GHG report

Basis of reporting for NATS' airspace, energy and environmental performance data 2024-25

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1 Introduction

1.1 Purpose

This report details the greenhouse gas (GHG) collection, conversion and reporting processes used to derive NATS' annual GHG emissions disclosures for business-related environmental and energy metrics. It aligns with the 2024-25 financial year and sets out progress against climate-related targets and commitments. The report also includes Streamlined Energy and Carbon Reporting metrics and modelled Air Traffic Management (ATM) related CO_2 emissions performance. GHG emissions data are prepared and reported in accordance with:

- World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD) Greenhouse Gas Protocol Corporate Accounting and Reporting Standard, Scope 2 Guidance and Corporate Value Chain (Scope 3) Accounting and Reporting Standard, and supporting Technical Guidance
- The International Standardisation Organisation ISO 14064-1:2018 Standard for the quantification and reporting of GHG emissions
- Non-financial GHG information reporting guidance from the Financial Reporting Council, and reporting on climate metrics and targets under IFRS International Sustainability Standards Board (ISSB) - S2 Climate Related Disclosures

The aim of this document is to support independent third-party verification[1] of our GHG emissions inventory and assertions. It further aims to provide transparency to interested stakeholders of the calculation methodologies underpinning NATS' climate-related reporting. This includes data within public disclosures included in our Annual Report and Accounts, Responsible Business Report, data reported in environmental benchmark responses (e.g. CDP, customer/insurer ESG rating schemes), regulatory reporting and external communications.

[1] NATS commission DNV Business Assurance to carry out independent verification of our GHG emissions (Scope 1, 2 and selected scope 3 emissions). See table overleaf for specific details of which aspects of this report are verified and which are separately reported without verification. NATS verification statements and past GHG data reports are publicly available here.

1.2 Scope of GHG emissions reporting and verification

Scope and category	Verified to reasonable level of assurance and reported	Verified to limited level of assurance and reported	Not verified but reported	Not reported	Risk assessment based justification of why not reported
Scope 1: location-based emissions	✓				
Scope 1: market-based emissions	✓				
Scope 2: location-based emissions	✓				
Scope 2: market-based emissions	✓				
Scope 3:					
1: Purchased goods & services (limited to water use/treatment and data centre energy)	✓				SBTi engagement target in place covering S3 Capital goods is effective for remaining emissions under this category
2: Capital goods				✓	SBTi engagement target to 2026 in place while consistent methodology is developed
3: Fuel and energy related activities	✓				
4: Upstream transportation & distribution (Courier)	✓				
5: Waste generated in operations	✓				
6: Business travel (including hotel nights)	✓				
7: Employee commuting and homeworking	✓				
8: Upstream leased assets (limited)	✓				
9: Downstream transportation and distribution				✓	Not relevant to NATS operations as a service provider
10: Processing of sold products				✓	Not relevant to NATS operations as a service provider
11: Use of sold products and services[2]		✓			
12: End-of-life treatment of sold products				✓	Not relevant to NATS operations
13: Downstream leased assets (limited)	✓				
14: Franchises				✓	Not relevant to NATS operations
15: Investments				✓	Outside of operational control
Scope 4: avoided ATM emissions		✓			

Table 1 - Scope of verification of GHG emissions in 2024-25

The extent of independent verification of data and reporting is set out in Table 1 above. All emissions are considered important in terms of what we report and target. Where we can consistently generate robust data, we aim for transparency by reporting all emissions that are relevant to us. If the source of emission is not relevant, or not considered robust, it is excluded.

Material emissions sources are determined in terms of our overall ability to reduce the quantum of GHG emissions. For conventional business-related activities this includes energy related, business travel and commuting emissions. We recognise that emissions from scope 3 capital goods and services are material based on our estimation techniques and increasingly so as we reduce our other sources of emissions. These emissions are not currently reported or verified until we can ensure the calculation methodologies and data are robust. In the interim, as part of

[2] Emissions in airspace NATS provide a control service and at limited airports (ground emissions). See section 4.

our near term SBTi validated science-based targets, we have made a commitment that 50% of our suppliers (by spend covering capital goods) will have science-based targets by 2026. We continue to focus on supplier engagement and environmental, social and governance (ESG) tender scoring through our procurement processes to manage these emissions and improve data collection. Emissions in airspace where we provide an air traffic control service are material, since our influence can lead to greater GHG impacts than through managing our own business emissions.

For this 2024-25 report, limited emissions from waste (scope 3 category 5) and upstream leased assets (scope 3 category 8) have been added to reporting and verification. Details on the calculation and scope of these emissions are included in Methodology for calculating Scope 3 emissions.

1.3 GHG disclosure policy and principles statement

To ensure that the assertions held within our annual GHG disclosure are truthful, clear, comparative and substantiated, the below principles of relevance, completeness, consistency, transparency and accuracy have been applied.

- Relevance: Ensure the GHG inventory appropriately reflects our GHG emissions and serves the decision-making needs of users – both internal and external to the company. Relevant information is identified as potentially necessary for inclusion in the mainstream report for the purposes of communicating the extent to which we contribute to and are affected (now or in the future) by environmental impacts
- Completeness: Account for and report on all GHG emission sources and activities within our chosen inventory boundary, with disclosure and justification for any specific exclusion. Disclosures are complete if they include all information that is necessary for an understanding of the matter that it purports to represent and does not leave out details that could cause information to be false or misleading to users
- Consistency: Use consistent methodologies to allow for meaningful comparisons of emissions over time. Transparently document any changes to the data, inventory boundary, methods, or any other relevant factors in the time series. Consistency refers to the use of the same standards, policies, and procedures over time. Comparability greatly enhances the value of information to users
- Transparency: Address all relevant issues in a factual and coherent manner, based on a clear audit trail. Disclose any relevant assumptions and make appropriate references to the accounting and calculation methodologies and data sources used
- Accuracy: Ensure accurate and up-to-date records through the development and introduction of procedures to form a reporting framework aligned to the GHG Protocol. The quantification of GHG emissions shall systematically neither over/under report actual GHG emissions, as far as can be judged and uncertainties shall be reduced as far as practicable. Information shall be verifiable, i.e. characterised by supporting evidence that provides a clear and sufficient trail from monitored data to the presentation of environmental information. The information shall be sufficiently accurate to enable users to make decisions with reasonable/limited assurance as to the integrity of the reported information

We are therefore committed to:

- Regular internal review of our chosen inventory boundary
- Continual improvement and update of policies and procedures to ensure they meet and comply with changes to the GHG Protocol and best practice GHG reporting
- Regular re-assessment of GHG emission sources or development of action plans to identify and address any gaps in data

- Management of systematic processes to ensure they meet all relevant provisions within the GHG Protocol standards
- Including all relevant GHG emissions and enabling meaningful comparisons in GHG information
- Disclosure of sufficient and appropriate GHG information to allow intended users of NATS climate disclosure information to make decisions with reasonable confidence
- Recording, management and reporting of reliable and timely GHG information
- The reduction of bias and uncertainties as far as is practical
- Appropriate levels of independent verification and/or assurance

2. Reporting requirements

This section addresses reporting requirements against the ISO 14064-1:2018 standard.

2.1 Description of NATS

NATS are the UK's leading provider of air traffic control services. Our purpose is advancing aviation and keeping the skies safe. We currently handle around 2.48 million flights per year in UK airspace. If you have been a passenger on a commercial aircraft flying in UK airspace, then it's highly likely that we've handled your flight.

At an organisational level NATS Holding Limited has two main subsidiaries, which provide distinct services:

- NATS (En Route) plc (NERL) — the regulated part of the business provides air traffic management services to aircraft within the UK and eastern portion of the North Atlantic
- NATS (Services) Ltd (NSL) — the unregulated part of the business provides air traffic control and other services at 22 civil and military airfields across the UK and Gibraltar (not within the verification). NSL also includes several subsidiary companies

NERL is our core business and accounts for 81% of Group revenue. It is the sole provider of Air Traffic Control (ATC) services for aircraft flying 'en route' in UK airspace[3] and the eastern part of the North Atlantic. We operate under a licence granted under the Transport Act 2000, amended by the Air Traffic Management and Unmanned Aircraft Act 2021 and are economically and safety regulated by the UK Civil Aviation Authority (CAA). The CAA also sets targets and provides incentives for service and airspace environmental performance.

NSL operates in contestable markets and services UK and international customers accounting for 19% of Group revenue. It currently earns 88% of its revenue from UK Airport and other services. The UK Airports service currently provides ATC to 14 major UK airports as well as engineering support and airport optimisation services. NSL provides Air Traffic and related engineering services to the UK Ministry of Defence mainly through the Project Marshall contract delivered in partnership with Thales by our Aquila joint venture. Other business includes new airspace users and international activities.

Our commercial activities internationally focus on providing the same range of services to the Asia Pacific and Middle East markets and are also targeted to specific international airports and Air Navigation Service Providers (ANSPs). We have offices in Delhi, Dubai, Hong Kong and Singapore. Our Searidge Technologies subsidiary, based in Ottawa, Canada, provides digital towers and advanced airport solutions.

We create value for society by safely and efficiently delivering air traffic services, facilitating positive economic and social benefits to the UK and beyond. While do so, we seek to reduce the negative impacts of our industry, in how we influence the efficiency of aviation, through our commercial offerings and how we reduce the negative environmental impacts relating to delivering those services.

[3] En-route geographically describes airspace from near airport level up to aircraft cruising altitudes above England, Wales, Scotland and Northern Ireland and over sea areas of the UK.

2.2 Person responsible for GHG reporting

The Sustainability Director is responsible for reporting GHG emissions resulting from NATS operations. Management and governance of scope 1, 2, 3 and 4 emissions performance are provided by our Sustainability Team, Programme Review Boards and Benefits Management with additional oversight provided by the Board audit committee and the Environment Strategy Steering Group. Internal audit and ongoing reporting checks ensure the veracity of estate related GHG assertions, scope 3 category 11 emissions and impact assessments for our ATM related emissions reductions, prior to external verification.

2.3 Competency and training

GHG emissions inventory management is led by our Sustainability Team, who have relevant experience in GHG emissions calculations, reporting and assurance with close support from Property and Facilities Management, Analytics, Finance, Supply Chain and other teams within NATS. New members of the Sustainability Team have undergone training against the ISO 14064-1 standard within the reporting year.

Training requirements are kept under regular review as part of annual appraisals and internal management review.

2.4 Data collection and processing

Input data used within the GHG emissions inventory derives from multiple teams across organisation and from suppliers. Subject matter experts are responsible for individual areas of activity data compilation. Coordination of inputs is managed by the Sustainability Team, reporting to the Sustainability Director. Data is typically gathered to inform internal quarterly reporting (prior to full 2024-25 annual inventory compilation) and are reviewed to identify the presence of any data gaps, incomplete data sets or errors prior to undertaking emission calculations.

Emissions calculations are completed in alignment with the methodologies outlined within Sections 3 and 4 and are carried out by the Sustainability and Analytics Teams. Emission inventory calculations are internally reviewed and audited to ensure accuracy, prior to being externally verified.

2.5 Emissions Factors

For reported scope 1, scope 2 and scope 3 GHG emissions, we follow the most common calculation approach, which is to take activity data (e.g. units of electricity consumed, distance travelled, litres of oil etc.) and multiply them by UK Government emission factors, as follows:

$$tCO_2e = \text{Activity data} \times \text{emission factor}$$

The conversion factors convert activity data into tonnes 'equivalent' carbon dioxide (tCO_2e), and component elements of Carbon Dioxide (CO_2), Methane (CH_4) and Nitrous Oxide (N_20).

UK Government conversion factors are updated annually by the Department for Energy Security and Net Zero (DESNZ) and Department for Environment Food and Rural Affairs (DEFRA), available online here. For the current reporting year the 2024 emission factors (published in July 2024) have been applied to our full year activity data. The Global Warming Potential used in the calculation of CO_2e is, in the main, based on the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) over a 100-year period.

Information within section 3 provides a detailed description of the methodologies used for the calculation of environmental performance by scope of emission source, and which are subject to external verification.

2.6 Report period covered

This document specifies our methodology for the preparation of airspace, energy and environmental performance data in the mainstream report and other disclosure for the reporting period 1st April 2024 – 31st March 2025.

2.7 Base year (and recalculations)

The base year has not been changed or recalculated during this reporting period.

During the 2020-21 reporting year we engaged with the Science Based Targets initiative (SBTi) to validate our near-term climate reduction targets related to our own business operations. As part of this process the baseline reporting year was changed from 2017-18 to 2018-19 due to the requirement to use a baseline up to the maximum of two years before the start of targets. See appendix 5.1 for 2018-19 (base year) GHG emission statement. Recalculation of base year will be considered at the point of resetting science-based targets or where there are material changes to organisational or emissions boundary.

Every effort is made to ensure that the data and comparisons we report are accurate. However, should more accurate data become available for prior years, based on methodological change or identification of error, we will restate if it results in a movement of at least 5% in the reported data. When this is done, details will be provided in the data notes supporting the reported data.

We may restate CO_2e emissions even when there is no change in consumption and primary activity data due to corrections to the emissions factors provided by DESNZ. There are no such changes in 2024-25.

For downstream emissions associated with the provision of air traffic control and emissions impact statements arising from our consequential changes (scope 4), any changes to increase accuracy or relating to a change in methodology will be stated with accompanying supportive notes.

2.8 NATS climate change mitigation targets

We have set out an environmental strategy with targets to reduce and manage our environmental impacts, both in the airspace we manage and from running our business on the ground. Our corporate strategy objective is to be carbon negative by 2040, which follows our promise to be a net zero emissions company by 2035-6 and reinforces our commitment to work with our customers, partners and suppliers to achieve a net zero aviation industry by 2050.

While our material focus is on climate change mitigation, our policies and environmental management system encompass initiatives across our business and estate on resource use, energy conservation, sustainable procurement, climate change resilience and protection of our natural world.

We have clearly defined, absolute, 1.5 degree aligned near-term science-based targets which were validated by SBTi in June 2022 and further awarded with 'Business Ambition' status – the highest achievement possible. These are:

- NATS Holdings Limited commits to reduce absolute scope 1 and 2 GHG emissions by 41% FY2026 from a FY2019 base year. This covers emissions from direct combustion

(e.g. gas use, fuel for vehicles and generators) and emissions from the generation of electricity purchased and consumed by NATS and uses the location-based methodology[4]
- NATS Holdings Limited also commits to reduce absolute scope 3 GHG emissions covering purchased goods and services[5], fuel and energy related activities (emissions associated with getting fuel and energy to point of use), upstream transportation and distribution, business travel and employee commuting GHG emissions 41% within the same timeframe (Scope 3 categories 1, 3, 4, 6, 7)
- NATS Holdings Limited further commits that 50% of its suppliers, by spend covering capital goods, will have science-based targets by FY2026

In addition to our SBTi approved targets, NATS Holdings further commits to increase annual procurement of renewable electricity from 0% in 2018-19 to 100% by 2030.

