OPPORTUNITY GREEN

Policy guide to the EU ETS for aviation

The law, economics and policy of exempting international aviation from paying for its climate impact

June 2025

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This is a brief for all policymakers who will consider whether international flights should be included in the EU's Emission Trading System (ETS) from 1 January 2027. It covers the legislation (EU, US and international), the emissions at stake and the wider economic landscape – including international objections. The conclusion is clear: the time has come to put international flights in the EU ETS.

If you are a policymaker and have questions about the aviation ETS that are not answered here, please get in touch and we will do what we can to answer them.

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Executive summary

The aviation sector has historically operated under a regulatory framework that has not fully accounted for its climate impact. A significant portion of aviation emissions remain outside the scope of the EU Emissions Trading System (ETS), notably those from flights between the European Economic Area (EEA) and non-EEA countries, roughly 60% of its total CO_2 emissions. This exemption, and the broader regulatory framework enjoyed by the aviation sector, has implications for the EU's climate objective and its role as a global leader on climate action and governance. The review of the EU ETS in the coming years presents a key opportunity to increase the accountability of this sector.

Background

In 2012, the European Commission temporarily exempted extra-EEA flights from the ETS, citing international concerns; this was known as the aviation 'stop the clock', and was intended to give space to international policymakers to develop a global agreement on emissions reductions.

Since then, aviation emissions have increased substantially and have now returned to pre-pandemic levels. Analysis suggests that the failure to regulate these emissions has had both climate and fiscal impacts. In climate action terms, had these flights been included, an extra 1.1bn tonnes of CO_2 would have been regulated between 2012 and 2023. This figure is equivalent to the total emissions of Greece over the same period. In fiscal terms, this regulatory gap represents the loss of approximately **€26bn in revenue that could have been used for climate action.**

These missed revenues could have supported critical climate action, including:

- Driving innovation in truly sustainable aviation fuels.
- Contributing to climate finance in climate vulnerable third countries, in line with the EU's international commitments.
- Providing general budgetary support to EU Member States, addressing in part the historical under-taxation of the aviation sector.

Upcoming review and potential change

By 1 July 2026, the European Commission will assess the environmental integrity and participation levels of the global Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), implemented by the International Civil Aviation Organization (ICAO). The assessment's results will inform a decision about whether flights leaving the EEA should continue to be exempted from the EU ETS, and propose legislation accordingly.

CORSIA is a multilateral effort to tackle emissions through (partial) offsetting, and has been critiqued for its ineffectiveness. In contrast to the EU ETS, which reduces

emissions allowances under a fixed cap that will be gradually reduced to zero in 2045, CORSIA does not drive any absolute emissions reductions.

Legal and political context

Pressure from the United States was a considerable factor that led to the 'stop the clock' measure in 2012. Policymakers may be concerned that bringing extra-EEA flights under the ETS could exacerbate trade tensions. However, the European Court of Justice has found that the EU has 'unlimited jurisdiction' to regulate emissions from international flights. Moreover, under international law the EU is obliged to go beyond ICAO measures to align itself with the Paris Agreement 1.5°C temperature target where that body's regulations are not sufficient.

Including extra-EEA flights in the ETS could contribute to levelling the playing field between US- and EU-based carriers, potentially boosting the European aviation industry's competitiveness at a time of volatile international trade dynamics.

Non-CO2 emissions

The exclusion of 'non-CO_2 emissions', such as contrails, from the ETS scope is also an area of concern. These emissions may be up to twice as significant as damaging as aviation's CO_2 emissions. Extending the ETS to cover non-CO_2 emissions would ensure that aviation's true climate impacts are accounted for by legislation.

Looking forward

The upcoming ETS review is an opportunity for the EU to reaffirm its climate leadership, and to correct the ongoing omission of international aviation from its climate action.

The negative climate impacts of aviation do not disappear simply because they are not priced in the ETS. These emissions still cause climate-related damage, which is increasingly affecting communities across Europe, from climate-induced flooding in Germany to a community destroyed by wildfires in Greece or Italy.

