the Climate Change Plan update, published in December 2020. This is due to be updated in the draft Climate Change Plan to be laid in parliament in 2024.
10. Although the methodology underpinning the Carbon Assessment of the Budget remains the same as for the Carbon Assessment of the 2023-24 Budget, the base year of Environmental Input-Output (EIO) model itself has been updated from 2018 to 2019. This is possible because of the newly available input-output analytical tables covering the year 2019 for Scotland and the UK. As usual the model has also been updated to use the latest available Greenhouse Gas emissions ratios and HM Treasury deflators. More information about these changes and their effects on the overall GHG estimates can be found in Annex A.
11. The 2024-25 budget introduces the IFRS16 accounting standard. This standard introduces a single lessee accounting model that requires a lessee to recognise assets representing its right to use the underlying leased asset and lease liabilities representing its obligation to make lease payments for all leases with a term of more than 12 months, unless the underlying asset is of low value. The consequences of this change is that there is a movement of resource spend into the capital budget, and as such, means that any comparison with previous Carbon Assessments should be treated with caution.

1.2. Key Results

12. The summary of the analysis below are subject to the scope and limitations of the analysis as discussed above.
13. Following the approach set out in section 1.1, it is estimated that total emissions attributed to the 2024-25 Budget amount to 8.6 million tonnes carbon dioxide equivalent (MtCO2e).
14. This has increased slightly from 8.4 Mt when applying the updated Environmental Input-Output model to last year's 2023-24 Budget. However, due

[1] https://www.gov.scot/policies/environmental-assessment/strategic-environmental-assessment-sea/

[2] https://www.transport.gov.scot/publication/carbon-account-for-transport-no-12-2020-edition/

to the switch to the IFRS16 accounting standard, these estimates are not directly comparable.

15. Details on the various sources of emissions show that some 28 per cent of the Scottish Government's carbon footprint is caused by the use of Energy, Water and Waste, followed by Manufacturing (20 per cent) and Agriculture, Forestry and Fishing (18 per cent).

16. It is estimated that total emissions attributed to capital investment plans of £6.4 billion of investment in 2024-25 amount to 0.9 MtCO2e. Note that these are the emissions associated with putting the capital investment in place and not their long term use. Emissions associated with resource spend amount to 7.7 MtCO2e.

17. Annex G of the Budget document presents an alternative assessment of the budget that reviews the alignment of spend with SG climate objectives based on long-term impact of spend. This taxonomy-based assessment shows that around 9% of budget spend is positively aligned with the delivery of the Scottish Government's climate objectives. 2% is negatively aligned, primarily delivering road and livestock investments which support emission generating activity. The vast majority of spend, 72%, is neutral delivering on core objectives which generate relatively little emissions domestically but may have higher emissions when evaluated in consumption terms; This is primarily healthcare and social funding. Local government funding (around 16% of the total) is excluded from the taxonomy assessment.

1.3. Budget Context

18. Budget for 2024-25 contains details of Total Managed Expenditure (TME) of £59.7 billion across portfolio areas. Expenditure is split between resources and capital expenditure, and Annually Managed Expenditure (AME). This is illustrated in Table 1.

Summary

It is estimated that total emissions resulting from the 2024-25 Budget will be 8.6 Mt CO_2-equivalent.

This has increased slightly from 8.4 Mt when applying the updated Environmental Input-Output model to last year's 2023-24 Budget. However, due to the switch to the IFRS16 accounting standard, these estimates are not directly comparable.

'Second-round' emissions that may result from Government spending and the *use* of public goods and services, whether beneficial in terms of reducing emissions (e.g. spending on energy efficiency or afforestation) or negative in terms of increasing emissions (e.g. road use) are not captured. The separate Climate Change Assessment, annex G of the Budget sets out a results of a taxonomy-based assessment of the alignment of the Budget with Scottish Government's climate objectives including emissions reductions. This is also accompanied by increases to negatively aligned emissions spend.