The above represents a comprehensive set of targets, including direct emissions from electricity and combustion of gas, fuel and oil. It also includes indirect emissions from commuting and business travel emissions which are often considered some of the hardest to manage. Work continues to expand measurement, reporting and targets across remaining scope 3 emissions sources in service of meeting our net zero and carbon negative objectives. Absolute emissions targets have not yet been set on our scope 3 supply chain emissions, due to lack of consistent and robust data. The supplier engagement target (mentioned above) is used in place as part of a stepwise approach; to engage suppliers to set their own science-based targets and report their emissions. In practice, NATS' value chain engagement covers emissions across all suppliers providing goods and services (scope 3 category 1) and capital goods (scope 3 category 2). This will support development of a consistent and robust approach to annually disclosing and managing these emissions.

Our aim is to establish a complete emissions inventory across all scope 1, 2, and 3 emissions categories during FY2025-26 to support resetting of our science-based targets.

Our approach to managing down our emissions is based on the following hierarchy:

- Avoiding – policy decisions to stop emissions intensive activities from happening;
- Reducing – improving energy efficiency through targeted improvement, leveraging our purchasing processes, supply chain engagement, managing business and commuting travel emissions and engaging our employees
- Self-generating – installation of on-site renewable energy with energy security and cost co-benefits
- Emissions removals– to meet our net zero and carbon negative targets, any residual CO_2e emissions will need to be balanced with direct emissions removals until the source of the emissions can be replaced with zero emissions alternatives
- Verifying – ensuring our data is robust and transparent by continuing to have it verified annually

NATS updated Transition Plan provides more detail on our strategy, our case for change and indicates our direction of travel across all areas of our sustainability performance, aligned to net zero and carbon negative targets.

[4] The location-based methodology uses the average emissions intensities of energy sources consumed based on geographic region. NATS use UK Government conversion factors published annually by the Department for Energy Security and Net Zero
[5] Limited to data centre and emissions from supply and treatment of water

As a business, our positive contribution to climate mitigation goes beyond managing down our own emissions. This includes:

- Delivering improvements to the efficiency of airspace, to reduce airline customer scope 1 emissions (reflected within our scope 3 category 11 and scope 4 reporting – Airspace/ATM related CO_2 emissions
- Working closely with wind farm developers to mitigate the impact to radar from wind turbines, helping to improve the CO_2 emission factors of electricity on the UK national grid by enabling much larger and more wind farm developments
- Being well placed to support existing customers and the wider industry with their transition to net zero with tools and services that enable reduced emissions, including the deployment of technology solutions to improve airspace efficiency to airports and other air traffic providers in the UK and beyond.
- Supporting the integration of low emission unmanned aerial vehicles into airspace

Maintaining a resilient air traffic system that supports the industry 24 hours a day, 365 days a year is fundamental to what we do. This includes assessing and responding to the impacts of climate change on our operations – read our latest report provided to DEFRA as part of its fourth round adaptation reporting under the Climate Change Act 2008 here.

2.9 Organisational and operational boundary

The World Resources Institute's (WRI) Greenhouse Gas Protocol Corporate Standard defines approaches for establishing organisational and emissions boundaries, upon which companies can consolidate and consistently report their GHG emissions. We apply the 'operational control' method to consolidate our organisational boundary in each reporting year.

At the legal structure level, it is considered that we have operational control over an operating entity if we or one of our subsidiaries has the full authority to introduce and implement our environment policy at the operating entity. This requires us to take full ownership of all GHG emissions that we can directly influence and reduce. This approach has remained unchanged since 2017.

We have the authority to implement our environmental policy across our two main subsidiaries, NERL and NSL, described in Description of NATS. NSL has various levels of shareholdings in the following entities, but does not have authority to implement its environment policy in each:

- Aireon Holdings LLC provides a space-based air traffic surveillance system with global coverage capable of tracking and monitoring aircraft in real time. NATS holds a minority interest.
- AQUILA Air Traffic Management Services, United Kingdom (Joint venture with NATS Services providing ATM services to UK and military airfields in the delivery of Project Marshall for the MOD). Accounts for 50% of AQUILA issued share capital.
- European Satellite Services Provider, France. An associate providing satellite-based navigation. 16.67% (2023) or ordinary shares without operational control.
- Searidge Technologies, Canada. NATS Services Canada. At the end of 2021 Searidge went from a joint venture to a 100% owned subsidiary of NSL. Searidge provides technology that helps reduce delays, increase efficiency, and overall safety. This includes the development and delivery of digital and remote tower solutions. While NSL have 100% share capital, it is an independent subsidiary and we do not have operational control.

AQUILA's office is co-located within the NATS head office and is included in energy and environmental performance reporting.

The same operational control approach at the legal structure level is applied at the facility level to define responsibility for energy and environmental performance within facilities. We are therefore responsible for reporting energy and environmental performance within facilities over which we, or one of our operations, has the full authority to introduce and implement our environment policy.

NATS Holdings Limited's estate portfolio includes freehold title, rental, lease, service agreements or licences which includes the provision of a contract service at several locations. The estate portfolio includes air traffic control centres, airport air traffic control towers and ancillary buildings, offices and warehouses, as well as various types of remote communication, navigation, and surveillance sites — some of which are co-located.

All freehold sites are included in emissions scopes 1 and 2, unless they are sub-let, as well as leasehold sites where we have operational control, even where this may be limited. Applying the Greenhouse Gas Protocol Scope 2 Guidance, we assume operational control for emissions related to electricity where we purchase it - even where there is limited operational control. However, we are currently undertaking a review of this criteria for assets that are leased, and where passthrough cost arrangements are in place. Any changes resulting from this review will be clearly communicated in our future reports, but for now we wish to retain a consistent reporting scope while working towards our near-term science-based target.

Under the operational control approach, fuel combustion, process and fugitive emissions from all sites under our control are categorised as scope 1. GHG emissions from consumption of purchased electricity are categorised as scope 2. NATS' asset base is UK centric, except for leased space to conduct our commercial activities internationally, and is reported under scope 3. We do not own assets or similar infrastructure overseas given the nature of our activities currently. However, as we deliver our strategy to grow the business, any new assets will be subject to assessment and inclusion in the appropriate scope of reporting.

We own vehicles (mainly for transport, logistics or engineering purposes) and lease vehicles (allocated and pool vehicles mainly for engineering and airport traffic services purposes). Under the operational control approach, fuel combustion for these vehicles is categorised as scope 1 emissions. Additional 'benefit' or ultra-low emission salary sacrifice vehicles used by employees on business journeys are considered not under our control and are reported in scope 3 category 6, business travel emissions.

The same operational control approach at the legal structure level is applied to define responsibility for the environmental performance of the aircraft we manage within domestic and oceanic Flight Information Regions, and at airfields where we provide a tower service.

Under the operational control approach, CO_2 emissions arising from fuel combustion in aircraft under our control and where we have available data, are categorised as scope 3 category 11. See section 4 for fuller description.

2.10 Documentation control and retention

All GHG emission related records are stored on SharePoint and are subject to document control and tracking. This includes a dedicated area, by year of disclosure, containing all raw input data and cleaned data, records and evidence (e.g. REGO/RGGO statements supporting the inventory), final emissions inventory spreadsheets and GHG report.

This GHG report and third-party verification statements are also published on NATS.Aero. Internal audit reports are stored on SharePoint and on the company internal audit and tracking software, Q-Pulse. Analytics airspace impact reports are all stored in a separate central SharePoint area. The Benefits Management Team maintain a record of project impacts to airspace and estate

emissions, linking where appropriate back to central SharePoint sources of data to provide traceability of impact back to source data. Data and records related to this are kept without a deletion date specified.

NATS processes and policies are stored and controlled on a central Business Management System using Promapp software. This includes processes on the collection, data cleansing, conversion and reporting of our emissions inventory, processes describing analytical approaches to calculating airspace impacts and processes on project benefit requirements and standards of evidence.

3. GHG emission statement 2024-25

Emission source		T CO_2e	TCO_2	TCH_4	TN_2O
Scope 1 emissions	Direct emissions from combustion of natural gas (location based)	2173	2169	3	1
	Direct emissions from combustion of road vehicle fuel - owned fleet vehicles (owned business travel from allocated and pool cars, including fuel purchases)	42	41	0	0
	Direct emissions; combustion of road vehicle fuel - leased vehicles (fuel card)	85	85	0	0
	Direct emissions; combustion of stationary assets (e.g. oil boilers, back-up generators)	107	105	0	1
	Fugitive emissions	557	-	-	-
	Total scope 1 emissions (location based)	**2964**	**2400**	**4**	**3**
	Direct emissions from combustion of biomass – woodchip boilers	*0.2*	**-**	**-**	**-**
	Direct emissions from the consumption of gas-green gas/biogas (market based)	*269*	**-**	**-**	**-**
Scope 2 emissions	**Emissions from generated electricity usage (location based) 51,891,676 kWh**	**10,744**	**10,634**	**47**	**63**
	Emissions from generated electricity usage (market-based CO_2 only) 51,891,676 kWh	*0*	-	-	-
Total scope 1 and 2 emissions (location based)		**13,708**	**13,034**	**50**	**66**
Total scope 1 and 2 emissions (market based – note: this is sum of biogas + market-based electricity)		*269*	-	-	-
Scope 3 emissions	Category 1: Supply and treatment of water	16	-	-	-
	Category 1: Data centre electricity use	408	404	2	2
	Category 1: Total	424	404	2	2
	Category 3: Fuel-and energy-related activities - T&D losses	950	940	4	6
	Category 3: Fuel-and energy-related activities - well to tank (electricity generation)	2,382	-	-	-
	Category 3: Fuel-and energy-related activities - well to tank (electricity T&D)	206	-	-	-
	Category 3: Fuel-and energy-related activities - well to tank (natural gas)	359	-	-	-
	Category 3: Fuel-and energy-related activities - well to tank (stationary assets)	31	-	-	-
	Category 3: Fuel-and energy-related activities - well to tank (owned vehicles)	33	-	-	-
	Category 3: Total				
	Category 4: Upstream transportation and distribution (courier)	6	-	-	-
	Category 6: Business travel - Private road vehicle combustion emissions	202	201	0	1
	Category 6: Business travel - indirect emissions from business travel (public transport and car hire)	2,059	2,048	1	11
	Category 6: Business travel- hotel nights	147	-	-	-
	Category 6: Total	2,408	2,248	1	12
	Category 7: Employee commuting	4,040	-	-	-
	Category 7: Homeworking	1,048	-	-	-
	Category 7: Total	5,088	-	-	-
	Total scope 3 emissions (categories 1, 3, 4, 6, 7)	**11,887**	3,592	7	20
	Category 5: Waste	4	-	-	-
	Category 8: Limited upstream leased assets	65	-	-	-
	Category 13: Downstream leased assets	112	111	0	1
Total scope 1, 2 and 3 emissions (categories 1, 3, 4, 6, 7) – location based		**25,595**	**16,626**	**57**	**86**
Scope 3	Category 11: Use of sold products or services (i.e., ATM related tCO_2 emissions)	-	24,533,624	-	-
Outside of scopes	Lifecycle carbon of biogas	2,075	-	-	-
	Electricity generated	5,971	-	-	-
	Purchased fuel	28	-	-	-
	NATS owned vehicles	2	-	-	-
	Biomass (woodchips)	6	-	-	-
	Modelled enabled ATM related tCO_2 emissions (scope 4) –(**benefit**)	-	-2,876	-	-
	UK territorial aviation tCO_2 emissions[6] **Not included in verification**	-	8,714,114	-	-

Table 2 – GHG statement quantified separately for each type per unit in 2024-25

[6] UK territorial emissions for aviation aligns with the definition given by the UN Framework Convention on Climate Change (UNFCCC). This captures emissions from UK domestic flights and all emissions from international departures. For NATS reporting we are able to filter verified emissions to report against this scope definition, but only within the boundaries of UK airspace where our data is available. Therefore this doesn't capture the full scope of UK territorial emissions, which for international departures includes emissions for the full gate-to-gate trajectories of flight to destination airfield.