If aviation emissions continue to be unregulated, the costs will be unfairly borne by society at large, and often by the most vulnerable in in that society. On the contrary, the inclusion of all flights leaving EU airports in the ETS would ensure alignment with the 'polluter pays' principle, a core principle guiding fair EU environmental policy. It would also encourage reciprocal measures and potentially lead the way for more comprehensive action on international aviation emissions, and greater interconnectedness of global emissions trading systems.

The decision on the future scope of the EU ETS for aviation presents a pivotal moment for the EU to reaffirm its commitment to ambitious climate action in a high-emitting sector on a global scale. To maximise the ETS's potential to drive climate action in aviation and beyond, the EU Commission should adopt the following policies:

Policy recommendations to reform the EU ETS for aviation:	
1. Extend EU ETS to extra-EEA aviation	With ICAO's CORSIA not reducing international aviation emissions, **the EU must end the exemption of extra-EEA aviation from the ETS by including all outbound flights in the ETS** to incentivise the transition away from fossil fuels, accrue revenues to finance climate action, and make polluters pay fairly for their climate damages.
2. Include aviation's non-CO_2 climate impacts in the EU ETS	**The 2027 ETS revision should reduce non-CO_2 impacts** by requiring that airlines: 1. Use fuels with a reduced concentration of aromatics and naphthalenes. 2. Participate in a contrail avoidance program (i.e. rerouting). Airlines not adopting these actions should be subjected to a fee in addition to but separate from their ETS allowances. This would not necessitate increasing the cap to include non-CO_2 emissions, as the fee could be separate but based on the number of allowances submitted.
3. Limit zero-rating and SAF allowances to RFNBOs	**Since RFNBOs have stronger environmental credentials than biofuels**, both achieving lower lifecycle emissions and limiting biodiversity damage, support should be designed to target them by: 1. Ending the blanket zero-rating on all SAF and maintain it exclusively for RFNBOs. 2. Restricting the criteria of eligibility for SAF allowances to just RFNBOs in the 2028 ETS-support review.
4. Allocate ETS revenues to international climate finance, and supporting the aviation energy transition	Portions of revenues generated from pricing aviation emissions should be mandated for: 1. Contributing to meeting the EU's commitments with regards to international climate finance. 2. Providing long term financial support to RFNBO development and deployment.

1. The story so far: aviation's privileged regime

1.1 – Stop the clock: aviation's ETS exemption

In 2003 the EU set a historic precedent for global climate action by adopting Directive 2003/87/EC (the **ETS Directive**) to establish the world's first emissions trading system (**ETS**), which then came into force in 2005.[1]

The ETS is a 'cap and trade' system, meaning that there is an EU-wide limit on the total amount of emissions from activities within the scope of the system. Within that cap, emission 'allowances' are auctioned off or allocated to companies and can be traded between companies, rewarding those quick to cut emissions and making polluters pay. At the end of each year, companies must surrender allowances equivalent to their actual emissions for the previous year, and are penalised for any extra emissions over that year's cap. The system reduces the number of allowances year by year so that by 2045 the allowances reduce to zero, driving real emissions reductions.[2]

The ETS Directive was amended in 2008 to bring aviation into the scope of the ETS with Directive 2008/101/EC (the **Aviation ETS Directive**). The Directive provided that from 1 January 2012, all flights arriving at or departing from an EU airport (with some exceptions, for example military aircraft) would be within the ETS scope.[3]

Despite the European Court of Justice (ECJ) finding the Aviation ETS Directive to be valid (in a case brought by various airlines, see section 4.3), diplomatic pressure largely from the US as well as the aviation industry led to the EU adopting what is known as the 'stop the clock' mechanism in 2012. This temporary derogation from the ETS Directive excluded extra-EEA flights from the scope of the ETS.

