



United Nations

FCCC/ETF/TERR.1/2024/GBR/Add.1



Framework Convention on
Climate Change

Distr.: General
17 October 2025

English only

Report on the technical expert review of the first biennial transparency report of the United Kingdom of Great Britain and Northern Ireland

Addendum

Summary

This addendum to the report on the technical expert review of the first biennial transparency report of the United Kingdom of Great Britain and Northern Ireland, conducted by a technical expert review team in accordance with the modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement, contains the results of the review of the consistency of the information submitted by the Party with those modalities, procedures and guidelines, and presents capacity-building needs identified by the Party and by the technical expert review team in consultation with the Party during the review. The review took place from 19 to 23 May 2025 in London.



Abbreviations and acronyms

2006 IPCC Guidelines	<i>2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>
AD	activity data
BTR	biennial transparency report
CH ₄	methane
CO ₂	carbon dioxide
CSC	carbon stock change
CTF	common tabular format
DESNZ	Department for Energy Security and Net Zero of the Government of the United Kingdom of Great Britain and Northern Ireland
EF	emission factor
GHG	greenhouse gas
HWP	harvested wood products
ICF	international climate finance
IPCC	Intergovernmental Panel on Climate Change
LULUCF	land use, land-use change and forestry
MPGs	modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement
N ₂ O	nitrous oxide
NA	not applicable
NDC	nationally determined contribution
NID	national inventory document
NIR	national inventory report
PaMs	policies and measures
QC	quality control
TERT	technical expert review team

I. Areas of improvement¹ identified during the technical expert review of the Party's first biennial transparency report

Tables 1–20 present the results of the review of the consistency with the MPGs² of the information submitted by the United Kingdom of Great Britain and Northern Ireland in its BTR1. All recommendations and encouragements contained in the tables are for the next BTR or NIR, unless otherwise specified.

A. General reporting provisions

Table 1

Areas of improvement relating to general reporting provisions

ID#	Reporting requirement	Description of area of improvement with recommendation or encouragement
NA	NA	No areas of improvement identified

B. Greenhouse gas emissions and removals

Table 2

Areas of improvement relating to general findings on greenhouse gas emissions and removals

ID#	Reporting requirement	Description of area of improvement with recommendation or encouragement
NA	NA	No areas of improvement identified

Table 3

Areas of improvement of the reporting on greenhouse gas emissions and removals – energy sector

ID#	Reporting requirement	Description of area of improvement with recommendation or encouragement
3.E.1	Specified in paragraph 39 of the MPGs 1.A Fuel combustion – sectoral approach – CO ₂	The TERT noted that some country-specific carbon EFs for fuels cited or reported in the United Kingdom's NID or its annexes or additional documents provided with the NID containing additional information date from 1989, 1995 or 2004 reference sources. Examples include the EF for gas oil reported in the NID (p.125) and the EFs for liquefied petroleum gas and orimulsion in power stations reported in the "CEF" worksheet of the "Energy_background_data_uk_2024" Microsoft Excel file provided with the NID. The TERT also noted that such historical EFs may not accurately represent the current characteristics of fuels in the country. During the review, the United Kingdom stated that the use of the historical carbon EFs for fuels was justified, either because more suitable values had not been identified or because these EFs remain representative of the majority of fuels used since 1990. The Party provided to the TERT a report on the review of carbon factors for fuels (DESNZ, 2023b), finalized in December 2023 and released in May 2025, which includes proposed updates to the carbon EFs for some fossil fuels, including petrol, gas oil and liquefied petroleum gas. The TERT recommends that the United Kingdom provide in the NID explicit justification for retaining and using historical carbon EFs in cases where no up-to-date values are available, and clearly document the sources of all country-specific EFs used for estimating emissions, particularly where multiple sources are used for EFs for different time periods, and/or explain whether new sources of EFs or information were used in the compilation of the NIR.

¹ As referred to in paras. 7, 8, 146(d) and 162(d) of the MPGs, contained in the annex to decision 18/CMA.1.

² Decision 18/CMA.1, annex.

ID#	Reporting requirement	Description of area of improvement with recommendation or encouragement
3.E.2	Specified in paragraph 40 of the MPGs 1.A Fuel combustion – sectoral approach – NA	The TERT noted that the United Kingdom provided few explanations in its NID as to how AD on fuel consumption for its Crown dependencies and overseas territories were integrated into the estimation of emissions from fuel combustion. Neither table 1.4 nor section 3.4 of the NID on estimation methods provides relevant details on such AD for most fuel combustion categories. During the review, the United Kingdom clarified that NID table 1.4 highlights key data sources used for the estimates, which do not include minor data sources (such as those for AD for the Crown dependencies and overseas territories). It indicated that NID section 3.4 mentions Crown dependencies and overseas territories in several places, particularly where the data are complex, such as in relation to the scope of emissions from shipping and aviation between the United Kingdom and its Crown dependencies and overseas territories. Furthermore, information on AD for Crown dependencies and overseas territories is mostly presented in annex 5 (section A 5.1.6) to the NID. However, the TERT noted that total fuel consumption by fuel type is presented in section A 5.1.6, but no information on fuel consumption by category or subcategory or consumption data for individual Crown dependencies and overseas territories for all years of the time series. The TERT recommends that the United Kingdom provide in the NID information on how fuel consumption data for each Crown dependency and overseas territory were integrated by the Party into the estimation of emissions from fuel combustion, at the category or subcategory level, to the extent possible, and for all years of the time series.

Table 4

Areas of improvement of the reporting on greenhouse gas emissions and removals – industrial processes and product use sector

ID#	Reporting requirement	Description of area of improvement with recommendation or encouragement
4.I.1	Specified in paragraphs 21 and 39 of the MPGs 2.A.4 Other process uses of carbonates – CO ₂	The TERT noted that the Party estimated CO₂ emissions from soda ash use in applications other than glass production (subcategory 2.A.4.b) using AD on consumption of soda provided by industry, including assumptions on the level of emissiveness of processes and a country-specific EF of 0.4151 k CO₂/kt soda ash consumed, assuming that all the carbon in the soda ash is converted to CO₂ and subsequently emitted (see NID pp.232–233). However, the Party did not explain how this EF was calculated. The default EF from the 2006 IPCC Guidelines (vol. 3, chap. 2, table 2.1) is 0.41492 t CO₂/t soda ash. Therefore, the TERT also noted that using the EF of 0.4151 k CO₂/kt soda ash consumed could result in an overestimation of emissions for subcategory 2.A.4.b. During the review, the United Kingdom indicated that it determined the country-specific CO₂ EF using stoichiometric calculations and assuming that 100 per cent of the carbon in the soda ash is emitted as CO₂. The Party also indicated that the difference between the EFs is most likely because the IPCC default CO₂ EF was estimated using the same method but with a more precise atomic mass. Consequently, the values of the country-specific CO₂ EF calculated by the United Kingdom and the IPCC default CO₂ EF have differences owing to rounding. The United Kingdom explained that it generally uses atomic masses rounded to the nearest integer, consistently with the IPCC recommendation that carbon should be converted to CO₂ with a scaling factor of 44/12. The TERT recommends that the Party use a more precise atomic mass for determining its country-specific CO₂ EF for estimating emissions for subcategory 2.A.4.b or, if this is not possible, use the 2006 IPCC Guidelines default CO₂ EF (0.41492 t CO₂/t soda ash), as it was determined using a more precise atomic mass, and include relevant information on the determination and use of the CO₂ EF in the NID.

