AIRLINES FOR EUROPE

POSITION PAPER
NON-CO_2 MRV
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POSITION PAPER: CONCERNS AND REQUESTS REGARDING NON-CO_2 MRV AND MITIGATION UNDER EU ETS

Introduction

Non-CO_2 effects of aviation (NO_x, contrails, water vapour, soot, sulphur etc.) represent an under-researched portion of aviation's total climate impact compared to CO_2 emissions. Under the EU ETS Directive 2003/87/EC, aircraft operators are required from 1 January 2025 to monitor, report, and verify (MRV) their non-CO_2 effects as part of the larger EU Emissions Trading System (EU ETS). By 31 December 2027, the Commission must assess whether to include the mitigation of non-CO_2 effects in the EU ETS scope. Creating a realistic, practical, and scientifically grounded MRV is therefore of key importance for future EU policy decisions, as well as for the competitive decarbonization of European airlines. Any future regulatory action on non-CO_2 effects must also be fully consistent with the EU competitiveness agenda, including the principles set out in Mario Draghi's report on EU competitiveness, which calls for regulation that is proportionate, evidence-based, and supportive of Europe's industrial and strategic resilience.

However, there are major gaps, uncertainties, risks of unintended outcomes, and implementation challenges. To avoid severe competitive and legal risks, we ask that the Commission's report and consideration of any mitigation obligations based on non-CO_2 MRV be postponed until the aforementioned uncertainties are eliminated, and that several issues be addressed in the meantime. This approach would also be in line with the letter of 20 October 2025 from nineteen Member States to the President of the European Council, António Costa, which explicitly cautioned against EU rules that are "excessive, or unbalanced", particularly where the evidence base remains incomplete or operational feasibility has not been demonstrated.

Context and Regulatory Background

- The EU ETS Directive (as revised) mandates that aircraft operators monitor, report, and verify non-CO_2 effects (art. 14(5)) from 1 January 2025.
- Implementing Regulation (EU) 2024/2493 (amending the MRV Implementing Regulation 2018/2066) sets out requirements, including the use of the EU's own software NEATS[1] (or equivalent approved third-party tools), reporting of primary and secondary data, and technical specifications.

[1] Non-CO2 Effects in Aviation Tracking System (NEATS)

- Monitoring is restricted to a "reduced scope" for 2025-2026: only flights between aerodromes in the EEA (plus flights to the UK and Switzerland) must be reported.
- Default (secondary) values are accepted but are based on conservative maximum values.
- The Commission must issue a report by 31 December 2027, and if appropriate, a legislative proposal, for mitigating non-CO_2 effects.

Concerns, Risks, and Practical Issues

The scientific foundation for regulating non-CO_2 effects remains insufficient. No large-scale, validated study exists that links observed flight behaviour, atmospheric conditions, and modelled non-CO_2 outcomes in a manner robust enough for ETS-level financial obligations. A comprehensive and transparent scientific assessment should precede the Commission's 2027 report. Until such evidence exists, introducing financial liability risks misdirecting resources that would be better invested in research on how to effectively prevent or avoid non-CO_2 effects.

1. Uncertainty in default values/fuel composition

- Fuel properties (aromatics, naphthalene, sulphur, etc.) strongly influence non-CO_2 effects. Under the current legal text, the values of these properties must be supplied on a per-flight basis by the airline to the regulator. However, operators often do not have access to such data, particularly in airports supplied by pipeline (e.g., CEPS). For many operators, the fuel supplied is tested in bulk (e.g. pipeline, terminal) and commingled — meaning per-flight data is not available. Many of Europe's biggest airports are supplied via pipeline / bulk tanks, and testing is done before fuel is commingled both in pipelines and fuel tanks. Turnaround times of aircraft currently do not permit an extensive flight-by-flight testing of each fuel tank. Crucially, there is no viable way to express fuel properties at a flight level, and a compromise to provide a proxy value is urgently needed. This limitation is already visible in operator feedback, with some airlines highlighting that it is unlikely to achieve the specified fuel property reporting requirements.
- Fuel suppliers also have no legal duty to supply such data to airlines, as they must only report to competent authorities. With no Union Database in place where airlines could retrieve data, they rely on the willingness of fuel suppliers. Given that fuel suppliers must provide some fuel properties under reporting required under the ReFuelEU Aviation Regulation, the Commission should prioritise the provision of some consolidated data to reduce the reporting burden on the sector. An additional risk is that fuel suppliers—mirroring current practices around SAF documentation—may introduce compliance or administrative fees for providing fuel property data, leading to higher costs for airlines and potentially increased supplier profit margins.
- There is likewise no Commission guidance on acceptable testing facilities that would permit airlines to directly test fuel in-house. It is not possible to perform per-flight testing within the short turnaround times given at most airports.