The EU Commission initially delayed the introduction of international aviation into the ETS with Decision 377/2013/EU until after the International Civil Aviation Organisation (ICAO) Assembly in October 2013.[4] This decision was made in order to facilitate ICAO's work towards the adoption of a global market-based mechanism for reducing emissions, the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). This 'temporary' derogation has now been

[1] European Commission, 2003. Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003. Retrieved 23 May, 2025 from https://eur-lex.europa.eu/eli/dir/2003/87/oj/eng
[2] European Commission Directorate-General for Climate Action, 2024. EU Emissions Trading System has reduced emissions in the sectors covered by 50% since 2005. Retrieved 18 June, 2025 from https://climate.ec.europa.eu/news-your-voice/news/eu-emissions-trading-system-has-reduced-emissions-sectors-covered-50-2005-2025-04-04_en
[3] European Commission, 2008. Directive 2008/101/EC of the European Parliament and of the Council of 19 November 2008. Retrieved 23 June, 2025 from https://eur-lex.europa.eu/eli/dir/2008/101/oj/eng
[4] European Commission, 2013. DECISION No 377/2013/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 April 2013. Retrieved 23 June, 2025 from https://eur-lex.europa.eu/eli/dec/2013/377(1)/oj/eng

extended several times – most recently by Directive (EU) 2023/958 to 31 December 2026, when CORSIA will enter its mandatory phase.[5]

The status of the EU ETS, at the time of writing, is that flights to and from countries outside of the EEA (except for flights to the United Kingdom and Switzerland[6]) are exempt from reporting emissions, surrendering allowances, and the associated penalties for surrendering insufficient allowances, until 31 December 2026.

The EU Commission is set to evaluate the environmental integrity of CORSIA by July 2026, and, if finding it insufficient, will prepare a legislative proposal that may discontinue the exemption. For the reasons discussed in this paper, we expect the assessment to find CORSIA structurally flawed and incapable of adequately reducing international aviation emissions.

[5] European Commission, 2023. Directive (EU) 2023/958 of the European Parliament and of the Council of 10 May 2023 amending Directive 2003/87/EC. Retrieved 23 June, 2025 from https://eur-lex.europa.eu/eli/dir/2023/958/oj/eng

[6] Arriving flights from the United Kingdom and Switzerland are subject to the United Kingdom's ETS and Switzerland's ETS, respectively.

Box 1 – Aviation's privileged regime

The aviation industry has long enjoyed numerous privileges that have allowed it to avoid accountability for its climate impacts. This has reduced the incentive to decarbonise and revenues that could have been put to driving the energy transition in and outside the sector lost.

Extra-EEA flights

In 2012, the EU Commission exempted flights leaving European countries for non-European countries from the ETS, excluding around 60% of the sector's climate impacts from being priced. In just the 12 years covering 2012–2023, this exemption let 1.1bn tCO_2 go unregulated, the equivalent of Greece's entire greenhouse gas emissions in the same period, losing €26bn in revenues that could have funded climate action.

Non-CO_2 emissions

On top of the high levels of CO_2 pollution caused by aviation, planes' non-CO_2 effects also cause significant damage – potentially twice as much as its CO_2 does. These extra climate impacts have never been regulated, by the ETS or otherwise, leaving the majority of aviation's pollution unchecked.

Free allowances

As well as having its pollution largely unaccounted, EU aviation also enjoyed free ETS allowances, meaning the industry did not pay a price on all its intra-EEA CO_2 emissions. Between 2013-2020, 82% of aviation's ETS allowances were free.[7] The free allowances were because the industry argued that the ETS's coverage of aviation would cause carbon leakage, however the European Commission's 2021 impact assessment found that "there is no evidence of carbon leakage at present for aviation, because there is equal treatment of all airlines on flight routes covered by the ETS" and that free allowances "undermines the effectiveness of the carbon price signal thereby removing incentives for aircraft operators to decarbonise their activities".[8]

These allowances are set to be fully phased out in 2026, yet between 2012-2023 alone, their worth totalled some €8bn (based on the average allowance price for each year).