ID#	Reporting requirement	Description of area of improvement with recommendation or encouragement
4.I.2	Specified in paragraph 39 of the MPGs 2.B.8 Petrochemical and carbon black production – CO ₂	The United Kingdom reported in its NID (table 4.14) that CO₂ emission estimates for subcategory 2.B.8.d ethylene oxide for 1995–2009 were taken from the pollution inventory of the Environment Agency for England, with 1990–1994 emissions assumed to be the same as in 1995. The Party did not clearly explain in the NID why it was unable to use CO₂ emission data from the pollution inventory for years prior to 1995. During the review, the United Kingdom clarified why it did not use CO₂ emission estimates from the pollution inventory for 1990–1994. It indicated that, as discussed in annex 5 (section A 5.1.1.2.2) to the NID, CO₂ emission estimates are not available in the pollution inventory for any source for 1990–1994. It also indicated that subcategory 2.B.8.d is a minor source of CO₂ emissions, and no suitable data were identified for the missing data to be obtained using trend extrapolation. When the Party previously explored the availability of alternative proxy data sets, it found that the only plant producing ethylene oxide operated at a constant capacity from 1990 to 1994. Plant capacity data were considered the most reliable and more complete and much more strongly correlated with emissions from ethylene oxide production process, and the Party decided to use plant capacity (which coincidentally operated at a constant capacity between 1990 and 1994) as proxy surrogate data and assume the same level of emissions as in 1995 for 1990–1994. The TERT recommends that the Party report a clear description of the method used to estimate and report CO₂ emissions for subcategory 2.B.8.d ethylene oxide, including information on the circumstances that prevented it from reporting CO₂ emissions for 1990–1994 using emission estimates from the pollution inventory, as explained during the review.

Table 5

Areas of improvement of the reporting on greenhouse gas emissions and removals – agriculture sector

ID#	Reporting requirement	Description of area of improvement with recommendation or encouragement
5.A.1	Specified in paragraphs 22 and 39 of the MPGs 3. General (agriculture) – CH ₄ and N ₂ O	The United Kingdom used tier 2 methods to estimate emissions across key categories in the agriculture sector, specifically by using several national studies and/or surveys to establish country-specific EFs. The TERT noted, however, that many of these studies and/or surveys are relatively old. For example, the cattle live growth model was developed in 2000 and the data on energy requirements for sheep and energy allowances for cattle were from 1993, which are both sources of important parameters used to estimate country-specific EFs. During the review, the TERT questioned whether the main assumptions and parameters established in such national studies and/or surveys could be considered valid for all years in the time series given how management practices and genetics in the agriculture sector, among other factors, may have potentially changed since these studies and/or surveys were conducted. In response, the United Kingdom explained why some assumptions made in the national studies are still valid and clarified that more recent studies, surveys and expert judgment show evidence that agriculture management practices and other factors have not undergone significant changes that could affect the main assumptions and parameters it used to estimate country-specific EFs for the agriculture sector. In cases where parameters may have changed, the Party indicated that it is assessing whether these parameters may need to be revised or updated (e.g. growth model parameters), and that it will incorporate updates to parameters in future submissions where new studies are being conducted (e.g. on metabolizable energy requirements of non-dairy cattle). The TERT recommends that the Party enhance the description of the methodologies, parameters and data used to estimate emissions for the agriculture sector by including in the NID relevant information regarding national studies, surveys and/or expert judgment that justify the selection of and assumptions underlying country-specific methods and EFs that remain representative of national circumstances, in particular providing information on: (a) Recommended energy allowances for cattle used to estimate metabolizable energy (based on a 1993 manual by the Agricultural Food and Research Council), presenting the information on this matter provided during the

ID#	Reporting requirement	Description of area of improvement with recommendation or encouragement
		review and noting that, for adult dairy cattle, the Feed into Milk framework (a 2004 manual by Thomas) is used to calculate livestock energy requirements and, for beef cattle and young dairy stock, the framework of the Agricultural Food and Research Council (1993) is used, both of which are United Kingdom industry-approved modelling frameworks, whereby the input to the frameworks is year-specific information on animal weight and productivity, which ensures that the estimation method is time-series-consistent and accurately tracks changes in the United Kingdom's herd; (b) Proportions of cattle manure management systems (based on a 2016 United Kingdom data synthesis by Smith and Williams), presenting the additional information on this matter provided during the review, to better explain the synthesis made of existing empirical farm survey data from recent years; (c) Housing period for beef cattle (derived from 2015 research by Parsons and Williams), presenting the additional information on this matter provided during the review, to better explain the synthesis made of existing empirical farm survey data from recent years.
5.A.2	Specified in paragraph 46 of the MPGs 3. General (agriculture) – CH₄ and N₂O	The United Kingdom implemented category-specific QC procedures for its emission estimates for the agriculture sector. Nevertheless, for some categories descriptions of the QC procedures were not reported in the NID (e.g. for 3.B manure management). During the review, the United Kingdom provided the TERT with information on the category-specific QC procedures applied. The Party described, for example, the specific QC procedures applied to the methods for estimating emissions for, and resulting emission estimates under, category 3.B, such as the establishment of management systems for nitrogen flow, the development of mass balance tables for accuracy and consistency checks, the comparison of calculated animal nitrogen excretion rates with reference values and the comparison of calculated nitrogen content in consumed grass and animal feeds with independent inventory calculations of nitrogen intake. The TERT recommends that the Party enhance the reporting of the category-specific QC procedures undertaken for the agriculture sector by including in the NID a description of such procedures and/or references to additional documents where these procedures are described.
5.A.3	Specified in paragraph 23 of the MPGs 3. General (agriculture) – CH₄ and N₂O	The United Kingdom reported in the NID several planned inventory improvements for each agriculture emission category, particularly key categories, without clearly indicating the expected timeline for their implementation. During the review, the Party explained the status of such improvements and the expected timeline for their implementation. For example, the Party provided details on its revision of parameters used for its energy balance equations for non-lactating cattle, on its access to Northern Ireland data in order to bring its method for estimating emissions from cattle in line with other parts of the United Kingdom, on its revision of assumptions about housing for different livestock categories and on its simplification of the allocation of ewes, to hill, upland and lowland sectors. The TERT encourages the Party to provide in the NID more details on the prioritization, current status and expected timeline for implementation of planned inventory improvements for the agriculture sector, particularly for key categories.
5.A.4	Specified in paragraph 44 of the MPGs 3. General (agriculture) – CH₄ and N₂O	The United Kingdom reported the methods used for and the results of the uncertainty analysis performed for the agriculture sector, highlighting the assumptions made. For example, in the NID (p.316), it noted that “the Monte Carlo approach is therefore run approximately every five years, or when significant methodological changes are introduced to the model. For the years in between we assume the uncertainty to be similar to previous years and simply rescale the uncertainty distribution as a function of the expected value. This was the case for the 1990–2022 inventory for which there were no significant methodological changes”. The TERT noted, however, that for some categories, such as enteric fermentation and manure management, the description in the NID (pp.330 and 340) appears to indicate that a Monte Carlo simulation was performed for the uncertainty analysis.