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- In the absence of real-world data, the Commission suggests using maximum default values for fuel, meaning that fuel is effectively assumed to be consistently as 'dirty' as physically feasible. The use of average fuel data collected is also not permitted. Using maximum actual values to represent annual averages would similarly distort real fuel properties.

- This risks producing inflated (worse than real) non-CO_2 results. In turn, this would mean that the Commission would base its decision by 31 December 2027 on the potential expansion of ETS obligations on flawed, or even inaccurate data. The significant risk of flawed data remains if the EU is not fully aware of how primary (measured) versus secondary (default or proxy) data influence the outcomes, which could ultimately hinder the definition of appropriate and proportionate regulatory measures.

  Without a procedure for capturing more precise (actual) fuel properties, many operators will effectively be penalised for worst-case assumptions. Airlines should not be penalised for parameters they cannot influence, and any methodological conclusions must reflect ongoing testing.

2. NEATS software readiness, data completeness & validation

- A fully functional and operational NEATS software is essential. Yet, at the time of its roll-out (September 2025), several functionalities are missing, which are meant to be added by the end of the year, such as the computation of non-CO_2 effects and the generation of annual non-CO_2 effects reports.

- At present, airlines cannot fully test whether their own data is compatible with NEATS. A test phase is needed, as adapting data structures to new tools generally requires at least six months.

- NEATS relies on a new DWD[2] two-moment weather scheme that is not used in any flight-planning system. This will lead to discrepancies between operational and reported values. Operators choosing secondary data face a significant workload for providing primary data, and verification costs will rise accordingly. Clear guidance is needed on what validation is required when secondary data is used.

- Aircraft operators need sufficient time to implement and optimise all systems related to the MRV, particularly as all stakeholders involved are new to NEATS. Third party operators also need to be given sufficient time to develop comparable programs, so that aircraft operators can make an informed choice for a software that is best integrated into each company's systems.

3. Verification / Accreditation (AVR) issues

- Verifiers need updated guidelines/capacity to audit/verify non-CO_2 data with expertise. The updated AVR is only expected in Q2 2025. Until verifiers are fully familiar with non-CO_2 methodologies, errors or inconsistent application are likely.

- For primary data, validation requirements may be significant. However, clarification is needed regarding what must be validated when operators legitimately choose secondary data.

[2] Deutscher Wetterdienst; German Meteorological Service.

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4. High risk that policy will be based on flawed data

- As NEATS is still being rolled out, there is a high risk that 2026 will be the only fully usable year of data, and that this dataset — despite early-stage limitations — will inform the Commission's 2027 report. With NEATS being in very initial stages, there is a high risk that the system may be flawed or that the data obtained does not allow for an effective climate policy decision.
- This risks basing policy decisions on highly flawed and inaccurate data, rather than giving sufficient time for an established system. Considering the potentially vast economic impact of such a payment extension, the Commission should base its decision on optimal data.
- Significant uncertainties remain around the climate impact of contrail models. There is a risk that operators might pay for predicted contrails that did not form, even when satellite imagery shows no persistent contrail. The EU should invest in better scientific certainty and consider post-flight validation tools before considering implementing mitigation. The provision of additional ETS SAF allowances to help airlines implement wider and more meaningful trials would be a valuable strategy to enable existing models to be refined.

5. Mitigation measures and avoiding a "catch-22"

- While airlines are gaining a greater understanding of contrail formation during operations, sufficient time is required to develop and implement effective procedures for contrail prediction and avoidance, including the installation of water vapour sensors and the training of flight planning staff. A premature imposition of ETS payments without allowing operators to implement such mitigation measures would be unfair, particularly as research into optimal prediction and avoidance continues.
- Mitigation obligations must not create a "catch-22," where efforts to reduce non-CO_2 effects — for example, by rerouting around contrails — would result in higher CO_2 ETS costs, forcing operators to choose between types of emissions. Effective mitigation can only be achieved once NEATS or a more refined system, including its underlying weather model, is fully integrated into flight-planning systems; without this, operators cannot act optimally. Moreover, mitigation must reflect operational reality: 100% contrail avoidance is unlikely to be feasible given congested airspace, current ANSP capabilities, and Network Manager KPIs that prioritise fuel efficiency over climate-optimised trajectories.
- As NEATS is flight-centric, contrail mitigation also requires coordination across multiple flights. Regulations should enable collaborative contrail avoidance protocols, coordinated via ATC and the Network Manager, while accounting for deviations from planned climate-optimised routes due to ATC reroutings or changing weather conditions. Post-flight verification, using satellite imagery, observed data and weather overlays, should be incorporated to ensure that mitigation assessments reflect actual operational outcomes.
- Finally, obligations related to weather data storage remain unclear. Storing up to three years of high-resolution weather data may require hundreds of terabytes, which is operationally impractical. A Commission-approved solution allowing reference to certified external weather data repositories is needed.