Intensity Metrics	2024-25 TCO_2e	2023-24 TCO_2e
Total scope 1+2 (location based) emissions (tCO_2e) per £m revenue (£1,073m)	12.8	11.4
Total scope 1+2 (market based) emissions (tCO_2e) per £m revenue (£1,073m)	0.3	0.15
Total scope 1+2 (location based) emissions (tCO_2e) per FTE employee (4,452)	3.08	3.13
Total scope 1+2 (market based) emissions (tCO_2e) per FTE employee (4,452)	0.06	0.04
Total scope 1+2 (location based) emissions (tCO_2e) per flight handled (2.476m)	0.0055	0.0057
Total scope 1+2 (market based) emissions (tCO_2e) per flight handled (2.476m)	0.0001	0.0001
Total scope 1, 2 and 3 (location based) emissions (categories 1, 3, 4, 6, 7) per £m revenue (£1,073m)	0.0419	0.0451
Total scope 1, 2 and 3 (location based) emissions (categories 1, 3, 4, 6, 7) per FTE employee (4,452)	5.7492	6.0711
Total scope 1, 2 and 3 (location based) emissions (categories 1, 3, 4, 6, 7) per flight handled (2.476m)	0.0103	0.011
Scope 3 category 11 per flight handled (tCO_2) (2.476m)	9.91	10.57
Scope 4 / avoided emissions per flight handled (tCO_2) (2.476m) (benefit)	0.0012	0.0003*

Table 3 – GHG intensity metrics in 2024-25

Consumption		2024-25	2023-24
Energy	Electricity and gas only (not included energy generated from fuel) kWh	63,773,359	64,987,696
	Energy generated from fuel (stationary assets) kWh[1]	502,436	491,549
	Self-generated non-fuel renewable energy kWh[1]	850,376	184,287
	Percentage of total electricity arising from renewable self-generated sources[1]	1.6%	0.3%
Transportation	Owned and leased vehicle fuel consumption (as reported within Scope 1) kWh[1]	520,698	810,057
Transportation	Business travel (scope 3) from employee-owned vehicles and hire cars kWh[1]	1,154,662	614,568
Water	Supply and treatment m^3	48,031	35,800

Table 4 – SECR/Consumption data in 2024-25 ([1]not included in verification)

Energy Procurement		2024-25	2023-24
Electricity	Percentage of renewable electricity procured (through REGOs)	100%	100%
	Percentage of non-renewable electricity procured	0%	0%
Gas	Percentage of green gas procured (through RGGOs)	88%	96%
	Percentage of non-renewable gas procured	12%	4%

Table 5 – Energy procurement in 2024-25

Target		2024-25 (35%)	2023-24 (29%)
Net Zero 2035-6 Carbon negative 2040	NATS Holdings Limited commits to reduce absolute scope 1 and 2 GHG emissions 41% FY2026 from a FY2019 base year. Interim targets per annum provided by column	34%	34%
Net Zero 2035-6 Carbon negative 2040	NATS Holdings Limited also commits to reduce absolute scope 3 GHG emissions covering purchased goods and services, fuel and energy related activities, upstream transportation and distribution, business travel and employee commuting GHG emissions 41% within the same timeframe (Scope 3 categories 1, 3, 4, 6, 7). Interim targets per annum provided by column	40%	35%
Net Zero 2035-6 Carbon negative 2040	NATS Holdings Limited commits to reduce absolute scope 1, 2 and scope 3 (categories 1, 3, 4, 6, 7) GHG emissions 41% FY2026 from a FY2019 base year. Interim targets per annum provided by column.	37%	35%

Table 6 – Performance against Net Zero emissions targets in 2024-25

* Restated, based on updated data within this report

3.1 High Level Performance Statement 2024-25

Until this year performance against our near-term validated science-based targets has been met each year since our baseline of 2018-19. Our target this year was to achieve a 35% reduction in absolute scope 1 and 2 emissions combined and the same level of reduction across limited scope 3 emissions (categories 1, 3, 4, 6 and 7). We narrowly missed our Scope 1 and 2 emissions target, 34% down vs baseline. We achieved our Scope 3 target, 40% down vs baseline. In combination, to date, we have achieved a 37% reduction across all categories of emissions under our near-term absolute targets.

Energy related performance

Our science-based targets for scope 1 and 2 energy-related emissions are based on location-based emissions[7]. As a result, we calculate and report emissions based on the average emissions intensity of the UK grid. Our energy strategy is to reduce our core energy consumption, deploy on-site renewable self-generation and account for any changes in carbon intensity from the UK energy grid. Our scope 2 electricity consumption from the grid (kWh) has continued to reduce, seeing a 2.8% reduction compared to the previous reporting period. This relates to a 1.5 million kWh reduction in underlying consumption from the grid.

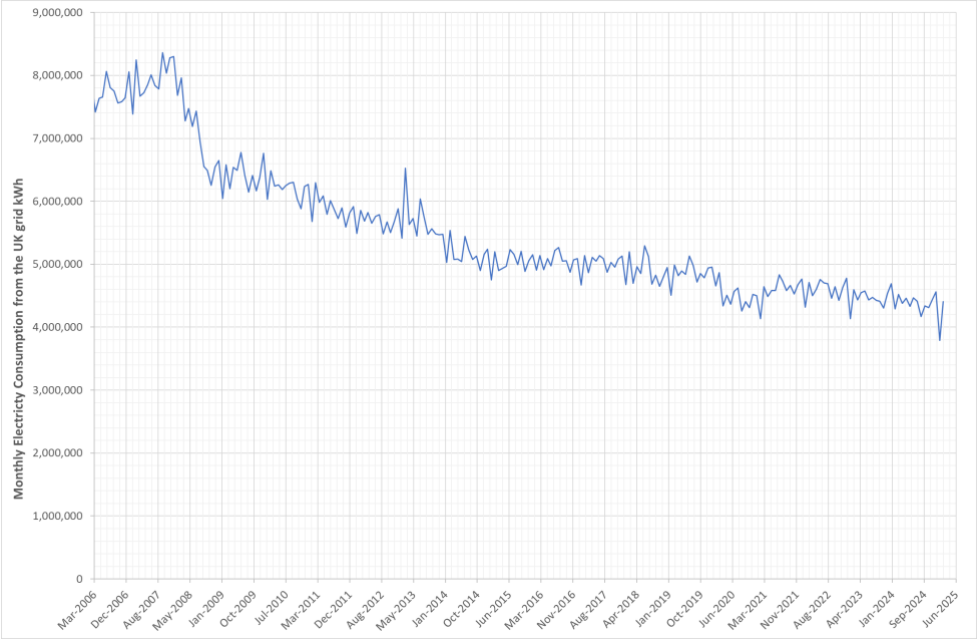

Chart 1- Reduction in electricity consumption kWh from 2006 – 2025, data verified to the GHG protocol since 2016

Over a longer time horizon, we have a good track record having reduced electricity consumption by over 40% since our environmental programme begun. This performance results from site consolidation, disposals, sub-leases, and a proactive focus on energy and emissions efficiency as we sustain and upgrade our mechanical and electrical infrastructure; scaling requirements appropriate to our needs and deploying more efficient technology.

The installation of over 2,600 roof mounted solar panels to self-generate renewable electricity at our Swanwick air traffic control centre went live in July 2024. Since then, it has generated 590,000 kWh

[7] The location-based methodology uses the average emissions intensities of energy sources consumed based on the local composition of energy generation by geographic region. We use UK Government conversion factors published annually by the Department for Energy Security and Net Zero, which take account of the average CO_2 intensity of the UK energy grid across the year from renewable and non-renewable sources.

of clean renewable energy to the end of March 2025, contributing to our reduced grid consumption in the reporting year.

Image 1 – New solar scheme implemented at Swanwick Air Traffic Centre

This was the first of the three large-scale solar installations covering roof, ground and adjoining land at our main Swanwick and Prestwick centres. Having now received planning permission based on final designs; the scheme is expected to generate up to 18% of our consumption at these sites. We expect the ground-based schemes at both centres to complete across 2025. Our Prestwick roof scheme with 1,430 panels, went live in April 2025. These new projects complement our four existing arrays, which generated over 260,000 kWh in the reporting year.

Despite progress on the first two aspects of our energy strategy, UK grid emissions intensity has increased by c.7% over the last two years, which has impacted our energy and emissions reduction trajectory.

Through the reporting year we have been exploring the feasibility of degassing our two main sites to manage down our scope 1 emissions and support our ambition for a first net zero air traffic centre.

In terms of reporting on market-based emissions[8], we procured 100% of our electricity in the reporting year from green electricity backed by Renewable Energy Guarantees of Origin (REGO's) and 88% of NATS gas procurement was from low carbon biogas, backed by Renewable Gas Guarantees of Origin (RGGO's).

Since 2021, we have implemented an environmental kWh benefit category in our benefits management and business case processes which drive capital investment decisions. This includes an assigned price per kWh for electricity based on long term cost projections. Together, these support choices to improve efficiency, consider lifecycle costs and support tracking of internal targets across our service lines. In the reporting year we developed and implemented a methodology to test investments using an internal cost of carbon for electricity and gas.

Travel related performance

[8] Market based emissions describes the emissions based on the specific attributes of the energy a company has procured. This takes account of the carbon intensity of the mix of energy purchased from renewable and non-renewable sources and backed by energy attribute certificates guaranteeing origin. For 100% renewable sources of electricity, emissions are determined at 0kgCO_2e/kWh. We dual report market-based emissions for both electricity and gas.

Emissions from travel have stabilised following the post pandemic bounce back. During the reporting year we have updated our fleet CO_2 standard to ensure emissions from owned vehicles continue to reduce in line with our emissions reduction trajectory. We have tested a business travel carbon trial across two of our directorates. This looked at the feasibility of using an internal cost of carbon and carbon caps to manage these emissions. While this had limited success it has provided several new action steps and learning points to take forward. These include tightening our business travel policy and improvements to data compilation and dissemination.

We continue to offer salary sacrifice schemes to support employees in making sustainable travel choices on their commute to work. This includes a successful cycle to work scheme, since 2008, and a low emissions car scheme since 2012, both of which receive high uptake. Based on September 2024 data, 26% of eligible employees were taking part in our Ultra Low Emissions Vehicle scheme run by Tusker, with over 1,000 cars on contract or order. Our commuting data subsequently shows increased milage by electric vehicles and a reduction in average CO_2 per commute over time.

In the previous reporting period we upgraded our existing electric vehicle charging infrastructure, installing 100 new charging points across our main sites. Through the year we have explored the feasibility of providing infrastructure at our remote sites.

Supplier Engagement

In 2022, we launched a supplier engagement programme to understand and encourage our key suppliers' approach to net zero. We hold a quarterly sustainability forum where we bring over 30 organisations together. This includes some of our largest suppliers, some of our 'tier 2' suppliers and some of our small to medium sized suppliers, meeting to collaborate and exchange ideas on sustainability topics.

For our longer-term suppliers, we've worked collaboratively to understand how they can help us achieve our carbon negative and other sustainability goals, but also where we can help them in achieving their plans relating to emissions reduction. Our Supplier Charter sets out our clear expectations on what we require of suppliers, and we have updated our standard contractual terms in the reporting year to reinforce this. Our Sourcing Review Panel oversees material spend and includes ESG scoring, which has been tightened in the reporting year. We have continued to test and implement scope 3 category 1 and 2 calculation methodologies across the year.

Carbon removals

Following development of an internal carbon removals strategy in the previous reporting year we have started exploring the market for early purchase.

Airspace Performance

We support the commitment by the aviation industry in the UK and Europe to reach net zero by 2050 and we are collaborating with customers, partners, and suppliers to achieve this, including through supporting the UK Sustainable Aviation coalition to update its decarbonisation roadmap.

For the core air traffic service we provide, we seek to reduce the impact of our operation on CO_2 emissions, noise, and other environmental impacts, through how we operate our business. We undertake this through the design and management of airspace across the UK, developing innovative solutions in partnership with our key suppliers and airport and airline customers for mutual benefit. As an example, we continue to develop and deploy solutions to enhance airport and airspace performance, including Intelligent Approach and 'hybrid' digital control towers.

During the year, we delivered a world first in deploying 'Pairwise' at Heathrow Airport, which is a build on the Intelligent Approach tool. Pairwise is a new way of separating arriving aircraft helping to optimise runway use, boost on time performance and cut carbon emissions. Traditionally, separation of arrival aircraft near to airfield level has been based on six categories that consider an aircraft's

weight and the amount of wake it creates as it flies. With Pairwise, separation is calculated using the specific characteristics of each individual aircraft type instead, with up to 9,216 possible combinations, meaning the gap between some pairs of aircraft can be safely reduced. This increases the overall flow of traffic, further enhancing operational resilience and runway efficiency. The anticipated benefit of the technology has been modelled to save up to 57,000 tonnes of CO_2 per year, through reductions to airborne holding and will be validated following further optimisation through 2025. Work is underway in the roll out of Intelligent Approach to other airfields in the UK and overseas.

We also worked with Manchester airport to enable them to become the UK's first major international airport to adopt a 'hybrid' digital control tower, including deploying ultra-high-definition panoramic cameras, to help tower controllers optimise the airport ground operation, enhance capacity, and improve on time performance.

Modernising and improving the design of UK airspace continues to be the single most effective way we can reduce aircraft CO_2 emissions. Work is underway with major airports across the UK to continue the next stage of airspace modernisation, a nationwide plan to advance airspace, which is co-sponsored by the Department for Transport and the Civil Aviation Authority. Our work continues on the redesign of London, Scottish and Manchester airspace. Scottish and Manchester airspace has now been tested through flight simulations and both are working towards final designs. London Airspace South development is planned in four deployments, from 2029 to 2037, the first of which estimates a potential saving of up 20kt CO_2 per year in 2029, with an overall estimation of just under 70kt for the completion of the whole portfolio of deliverables.

There have been smaller scale airspace changes from the Operational Service Enhancement Project (OSEP), delivering changes to the design and use of airspace. These enable improved flight trajectories, for which the changes made enabled a saving of 498,000 nautical miles flown. Further small-scale airspace changes are planned in 2025-26, including the introduction of further night-time fuel savings routes, changes to lift vertical airspace restrictions and deliver direct routeings, with the aim of saving up to 5kt CO_2.

We engage in industry groups and R&D initiatives to investigate solutions to aviation's impacts. Under the Single European Sky ATM Research programme, we are involved in projects seeking to mitigate non-CO_2 effects of aviation through contrail avoidance trials, amongst others, and have been active in continuing to support projects throughout the year.

As we move towards NR28 (our next regulatory control period, from 2028 to 2033), we have been reviewing our performance metrics and their effectiveness at incentivising CO_2 reduction. Having been in use since 2012, our 3Di metric is in many ways industry leading, however, we recognise that it needs development and improvement. We have been actively exploring improvement across the reporting year, engaging our regulator and customers on development, and this work is set to continue across the 2025-26 reporting period.

Transition Plan

We have published an update to our 5 Year Transition plan in the reporting year, which sets out our path towards being a carbon negative business. We launched our first Transition Plan in 2023, setting out our response to the climate emergency and how our business will adapt as we move towards a low carbon economy. The plan outlined our high-level climate targets, near term milestones and how we manage climate related risks and opportunities. This year, we have updated the plan to demonstrate the progress we have made so far while also adding more actionable steps to support our route to decarbonisation.