ID#	Reporting requirement	Description of area of improvement with recommendation or encouragement
		During the review, the Party clarified that a full uncertainty analysis was last carried out for the agricultural year 2020 for all reporting categories (for the 2022 inventory submission) and there have been no further updates. The TERT recommends that the Party enhance the description of the uncertainty analysis performed and its results for the agriculture sector in the NID by clearly specifying when a Monte Carlo simulation was performed and for which categories, ensuring consistent information is provided throughout the NID.
5.A.5	Specified in paragraphs 32 and 47 of the MPGs 3.B Manure management – CH ₄ and N ₂ O	The United Kingdom reported in the NID (p.335) that there are no AD on composting of manure within manure management systems and hence no CH₄ or N₂O emissions for this source were reported in the inventory. It indicated that, since composting of manure is a very minor activity in the country, not reporting the emissions from this activity is not expected to lead to an underestimation of the Party's total emissions. The TERT agrees that CH₄ and N₂O emissions for this source could be considered minor. During the review, the Party clarified that it is in the early stages of collecting AD on composted-manure spreading on agricultural land and currently lacks some of the information required to calculate emissions from this source. The TERT recommends that the Party report CH₄ and N₂O emissions from composting of manure under category 3.B manure management.

Table 6

Areas of improvement of the reporting on greenhouse gas emissions and removals – land use, land-use change and forestry sector

ID#	Reporting requirement	Description of area of improvement with recommendation or encouragement
6.L.1	Specified in paragraph 55 of the MPGs 4. General (LULUCF) – CO ₂ , CH ₄ and N ₂ O	The United Kingdom reported information on addressing natural disturbances when estimating CSCs in forest land in the recalculations and improvements section of the NID (p.518). The Party also reported information on the methodology and AD used to estimate emissions from biomass burning for “forest and non-forest wildfires” covering categories 4.A, 4.B and 4.C in annex 5 to the NID (section A 5.1.4.6). However, the TERT noted that the Party did not report the approach taken to address the emissions and subsequent removals from natural disturbances in the NID, how it is consistent with IPCC guidance and whether estimates are included in national totals. During the review, the Party provided information on the approach taken to address natural disturbances. The Party explained that biomass burning due to wildfires is the only natural disturbance explicitly included in its GHG inventory. Other natural disturbances in forest land, such as windblow and pests and diseases, were not explicitly included in the modelling as it is assumed that areas affected by such disturbances will be salvage-logged and included by estimating the harvested wood areas taken from timber production statistics to avoid double counting. The Party also explained that it does not intend to apply the natural disturbance provision, but that it might reconsider this decision if a natural disturbance, such as a large pest or disease outbreak where the timber could not be salvage-logged or felled in anticipation, would lead to inter-annual variations in CSCs that mask the long-term trend in emissions and removals and, therefore, become an issue. The TERT recommends that the Party provide clear information in the NID on the approach taken to address natural disturbances and how it is consistent with IPCC guidance, as appropriate, and clearly indicate if the estimates are included in national totals.
6.L.2	Specified in paragraph 40 of the MPGs 4.A Forest land – CO ₂	The United Kingdom reported in its NID (p.379) that it used a tier 3 method (i.e. the CARBINE forest sector carbon accounting model) to estimate CSCs for category 4.A forest land. The Party also reported information on the model and explained how it is used to calculate carbon in forest biomass in annex 5 to the NID (section A 5.1.4.1.1.1). However, the TERT noted that the disaggregation level of the AD and EFs used to estimate CSCs for category 4.A was not clearly described. During the review, the United Kingdom clarified that there is information on the disaggregation level of the AD and EFs used for estimating CSCs in forest land in