Table 1: Total proposed budget for 2024-25

2024-25 Budget	Resource £m	Ring-fenced £m	Capital £m	Financial Transactions £m	Total £m	UK Funded AME £m	Total £m
NHS Recovery, Health and Social Care	18,242.9	394.5	820.3	0.0	19,457.7	104.0	19,561.7
Social Justice	6,901.1	84.8	525.5	-30.8	7,480.6	0.4	7,481.0
Wellbeing Economy, Fair Work and Energy	457.1	27.3	593.2	192.9	1,270.5	0.0	1,270.5
Education and Skills	3,117.1	402.5	554.6	-8.9	4,065.3	804.3	4,869.5
Justice and Home Affairs	3,305.1	182.9	308.0	0.0	3,796.0	3.1	3,799.1
Transport, Net Zero and Just Transition	1,617.3	365.8	2,593.7	-2.2	4,574.6	0.6	4,575.2
Rural Affairs, Land Reform and Islands	915.6	26.7	150.3	0.0	1,092.6	0.0	1,092.6
Constitution, External Affairs & Culture	287.4	19.2	25.2	0.0	331.7	0.0	331.7
Deputy First Minister and Finance	9,139.3	23.2	667.6	25.0	9,855.1	6,490.4	16,345.5
Crown Office and Procurator Fiscal Service	203.4	9.9	9.7	0.0	222.9	0.0	222.9
Scottish Government	**44,186.2**	**1,536.8**	**6,248.0**	**176.0**	**52,147.0**	**7,402.8**	**59,549.8**
Scottish Parliament and Audit Scotland	136.9	15.7	2.0	0.0	154.6	2.0	156.6
Total Scotland	**44,323.1**	**1,552.5**	**6,250.0**	**176.0**	**52,301.6**	**7,404.8**	**59,706.4**

Table 2: Portfolio expenditure[3] (TME excluding non-cash items) and emissions

Portfolio	Spend £m	Estimated GHG emissions (thousands of tonnes of CO_2 equivalent)			
		Domestic			Total
		Direct	Indirect	Imported	
NHS Recovery, Health and Social Care	£19,063	331.1	433.7	977.7	**1,742.6**
Social Justice	£7,568	298.8	161.9	1,058.9	**1,519.7**
Wellbeing Economy, Fair Work and Energy	£1,243	15.5	27.1	108.0	**150.7**
Education and Skills	£4,447	81.0	78.9	284.3	**444.2**
Justice and Home Affairs	£3,690	73.5	92.6	192.6	**358.7**
Transport, Net Zero and Just Transition	£4,167	484.9	89.3	550.2	**1,124.4**
Rural Affairs, Land Reform and Islands	£1,061	832.8	140.2	206.3	**1,179.3**
Constitution, External Affairs & Culture	£313	3.8	12.8	16.7	**33.3**
Deputy First Minister and Finance	£15,967	827.2	440.4	759.0	**2,026.6**
Crown Office and Procurator Fiscal Service	£213	4.6	5.6	11.2	**21.4**
Scottish Parliament and Audit Scotland	£139	3.3	3.3	9.5	**16.1**
Total	**£57,872**	**2,956.4**	**1,485.9**	**4,174.6**	**8,616.9**

[3] Non-cash items are excluded from the assessment where they do not lead to extra demand for goods and services. Because these items are excluded, the Budget total shown here is lower than that in the Budget itself, and lower than in Table 1.

2. High-level Carbon Assessment of 2024-25 Budget

2.1. Portfolio Expenditure and Associated Emissions

19. Total estimated emissions attributable to the 2024-25 Budget are 8.6 Mt CO2-equivalent. Table 2 shows overall spend and emissions by the individual portfolios and how these emissions arise. Emissions remain broadly proportional to spend, except for Rural Affairs, Land Reform and Islands, where emissions per unit of spend are higher. NHS Recovery, Health and Social Care, Deputy First Minister and Finance, and Social Justice are the largest Budget items, and therefore are associated with the highest emissions.