3.2 Methodology for calculating Scope 1 emissions

Source	Data measurement and recording	GHG emissions quantification	Estimates and assumptions
Natural gas	Natural gas is procured by NATS centrally for all sites within operational control. Gas combustion is measured through gas meters within NATS' operational boundaries. NATS receives invoices from the suppliers based on actual meter reads or estimated reads. The invoice data is collected by TEAM (Energy Bureau) Ltd on behalf of NATS using their proprietary billing validation system (TEAM Sigma) which links together the bills and meters for a particular billing point (MPAN/MPRN/MSN). In the reporting year NATS has captured monthly meter readings at our main sites to inform the quantification of emissions, augmented with billing data for other sites.	NATS purchases green gas certificates which cover the annual consumption of gas use at NATS owned sites within operational control. These green gas certificates provide evidence that NATS has procured gas from a renewable source, such as biomethane from waste processing. For this reason, in addition to reporting gas consumption using the natural gas conversion factor, we have included a market-based emissions statement which applies a biogas conversion factor to our directly purchased gas consumption (excludes Gatwick Airport where purchasing is via the airport owner). NATS uses the UK Government GHG conversion factors for company reporting (2024) in order to convert activity data in kWh into tCO_2e (primarily natural gas gross CV factor). Market based and out of scope calculations use the Biogas emissions factors. Emissions from on-site natural gas combustion, where NATS has operational control, are classified as scope 1 emissions.	Gas supplied at NATS Corporate & Technical Centre is also used by the Joint Venture AQUILA ATMS, which is co-located at this site. Similarly, NATS has a number of site sharers (e.g. MOD) at sites where NATS has operational control. In each case we do not sub meter the consumption attributed to these entities for gas use. Therefore, while Joint Ventures and site sharers are out of scope of NATS emissions reporting, the proportion of emissions associated with their operations has not been removed from NATS Holdings Ltd scope 1 GHG emissions (conservative). Emissions from gas use at Gatwick airport is included in our scope 1 reporting based on our defined boundary, even though we have very limited operational control at this specific site. Estimates NATS seeks to use primary consumption data to calculate emissions wherever possible, however, in some cases data may not be available or of sufficient quality (e.g. due to lack of measurement capability, equipment replacements, equipment failures or billing issues) in which case secondary data, such as proxy data and extrapolation, will be used. Estimation techniques are prioritised based on primary data and proxy data. Where there is a full month gap in primary evidence, an average of the full actual data is applied. For new acquisitions, accruals are estimated based on a comparable site, where supplier estimates from previous tenants are unavailable. Renewable Gas Generation Obligation (RGGOs) availability for consumption Evidence of RGGOs Green Gas Certificate covering the period 01/04/2024 – 31/03/2025 was available during the verification as evidence of gas procured directly by NATS is backed by RGGOs. This included contract and cancellation statements. These didn't cover all of NATS gas consumption in the reporting year. Gas purchases through Gatwick Airport Ltd were determined to not be backed by RGGOs, therefore location-based factors have been assumed. Together this explains why our percentage of green gas procured backed by RGGOs was 88% in this reporting period.
On-site fuel combustion (stationary assets)	Fuel usage data such as gas oil, diesel or HVO used in machinery or in buildings is captured through the purchase order and payment system, SAP. Data comprises of used fuel at main centres, and NATS owned airport towers. Remote communication, navigation and surveillance sites are fitted with back-up generators to maintain resilience in power outages. These consume low levels of fuel and often have no reports of fuel consumption in any particular reporting period.	NATS uses the UK Government GHG conversion factors for company reporting (2024) in order to convert activity volume data into tCO_2e. Different factors were used on the different types of fuel used; HVO, gas oil, and average forecourt diesel. Emissions from fuel combustion on sites where NATS has operational control are classified as Scope 1 emissions.	The data reported in this category are based upon the quantities and types of fuel purchased in the reporting year – it is assumed that what is purchased is emitted to atmosphere, even though in reality there will be a lag in use and fuel purchased in the previous year can also be burnt. However this provides a consistent approach over time. It is further assumed that electricity generated from oil usage is only used by NATS and not exported to the grid. Data quality for this emission source has been improved by linking spend data to invoices and receipts of delivery as noted within the SAP concur system, fuel suppliers, and site managers. Data focuses on actual litres delivered including a breakdown of fuel type and spend. This has vastly improved in recent years following in depth reviews of actual purchase and delivery data through our SAP system by our Supply Chain teams. Spend based information is still available in most cases but is no longer required to be used as a main source of data.

	The data quality has improved from last year and has been provided wholly by NATS' supply chain team, who have been able to verify that included fuel invoices were received within the reporting year.		It is possible that welding does occur on NATS sites. It is considered that the emission from this activity is *de minimis* and are not estimated or reported.
Fugitive emissions	Fugitive emissions data are collected for all sites where we have operational control. We use one contractor in the UK to maintain asset register information describing equipment containing refrigerant gases across our sites. This includes information about the equipment type, the charge capacity, and the refrigerant type. We do not own similar assets overseas. Details of refrigerant 'top-ups' and 'losses' during the reporting period are captured on separate F-gas registers. These registers are consolidated at the end of year to create an annual refrigerant loss inventory.	NATS uses the UK Government GHG conversion factors for the relevant reporting period (2024) in order to convert activity data (kg) into the component greenhouse gasses. Specific emission factors are used for specific refrigerant gases.	Fugitive emissions data are provided via F-Gas Registers covering CTC, Swanwick, Prestwick, and remote sites. NATS accounts for all losses that occur during the reported period onsite within the emissions inventory. NATS assumes the level of loss to be the difference between the quantity of gas recovered compared to the maximum capacity of the system, unless evidence can determine the level of commissioning charge (e.g. in this case the loss is defined as the difference between recovered charge and the commissioning charge). In this reporting period, our FM contractor was able to supply losses for our remote sites, resulting in an improved and complete dataset. In the previous year this had to be estimated using GHG protocol calculation tools, applying average leakage rates to all assets where data was absent, based on specific charge capacities and refrigerant type.
Biomass	NATS combusts biomass at two of its sites in the UK and receives kWhth information from the biomass boiler meters. Note that in this scenario kWhth is the same as kWh of heat.	NATS uses the UK Government GHG conversion factors for the relevant reporting period (2024) in order to convert activity data (KM) into GHG emissions. The emissions factor is selected for wood chips, based on kWh.	NATS uses a small amount of biomass within its site boilers, and while emissions associated with this activity are minor, it is included as data are readily available, this has been included as best practice. From 2024-2025 data has been provided in kWhth through the reading of onsite meters by NATS FM team. This is an improvement on data accuracy from previous reporting whereby total tonnage procured was used instead based on the assumption that all biomass purchased was burned. **Estimation:** The 2024-2025 source data was provided however there were gaps in data; these were due to a missed reading and the final meter reading period hadn't ended. Estimations were made based on a hierarchy model. The 2024-2025 source data was provided however due to gaps in the reporting period some estimations were required. Estimations were made based on a hierarchy model. Where some of the reporting period was present this was apportioned based on the average kWhth per day for that period. Where data periods were absent entirely, an average kWhth was calculated using the other present data sets and this was multiplied by the missing number of days.
NATS owned road vehicle fuel combustion	Liquid fuel combustion including diesel, petrol, and Petrol Hybrid Electric Vehicle (PHEV) within owned and allocated company cars (lease fully paid and controlled by NATS) is measured and recorded using the company expenses system as well as a report generated from the company fuel card system.	NATS uses the UK Government GHG conversion factors for the relevant reporting period (2024) in order to convert activity data (KM) into GHG emissions. Where the car size and fuel type are known, a specific emission factor relating to these has been used.	Data is collated from a number of different sources, including mileage reports and expenses information. Mileage data is provided for our fuel cards, though we are not able to determine the fuel type associated with each mileage report and as such we have used an unknown fuel emissions factor. Where expenses data were used, we have undertaken detailed checks of provided receipts to determine fuel types and fuel litres, or kWh for electric. In cases where this was not clear we have applied an average £ per litre for each fuel for the reporting year to determine consumption.

	In addition, for the reporting period 2024-25 fuel for vehicles operating within Heathrow operations bought fuel direct from Heathrow Airport Limited. The invoices were obtained and compared against fuel amounts provided via the SAP Concur system used to calculate total fuel purchased.	Emissions from road vehicle fuel combustion in both owned and leased vehicles are classified as scope 1 emissions where mileage is conducted for business use.	

3.3 Methodology for calculating Scope 2 emissions

Source	Data measurement and recording	GHG emissions quantification	Estimates and assumptions
Electricity consumption- Location based method	Electricity consumption is measured through the electricity meters within NATS' operational boundaries. NATS receives invoices from the suppliers based on actual meter reads or estimate reads. The invoice data are collected by TEAM Ltd on behalf of NATS using their proprietary billing validation system. The kilowatt hours of electricity used on site, as recorded on the invoices, are captured on the TEAM Sigma system. Manual meter readings are taken for some manned sites and are submitted to NATS' FM Systems team via email. Manual meter reads are not used for greenhouse gas reporting but are used to query anomalous billing and to support the emissions verification process. A check of meter readings compared to billing this year at our main three consuming sites found no discrepancy with billing data. For this full reporting year this data is incorporated within the TEAM Sigma system.	NATS purchases renewable electricity which covers the annual consumption of the majority of NATS electricity use. Energy attributes certificates provide evidence that NATS has procured electricity from a renewable source, such as wind. For this reason, in addition to reporting electricity consumption using the location-based conversion factor, we have included a market-based emissions statement which applies a zero emissions factor to the majority of our electricity consumption. NATS uses the UK Government GHG conversion factors for the relevant reporting period (2024) in order to convert kWh activity data into tCO_2e under the location-based method.	Electricity supplied at NATS' Corporate & Technical Centre (CTC) is used by the Joint Venture AQUILA ATMS, which is co-located at this site. While Joint Ventures are out of scope of our emissions boundary, the proportion of energy use associated with AQUILA ATMS usage has not been removed from NATS Holdings Ltd scope 2 GHG emissions. Similarly, NATS has a number of site sharers (e.g. MOD) at sites where we have operational control. In some instances, these were in our baseline year of 2018-19 (upon which our near-term science-based targets are set) and the energy use and emissions will therefore continue to be disclosed within NATS Holding Ltd Scope 2 emissions. However, one strategy to reduce the size of our estate, costs and emissions is to sub-lease space. Where we can identify verifiable sub metering associated with any new contractual arrangements, we may seek to categorise these emissions as Scope 3 category 13 emissions – downstream leased assets. In the 2024-25 reporting year we have continued to undertake this activity for our Crown Control and Reporting Centre (CRC) lease at our Swanwick centre, as well as including the leased space within Whiteley that Frequentis now occupy. Emissions associated with both leased areas caused $112tCO_2e$. Electricity generated at four sets of on-site Photo Voltaic panels (located at Swanwick, Claxby, Debden and Daventry), is used to supplement NATS' energy usage and not exported to the grid. The development of the solar roof array at our Swanwick site within the reporting period reduces our reliance on the national grid, and all electricity is used onsite with no electricity being exported back to the grid. Estimates NATS seeks to use primary data to calculate emissions wherever possible, however, in some cases data may not be available or of sufficient quality (e.g. due to lack of measurement capability, equipment replacements, equipment failures or billing issues) in which case secondary data, such as proxy data and extrapolation, will be used. Estimation techniques are prioritised based on primary data and proxy data. Where there is a full month gap in primary data, a monthly average from the remaining actual data is used, and similarly where monthly data looks like it is incomplete.

			For new acquisitions, accruals are estimated based on a comparable site, where supplier estimates from previous tenants are unavailable. This was not required during 2024-25.
Electricity consumption- Market based method	Same as for location based. Certified renewable electricity is procured by NATS centrally for the majority of our sites. This accounts for 94% of total consumption. Where NATS purchases electricity through a third-party (airport customers), we have sought to obtain evidence of their electricity procurement decisions (REGOs) and report these accordingly. Together, this REGO backed electricity procurement covers 99.6% of total consumption (100% rounded). For sites that are considered to be within NATS operational control, but we do not have an ability to procure the electricity for the site (e.g. through energy recharges), we have procured an excess of spot market REGOs to cover this consumption. This has enabled us to reach a 100.00% renewable electricity coverage for our sites.	Where the supplier emission factor is not available or known, the residual mix factor for GB electricity has been applied. Emission factor obtained from Association of Issuing Bodies - European Residual Mixes 2023 report. Most recent emission factor provided is for 2023 year, at 0.3884g/CO_2. This is in accordance with the market-based hierarchy detailed in the GHG Reporting Protocol (Scope 2 Guidance)	An emissions factor of zero has been applied to the sites within NATS property portfolio which are supplied by 100% renewable electricity tariffs. Where evidence of 100% renewable electricity tariffs has been obtained for our third-party customers, we have accounted for the market-based approach rate as being 0. For all other sites where this cannot be evidenced, we have used a residual emissions factor or Power NI residual mix (for sites in Northern Ireland).

3.4 Methodology for calculating Scope 3 emissions

Source	Data measurement and recording	GHG emissions quantification	Estimates and assumptions
Category 1: Purchased goods and services- Indirect emissions from the supply and treatment of water	Water data is collected through water meters included within NATS' operational boundary. Water data is included for 40 sites across the UK. NATS receives invoices from the suppliers based on actual meter reads or estimate reads. The invoice data is collected by TEAM Ltd on behalf of NATS. The volume of water used on site, as recorded on the invoices, are captured on the TEAM Sigma system.	NATS records water consumption in cubic metres (m^3) as recorded on invoices from third party providers. NATS uses the UK Government GHG conversion factors for the relevant reporting period (2024) in order to convert m^3 into emissions associated with both the supply and treatment of water.	Where monthly data is assumed missing due to a nil reading, but other data is available across the year, average monthly consumption of the available data has been used to estimate consumption and fill in gaps for completeness. Due to the paucity of billed data a large number of estimations have had to be applied to fill data gaps, as above by extrapolating actual data. CO_2e, emissions for the year were 16t. No water use has been included for international offices.
Category 1: Purchased goods and services - use of electricity at data centre	NATS uses third party data centres to host some computer systems. The electricity use resulting from NATS equipment within third party data centres is obtained from billing, based on actual use multiplied by the reported Power Usage Effectiveness (PUE), or billed at a kWh rate that includes PUE	The total electricity consumed from NATS equipment at third party data centres is provided in kWh and converted to GHG emissions using the 'managed assets' UK Government GHG conversion factors (which is the same as the UK grid average emissions factor). No T&D impacts are captured as these relate to our third-party providers.	
Category 3: Fuel-and energy-related activities - T&D losses	See Scope 2 for the collection of electricity data	The electricity data is converted into T&D losses using the UK Government GHG conversion factors for the relevant reporting period (2024) kWh*conversion factor for T&D losses for UK electricity.	
Category 3: Fuel-and energy-related activities - well to tank (electricity)	See Scope 2 for the collection of electricity data	The electricity data is converted into Well-to-tank using the UK Government GHG conversion factors for the relevant reporting period (2024) kWh*conversion factor for well to tank (Well to Tank electricity generation). kWh*conversion factor for Well to Tank for electricity losses (T&D) for UK electricity.	
Category 3: Fuel-and energy-related activities - well to tank (natural gas)	See Scope 1 for the collection of Natural Gas	Natural gas activity data multiplied by the conversion factor for well to tank-natural gas using the UK Government GHG conversion factors for the relevant reporting period (2024).	