<i>ID#</i>	<i>Reporting requirement</i>	<i>Description of area of improvement with recommendation or encouragement</i>
		the document on the National Forestry Accounting Plan for 2021–2025, explaining that it was unable to provide all related information in the NID owing to limited space, but that this issue will be resolved in future. The Party also clarified that the CARBINE model does not use EFs as such; instead, it calculates the gains and losses for the forest carbon pools on the basis of estimates of growth, harvesting, mortality or senescence, and decay. The TERT recommends that the Party add clear information to the NID on the disaggregation level of the AD and parameters used for estimating CSCs for category 4.A, including the information presented in figure 3.1 of the document on the National Forestry Accounting Plan for 2021–2025 (p.27).
6.L.3	Specified in paragraph 40 of the MPGs 4.A Forest land and 4.G HWP – CO₂	The United Kingdom applied the same carbon content of 50 per cent for wood and the same oven-dried wood density across all tree species when estimating CSCs in forest land and HWP (see annex 5 to the NID, table A 5.32, p.890 for forest land and p.943 for HWP). The TERT noted that the United Kingdom used tree-species-level AD for the CARBINE model as per the forest area stratification denoted by the Party in figure 3.1 of the document on the National Forestry Accounting Plan for 2021–2025; however, the Party used single values for wood carbon content and wood density for the calculations that do not correspond to the stratification used in the CARBINE model, as shown in figure 3.1 of the document on the National Forestry Accounting Plan for 2021–2025, which could result in inconsistencies between EFs and AD used at the most disaggregated level. During the review, the Party referred to a document on the carbon content of trees (Matthews, 1993), which supports the use of the indicated single values in the inventory. The Party clarified that it used different oven-dried wood densities for each tree species and provided a table with the values used to estimate the CSCs in forest land and HWP using the CARBINE model, as noted in table 18 of the CARBINE-R technical guide. The TERT recommends that the Party provide in the NID information that supports the use of a single value for wood carbon content for its calculations and a table with the values for oven-dried wood density for each tree species used to estimate the CSCs in forest land and HWP.
6.L.4	Specified in paragraphs 39–40 of the MPGs 4.B Cropland – CO₂	The United Kingdom reported in the NID (p.388) the methodology used to estimate CSCs in biomass for cropland management. In particular, the Party reported that CSCs in biomass due to cropland management activities were estimated using literature-derived tier 2 stock change factors and AD from agricultural surveys. The Party noted in the NID (annex 5, section A 5.1.4.4) that CSCs in biomass can result from changes in annual crops, orchards, bioenergy crops and shrubby perennial crops. However, the TERT noted that information provided in the NID (p.388 or section A 5.1.4.4 (pp.914–917)) on the methodology, parameters and assumptions used for estimating CSCs in biomass for land conversions from annual crops to perennial crops or from perennial crops to annual crops is limited and unclear. During the review, the Party provided a detailed explanation, including parameters and assumptions, of how it estimates CSCs in biomass for land conversions from annual crops to perennial crops or from perennial crops to annual crops in a complete manner and consistently with the 2006 IPCC Guidelines. The TERT recommends that the Party provide in the NID detailed information on the methodology, parameters and assumptions used in estimating CSCs in biomass for land conversions from annual crops to perennial crops or perennial crops to annual crops, as provided during the review.
6.L.5	Specified in paragraph 40 of the MPGs 4.B Cropland – CO₂	The United Kingdom reported in the NID (annex 5, table A 5.42) biomass carbon stocks by cropland type and other parameters used for estimating emissions from cropland management. The TERT noted that, although harvest cycles and maturity ages are important parameters for estimating CSCs in perennial crops, information thereon for each perennial crop type was not provided in NID table A 5.42, nor anywhere in the NID. During the review, the Party provided information on harvest cycles and maturity ages for each perennial crop type by referring to a study (Moxley et al., 2014).

<i>ID#</i>	<i>Reporting requirement</i>	<i>Description of area of improvement with recommendation or encouragement</i>
		The TERT recommends that the Party provide information on harvest cycles and maturity ages for each perennial crop type in the NID, as presented in Moxley et al. (2014).

Table 7

Areas of improvement of the reporting on greenhouse gas emissions and removals – waste sector

<i>ID#</i>	<i>Reporting requirement</i>	<i>Description of area of improvement with recommendation or encouragement</i>
7.W.1	Specified in paragraphs 21 and 39 of the MPGs 5. General (waste) – CH ₄ and N ₂ O	The TERT noted that the Party did not report CH₄ and N₂O emissions from the treatment of industrial organic sludge at on-site industrial wastewater treatment facilities in the NIR for any of the relevant categories in the waste sector (5.A, 5.B or 5.C). During the review, the United Kingdom explained that industrial organic sludge is not treated on site but transferred to landfill sites, municipal solid waste incinerators or biological treatment facilities. It provided information on the amount of landfilled industrial organic waste, but not on the amount of incinerated or biologically treated industrial organic sludge because CH₄ and N₂O emissions from incineration or the biological treatment of organic industrial sludge are considered to be included in the reporting of GHG emissions from operators of municipal solid waste incinerators or of biological treatment facilities. Considering this, the TERT noted that, according to the 2006 IPCC Guidelines (vol. 5, chap. 5, table 5.6), the default N₂O EF for incineration of industrial organic sludge is 450 g N₂O/t, whereas the default N₂O EF used by the Party is 50–60 g N₂O/t and refers to municipal solid waste incineration, which may have resulted in an underestimation of emissions from industrial organic sludge treatment. The TERT recommends that the Party describe in the NID the methodology, assumptions, EFs and AD used for estimating CH₄ and N₂O emissions from industrial organic sludge treatment. The TERT also recommends that the Party revise the estimate of N₂O emissions from incineration of industrial organic sludge by assessing the amount of industrial organic sludge and applying an appropriate N₂O EF, such as the default N₂O EF of 450 g N₂O/t, in the estimation.
7.W.2	Specified in paragraphs 40 and 47 of the MPGs 5.C.1 Waste incineration – CO ₂	The TERT noted that the United Kingdom did not consider bio-based plastics, such as polylactic acid, bio-based polyethylene, cellulose acetate and starch blends, in estimating CO₂ emissions from incineration of waste plastics under categories 1.A fuel combustion and 5.C incineration and open burning of waste. These bio-based plastics have recently been introduced to the United Kingdom market. During the review, the United Kingdom clarified that CO₂ emissions from bio-based plastics could be reported as part of the emission estimates for incineration of waste plastics once the waste incineration plants are included in the United Kingdom Emissions Trading Scheme starting in 2028. The TERT recommends that the Party collect necessary data and use relevant methodologies for estimating fossil- and biogenic-origin CO₂ emissions from incineration of waste plastics, ensuring that bio-based plastics are included, and update the estimation of CO₂ emissions for categories 1.A fuel combustion and 5.C incineration and open burning of waste.
7.W.3	Specified in paragraphs 40 and 47 of the MPGs 5.C.1 Waste incineration – CO ₂	The TERT noted that total estimated CO₂ emissions from liquid waste incineration reported for categories 1.A fuel combustion and 5.C incineration and open burning of waste decreased by about half from 2005 (1,016 kt CO₂) to 2006 (390 kt CO₂), after which they remained at approximately 400–500 kt CO₂ up to 2022. These emissions come from waste oil incineration, reported under energy subcategory 1.A.1.a.i public electricity and heat production, combusted waste oils and waste solvents, reported under energy subcategory 1.A.2.f non-metallic minerals (cement production), and chemical waste incineration, reported under waste subcategory 5.C.1.b.ii.5 waste incineration. During the review, the United Kingdom explained that the use of waste oils as an energy source in power stations was suspended in 2006–2008 as per the requirements of European Union waste incineration directive 2000/76/EC and resumed after 2009, as detailed in annex 5 to the NID (section A 5.1.1.3.2). The Party also explained that the waste oils formerly sent to power stations were not