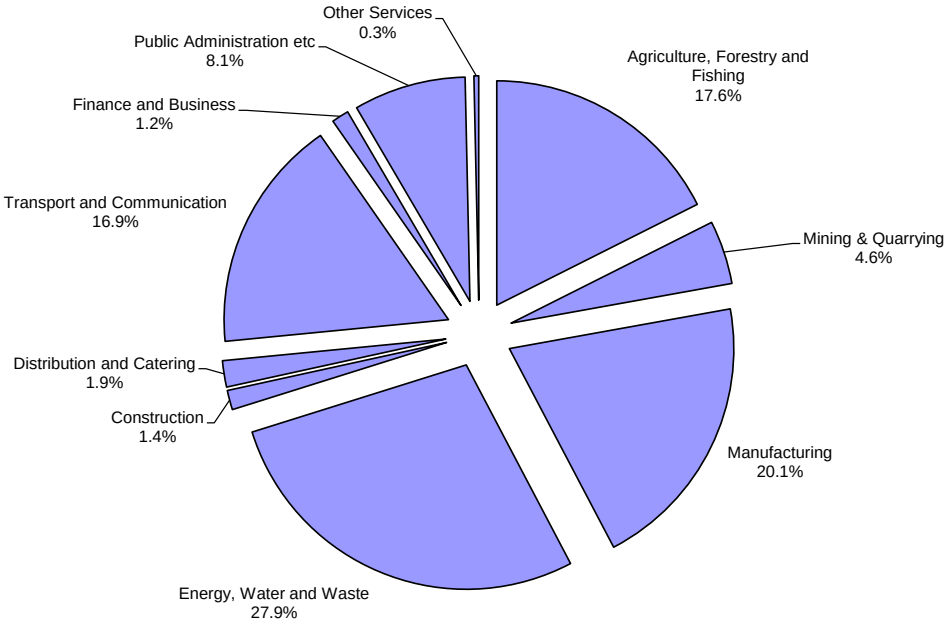
20. Expenditure is shown net of income, in line with the Budget, and emissions are calculated on that basis.[4]

21. Direct emissions account for 34 per cent of the total; indirect emissions for a further 17 per cent. Around 48 per cent of emissions attributable to Budget expenditure are generated outside Scotland and are embedded in imported goods and services.

2.2. Emissions by Industry Source

22. Total emissions broken down by industry are shown in Figure 1. Some 28 per cent of the Scottish Government's carbon footprint is caused by the use of Energy, Water and Waste, followed by Manufacturing (20 per cent) and Agriculture, Forestry and Fishing (18 per cent).

Figure 1: Overall Government spending - Industry sector share of emissions (domestic direct and indirect, plus imported GHG emissions)



[4] See Annex B for a fuller discussion of this issue.

2.3. Domestic and Imported Emissions

23. In addition to direct and indirect domestic emissions, the assessment takes into account the emissions generated outside of Scotland in the production of imported goods purchased as a result of Government spending (e.g. food, machinery, IT equipment).

24. Figure 2c demonstrates that imported emissions make up around a half of emissions from Budget spend. There is however a difference between the sources of domestic and imported emissions. Expenditure on Energy, Water and Waste accounts for the largest share of domestic emissions (followed by Agriculture, Forestry and Fishing), while expenditure on Manufacturing generates the largest share of imported emissions (followed by Energy, Water and Waste).

