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FOURTEENTH AIR NAVIGATION CONFERENCE

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Agenda Item 3: Air Navigation System Performance Improvement
3.1: Proposals to improve the efficiency of air navigation services contributing to LTAG

QUANTIFYING AND MEASURING AIR NAVIGATION SERVICES' GREENHOUSE GAS (GHG) EMISSIONS REDUCTIONS

(Presented by the United Kingdom)

EXECUTIVE SUMMARY

In the context of Resolution A41-21: *Consolidated statement of continuing ICAO policies and practices related to environmental protection — Climate change* to achieve collectively the long-term aspirational goal (LTAG), it is important that sustainability benefits associated with air navigation operational improvements and technology deployments are clear and consistent. A harmonized approach to the quantification and measurement of Greenhouse Gas (GHG) emissions can support ICAO communications activities on the progress being made by air navigation stakeholders as well as ICAO decision making regarding any Standards and Recommended Practices (SARPs) that may need to be developed. This Information Paper presents an approach to the measurement and reporting of Greenhouse Gas (GHG) emissions, which has been adopted by NATS, the United Kingdom's leading air navigation services provider. The paper discusses the broad approach and methodology used in accordance with the International Organization for Standardization (ISO) standard ISO 14064-1:2018[1] which, if deployed widely across States and stakeholders, could assist in supporting a robust and harmonized dataset to inform LTAG considerations.

1. INTRODUCTION

1.1 At the 41st Session of the ICAO Assembly in 2022, ICAO Contracting States resolved to work together to achieve a long-term aspirational goal (LTAG) for the international aviation sector of net-zero carbon emissions by 2050[2]. ICAO, States, international organizations and individual industry stakeholders are now engaged in progressing activities to deliver aviation CO_2 emissions reductions to achieve that aspirational goal.

[1] ISO 14064-1:2018 Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals

[2] Resolution A41-21: Consolidated statement of continuing ICAO policies and practices related to environmental protection — Climate change

1.2 The ICAO 2023-2025 Business Plan identifies the LTAG as a Priority Focus Area[3] and highlights the need for a holistic strategy encompassing a variety of measures such as driving technological advancements, sustainable fuels, operational improvements, and market-based measures. The Business Plan also prioritizes a number of other activities, including enhancements to progress monitoring for the achievement of the LTAG and improved guidance for the quantification of potential environmental benefits of operational improvements and technology.

1.3 Robust quantification of performance improvements both in relation to current air navigation operations and future improvements and technology are a vital component of achieving the LTAG. This requires consistent and harmonized measurement methodologies that establish credible baselines and support quantification of improvements. Consistency and harmonization also enable greater transparency and clarity for aviation stakeholders and allows air navigation to demonstrate progress to wider society.

1.4 This paper highlights the approach taken by NATS, the United Kingdom's leading air navigation services provider, to Greenhouse Gas (GHG) measurement, disclosure and transparency which could be helpful to inform potential approaches to the quantification of environmental benefits of operational improvements in the Global Air Navigation Plan (GANP) framework as well as the overall LTAG monitoring process.

2. DISCUSSION

2.1 NATS is the United Kingdom's leading provider of air traffic control services. In a typical year pre-Covid, NATS handled more than 2.5 million flights over the United Kingdom and across the North Atlantic. NATS Holding Limited has two main subsidiaries: NATS (En Route) plc (NERL) and NATS (Services) Ltd (NSL). NERL operates under economic regulation by the United Kingdom Civil Aviation Authority, providing air traffic management services to aircraft within the United Kingdom and within the Shanwick flight information region (FIR) of the North Atlantic (NAT) Region. NSL operates under commercial contracts and provides air traffic control and other services at 22 civil and military airfields across the United Kingdom and Gibraltar. NSL also includes several subsidiary companies.

2.2 NATS has an environmental strategy and targets to improve its emissions performance, both in terms of the airspace it manages and from running the overall business. Its environmental targets tie into the United Kingdom Government's 'Jet Zero Strategy', which specifically targets all domestic flights to achieve net zero by 2040. NATS' target is to be a net zero emissions company by 2035, to be carbon negative by 2040 and to work with its customers, partners and suppliers to achieve a net zero aviation industry by 2050. Additionally, it has committed to increasing its annual procurement of renewable energy from 0 per cent in 2018-2019 to 100 per cent by 2030.

2.3 To provide consistency and transparency to interested stakeholders and to track the progress against the targets set out in its environmental strategy, NATS publishes its 'Greenhouse Gas (GHG) Report' each year, reporting on its airspace, energy and environmental performance data. The measurement of GHG in the annual report is carried out in accordance with the International Organization for Standardization (ISO) standard ISO 14064-1:2018 "Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals".