ID#	Reporting requirement	Description of area of improvement with recommendation or encouragement
		combusted but used as a reductant in steel production or exported. The TERT noted that this information may explain the significant decrease in CO₂ emissions from liquid waste incineration between 2005 and 2006, but does not fully explain the observed trend in CO₂ emissions after 2006. The TERT recommends that the United Kingdom clearly explain in the NID the reasons for the decrease in estimated CO₂ emissions from liquid waste incineration under categories 1.A and 5.C between 2005 and 2006 and the trend after 2006 and ensure that emissions from all uses of waste oils are included in the estimates of CO₂ emissions under the relevant categories of the energy, industrial processes and product use, and waste sectors.
7.W.4	Specified in paragraphs 22, 39 and 47 of the MPGs 5.C.1 Waste incineration – CO ₂	The United Kingdom reported in the NIR CO₂ emissions from incineration of chemical waste under subcategory 5.C.1.b.ii.5 fossil liquid waste. The TERT noted that information on the content and composition of chemical waste and the CO₂ EF used in estimating the emissions were not provided in the NID. During the review, the United Kingdom explained that CO₂ emissions from incineration of chemical waste are directly reported by operators of incineration plants, which are required to continuously monitor CO₂ emissions and report these emissions as part of the sites' environmental permit requirements, and that information on the content and composition of the chemical waste is not available for the Party's inventory agency. The Party provided the implied CO₂ EF (1,526 kg CO₂/t) for incineration of chemical waste. Given that the default CO₂ EF for liquid waste incineration is 2,933 kg CO₂/t as per the 2006 IPCC Guidelines (vol. 5, chap. 5, table 5.2, p.5.18), the TERT noted that the CO₂ emissions may have been underestimated. The TERT recommends that the Party explain in the NID how the methodology for estimating CO₂ emissions from incineration of chemical waste reported by operators is consistent with the 2006 IPCC Guidelines, including information on the content and composition of the chemical waste. If this methodology is not consistent with the 2006 IPCC Guidelines, the TERT recommends that the Party update the estimates of CO₂ emissions from incineration of chemical waste using an appropriate CO₂ EF, such as the IPCC default CO₂ EF (2,933 kg CO₂/t), and the amount of incinerated chemical waste.
7.W.5	Specified in paragraph 40 of the MPGs 5.C.1 Waste incineration – N ₂ O	The TERT noted that the trends in the amount of incinerated sewage sludge reported for 1990–2022 in annex 5 to the NID, tables A 5.70 (in Mt) and A 5.72 (in kt total dissolvable solids), are inconsistent, especially for after 2010. For example, in table A 5.70 for 2020 the rate of change among reported values compared with 1990 is 0.95, whereas in table A 5.72 the rate of change is 3.80. The TERT also noted that the N₂O EF and the amount of incinerated sewage sludge on a dry weight basis used for estimating emissions from incineration of sewage sludge were not provided in the NID. During the review, the United Kingdom explained that table A 5.72 contains data transcription errors, and that the N₂O EF used for estimating emissions from incineration of sewage sludge is 0.990 kt N₂O/Mt, which is the dry weight basis default N₂O EF provided in the 2006 IPCC Guidelines (vol. 5, chap. 5, table 5.6, p.5.22). The Party also explained that the amount of incinerated sewage sludge was also given on a dry weight basis. The TERT recommends that the Party revise table A 5.72 to correct the errors and inconsistent trends reported for the amount of incinerated sewage sludge in tables A 5.70 and A 5.72 of the NID. The TERT also recommends that the Party provide in the NID the N₂O EF used for estimating emissions from incineration of sewage sludge, as well as proper justification for its use and the amount of incinerated sewage sludge on a dry weight basis.

C. Information necessary to track progress in implementing and achieving the nationally determined contribution under Article 4 of the Paris Agreement

Table 8

Areas of improvement of the reporting on national circumstances and institutional arrangements

ID#	Reporting requirement	Description of area of improvement with recommendation or encouragement
8.1	Specified in paragraph 62 of the MPGs	The United Kingdom did not provide information in its BTR1 on the legal, institutional, administrative and procedural arrangements for archiving information related to the implementation and achievement of its NDC under Article 4 of the Paris Agreement. During the review, the Party explained that records created in central government departments and agencies, including those relating to the implementation and achievement of the Party's NDC, are subject to the Public Records Act 1958 and are preserved at the National Archives or other repositories. Furthermore, the Government of the United Kingdom has a web archive that preserves information for future researchers, historians and the public. The TERT recommends that the United Kingdom report in its BTR on the legal, institutional, administrative and procedural arrangements for archiving information related to the implementation and achievement of its NDC.

Table 9

Areas of improvement of the description of the nationally determined contribution under Article 4 of the Paris Agreement, including updates

ID#	Reporting requirement	Description of area of improvement with recommendation or encouragement
NA	NA	No areas of improvement identified

Table 10

Areas of improvement of the reporting of the information necessary to track progress in implementing and achieving the nationally determined contribution under Article 4 of the Paris Agreement

ID#	Reporting requirement	Description of area of improvement with recommendation or encouragement
NA	NA	No areas of improvement identified

Table 11

Areas of improvement of the reporting on mitigation policies and measures, actions and plans, including those with mitigation co-benefits resulting from adaptation actions and economic diversification plans, related to implementing and achieving the nationally determined contribution under Article 4 of the Paris Agreement

ID#	Reporting requirement	Description of area of improvement with recommendation or encouragement
11.1	Specified in paragraph 80 of the MPGs	The United Kingdom's BTR1 contains information on actions and PaMs that support the implementation and achievement of its NDC, including (in the narrative part of the BTR) the descriptions of the PaMs that cover the United Kingdom, devolved governments, Crown dependencies and Gibraltar with the aim of covering the NDC territorial coverage. The TERT noted that, while information on PaMs is presented in both narrative and tabular format, PaMs described in the narrative part of the BTR1 are not included in the CTF tables, and the PaMs included in the CTF tables are not described in the narrative part of the BTR1. During the review, the United Kingdom clarified that it focused on the key PaMs that are most relevant to its NDC in the BTR1 and presented high-level strategies that are enablers of or cover multiple policies in the narrative part of the BTR. On the other hand, the Party reported PaMs in its CTF tables for which there were specific quantified impact estimates and which were included in the analyses for its emission projections. The United Kingdom also clarified that the PaMs described in the narrative part of its BTR1 focus on the implementation years of its NDC for which historical GHG data are available (2021–2022). The TERT recommends that the United Kingdom transparently clarify in its BTR the reasons for any discrepancies in the information provided on its actions and