Category 3: Fuel-and energy-related activities - well to tank (fuel)	See Scope 1 for the collection of fuel activity data	Fuel data (allocated and pool cars, and fuel-combusted on site) is multiplied by the conversion factor for Well to Tank for the relevant fuel using the UK Government GHG conversion factors for the relevant reporting period (2024) e.g. WTT gas oil, HVO, diesel, etc.	
Category 4: Upstream transportation and distribution - courier	Courier emissions data refers to the emissions generated resulting from courier deliveries for NATS business purposes.		**Estimates** No courier data was made available for 2024-25 reporting period. For this reason, the verified emissions for 2017-18 and 2018-2019 were used to generate an average. This average was applied to the reporting year. This emission source is very low (6 tCO_2e).
Category 5: Waste	Waste data is sourced from a combination of our internal NATS waste tracker containing waste transfer and consignment notes and monthly waste reports produced by our subcontractors Mitie. Waste weight data from these sources comes from both weighed collection data and assumed weight data originating from waste carriers, based on average weight per lift for given receptacle sizes. For sites where waste data is not available, an assumed annual waste figure per person for domestic waste streams (general, recycling, food, paper) has been extrapolated using data from the three main centres (Whiteley CTC, Swanwick, Prestwick). Building occupancy data from our security system and roster data is used determine average employees on site as part of the determination of this proxy. This is then applied by multiplying by the number of employees at sites with missing data, using the same roster data used in commuting emissions calculations.	Waste data is categorised by waste stream and is then multiplied by the specific waste stream conversion factors using the UK Government GHG conversion factors for the relevant reporting period (2024).	**Estimates** At sites where waste weight data was unavailable, an extrapolation of data for domestic waste streams (general, recycling, food, paper) from the three main centres (CTC, Swanwick, Prestwick) was used to create an assumed annual waste emissions figure per person of 2.1 kg CO_2e, derived from total waste by type and building occupancy data for the reported year (from commuting calculations). This figure was then multiplied by the number of employees at sites with no domestic waste data, producing an estimation of annual waste weight produced. Assumptions were also made surrounding the disposal methods of waste from some sites. It is outlined within the Mitie waste reports that 100% of waste is diverted from landfill each month, although no further detail about the waste disposal methods used is given. For this reason, the assumption is made that waste is either recycled or incinerated. However, the UK Government GHG conversion factors give an identical emissions factor for recycled and incinerated waste, meaning that this assumption is unlikely to have any influence on the final emissions calculation. We have used the proxy for domestic waste calculation and applied this to our small overseas leased offices spaces acknowledging that we have used UK emissions factors. These sites contribute 2% to total waste emissions. The inclusion of overseas sites has been added to ensure consistency of reporting at a NATS Group level.
Category 6: Business travel - emissions from combustion of road vehicle fuel - private vehicles	This refers to transportation to support business needs in vehicles owned by employees, third parties, but not NATS. Mileage data is extracted from the NATS expenses system. This includes: • people using their own vehicles • vehicles on the company low emission car scheme • benefit cars • and employees receiving cash for benefit in kind	Extracted mileage data is multiplied by the relevant GHG factor. NATS uses the UK Government GHG conversion factors for the relevant reporting period (2024) in order to convert mileage data (km) into GHG emissions. Fuel type is always known, and the relevant emissions factor applied. Where vehicle size is not present, an average car emission factor is used.	Mileage data and fuel type data that is provided via individual expense claims, and emission factors related to the fuel type used by each vehicle is applied. Where size of vehicle is known, more accurate emission factors are applied. Where vehicle size is not present, an average car emission factor is used.

Category 6: Business travel - emissions from air travel	Flight data is obtained from our third part travel agent (Reed & Mackay) and via our internal expense system (where flights are booked directly with an airline and the cost is claimed back through the company expense system).	NATS uses the UK Government GHG conversion factors for the relevant reporting period (2024) to convert km travelled into emissions. NATS use emission factors including radiative forcing to represent the overall GHG impact of air travel. Flights are organised into four categories according to distance to match with the DEFRA methodology for calculating flight emissions: Domestic, flights occurring between UK airports Short haul, to/from UK up to 3,700km Long-haul, to/from UK over 3,700km International, to/from non-UK airports Flights are also categorised according to class of travel. The equation is Flights: Domestic/short/long haul/international X Class X passenger.km X with Radiative Forcing emissions factor (kg CO_2e)	Flight emissions are calculated based on departure date, which is an improvement from previous years calculations which used invoice date. Amendments were made to incorrect classification of flight types from booked travel data e.g. 'international', where origin and destination data was provided. **Estimation** An estimation has been made for the small number of domestic flights not booked through NATS travel agent and claimed via NATS expenses system. These flights were categorised as either domestic or short haul flights based on destination/origin airports, however no distance, or CO_2 information was provided, so a proxy based on actual data from the booked data has been applied. The average CO_2e kg from booking data for domestic flights (146.79kg CO_2e) and short haul flights (160.71kg CO_2e) were applied to the flights from expenses. CH_4, N_20 and CO_2 constituent calculations were scaled using a back calculation based of the proportions in the underlying UK Government emissions factors. Total estimated GHG equated to 23.4 tonnes of CO_2e for this source of emissions.
Category 6: Business trave emissions from train travel	Train travel information is supplied by NATS travel agent, and through our expenses system. Train travel emissions consider National, International, Eurostar, Underground, and Tram travel undertaken in the reporting year. A review of both datasets was undertaken to ensure no duplication between sources of data.	Rail travel is calculated based on the departure date through our booking tool and the transaction date through our internal expenses system. The total km travelled on each type of rail transport is identified from booking data or derived for expenses data using a proxy £/km and the relevant UK Government GHG emission factors 2024 is applied.	Data is provided through our third-party booking agent and internal expense system. Passenger distance is provided by our third-party agent for booked journeys, and an average £ per km (£0.18 per passenger km) is identified and applied to expense data (where distance was not available). This cost per km was identified using statistics from the **Office of Rail and Road** regarding revenue per passenger kilometres and per passenger journey. This cost per km was identified using statistics from the **Office of Rail and Road** (revenue per passenger kilometre). Underground travel is obtained through both the booking tool and our internal expenses system and is identified to be underground travel due to vendor names included within the expense claim, location of travel (London), and cost of travel. Tram travel is determined by our expense system using vendor names included within the individual expense claims. Distance for these categories is determined in the same manner as listed above.
Category 6: Business travel - emissions from ferry travel	Ferry travel information is supplied by NATS travel booker and agent, and through our expenses system.	Ferry travel is calculated based on the departure date through both our booking and the transaction date through our internal expenses system. The emissions factor used was car passenger on the presumption that NATS employees travelling by ferry will be engineers visiting remote communications, navigation, and surveillance sites.	**Estimation** Ferry journey data was provided from our third-party travel booking agent as cost data only with no distance information provided. It was also noted that some journeys listed as rail were actually ferry journeys, which were matched with cost data to determine true journeys. To determine distance travelled by ferry during the reporting year, NATS reviewed individual expense receipts for half of the year to determine an average £/km figure. This was achieved by identified origin and destination ports from receipts within the Concur system and distances were calculated using a mixture of websites (shiptraffic.net, google maps, etc.).

		The total km travelled for ferry travel was calculated and the relevant UK Government GHG emission factors 2024 is applied.	This assessment which derived an average cost per km of (£1.39/km). The average £/km was then applied to both expense and booking tool data, to determine actual km travelled for each data point.
Category 6: Business travel - car hire	Expense data provided through our internal expense system was used to determine car hire trips during the reporting year, which included a review of individual receipts within the expense system to identify fuel type and litres claimed against the hire car category. Car hire data used to be provided by NATS car hire booking agent (NEXUS), which included mileage, car size and fuel type. However, NEXUS have reported to us that car hire firms are increasingly not providing data to them, and it was evident on review of the data that distance, and other attributes necessary for GHG calculation were only partially available. This data has not been used during this reporting year.	Expensed car hire fuel data are multiplied by the UK Government GHG conversion fuel emissions factors 2024.	During the 2024-25 reporting period, NATS were not able to obtain good quality mileage data from NATS' car hire booking agent, and instead utilised whole year expense data claimed under the 'Car Hire & Fuel' category to determine emissions arising from the use of hire cars. NATS reviewed individual expense receipts for one quarter of the year within the internal expense system to determine whether the cost within the claim was attributed to the hiring of a car or the expensed fuel. Where expensed fuel had been identified, fuel amounts and fuel type were used within the emissions calculation. For all other data, vendor names were reviewed to determine if these were technically hire cars, or fuel claims. By reviewing one quarter of data, a split of diesel or petrol claims was identified, and petrol hires were determined to be more common (83% of hires). Based on this analysis, it is assumed all data that had not been checked within concur are petrol vehicles, and an average £/L based on actual claimed data was applied to the wider dataset.
Category 6: Business travel - Taxi	This refers to the emissions generated from taxi use. Total spend on taxi was obtained from the NATS expenses system SAP Concur.	Estimated km's from taxi use are multiplied by the UK Government GHG conversion emissions factors 2024.	**Estimates** During the 2024-25 reporting period, km's travelled by taxi was not recorded and the only data to inform the emissions estimation is cost. It has been assumed that all taxi journeys are UK based. Data from external sources (gov.uk, your taxi meter.com, etc.) suggests that the average hailing cost of a taxi in the UK is £2.52, with an average of £4.30 per km travelled. For the purposes of calculation, the taxi costs have removed the flat rate hailing cost of £2.52, back calculated km travelled and applied regular taxi emissions factors. Estimated taxi journeys equated to 4.32 tonnes of CO_2e.
Category 6: Business Travel - Hotels	Hotel nights were obtained from the NATS third party agent.	The number of hotel nights is multiplied by the UK Government 2024 GHG conversion emissions factor for the relevant country of stay. If an emission factor was not available from DEFRA for a set country, emission factors were derived from https://www.hotelfootprints.org as suggested within the DEFRA methodology.	For locations not within the DEFRA data set, data has been acquired from the following source: https://www.hotelfootprints.org.This data source is suggested by DEFRA within the DEFRA methodology. Hotel Type: All Hotels. Rooms Occupied: 1. Room's footprint in $MtCO_2e$ is taken and converted into $kgCO_2e$.
Category 6: Business Travel - Bus	Bus travel data was obtained from our internal expense system.	Bus travel distance was multiplied by the UK Government GHG 2024 conversion emissions factors, under the 'Average local bus's emission factor.	Bus travel is determined by our expense system using vendor names included within the individual expense claims. Where a vendor name was not available for any business travel related expense, it was assumed to be a bus journey. Passenger km was back calculated from UK data determining average distances travelled and average costs per fare. Average passenger km travelled in GB metropolitan areas is divided by annual average cost of bus fares within Great Britain using Government data. NATS have assumed average distance travelled by metropolitan area, based on expense data, and UK average cost based on metropolitan area. This was

			utilised by reviewing the UK Gov published bus statistics tables, and provided a £0.45 per km.
Category 7: Employee homeworking	Source data was provided by building occupancy information (three main centres; Swanwick, Prestwick and Corporate and Technical Centre) and roster/timesheet information at outstations/offices (airports and other offices) showing the number of people commuting. Our employee transport survey provides details of average CO_2e per commute. Company data from Human Resources provides annual leave and public holiday allocations, absence days and maternity based on actual data. Limited aspects of business travel data have been used to derive employees travelling on business each day.	The number of homeworkers was estimated based on occupancy, HR and business travel data. Emissions factors have been applied based on UK Government GHG 2024 conversion emissions factors based on homeworking emissions per FTE working hour.	Given the change in working practices resulting from Covid-19, which led to a significant proportion of NATS non-operational workforce working from home, and fewer numbers of operational employees needing to commute, associated emissions from home working started to be calculated (from 2020-21) and added to our inventory. This was done in recognition that our Scope 3 category 7 emissions from commuting, and which formed part of our science-based target, were significantly reduced not through our actions, and displaced by employees' own emissions now working from home. It was appropriate to capture this 'emissions leakage' under category 7 emissions. The implementation of NATS Agile Working Policy further required the need to continue to monitor these emissions. For FY years following 2020-21, we adopted the Ecoact White Paper methodology on homeworking emissions fully to calculate homeworking emissions. This derived from assessing the number of people working from home as those not on site (based on security systems and those rostered, those on furlough and maternity), and using the Ecoact methodology to work out kWh electricity from computer workstation, lighting, and heating (the latter based on 6 months of the year use). The Ecoact methodology further applies an assumption of 8- hour working a day with leave, public holidays, and sick days further accounted for. Last, for heating, an Ecoact factor is applied to account for homes which may already be heated due to another family member already being present. **Estimate** To determine the number of FTEs working from home and 'FTE working hours', we first estimate the average employees expected to work each day. This is based on deductions from the year for weekends, average annual leave and bank holidays, average sick days and maternity resulting in 210 days across the year. We then multiplied the average number of NATS employees working across the year by a ratio of 210/365 (expected working days/total days) to determine the average number of employees working each day. The average number of employees attending sites per day (from building occupancy and roster) is subtracted to attain the average number of employees expected to be working from home, but not on-site. It is noted that during Covid a simplification was that people were either on site, on furlough, on leave or working at home, but now employees might be travelling to remote sites, customer meetings and events offsite (captured in business and own travel emissions). For this year, to address this known area of conservatism, we have calculated the average number of employees travelling on business each day and deducted this. Travel data was based on booked travel and expenses but excludes expenses relating to own car use at this time. Account has been made for employees that may have expenses and bookings on the same day to identify unique numbers of employees travelling. We note, employees travelling on business to one of our three main sites will still register on security systems leading to double counting (be part of both business and commuting emissions calculations). Further, employees undertaking business travel in their own car will still be assumed to be working at home and also double counted from an emissions perspective. No account has been made for compassionate, volunteering leave, and therefore the approach is an estimate with some known conservatism still embedded. We have assumed an 8-hour working day to calculate FTE working hours, with Government emissions factors applied.