2.4 The report details the GHG collection, conversion and reporting processes used to derive NATS' annual GHG emissions disclosures for business-related environmental and energy metrics. Not only

[3] ICAO AN-Conf/14-WP/3 – Priority Focus Areas

does this report create complete transparency, but it also supports independent verification of NATS' GHG emissions inventory and assertions. NATS' 2023-2024 report (https://www.nats.aero/wp-content/uploads/2024/07/GHGReport2023-24.pdf) details performance from April 2023 to April 2024 and highlights progress against emissions targets and commitments. It forms the basis of disclosures made in NATS' Annual Report and Accounts and other external reporting.

2.5 The report follows one of the approaches set out by the World Resources Institute's (WRI) Greenhouse Gas Protocol Corporate Standard. NATS follows the 'operational control' method, which requires it to take 100 per cent ownership of GHG emissions that it has the power to directly influence or reduce. That covers any entity where NATS (or one of its subsidiaries) has the full authority to introduce and implement its environment policy.

2.6 Importantly, for the purpose of improving the efficiency of air navigation services, the report does not just cover airspace or air traffic management (ATM) related CO_2 emissions. The report covers all sources of emissions, including: location-based emissions, market-based emissions, purchased goods and services, capital goods, fuel and energy related activities, upstream transportation and distribution, waste generated in operations, business travel, employee commuting and homeworking, upstream leaned assets, downstream transportation and distribution, processing of sold products, use of sold products and services, end of life treatment of sold products, downstream leased assets, franchises, investments and avoided ATM emissions. The GHG emission statement is broken down by emission source, detailing the tonnes of CO_2 equivalent (tCO_2e) per emission source, intensity metrics, consumption and energy procurement.

2.7 NATS follows the most common approach to calculate GHG emissions from emissions sources. That is to take activity data (e.g., units of electricity consumed, distance travelled, litres of oil etc.) and to multiply them by an emission factor. It uses the United Kingdom Government's GHG conversion factors in order to convert activity data into tCO_2e. These conversion factors are updated annually by the United Kingdom Department for Energy Security and Net Zero to enable the United Kingdom and international organizations to report on their GHG emissions.

2.8 The emissions statement is mapped against NATS' emissions targets which have been validated by the Science Based Targets initiative[4] to be consistent with the Paris agreement. This ensures full transparency of NATS' progress towards these goals. For example, the report highlights that 'NATS Holdings Limited commits to reduce absolute "scope 1 and 2"[5] GHG emissions 41per cent in Financial Year (FY) 2026 from a FY2019 base year'. In 2023/24, NATS had an interim target of reducing its scope 1 and 2 GHG emissions by 29 per cent. Following assessment, it was determined that it had reduced its emissions by 34 per cent.

2.9 Additionally, the report also covers actions taken by NATS in the previous financial year to reduce its emissions stemming from airspace efficiency changes made to the United Kingdom airspace. In this regard, NATS is also set a separate annual target by the United Kingdom Civil Aviation Authority (CAA), based on a metric known as the three-dimensional inefficiency score (3Di). This is set in the context of NATS (En-route) plc's regulatory price control and carries financial incentive for the achievement of an agreed performance level. The GHG report specifically highlights ongoing airspace efficiency projects like the redesign the London, Scottish and Manchester airspace as well as several smaller scale airspace changes

[4] The Science Based Targets initiative (SBTi) currently provide over 5,000 businesses around the world with a clearly-defined path to reduce emissions in line with the Paris Agreement goals.

[5] Where Scope 1 covers fuel combustion, process, and fugitive emissions from all NATS' sites under NATS' control and Scope 2 covers emissions from the consumption of purchased electricity – in accordance with the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD) Greenhouse Gas Protocol

which have been deployed and projects to sustain and upgrade mechanical and electric equipment to improve the efficiency of its systems.

2.10 The report benefits NATS and stakeholders in a number of ways. Stakeholders are able to see how NATS is addressing the climate change and contributing GHG emissions reduction. For NATS, it enables the promotion of enhanced understanding and awareness among staff and stakeholders of impacts and value of action to reduce emissions. The external independent verification aspect of the approach gives confidence to the Board and stakeholders that assertions are an appropriate reflection of performance.

3. CONCLUSION

3.1 The application of a robust, standardized framework for the quantification and measurement of GHG across a wide scope of air navigation activity provides a robust basis for NATS' GHG emissions reporting on air navigation improvements and progress of the organization in achieving established emissions reduction targets.

3.2 Wider application across aviation stakeholders could benefit ICAO, States and international aviation in providing a consistent dataset to inform consideration of future potential SARPs for air navigation operations and technology as well as communication activities.

3.3 There is potential value in exploring whether there is a need for globally agreed standards and protocols for the purpose of quantifying GHG emissions, their reporting and overall progress monitoring in supporting the international aviation industry's progress towards net zero CO_2 emission in line with the LTAG. Relevant expert groups of ICAO, overseen and coordinated by the Committee on Aviation Environmental Protection (CAEP), could consider their application to the quantification of GHG emission associated with air navigation operations and technology improvements. This also offers broader opportunities to support enhanced transparency of aviation industry GHG emissions and embedding a culture of openness in reporting and disclosure against relevant global reporting standards.

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