ID#	Reporting requirement	Description of area of improvement with recommendation or encouragement
		PaMs that support the implementation and achievement of its NDC presented in the narrative and tabular parts of its BTR.
11.2	Specified in paragraph 83 of the MPGs	The United Kingdom did not provide in the BTR1 information on costs or how the mitigation actions interact with each other for each of its reported actions and PaMs. At the same time, the United Kingdom reported on several of its actions, including policies and actions pertaining to marine areas and oceans, education and skills, biodiversity and adaptation, sustainability and behaviour change, and health and air, that lead to non-GHG mitigation benefits, but it did not explicitly provide information on the costs of those policies and actions or how they interact with each other. During the review, the United Kingdom provided information on costs, non-GHG mitigation benefits and policy interactions for its actions and PaMs. The Party explained that spending on policies is provided for under the annual spending review process and provided information on government expenditure in 2024 related to some of its key actions and PaMs including the launching of Great British Energy, funding of East Coast Cluster and the HyNet Cluster carbon capture, usage and storage projects, electric vehicle charging infrastructure, the Boiler Upgrade Scheme and the National Wealth Fund. Furthermore, the United Kingdom provided examples of the non-GHG mitigation benefits of its PaMs, including those related to job creation, energy security, driving investments, improved air quality, protecting vulnerable consumers, food security, and health and well-being. The Party also provided information on the consideration of adaptation co-benefits in some of its mitigation action plans, including the England Peat Action Plan, the England Trees Action Plan and the Environmental Land Management schemes. The United Kingdom confirmed that its net zero strategy includes a commitment to undertake a systems approach that considers policy areas and economic sectors as part of an interconnected system, and to address their interactions. The Party also confirmed that it is working towards an understanding of interdependencies and risks of actions, and testing and determining feasible net zero scenarios to identify high-leverage systemic actions. The TERT encourages the United Kingdom to provide in the BTR information on costs, non-GHG mitigation benefits and how the mitigation actions interact with each other, as appropriate, for each of its reported actions and PaMs.
11.3	Specified in paragraph 85 of the MPGs	The United Kingdom included estimates of expected and achieved GHG emission reductions at five-year intervals from 2020 to 2050 for several of its actions and PaMs in the CTF tables. However, actions and PaMs described in the narrative part of the BTR1 were not included in the CTF tables, which focus on policies for the United Kingdom as a whole and do not include information on PaMs of the devolved governments, Crown dependencies or Gibraltar. During the review, the United Kingdom explained the approach to reporting PaMs between the narrative part of the BTR1 and the CTF tables. The Party indicated that in its CTF tables it included policies for which there were specific quantified GHG emission reduction estimates and which were included in the analyses for its energy and emission projection publications. The United Kingdom clarified that it strives to produce figures for emission reductions at annual intervals for its national publications, and that robust estimates of GHG emission reductions resulting from policies in Wales, Scotland, Northern Ireland, the Crown dependencies and Gibraltar calculated using methodologies consistent with those used for England and for the United Kingdom as a whole, are currently unavailable. The TERT recommends that the United Kingdom provide in its CTF tables, to the extent possible, estimates of expected and achieved GHG emission reductions for all its actions and PaMs described in its BTR. Where quantified GHG emission reductions cannot be provided in the CTF tables, the TERT recommends that the Party clearly indicate the relevant reasons for this, for example by making use of custom footnotes.
11.4	Specified in paragraph 86 of the MPGs	In its BTR1, the United Kingdom did not provide information on methodologies and assumptions used to estimate the GHG emission reductions or removals resulting from each reported action, policy and measure. During the review, the United Kingdom explained that individual policy impacts are generally modelled in separate policy- or sector-specific simulation or

<i>ID#</i>	<i>Reporting requirement</i>	<i>Description of area of improvement with recommendation or encouragement</i>
		projection models, and provided information on the main assumptions and models used to quantify these impacts. The primary models used include the National Buildings Model for residential, commercial and public sector policies, the Food and Agricultural Policy Research Institute model for agriculture, and the Dynamic Dispatch Model for the power sector. With regard to transport, the Party uses the National Transport Model among other modal transport models. The impacts of policies affecting energy demand are modelled as energy savings, which subsequently are converted to emission savings using EFs from the national GHG inventory. Direct GHG emission savings are estimated for policies in non-energy sectors such as agriculture or waste. The TERT recommends that the Party describe, to the extent available, the methodologies and assumptions used to estimate GHG emission reductions or removals resulting from each action, policy and measure described in the BTR.
11.5	Specified in paragraph 88 of the MPGs	In its BTR1 the United Kingdom did not identify its actions and PaMs that influence GHG emissions from international transport. During the review, the Party explained that it is working closely with the aviation sector to influence GHG emissions from international aviation through a range of measures. It provided information on its 2022 Jet Zero Strategy, which includes activities supporting the global production of sustainable aviation fuels, including through collaboration with the International Civil Aviation Organization, the Clean Skies for Tomorrow coalition and the International Aviation Climate Ambition Coalition. The United Kingdom explained its work on implementing the Carbon Offsetting and Reduction Scheme for International Aviation and on research and development into zero emission aircraft, as well as on influencing consumer choices and stakeholder engagement. With regard to international maritime activities, the United Kingdom provided updates of its work on green shipping corridors and related investments, as well as on its efforts and actions in the context of the International Maritime Organization work. The TERT encourages the United Kingdom to identify and report in the BTR which of its actions and PaMs influence GHG emissions from international transport.

Table 12

Areas of improvement of the summary of greenhouse gas emissions and removals

<i>ID#</i>	<i>Reporting requirement</i>	<i>Description of area of improvement with recommendation or encouragement</i>
NA	NA	No areas of improvement identified

Table 13

Areas of improvement of the projections of greenhouse gas emissions and removals

<i>ID#</i>	<i>Reporting requirement</i>	<i>Description of area of improvement with recommendation or encouragement</i>
13.1	Specified in paragraph 96(c) of the MPGs	The United Kingdom did not report in its BTR1 any assumptions on PaMs included in the ‘with measures’ and ‘with additional measures’ projections. The TERT noted that CTF table 5 lists policies implemented, adopted and planned and their estimated impact on emissions. During the review, the United Kingdom explained that the estimated impacts on GHG emissions in CTF table 5 are incorporated into the projections and that CTF table 5 only contains measures whose impacts are quantifiable. The Party also explained that the ‘with measures’ and ‘with additional measures’ projections include measures that are not listed in CTF table 5, such as the United Kingdom Emissions Trading Scheme and planned power sector supply-side measures. The TERT encourages the United Kingdom to clearly report in the BTR the assumptions on PaMs included in its ‘with measures’ and ‘with additional measures’ projection scenarios, and indicate whether a policy or measure is included in the projection scenarios.