Category 7: Employee commuting.	NATS conducted a travel survey in 2024 (July-Aug) to determine the average emissions per week and per commute on average for employees. NATS conducts one commuting survey per annum. To understand the number of people commuting to the business two sources of data have been obtained. 1. For our main Air Traffic Control centres and Head Office, the security access system numbers of unique visitors (staff IDs) have been applied 2. For all other sites, roster/timesheet data has been applied to determine those working on site for a given month, and average daily attendance for the year.	Government emissions factors for 2024 have been applied to travel survey responses to derive a NATS emissions factor per commute. NATS has used the average emissions per daily commute per employee factor (7.71 KG/CO_2e per commute) and multiplied this by the number of staff travelling into work during the 2024-25 reporting period.	During the year a travel survey was conducted, applying the distance-based methodology from the GHG Protocol Scope 3 Guidance to estimate commuting emissions. Each year the survey is launched at different periods of the year. This is a divergence from the GHG Protocol Guidance which suggests conducting two staff travel surveys. The survey we did conduct received a 27.7% response rate (once cleaned for incomplete entries). An average of 7.71kg CO_2e per commute (accounting for both directions) was calculated by weighting the average survey result per each directorate by the directorate's employee count as a proportion of NATS' employee count. This methodology was chosen for accuracy due to disproportionality in survey responses per directorate. This replaced our previous assumption of 8.24 CO_2e per commute from the last time we derived this figure (same methodology), showing a slight decrease in average CO_2 emissions per mile feeding into our data and/or changes to travel mode. It has been assumed that the figure of 7.71kg CO_2e per commute can be applied to the whole of NATS population as a reasonable estimate. **Estimate** We share a number of our sites with the military, JV partners and suppliers and this may lead to an overestimate in commuting emissions (conservative). Lastly, employees may visit multiple sites in one day leading to two or more commuting trips being calculated. This is most likely between our Whiteley Corporate & Technical Centre and Swanwick Air Traffic Control centre which are c.3 miles apart, with people travelling between them. A further noted area of conservatism is that the security system at our main centres will register employees from other sites as commuting. As a result emissions from business travel journeys are counted as well as the assumption the same person commuted.
Category 8: Upstream Leased Assets - Limited	Data for occupied floor area from our leased office sites was provided by the Estate Surveyor team.	Floor areas of our office sites were multiplied by building energy efficiency factors in order to calculate the sites' energy consumption. For UK and European sites, energy benchmarks were sourced from the Better Buildings Partnership (BBP) Real Estate Environmental Benchmarks 2023. The benchmark for an 'air-conditioned office' was used. For international sites, energy benchmarks were sourced from the Chartered Institute of Building Services Engineers (CIBSE) Guide F – Energy Efficiency in Buildings. The good practice benchmarks for an 'prestige air-conditioned office' were used.	GHG Protocol Scope 3 guidance average data method has been applied using floor area and country specific emissions factors. This year's calculation includes a limited number of sites, namely all international (Singapore, Dubai, India, Brussels, Hong Kong) and UK leased offices within the emissions boundary. Other identified sites that fall into the Scope 3 Category 8 currently not calculated are: • Lease agreements relating to UK airports; Bristol, Cardiff, Farnborough, Gibraltar, Heathrow, Luton, Manchester, and Highlands and Islands airports (6). • Leases related to sites with ATM navigational equipment (10). **Estimate** At the Regus office sites (The Strand and Westpoint) we occupy a shared office space whereby we lease by number of desks rather than floor area. For this reason, we have estimated that each desk occupied equates to 10 metres squared of floor space.

		UK emissions factors for natural gas and electricity were sourced from the UK Government GHG conversion factors for the relevant reporting period (2024). For overseas sites specific grid emissions factors were sourced from the Carbon Database Initiative.	

3.5 Streamlined Energy and Carbon Reporting[9]

Source	Data measurement and recording	GHG emissions quantification	Estimates and assumptions
Streamlined Energy and Carbon Reporting Metrics	Source data derives from verified category emissions, using core consumption data. Scope 1 categories: • Natural Gas Consumption • Purchased Fuel (NATS Owned Vehicles) • Purchased Fuel (Stationary Assets) • NATS Owned Vehicles – Mileage Claims • NATS Owned Vehicles – Fuel Claims • NATS Owned Vehicles – Fuel Cards Scope 2 categories: • Electricity Consumption • Self-generated non-fuel renewable energy Scope 3 categories: • Business Travel – Employee-Owned vehicles Mileage Claims • Business Travel – Hire Car Fuel Claims • Water Supply and Treatment	GHG emissions were calculated in accordance with the UK Government's reporting guidelines for company reporting. All data was converted to kWh where required using Net Calorific Values from the UK Government's GHG conversion factors for the relevant reporting period (2024). Other emissions factors to translate the resulting energy use of each category into tonnes of CO_2e were also used for reporting purposes. Results rounded to one decimal place in line with SECR guidance.	Estimations that have been undertaken are stated within the relevant sections above for the supporting categories. Where fuel has been stated for Hybrid vehicles it is assumed to be Petrol (average biofuel blend).

3.6 GHG inventory quality management & calibration requirements

NATS has no calibration duties.

[9] SECR kWh calculations are not verified by DNV. Underlying consumption data from verification provides input to the SECR calculations.

Emission source	Quality management process	Uncertainties and calibration requirements
Electricity, gas, and water data	TEAM Ltd performs an on-going validation process on electricity, gas and water data which is designed to highlight: • Meters without data when data is expected • Meters where invoiced and AMR data do not align • Meters where consumption variance outside of tolerance • Meters where Year on Year variance is outside of tolerance The validation results in queries being generated directly with suppliers. Where necessary queries will be address to the NATS FM Systems team to validate discrepancies identified. This is an on-going process which results in a monthly query report. This essentially provides a billing validation system.	Gas Swanwick (one of our major sites) until 2021 was included in the EU Emissions Trading Scheme. Following a literature search we feel it is appropriate that the principles of the trading scheme (now UK ETS) are followed with respect to statements of our overall uncertainty, as below. There is a principle described on page 30 of the document "UK ETS guidance assessments 2022' to assume all gas metering has an accuracy class of 1.5 and therefore to adopt 6% as its Maximum Permissible Error in Service (MPES) for gas consumption. Electricity For the consumption of electricity in the UK, "The Meters (Certification) Regulations 1998" [21] state that: The permitted margins of error shall be an error not exceeding + 2.5 %. or -3.5% at any load at which the meter is designed to operate.
On-site fuel combustion	The NATS Finance team check the fuel invoicing as part of the standard financial internal audit process. In addition, the fuel combustion data is checked via both internal and external audit at the Swanwick site (the largest consumer of fuel).	Following a literature search we feel that the UK ETS guidance is an appropriate source of uncertainty. That is, commercially delivered liquid fuels have a 0.5% uncertainty.
Fugitive emissions	NATS completes regular compliance audits across the estate as part of the management of ISO14001:2015, this includes an assessment of the compliance with fluorinated gas regulations.	Applying the GHG Protocol uncertainty guidance an uncertainty of 3.8% has been calculated for this emission source. See appendix 5.2 for further information.
Airspace/ATM related CO_2 emissions	NATS has two primary internal standards for quality management, in addition to governance systems. The first standard focuses on ATM fuel/CO_2 emissions benefits from small scale airspace changes and inventory management. The second standard focuses on all remaining ATM fuel/CO_2 emission benefit claims, other than large scale airspace change benefits, and includes the process for internal auditing of data and controls.	For airspace/ATM related CO_2 emissions savings, the majority of assessments are modelled. As industry standards and best practice is followed when undertaking this assessment, uncertainty is minimised. Other assessments are based on full year actual data (annual assessments). None of the potential sources are thought to be material. Scope 4 emissions figures are positive to indicate a saving, i.e., CO_2 emissions have been avoided, or negative to indicate a dis-benefit, where performance has dropped compared to the year previous.

4. Airspace/ATM related CO_2 emissions

4.1 Context: Airspace/ATM related CO_2 emissions and the GHG protocol

Our role in the air is to deliver safe and efficient air traffic management services that seek to reduce aircraft emissions for any given level of air traffic demand. By doing this we play our part in supporting customers and partners in aviation decarbonisation. This forms a small yet crucial contribution to decarbonisation efforts, however, our ability to influence overall aviation emissions is limited. The number of aircraft within the air traffic system, types of aircraft operated and destinations flown are outside of NATS' direct control – these are the factors that most materially impact the overall well-to-fume emissions from aviation.

Our vision is to advance aviation and keep the skies safe. We do this by improving the capability, resilience and effectiveness of the air traffic system through a continuous programme of airspace modernisation and by working with partners to implement improved air traffic controller systems/tools and enhanced communication, navigation and surveillance technologies. From a GHG emissions perspective these changes provide opportunities for more airlines to achieve their optimum flight profiles and/or mitigate the impacts of increased traffic levels on environmental efficiency. Alongside technological change we also engage our employees to deliver improved flight profiles day-to-day, to identify and deliver modifications to airspace routings and work to improve use of shared airspace with our military counterparts. Collaboration with our airline customers through our airspace design programmes, through sharing efficiency data and opportunities, forms another strand of improvement activity.

Our operating licence requirement[10] is to provide a safe and expeditious service to airspace users and ensure we can meet a reasonable level of demand. Like other air traffic service providers, we must meet the requirements of an extensive safety regulatory framework. Further regulatory and service performance requirements also apply, including achieving levels of airspace capacity/aircraft delay performance, cost and environmental performance. We recognise that in striking the best balance in meeting these various needs, we can affect UK aviation emissions both positively and negatively. To monitor and trace the impact of our actions, we analyse the performance of UK airspace using a range of environmental metrics, which can be disaggregated down to region, airport, route and airline level and tracked over time.

Under the GHG Protocol we include airspace emissions in Scope 3 Category 11, which refers to the downstream use of sold goods or services. The Science Based Targets initiative (SBTi), through the validation of NATS' proposed science-based targets (across 2021-22) determined these Scope 3 Category 11 emissions to be 'indirect use-phase' emissions. We define these emissions as the emissions from fuel burnt by aircraft engines in UK airspace and at airports where we provide a tower service. These emissions are overwhelmingly influenced by airlines' business activities as they dually relate to their own scope 1 emissions. Nevertheless, we recognise our responsibility to drive, deliver and play our part in supporting a sustainable future for the industry. Our influence in helping airline customers reduce their emissions can be more material in terms of climate change impact than we can achieve from minimising the emissions from running our business.

[10] Regulated by the UK Civil Aviation Authority, under the Air Transport Act

We have opted to refer to the outcome of our consequential efforts to reduce these Scope 3 Category 11 emissions, as Scope 4 emissions or avoided emissions. These emissions are reported as modelled enabled emission reductions.

Since 2007, driven by internal targets and commitments to deliver emissions reductions to airline customers (and reflected within Sustainable Aviation Roadmaps), we have tracked how our day-to-day actions and airspace changes improve UK airspace efficiency. The combined impact of these efforts, since 2007, have enabled 1.8 million tonnes of CO_2 savings per annum[11] within UK airspace resulting from:

- Large-scale airspace infrastructure change across the UK domestic airspace; Terminal Control Areas and Area Control
- A programme of small-scale procedure changes leading to numerous changes to deliver direct routeing and improve vertical restrictions.
- Improvements to Standard Instrument Departure routes improving airline fuel planning
- Improvements in the tactical delivery of Continuous Descent Approaches and Continuous Climb Departures
- Improved Shared Use Airspace, improving airspace availability for airlines to flight plan more direct routes or increased tactical delivery of direct routes where availability allows
- Deployment of air traffic controller tools to allow better coordination and conflict resolution (iFACTs and EXCDS) and technologies to enhance runway capacity and reduce inbound congestion (e.g. intelligent approach; AMAN, XMAN, TBS, eTBS, Pairwise)
- A programme of oceanic airspace enhancement to reduce separation standards, improve air traffic surveillance, communications and tools and implement route-free airspace, which each support more aircraft flying closer to their preferred fuel efficient horizontal and vertical trajectories

Together the impact of these changes, based on 2019 traffic levels, equates to a 7% improvement in UK airspace emissions (aggregated annual benefits compared against overall emissions from aircraft within UK domestic and Oceanic Flight Information Regions and on the ground at major airports based on NATS modelling).

4.2 Scope, extent, and calculation of airspace emissions reporting

4.2.1 Extent of airspace

Total Scope 3 category 11 emissions comprise CO_2 emissions from aircraft within the extents of UK domestic airspace (Scottish and London Flight Information Regions), oceanic airspace (Shanwick Flight Information Region) and at airports where we provide a tower service i.e. aircraft taxiing (limited airfields). Avoided emissions reduction (scope 4) assessments are based on the same extent of airspace. Rotary wing aircraft are excluded from CO_2 emissions data; however analysis may capture some military flights where we identify radar data and aircraft type information matches fuel burn data in the BADA models.

[11] Total not verified by DNV, but contributary projects since 2017 are included.

Figure 1 - Flight Information Regions managed by NATS

Further information providing the extent of airspace under NATS control is provided at NATS.aero.

4.2.2 Primary data sources

We use several data sources to undertake scope 3 Category 11 and avoided emissions assessments. The primary sources are:

- Radar data of actual flight tracks (RADAR), stored in our data warehouse
- Oceanic NATS Analytics Safety Clearance And Route (NASCAR) data contain flight times, flight levels and locations as determined by aircraft Automatic Dependent Surveillance - Contract (ADS-C) messages, stored in our data warehouse
- Electronic Flight Profile Strip (EFPS) data, stored in our data warehouse
- Airspace data, covering routes and navigation points, sourced from the Eurocontrol Central Flow Management Unit (CFMU) and stored in our data warehouse
- CFMU flight plan data, sourced from and stored in NATS' data warehouse
- Synthetic simulated trajectory data derived from aircraft simulation tools (for emissions reduction calculations), generated on a project-by-project basis based on BADA aircraft performance data

4.2.3 Data modelling

In the absence of access to airline flight management system or actual flight data recorder data, all ATM related fuel/CO_2 emission data is modelled based on the best available data, tools and estimation techniques.

Model outputs are calculated in kilograms of fuel per flight/aircraft and may be aggregated and abbreviated in reports to the tonne or kilo tonne, all of which are then converted to CO_2. As a result, some rounding may occur but is *de minimis*.

Applying the GHG Protocol uncertainty guidance, an uncertainty of 3.07% has been calculated for this emission source (see appendix 5.2 for further information).