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Requests

To ensure a fair, workable, science-based, and competitive implementation, we request:

1. **Binding obligations must be based on robust scientific research using large datasets (flight operations, weather information, and validated calculation models); decisions should follow completion of a comprehensive study before the Commission's final report. Even with postponement, staggered implementation could still place a disproportionate burden on operators.**

2. **Any consideration of mitigation obligations for non-CO_2 effects should be based on well-established data and therefore postponed beyond the end of 2027 until the scientific, methodological, data, and operational uncertainties are eliminated. This cannot be the case by the end of 2027, as NEATS will only be fully operational in 2026, and aircraft operators still lack sufficient time to optimise their monitoring and reporting, such as through flight trials, installation of humidity sensors (where appropriate), new software, and adequate training of staff. This would allow operators sufficient time to optimise data collection and allow for a more robust reporting scheme to be tested upon which to base a decision.**

   Mitigation capabilities for non-CO2 effects are still in their infancy; therefore, compensation for airline activity in this area should be broad. Initiatives such as developing new flight planning approaches, strengthening weather forecasting tools, or software capabilities at airlines should be rewarded through the allocation of emissions allowances. The same should apply to the additional fuel burned for avoidance practices such as flight deviations, to compensate for the additional fuel consumption when deviating the flights from their optimised fuel efficiency trajectory.

3. **We urge the Commission to move ahead with incentive mechanisms for airlines via a scheme that provides additional ETS SAF allowances to enable funding for more research and testing (trials) of possible non-CO_2 flight-based mitigation options. To effectively reduce non-CO_2 effects will require a coordinated, systemic approach, as airlines' ability to act is critically dependent on other stakeholders. For example, airlines cannot implement mitigation activities without the necessary tools and procedures; climate models cannot be validated without data from real-world trials; and significant progress cannot be made without the full support of key stakeholders: air traffic management, aircraft manufacturers, weather forecasting and climate modellers, and flight planning platforms. The provision of additional ETS allowances to reduce costs, remove operational barriers to non-CO_2 mitigation, and provide mechanisms to validate existing non-CO_2 contrail models is therefore needed.**

4. **Fuel properties reporting should be pragmatic, for example, using consolidated data from the overall fuel system via a mass-balance approach (i.e., for co-mingled fuels), systems should be based on weighted averages using fuel testing at the last defined ingress point.**

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5. **The Commission should clarify how, where, when, and by whom fuel testing is to be conducted. Airlines need clarity on the acceptance of internal data or data from third-party providers. Ideally, the ReFuelEU Aviation Regulation's requirement on fuel suppliers to report fuel properties to authorities should be complemented by a duty to disclose this data to their airline customers, or the Commission should provide appropriate aggregated data.**

6. **The Commission needs to ensure that the interim period is used to address methodology and data gaps, and issue guidance where needed, including to airlines, competent authorities, fuel suppliers, and verifiers. This should include, wherever necessary, an update to default values and to NEATS's underlying software to incorporate the results of trials to validate assumptions within NEATS. The Commission should commit to updating default fuel property values regularly, allowing realistic measurement or sampling regimes.**

7. **Any potential mitigation should not take effect until NEATS — including its weather model — is fully usable within flight-planning systems and has undergone significant system-wide testing. It must reflect operational constraints, acknowledging that full avoidance is not feasible given airspace capacity and ANSP limitations.**

8. **Any mitigation trials should include post-flight verification (e.g., satellite imagery), account for ATC-imposed trajectory deviations (ATC-coordinated contrail avoidance protocols should be enabled). The Commission should issue guidance on realistic, feasible mitigation measures to reduce non-CO_2 effects. A proportionate solution is needed for weather data storage; airlines should be able to reference certified external storage to comply with regulatory obligations without operational burden.**

Conclusion

The scientific understanding of non-CO_2 effects from aviation is not yet sufficiently mature and science-evidenced to support regulatory and financial obligations under the EU ETS. Implementation at this stage carries high risks, including unfair financial burdens, distortions of competition, and legal uncertainties.

To ensure that any future regulation is credible, robust, and operationally feasible, **we urge that the Commission's report, as well as any potential binding mitigation obligations based on non-CO_2 MRV be postponed until the aforementioned uncertainties are eliminated**, and that DG CLIMA addresses the methodological, data, and operational challenges and promotes more incentives for mitigation and validation activities as outlined above before considering the introduction of any ETS payments based on non-CO_2 effects.

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