Table 14

Areas of improvement of other information relevant to tracking progress in implementing and achieving the nationally determined contribution under Article 4 of the Paris Agreement

<i>ID#</i>	<i>Reporting requirement</i>	<i>Description of area of improvement with recommendation or encouragement</i>
NA	NA	No areas of improvement identified

D. Financial, technology development and transfer, and capacity-building support provided under Articles 9–11 of the Paris Agreement

Table 15

Areas of improvement of the reporting on national circumstances and institutional arrangements

<i>ID#</i>	<i>Reporting requirement</i>	<i>Description of area of improvement with recommendation or encouragement</i>
15.1	Specified in paragraph 119(c) of the MPGs	The United Kingdom reported in its BTR1 (section 4.1.3) on experience and good practices in relation to incentivizing further private climate financing and investment, illustrated by three case studies and the results of the third portfolio evaluation of its ICF. However, the TERT noted that the Party reported in CTF table III.1 a broad range of cases of support provided covering regulatory frameworks, leverage types, debt, risk, types of investor, demonstration effects and other aspects, which may not be fully covered by the three case studies reported in the BTR1. During the review, the Party explained how the case studies included in the BTR1 demonstrate that its institutional arrangements incentivize further private climate financing and investment and added the Climate Finance Accelerator as another relevant case study, and further explaining the outcomes of relevant evaluation programmes (e.g. the second portfolio evaluation of the ICF, the synthesis of learning from DESNZ ICF programmes and the Climate Finance Accelerator midterm evaluation). The TERT recommends that the Party explain how the selection of case studies reported in the BTR illustrates the broad range of private climate financing and investment incentivized by public policy and regulatory frameworks that the Party has put in place and include any additional case studies, as necessary.
15.2	Specified in paragraph 120 of the MPGs	The United Kingdom outlined in the BTR1 (section 4.2) the national circumstances and institutional arrangements for the provision of technology development and transfer, and capacity-building support, indicating that a ‘complementary approach’ is in place involving the collaboration of four government departments (Department for Environment, Food and Rural Affairs, Department for Science, Innovation and Technology, DESNZ and the Foreign, Commonwealth and Development Office). For the Foreign, Commonwealth and Development Office, the Party briefly described its operational elements and illustrated the ‘complementary approach’ by providing information on three case studies in this regard (on sustainable cooling and cold chain solutions, Partnering for Accelerated Climate Transitions and the Small Island States Capacity and Resilience Programme). The TERT noted that the three case studies may illustrate the ‘complementary approach’, but they cover only a limited range of the institutional arrangements in place. During the review, the Party provided additional information on how responsibilities for the provision of technology development and transfer, and capacity-building support are shared between the government departments on the basis of each department’s focus areas of work. The Party provided further clarification of the institutional arrangements in place by describing additional case studies, which better illustrated the institutional arrangements and the ‘complementary approach’ used by the government departments on the basis of their areas of expertise. The TERT recommends that the Party improve the description of the institutional arrangements for the provision of technology development and transfer, and capacity-building support by, for example, covering in the BTR a greater range of the programmes listed in CTF tables III.4 and III.5, as well as explaining the selection of case studies for demonstrating the established ‘complementary

<i>ID#</i>	<i>Reporting requirement</i>	<i>Description of area of improvement with recommendation or encouragement</i>
		approach' among government departments and include any additional case studies, as necessary.

Table 16

Areas of improvement of the reporting on underlying assumptions, definitions and methodologies relating to financial, technology development and transfer, and capacity-building support provided under Articles 9–11 of the Paris Agreement

<i>ID#</i>	<i>Reporting requirement</i>	<i>Description of area of improvement with recommendation or encouragement</i>
16.1	Specified in paragraph 121(p) of the MPGs	The Party illustrated in its BTR1 that the support it provides addresses the needs and priorities of developing country Parties for implementation of the Paris Agreement through a variety of approaches, and, in particular, is consistent with the overall requirement that all official development assistance spending must align with NDCs and adaptation plans. However, the TERT noted that the needs and priorities of developing country Parties were not clearly identified among the variety of approaches described or the information provided and it was not entirely clear how these approaches ensure that the support provided is clearly targeting and effectively addressing those needs and priorities. During the review, the Party elaborated on the relationship between the support provided and the needs and priorities of developing country Parties and provided information on four case studies to illustrate this (on Partnering for Accelerated Climate Transitions, the Renewable Energy Performance Platform, the Sustainable Forest Territories programme and Just Energy Transition Partnerships). The TERT considered using such case studies to be the best way to illustrate the relationship between the support provided and the needs and priorities of developing country Parties, especially given that they target specific components of developing country Parties' NDCs. The TERT recommends that the Party include in the BTR case studies to illustrate the variety of approaches to providing support, while demonstrating that the support provided is clearly targeting and effectively addressing the needs and priorities of developing country Parties for the implementation of the Paris Agreement.

Table 17

Areas of improvement of the information on financial support provided under Article 9 of the Paris Agreement – bilateral, regional and other channels

<i>ID#</i>	<i>Reporting requirement</i>	<i>Description of area of improvement with recommendation or encouragement</i>
NA	NA	No areas of improvement identified

Table 18

Areas of improvement of the information on financial support provided under Article 9 of the Paris Agreement – multilateral channels

<i>ID#</i>	<i>Reporting requirement</i>	<i>Description of area of improvement with recommendation or encouragement</i>
NA	NA	No areas of improvement identified

Table 19

Areas of improvement of the information on technology development and transfer provided under Article 10 of the Paris Agreement

<i>ID#</i>	<i>Reporting requirement</i>	<i>Description of area of improvement with recommendation or encouragement</i>
19.1	Specified in paragraph 127(b) of the MPGs	The Party reported 27 programmes related to provision of support for technology development and transfer in CTF table III.4, but the TERT noted that information on recipient entities was not reported for several of these programmes. During the review, the Party provided the missing information on recipient entities. The TERT recommends that the Party include all recipient entities of support for technology development and transfer under the programmes reported in CTF table III.4, to the extent possible and as relevant.