4.2.4 Toolset

Several industry standards and bespoke tools are used to model ATM fuel/CO_2:

- Airspace/ATM related CO_2 emissions data are prepared using the Eurocontrol Base of Aircraft Data (BADA) 4.2 aircraft performance fuel models and data. This product has been made available by the European Organisation for the Safety of Air Navigation (EUROCONTROL). All rights reserved
- We have implemented the BADA aircraft performance and fuel models in an in-house toolset called NEMO (NATS Environmental Model). NEMO is used to calculate fuel burn for all aircraft trajectories held within the NATS data warehouse to derive scope 3 category 11 emissions
- To make comparisons between a current procedural profile and a proposed procedural profile, we have also created a Flight Profile Generator Tool that uses the BADA aircraft performance data to generate 4D flight profiles to use in comparative assessments of change
- We also make use of the fast-time simulation software AirTOp to generate 4D flight profiles to compare procedural profiles, where multiple trajectories need to be modelled simultaneously. NEMO is used to calculate the fuel burn for these simulated procedural profiles
- NEMO calculates the fuel using: altitude; speed; aircraft type; phase of flight (i.e., cruise, climb or descent) and an estimate of aircraft mass. NEMO uses these inputs combined with the BADA performance models to calculate the mean fuel flow for each radar point
- Simulated trajectories, from the Flight Profile Generator Tool or AirTOp, are defined by a series of 'flight legs' — sections of the flight profile for which the performance of the aircraft is constant, e.g. climbing, level flight, descending. NEMO uses the same inputs (altitude, speed, aircraft type, phase of flight, aircraft mass estimate) and BADA performance models and calculates the fuel flow for each flight leg
- LARA provides data describing aircraft use of shared airspace
- The Oceanic Air Traffic Simulator (OATS) is a bespoke fast-time simulation model which estimates the environmental performance of flights crossing the North Atlantic under various operational concepts. The tool simulates daily demand and optimises the routes for total fuel burn, using meteorological data to adjust aircraft speed, flight time and calculates the changes to fuel burn as a result of airspace network changes

4.2.5 Emission factors

For airspace/ATM related emissions, we take fuel activity data calculated from our models and multiply it by an emission factor which gives an estimate of CO_2 emissions. We do not calculate CO_2e emissions given the complexity of estimating non-CO_2 emissions, although recognise that non-CO_2 can affect radiative forcing both positively and negatively. NATS' role on non-CO_2 is to support the industry where it can through provision of data and trials to increase understanding of these impacts and investigate how air traffic control can implement management techniques to support their mitigation. For our CO_2 calculation we apply the following method of calculating CO_2 emissions:

tCO_2 = Activity Data (fuel in tonnes) x Emission Factor

We use a fuel-CO_2 ratio of 1:3.18 to convert activity data into tonnes of CO_2. This conversion factor is consistent over time, being in use since 2008.

4.2.6 Calculation of domestic airspace emissions (scope 3 category 11)

The trajectory for each flight based on radar surveillance data recorded in domestic airspace (typically providing location data every 4 to 6 seconds) is extracted from our ATC engineering data platforms and run through the BADA model within the NEMO toolset to estimate its fuel/CO_2 emissions. This is repeated for all flights in the reporting period (excluding aircraft that are not available in the BADA model, e.g. helicopters or some military aircraft). These fuel estimates per flight are stored in a separate table within the NATS data warehouse. The UK FIR total fuel burn and CO_2 has been extracted from our data warehouse for the reporting period.

Emissions are separately filtered to estimate the UK's territorial/domestic aviation CO_2 emissions for net zero reporting[12] (UNFCCC scope emissions). This aggregates emissions from only domestic flights, and international departures within the UK FIR i.e., excluding emissions from international arrivals and overflights across domestic and oceanic FIRs.

4.2.7 Calculation of oceanic airspace (scope 3 category 11 emissions)

Aircraft fuel burn/CO_2 emissions are modelled for the Shanwick Flight Information Region, i.e. the north-east part of the Atlantic for which NATS is responsible. The oceanic NATS Analytics Safety Clearance And Route (NASCAR) data contains flight times, flight levels and locations as determined by aircraft Automatic Dependent Surveillance - Contract (ADS-C) messages. These inputs are combined with the BADA 4.2 fuel tables to calculate the fuel burn for each flight segment from entry to exit point within Shanwick and aggregated for all flights (based on BADA model data availability) in the reporting period.

4.2.8 Calculation of airport ground emissions (scope 3 category 11)

For consistency with past reporting, aircraft fuel burn/CO_2 emissions are modelled for five airports equipped with Electronic Flight Progress Strip data. Other airports where we provide a tower service are excluded currently, with a plan to expand reporting to other airfields under NATS Services control. Airports included are:

- Aberdeen (excluding helicopters which are not included in BADA)
- London Heathrow
- London Luton
- London Stansted
- Glasgow

Using the EPFS data from a NATS data platform, the CO_2 emissions are modelled for actual taxi-times and aircraft type fuel flows for all traffic within the reporting year.

4.2.9 Changes to emissions baseline and boundary

Estimates of the CO_2 emissions that resulted from the operation of aircraft under NATS' control was first baselined in 2006. Various changes to data sources, data platforms, models and tools have taken place since 2006 which means that, while we track performance since the baseline, the comparability of individual KPIs may differ over time since 2006.

The original domestic FIR baseline from 2006 was founded on a sampling of flight trajectories which were then modelled using the NATS 'Kermit' fuel model and scaled up to be representative of a full year. This was updated in 2010-11 with an approach which modelled CO_2 for all flights using actual data from a range of airports with the relevant systems in place.

The original Shanwick FIR baseline from 2006 was built on a sample period and scaled up. This was updated in 2018-19 with an approach which modelled CO_2 for each flight individually based on the oceanic data sources and BADA model. We continue to adopt the same scope for calculating scope 3 category 11 emissions, aggregating Shanwick (Oceanic), Domestic airspace and ground-based emissions (where available).

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https://www.ons.gov.uk/economy/environmentalaccounts/articles/netzeroandthedifferentofficialmeasuresoftheuksgreenhousegasemissions/2019-07-24

The original taxiing baseline from 2006 was created from a sample of flights from a sample of airports and scaled up. This approach was updated in 2010-11 with an approach which modelled CO_2 for flights using actual data from airports with appropriate reporting systems in place.

4.2.10 Description of types of scope 4/avoided emissions assessments

On an ongoing basis, we operate and deliver many different project types and day-to-day interventions contributing to both enabled savings through improvements to airline flight plannable routes and tactical changes to flight profiles. These initiatives arise from small-scale projects, large airspace change projects, new tools and day-to-day management of the air traffic system, detailed below. Our approach to analysis of ATM related CO_2 emissions reductions is to categorise savings as follows:

- Savings enabled by airspace change i.e. savings based on changes to the structure of UK airspace that airlines plan their routes upon and impact their fuel planning (onboarded fuel to complete their mission); a comparative analysis of the procedure before a change that airlines could flight and fuel plan for, versus the procedure after the change is made. For all changes that can affect airline flight planning, the benefit to fuel uplift is also calculated and incorporated in the impact assessment (see below for definition)
- Savings enabled by network management and air traffic controller tools i.e. based on a change to network management and/or controller toolsets which reduce fuel burn, but which don't affect flight plan routes; these demonstrate like for like improvements in the actual trajectories of flight compared to a past year. Prior to change they can typically be modelled based on concepts e.g. initiatives to improve runway throughout with corresponding impacts of reducing airborne arrival holding
- Savings realised from controller intervention i.e. based on a non-flight plannable change and/or intervention by controllers to reduce fuel burn. As above, these are not flight plannable by airlines but result in an improvement to actual horizontal or vertical profiles of flight compared to a past year (e.g. changes to continuous descent operations)

The modelled savings delivered during the financial year are aggregated based on the project having been implemented in the given year, i.e. the changes we have implemented have enabled savings which are available to airlines to flight plan accordingly or have been demonstrably delivered. We have no direct control over how airlines flight plan across our network, but we can estimate how much traffic is likely to take advantage of the change we have enabled, based on traffic levels using the original routes prior to the change. Post change we can also identify how many aircraft took advantage of the route. As a result, and with the agreement of our stakeholders, CO_2 impacts from airspace projects (i.e., safety, cost, fuel/CO_2, capacity, etc.) are accrued in full in the year of implementation, typically aligned with the AIRAC cycle[13], rather than by pro-rata splitting of impact statements based on the implementation date in the reporting year. We endeavour to report only impacts from changes in the reported year, but due to lags in governance approval or completion of analysis, we report these when available, or make restatements of past reporting periods, clearly stated in either case.

4.2.11 Fuel uplift

Fuel uplift is fuel which is burned merely to carry other fuel. For example, an airspace change may save 50kg of fuel per flight, but prior to the change coming into effect more fuel would have been uploaded on top of this to account for carrying the 50kg until it was burned. We have analysed the relationship between distance flown and the percentage of fuel uplift, using flight planning software, and found it to be linear (broadly equating to 3% per hour). We use this linear relationship to calculate the percentage of fuel uplift which should be applied to fuel savings based on the distance flown

[13] Aeronautical Information Regulation And Control (more information available here)

from the origin airport to the end of the procedural change that is being quantified. This only applies to structural changes to airspace, where airlines can plan less fuel to fly in UK airspace.

4.3 2024-25 Airspace Impacts Statements

4.3.1 L6273 Operational Service Enhancement Project (OSEP)

NERL makes changes to the structure of airspace which can affect aircraft routings over the ground, or the vertical profiles of flight. These are usually identified by controllers at our units and typically do not meet the thresholds for a formal airspace change proposal, described in our regulator's (CAA) CAP1616 process, based on height-based criteria. Changes may lead to a re-definition of a high-level 'route' to remove a dogleg (making flight paths more direct). They may also lift historic 'standing agreements/level restrictions' for traffic allowing aircraft to fly longer at higher, more efficient levels. The OSEP was instigated to develop and deliver such changes which are beneficial to airline customers by fuel and emissions. Different Operation Deployments (OD's) may contain individual changes or form a collective implementation of numerous small scale procedure changes.

The methodology for calculating the change in emissions is to compare the pre-existing route, determined by the structure of airspace, to the proposed planned route following modification. We enable fuel and emissions benefits by allowing airlines to flight plan and fuel plan for shorter, more vertically efficient routes which may also lead to aircraft carrying less fuel to fulfil their mission. Typically this methodology uses the observed traffic flown on routes before the change and assumed that these flights will take advantage of the improved route. For Operational Deployment 8 below, a change in methodology has been used to look at the observed use (from traffic counts) across modified routes for the full year after the changes.

Operational Deployment 8: This deployment delivered a package of changes grouped around four flows of traffic and impacted multiple routes. The changes include the implementation of direct routes, saving track mileage and impacting the horizontal efficiency of flight and improving level restrictions, allowing aircraft to cruise at higher level vertically. The project delivered in February 2024. The analysis of the impact had not gone through internal governance by the time verification of our ATM GHG statement took place for 2023-24 and so this project outcome is reported in our 2024-25 statement. The combined benefit of the changes has been modelled to save 2,976 tCO_2 p.a. for airlines.

A summary of the methodology is:

- CFMU Flight Data provides baseline trajectory and improved scenario trajectory data and usage
- Where applicable data is filtered under the improved scenario to identify aircraft benefitting/ taking up the improved routings
- Calculations undertaken of the fuel of the current procedures and scenario procedures for each aircraft type identified as affected
- Calculate the total enabled benefit by summing the (benefit) × (annual number of aircraft) over all aircraft types affected
- Where applicable, calculate the additional fuel uplift benefit for aircraft being able to onboard less fuel to complete the mission

Data and models used:

- Data source: primarily CFMU data. Data from LARA has been used to support data filtering
- Data sample: February 2024 - February 2025
- Tools: NEMO
- Models: BADA 4.2 and 3.16 aircraft performance and fuel models as contained in NEMO
- NATS fuel uplift equation

4.3.2 Continuous Climb Departure and Continuous Descent Approach (CCD/CDAs)

Arrivals and departures to and from airfields are most fuel efficient if aircraft can perform continuous climb and descent operations. Air Traffic Controllers enable improved performance in their day-to-day control and through the provision of distance-to-run information to pilots on arrival and clearances on departure. We further enable improvements in this performance through engagement at a strategic level with airlines and airports, providing data on achievement levels to target improved performance and historically running campaigns through Sustainable Aviation[14].

Changes in performance have been tracked since 2006. Data are compared through annual assessment of the change in performance between consecutive reporting periods, the only exceptions being the first assessment comparing 2006 to 2012 and the removal of pandemic affected years (e.g. 2023-4 was compared to financial year 2019-20).

Changes in Continuous Climb Departure and Continuous Descent Approach performance, and the resulting impact on fuel burn and emissions, are captured in our annual assessment. A summary of the methodology is:

- The radar data within the data warehouse are queried to identify whether climbs and descents out of and into airfields are continuous or whether a level-off occurs
- Continuous climbs are measured up to 10,000 ft for all airfields. Continuous descents are measured from variable altitudes which take into account the configuration and local constraints of airspace around the airfield (typically 6,000-1,800ft)
- Definition of level flight:
    - CCD performance - where the rate of climb is between -150ft/min and 150ft/min over 0.5nm interval
    - CDA performance - where the rate of descent is between -150ft/min and 150ft/min over 2.0nm interval
- A flight is determined as a CCD if it has no periods of level flight below 10,000ft
- A flight is determined as CDA if it has no more than one period of level flight, with that period of level flight being less than 2.5nm in length
- An improvement to the methodology was adopted in 2021-22. Level-off altitudes identified in the raw radar data were adjusted to account for airfield pressure setting experienced by the flight at the time of operation. This pressure adjusted altitude is compared against the measurement height range to determine if a flight can be classed as continuously climbing or descending
- The fuel benefit is based on the fuel difference between a typical CCD/CDA versus a non-CCD/CDA with an assumed 5 nautical mile level-off for all aircraft types at the airfield in question
- Year on year comparisons can be either positive i.e. fuel saving benefit, or negative i.e. fuel disbenefit. Data is aggregated across flights and airfields to determine a single figure describing the change in fuel burn and emissions

Data and models used:

- Data source: Flights and radar surveillance data in the data warehouse
- Airport METAR data is used to pressure correct trajectory data. METAR data is missing and unrecoverable from 1st Oct and 5th Nov 2024. This was assessed to have limited impact on the overall result
- Data sample: All flights in the financial year at each of the 22 Sustainable Aviation airfields
- Tools: No bespoke tools

[14] https://www.sustainableaviation.co.uk/wp-content/uploads/2018/06/A-Guide-to-CDOs-Booklet1.pdf

- Models: BADA 4.2 aircraft performance and fuel models as contained in NEMO
- Impact assessment: 367 tCO_2 benefit from aircraft achieving continuous climb and descent between 2023-24 and 2024-25. Since 2006, performance has improved, showing a comparative 52,406tCO_2 p.a. benefit[15]

4.3.3 Tactically Enhanced Arrivals Mode (TEAM)

At Heathrow Airport, the Department for Transport recognises that arrival demand may exceed capacity and we are permitted, based on certain criteria thresholds, to employ Tactically Enhanced Arrivals Mode (TEAM). This allows aircraft to land on the designated departure runway to reduce stack-holding delay. We optimise TEAM operations to reduce this delay and its associated fuel burn.