Figure 2: Domestic and Imported Emissions - All portfolios

Figure 2a: Domestic emissions by industrial sector

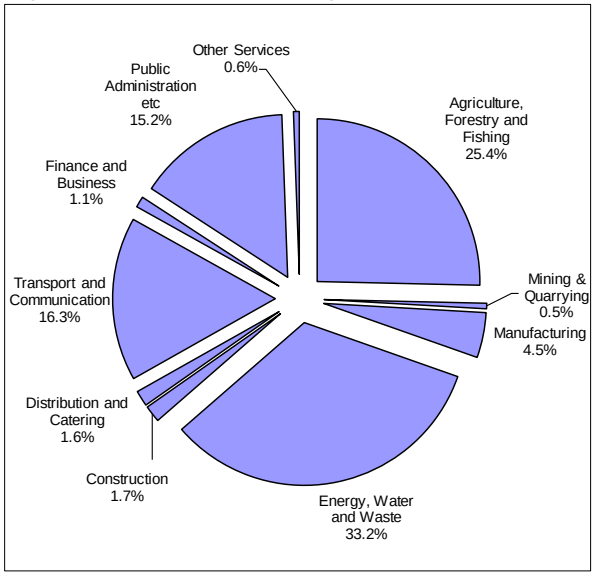


Figure 2b: Imported emissions by industrial sector

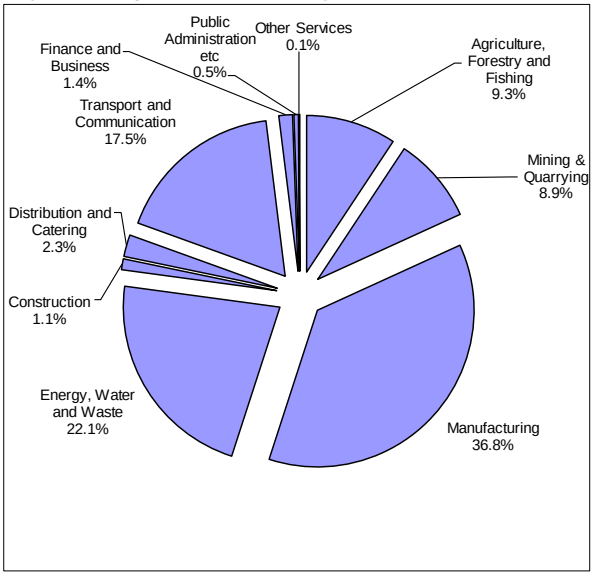


Figure 2c: Domestic and imported emissions, thousands of tonnes of CO_2 equivalent and percent

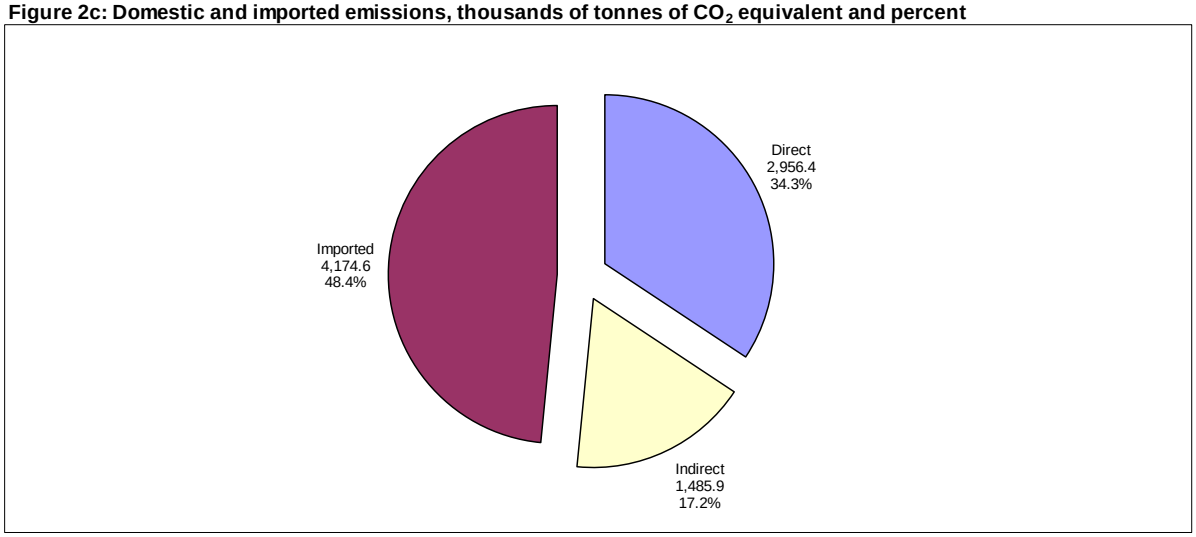
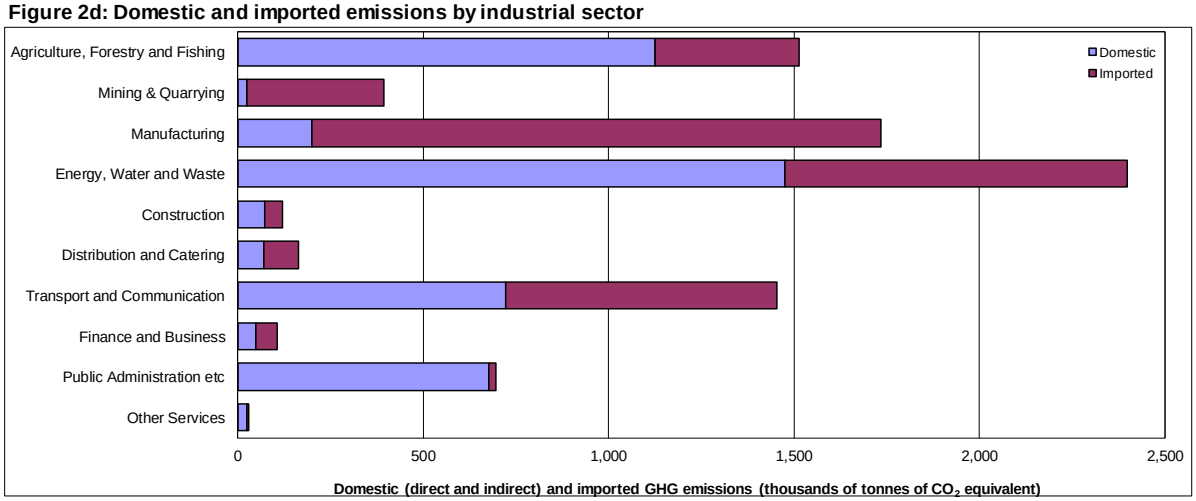