Table 20

Areas of improvement of the information on capacity-building support provided under Article 11 of the Paris Agreement

<i>ID#</i>	<i>Reporting requirement</i>	<i>Description of area of improvement with recommendation or encouragement</i>
20.1	Specified in paragraph 128 of the MPGs	The TERT noted that the Party did not provide any qualitative and/or quantitative information on capacity-building support provided under Article 11 of the Paris Agreement in textual format in its BTR1. During the review, the Party explained that capacity-building support is a cross-cutting theme under the Ayrtton Fund and provided an overview of its strategies, technical assistance services and products related to capacity-building support, as well as information on monitoring and evaluation. The Party emphasized the focus of the Ayrtton Fund on the endogenous capacity of Parties and shared details on the evaluated policy outcomes under the third portfolio evaluation of its ICF. The Party also provided information on lessons learned and best practices from four capacity-building-support case studies (on Partnering for Accelerated Climate Transitions, the Climate Ambition Support Alliance, the Climate Finance Accelerator, and the NDC Partnership). The TERT considered these case studies to be good illustrations of the capacity-building support provided by the Party. The TERT recommends that the Party include in the BTR information on programmes or case studies to illustrate the capacity-building support provided, while ensuring, to the extent possible, that all the qualitative and/or quantitative information required is provided in textual format.
20.2	Specified in paragraph 129(b) of the MPGs	The Party reported 41 programmes related to capacity-building support in CTF table III.5, but the TERT noted that information on recipient entities was not reported for several of these programmes. During the review, the Party provided the missing information on recipient entities. The TERT recommends that the Party include all recipient entities of capacity-building support under the programmes reported in CTF table III.5, to the extent possible and as relevant.

Annex

Documents and information used during the review

A. Reference documents

BTR1 of the United Kingdom. Available at <https://unfccc.int/first-biennial-transparency-reports>.

BTR1 CTF tables of the United Kingdom.
Available at <https://unfccc.int/first-biennial-transparency-reports>.

Common reporting tables of the United Kingdom. Available at <https://unfccc.int/first-biennial-transparency-reports>.

“Guidance for operationalizing the modalities, procedures and guidelines for the enhanced transparency framework referred to in Article 13 of the Paris Agreement”. Decision 5/CMA.3. FCCC/PA/CMA/2021/10/Add.2. Available at <https://unfccc.int/documents/460951>.

IPCC. 2006. *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. S Eggleston, L Buendia, K Miwa, et al. (eds.). Hayama, Japan: Institute for Global Environmental Strategies. Available at <http://www.ipcc-nggip.iges.or.jp/public/2006gl>.

IPCC. 2014. *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*. T Hiraishi, T Krug, K Tanabe, et al. (eds.). Geneva: IPCC. Available at <https://www.ipcc.ch/publication/2013-supplement-to-the-2006-ipcc-guidelines-for-national-greenhouse-gas-inventories-wetlands/>.

IPCC. 2019. *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*, E Buendia, K Tanabe, et al. (eds.). Geneva: IPCC. Available at <https://www.ipcc-nggip.iges.or.jp/public/2019rf/>.

“Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement”. Annex to decision 18/CMA.1. FCCC/PA/CMA/2018/3/Add.2. Available at <https://unfccc.int/documents/184700>.

B. Additional information provided by the Party

Responses to questions during the review were received from Stephanie Fuller (DESNZ of the United Kingdom), including additional material. The following references were provided by the United Kingdom and may not conform to UNFCCC editorial style as some have been reproduced as received:

2025GBRQA92_SludgeIncinerationTimeseries.xlsx (Excel worksheets).

Alexandria Murray, Hans Oonk, José Manuel Ramírez García, Mark Hunstone, Sirintornthep Towprayoon. 2024. *In-Depth Sectorial Review of UK Greenhouse Gas Inventory – Review of the Waste sector*, Final-Report – Integrated report of the individual reviews.

Biomass_Burning_Fuel_Mass_Information.xlsx (Excel worksheets).

CARBINE-R Technical Guide. Version 1.4.2. The Research Agency of the Forestry Commission, 2025. Available at: <https://cdn.forestresearch.gov.uk/2025/07/Carbine-R-Technical-Guide.pdf>.

DESNZ. 2023a. *Carbon Budget Delivery Plan*. ISBN 978-1-5286-4015-2, E02888032 03/23, HC 1269.

DESNZ. 2023b. *Project 2: Review of Carbon Factors for Fuels – Greenhouse Gas Inventory Improvement Programme*. Available at: <https://naei.energysecurity.gov.uk/sites/default/files/2025->

[05/Greenhouse Gas Inventory Improvement Project 2 - Carbon Factors for Fuels Review.pdf](#).

Landfilled Waste by waste categories.xlsx (Excel worksheets).

LUC_uncertainty comparison_2022i_vs_2019i.xlsx (Excel worksheets).

Matthews G. 1993. *Forestry Commission Technical Paper 4: The carbon content of trees*. Available at: <https://cdn.forestresearch.gov.uk/1993/09/fctp004.pdf>.

Mensah, A. A., and Petersson, H. (2024). Carbon concentration of living tree biomass of *Pinus sylvestris*, *Picea abies*, *Betula pendula* and *Betula pubescens* in Sweden. *Scandinavian Journal of Forest Research*, 39(3–4), 145–155. Available at: <https://doi.org/10.1080/02827581.2024.2332439>.

Moxley et al. 2014 (Moxley, J., Angelopoulos, N., Buckingham, S., Laidlaw, S., Malcolm, H., Norton, L., Olave, R., Rees, R., Rowe, R., Tomlinson, S., Thomson, A., and Topp., K.) (2014b). *Capturing the effect of Cropland and Grassland Management on biomass carbon stocks in the UK LULUCF inventory*.

Nickerson et al. 2025 (Rachel Nickerson, Sam Tomlinson, Peter Levy and Gwen Buys), *Investigation of Pre-1950 Land Use Data for LULUCF Reporting – Final Report*, MM Ref:100108398-013-RP-002, Issue number 1, UK Centre for Ecology and Hydrology.

Recalculations_UK_2022i_All_Years.xlsx (Excel worksheets).

UK Government. 2024. *Volume of Private Finance Mobilised for Climate Change Purposes as a Result of ICF*. ICF KPI 12 Methodology Note. Available at: <https://assets.publishing.service.gov.uk/media/65e0b9913f6945001d036030/KPI-12-volume-private-finance-mobilised.pdf>.

UK National Forestry Accounting Plan: *UK National Forestry Accounting Plan 2021–2025*. Available at: <https://assets.publishing.service.gov.uk/media/5e3822cde5274a08e6186389/national-forestry-accounting-plan-2020.pdf>.