Changes in year-to-year performance are monitored and captured in annual assessments. As with CCD/CDA, pandemic affected years were removed. A summary of the methodology is:

- The data warehouse is used to identify the number of TEAM arrivals per hour, i.e. flights that landed on the designated departure runway after 07:00am local time (any TEAM landings prior to this time are pre-approved between all stakeholders so any change in the application of TEAM pre-7am is not a NATS-attributable performance change)
- The average stack-holding time in these hours is also calculated from records in the data warehouse
- The total number of minutes of stack-holding saved because of TEAM is then estimated by multiplying the average holding time by the number of TEAM arrivals
- The total number of minutes saved is multiplied by the average stack fuel burn to give to total amount of fuel saved in the year
- Year-on-year comparisons can be either positive i.e. fuel saving benefit, or negative i.e. fuel saving disbenefit, and are recorded accordingly

Data and models used:

- Data source: Flights in the data warehouse
- Data sample: All Heathrow arrivals in the financial year vs previous financial year
- Tools: No bespoke tools
- Models: BADA fuel models as calculated by in NEMO and stored in the data warehouse
- Impact assessment: 467 tCO_2 disbenefit

[15] Total not verified by DNV, but contributary assessments since 2017 have been.

4.4 Summary on airspace GHG disclosures for 2024-25

Type	Project name	Deployment date	Fuel change (tonnes)	CO_2 (tonnes)
LTIP	L6273 Operational Service Enhancements Project OD8	22/02/2023	-936	-2,976
Annual assessment	CDA/CCD (2024-25 vs 2023-24)	31/03/2025	-116	-367
Annual assessment	Tactical Enhanced Arrival Mode (2024-25 vs 2023-24)	31/03/2025	147	467
Total			**-905**	**-2,876**

Table 7 - Projects & annual assessment impacts 2024-25 (note: negative describes reduction in emissions)

		2024-25 (tonnes)	2023-24 (tonnes)	2022-23 (tonnes)	2021-22 (tonnes)	2020-21 (tonnes)
Modelled scope 3 category 11 greenhouse gas emissions from aircraft handled in UK FIR/Shanwick airspace and available airport taxi data	Fuel	7,714,976	7,569,168*	7,347,723	4,377,381	2,247,000
	CO_2	24,533,624	24,069,952*	23,365,760	13,920,072	7,146,000
Modelled enabled (scope 4) greenhouse gas emissions avoided as a result of projects and annual assessments	Fuel	-905	-252*	-17,710	-2,664	-170
	CO_2	-2,876	-799*	-56,317	-7,972	-541

Table 8 – Airspace Summary (for scope 4, negative describes an emissions reduction, * restated, see section 4.5)

Region		2024-25 (tonnes)	2023-24 (tonnes)	2022-23 (tonnes)	2021-22 (tonnes)	2020-21 (tonnes)
Domestic FIR	CO_2	14,042,387	13,735,623*	13,777,989	7,836,660	3,735,000
Oceanic FIR	CO_2	9,965,169	9,828,215*	9,146,209	5,922,221	3,302,000
Ground (Taxi emissions limited airports)	CO_2	526,067	506,114*	441,562	161,191	109,000
Total	CO_2	24,533,624	24,069,952*	23,365,760	13,920,072	7,146,000

Table 9 – Breakdown of Scope 3 Category 11 emissions (* restated, see section 4.5)

Region		2024-25 (tonnes)	2023-24 (tonnes)	2022-23 (tonnes)	2021-22 (tonnes)	2020-21 (tonnes)
UK territorial aviation tCO_2 emissions (equivalent to domestic plus international bunker fuel use within NATS' airspace)	CO_2	8,714,114	8,488,425*	7,680,829	4,119,000	2,062,000

Table 10 – UK territorial aviation tCO_2 emissions - UNFCCC scope (not included in verification, * restated, see section 4.5)

4.5 Restatements and changes to quantification methodologies previously used

ATM GHG data may be restated to:

- address error in data or calculation
- reflect improvements in the accuracy of modelling, the quality and availability of input data (including industry data) and calculation methodology
- recognise changes to the scope of NATS' emissions boundary, for example changes in airport portfolio or airspace management extent
- to better reflect consequential changes deriving from NATS' influence.

A material restatement is made in relation to scope 4 modelled enabled emissions:

In our last reporting period we stated significant reservations regarding the change in performance noted for aircraft ground taxiing emissions[16] and that these were mostly attributable to external factors rather than due to NATS consequential actions. However, we reported the change in emissions under NATS scope 4 impact since an investigation of the causation could not be completed in time prior to reporting. Following further analysis we can confirm that the measure is materially affected by changes in traffic level, changes in the airfield capacity/works and other factors such as availability of stands. These are the main drivers of the change in performance data. We are now able to report a restatement that all past benefits and disbenefits associated with this performance measure will be removed from our reporting and internal benefit management systems. This is the result of the measure not accurately assessing the impact of what it was purported to measure e.g. the impact of NATS' actions. The change in ground taxiing emissions at limited airports last year was observed as a disbenefit, based on a comparison of 2023-24 vs 2022-23 performance. The impact was reported as 6,200t fuel and 19,714 tCO_2 (disbenefit). The revision is made below to the total modelled enabled reporting figure (18,915) to account for the removal in taxi-time disbenefit in last year's statement.

FY 2023-24	Original reported figures		Amended figures		% change between figures
	Total Fuel (T)	Total CO_2 (T)	Total Fuel (T)	Total CO_2 (T)	
Modelled enabled (scope 4) greenhouse gas emissions avoided as a result of projects and annual assessments	5,948	18,915	-252	-799	**-104%**
Total	**5,948**	**18,915**	**-252**	**-799**	**-104%**

Table 11 – restatement of scope 4 emissions tCO_2 (- represents a benefit)

Other restatements are made this year despite being assessed to be below materiality threshold but are restated for the purposes of accuracy of records over time:

Scope 3 category 11 reporting:

During 2024, an issue with the fuel burn calculation stored within our data warehouse was identified following a change in radar data feed, which impacted determination of aircraft height underpinning previously reported scope 3 category 11 emissions – use of sold products and services.

[16] Aircraft fuel burnt whilst taxiing between airport stands, to and from the runway (taxi-time)

Consequently, this impacted the calculated phases of flight (e.g. climb, cruise or descent) and the fuel burn rates applied before conversion to emissions. This issue was subsequently corrected and the data was re-processed with differences noted in the table below:

FY 2023-24	Original reported figures		Amended figures		% change between figures
	Total Fuel (T)	Total CO_2 (T)	Total Fuel (T)	Total CO_2 (T)	
Domestic FIR	4,666,949	14,840,897	4,319,378	13,735,623	-7.40%
Shanwick	3,090,634	9,828,215	3,090,634	9,828,215	0.00%
Taxi (NATS airports)	159,156	506,114	159,156	506,114	0.00%
Total	**7,916,739**	**25,175,227**	**7,569,168**	**24,069,952**	**-4.40%**

Table 12 – restatement of scope 3 category 11 emissions tCO_2

As a result of the base data changing the subset of UNFCCC scope emissions has also been restated[17]:

FY 2023-24	Original reported figures	Amended figures	% change between figures
	Total CO_2 (T)	Total CO_2 (T)	
UK territorial aviation tCO_2 emissions (equivalent to domestic plus international bunker fuel use within NATS' airspace)	8,601,839	8,488,425	-1.3%

Table 13 – restatement of scope 3 category 11 emissions, using UNFCCC scope tCO_2

[17] Note the subset of UNFCCC scope emissions are not verified by DNV.

5. Appendix

5.1 Base year emission statement (1st April 2018 - 31st March 2019)

Emission source		T CO_2e	T CO_2e of CO_2 per unit	T CO_2e of CH_4 per unit	T CO_2e of N_2O per unit
Scope 1 emissions	Direct emissions from combustion of natural gas (location based)	2,347	2,342	0.11	0.00
	Direct emissions from combustion of road vehicle fuel - owned fleet vehicles (owned business travel)	12	12	0	0
	Direct emissions from combustion of road vehicle fuel - leased vehicles - fuel card	210	209	0	1
	Direct emissions from combustion of stationary assets (e.g. oil boilers, Backup generators)	499	458	0.02	0.15
	Fugitive emissions	1,024	-	-	-
	Total scope 1 emissions (location based)	4,094	3,022	0.13	0.16
	Direct emissions from the consumption of gas-green gas/biogas (market based)	n/a	n/a	n/a	n/a
Scope 2 emissions	Emissions from generated electricity usage (location based)	16,561	16,433	1.38	0.34
	Emissions from generated electricity usage (market-based CO_2)	21,024	21,024	-	-
Total scope 1 and 2 emissions (location based)		**20,655**	**-**	**-**	**-**
Total scope 1 and 2 emissions (market based)		*21,024*	-	-	-
Scope 3 emissions	Category 1: Purchased goods and service-Indirect emissions from the supply and treatment of water	68	-	-	-
	Category 1: Data centre electricity use	Not reported			
	Category 1: Total	68	-	-	-
	Category 3: Fuel-and energy-related activities - T&D losses	1,412	1,399	4	8
	Category 3: Fuel-and energy-related activities - well to tank (electricity generation and T&D)	2,665	-	-	-
	Category 3: Fuel-and energy-related activities - well to tank (natural gas)	326	-	-	-
	Category 3: Fuel-and energy-related activities - well to tank (fuel)	106	-	-	-
	Category 3: Well to tank owned vehicles	57	-	-	-
	Category 3: Total	4,566	4,566	-	-
	Category 4: Upstream transportation and distribution (courier)	7	7	0	0
	Category 6: Business travel - direct emissions from combustion of road vehicle fuel - private vehicles	245	243	0	2
	Category 6: Business travel - indirect emissions from business travel (public transport)	5,168	5,141	1	26
	Category 6: Business travel - hire car	229	227	0	1
	Category 6: Total	5,641	5,611	0.04	0.11
	Category 7: Employee commuting	9,384	-	-	-
	Category 7: Homeworking	Not reported			
	Category 7: Total	9,384	-	-	-
	Total scope 3 emissions (categories 1, 3, 4, 6, 7)	19,666	-	-	-
Total scope 1, 2 and 3 (categories 1, 3, 4, 6, 7) – location based		**40,321**	**-**	**-**	**-**
Scope 3	Category 11: Emissions from use of sold products or services (i.e., airspace/ATM related tCO_2 emissions)	-	25,074,000	-	-
Outside of scopes	Life cycle carbon of biogas	n/a	n/a	n/a	n/a
	Avoided/modelled enabled ATM related tCO_2 emission reduction	-	-113,532†	-	-
	UK territorial aviation tCO_2 emissions (equivalent to domestic plus international bunker fuel use within NATS' airspace)	Not reported			

Table 14 - Base year (2018-19) GHG emissions statement († benefit)

5.2 Uncertainty assessment calculations

Emission source	**Uncertainties and calibration** requirements
Scope 1: Gas	As Swanwick (one of our major sites) was included in the EU Emissions Trading Scheme (prior to the UK Emissions Trading Scheme), we feel it appropriate that the principles, detailed below, are followed with respect to statements of our overall uncertainty. UK ETS guidance indicates all gas metering has an accuracy class of 1.5 and therefore to adopt 6% as its Maximum Permissible Error in Service (MPES) for gas consumption.
Scope 1: On-site fuel combustion	Under UK ETS guidance, commercially traded liquid fuels have an uncertainty of 0.5%.
Scope 1: Fugitive emissions	Applying the GHG Protocol uncertainty guidance an uncertainty of 3.8% has been calculated for this emission source. See below for further information on the calculations
Scope 2: Electricity	For the consumption of electricity in the UK, "The Meters (Certification) Regulations 1998" [7-(2)] state that: The permitted margins of error shall be an error not exceeding + 2.5 %. or -3.5% at any load at which the meter is designed to operate
Scope 3: Other indirect emissions	See table below.

Table 15 - Uncertainties and calibration requirements

Category	Precision	Completeness	Temporal representation	Geographical representativeness	Technological representatives	Basic uncertainty factor	Uncertainty (%)
Scope 1: Natural Gas	1	1	1	1	1	1.5	2.69
Scope 1: On-site fuel combustion Gas oil	1.1	1	1	1	1	1.05	2.51
Scope 1: Fugitive emissions	1.1	1.5	1	1	1.2	1.05	2.83
Scope 1: Direct emissions from combustion of road vehicle fuel	1	1	1	1	1	2	3.00
Scope 2: Emissions from generated electricity usage	1	1	1	1	1	1.05	2.47
Scope 3: Category 1- Purchased goods and service-Indirect emissions from the supply and treatment of water	1.2	1.5	1.2	1.02	1.2	1.05	2.95
Scope 3: Category 1 - Purchased goods and service-Energy use at data centre	1	1	1	1	1.2	1.05	2.56
Scope 3: Category 3 - Fuel and energy related activities not included in Scope 1 or 2	1	1	1	1	1	1.05	2.47
Scope 3: Category 5 - Waste	1.1	1.2	1.02	1.02	1	1.05	2.61
Scope 3: Category 6 - Business Travel	1.1	1.1	1.1	1.21	1	2	3.18
Scope 3: Category 7- Commuting	1.5	1.5	1.5	1.1	2	2	3.99
Scope 3: Category 7- Homeworking	1.5	1.2	1.2	1.1	2	1.05	3.38
Scope 3: Category 8 - Upstream leased assets	1.1	1.1	1	1	1.2	1.05	2.64
Scope 3 Category 11 - use of sold products and services	1.2	1	1	1	1	2	3.07
Scope 3: Category 13 - Downstream leased assets (same as electricity)	1	1	1	1	1	1.05	2.47
Modelled enabled ATM related CO_2 emission reduction	1.2	1.2	1.2	1.02	1.02	2	3.23

Table 16 - Uncertainties and calibration requirements

Based on the GHG Protocol guidance note on quantitative inventory uncertainty and applying the relative confidence interval approach using a pedigree matrix.