Figure 2d: Domestic and imported emissions by industrial sector



Annex A – Methodology

1. The figures presented in this report are estimated using the Scottish Government Environmental Input-Output Model (EIO) 2019.
2. The EIO is constructed using the Scottish Government Input-Output Tables 2019 (taken from the 1998-2020 Tables published in November 2023), ONS United Kingdom Analytical Input-Output Tables, 2019 (Blue Book 2022), ONS Environmental Accounts, Atmospheric emissions: greenhouse gases by industry and gas, 2019 (Published October 2023) and HM Treasury GDP Deflators as at 22 November 2023.
3. A fuller description of the model and its associated Greenhouse Gas effects estimates that this assessment is based upon can be found at: https://www.gov.scot/publications/about-supply-use-input-output-tables/pages/environmental-input-output/

Revisions to the Environmental Input-Output Model

1. With the release of new Input-Output Analytical Tables covering the year 2019 for Scotland and the UK, this year the base year of the EIO model has been updated from 2018 to 2019. This has involved several changes to the model:
    - The updating of the underlying Scottish Input-Output model and UK closed economy Input-Output model from the 2018 version to the latest published version for 2019.
    - The updating of the year used to calculate emissions factors from 2018 to 2019.

    alongside the regular annual updates of:
    - Updating the emissions data from ONS environmental accounts to the latest published version.
    - Updating the forecast GDP deflator used to project estimates to the budget year to the latest version published by HM Treasury.
2. Updating to the latest version of the model incorporating the regular changes listed in the bullets above leads to a reduction to the previously published HLCA estimates of greenhouse gas emissions arising from the 2023-24 budget from 8.8 MtCO2e to 8.4 MtCO2e, a downward revision of 7%.
3. The majority of this downward revision arises from the update of the underlying UK input-output tables, followed by the updates to the HMT deflators, while the updates to the GHG industry emissions ratios act to partly offset these downward contributions.
4. Care should be taken when interpreting the revision to imported GHGs. Given the lack of a world economy model and emissions factors, the EIO model uses the UK economy as a proxy for the world economy. Changes in emissions intensities in the UK economy may not be representative of changes in the world economy, for example due to different technologies being used, or if more carbon intensive activities move overseas and are replaced by imports.

This publication is available at **www.gov.scot**

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