Tax breaks

A privilege enjoyed by aviation since even long before the EU ETS is its exemption from paying either fuel tax on kerosene, or VAT. While the proponents of this often cite a prohibition of kerosene tax in international law, there is in fact no legal justification for this exemption.[9]

1.2 – Is CORSIA fit for purpose?

CORSIA is the global mechanism established by ICAO to reduce CO_2 emissions from international aviation. It was adopted in 2016 on a voluntary basis and will become mandatory in 2027. However, CORSIA has structural flaws that make it fundamentally not fit for purpose.

"Carbon neutral growth" not absolute reductions

CORSIA mandates airlines to monitor and report their emissions and offset any emissions exceeding a set baseline. The original CORSIA baseline was set to be based on the average of 2019-2020 emissions however following the drastic decline in the global aviation industry during COVID-19, ICAO elected to adjust CORSIA by removing 2020 emissions from the baseline. This was subsequently revised following the 41st ICAO Assembly to be 85% of 2019 emissions.[10] This adjustment shifted the baseline to ~529MtCO_2e,[11] meaning the system can at best marginally lower international aviation emissions to this level, rather than put the sector on track for ICAO's long-term aspirational goal of net zero emissions by 2050.

Furthermore, it is expected that the baseline will not be exceeded until 2026 meaning no airline needs to offset until then. Indeed, no eligible units have yet been submitted by any party to CORSIA, meaning that to date it elicited no mitigation.[12]

Offsetting, not reducing, emissions

There is no cap on emissions beyond which excess emissions are subject to a penalty as in the EU ETS, and no system that incrementally decreases the baseline to capture more emissions, as the ETS cap is raised on a yearly basis. Therefore, CORSIA only, at best, offsets additional emissions, compared to the baseline, rather than actually reduce emissions. The price of offsets is relatively low, making the incentive to cut emissions, rather than simply pay to pollute, weak. All of the revenues from credit purchases go to the offset seller meaning that, unlike the EU ETS, no revenue is generated to fund efforts to tackle aviation's climate impacts.

Participation

The scheme is currently voluntary and will not be mandatory until 2027. Even then, it will only be mandatory for the 34 states that have a percentage share of global aviation above 0.5% and are not classed as developing countries.

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[10] International Air Transport Association (IATA), 2025. CORSIA Fact sheet. Retrieved 18 June, 2025 from https://www.iata.org/en/iata-repository/pressroom/fact-sheets/fact-sheet-corsia/

[11] International Energy Agency (IEA), 2025. Aviation. Retrieved 18 June, 2025 from https://www.iea.org/energy-system/transport/aviation

[12] For a full consideration of CORSIA in comparison to the ETS, see: Carbon Market Watch, 2024. EU ETS vs CORSIA: Which better navigates the turbulence of the climate crisis? Retrieved 18 June, 2025 from https://carbonmarketwatch.org/publications/eu-ets-vs-corsia-which-better-navigates-the-turbulence-of-the-climate-crisis/

Furthermore, the system is designed so that airlines are accountable to the state they are flagged in, rather than using route-based reporting (as the EU ETS does). Therefore, all of the signatories to CORSIA need national legislation in place to ensure that all CORSIA Standards and Recommended Practices (SARPs) are fulfilled and that airlines are in compliance. At the time of writing, the United States, for example, has not introduced legislation which would enable it to participate. Indeed, nothing prevents a state from not participating.

In addition to the above shortcomings, CORSIA does not deal with non-CO_2 impacts, and it only covers international, not domestic, flights. Furthermore, recent analysis suggests that, rather than reducing emissions, participation in CORSIA has accompanied an increase in aviation sector carbon emissions for some economies.[13] The scheme is set to end in 2035 with no current plan for after this year. In addition, there are two other actions ICAO has taken: an aircraft CO_2 standard and a long term global aspirational goal.

ICAO's Aircraft CO_2 Standard

In 2016, ICAO agreed a CO_2 Standard for new aircraft types which came into force from 2020[14] and was updated in 2025, though this update is awaiting adoption by the ICAO Council.[15] The standard aims to reduce CO_2 emissions through the integration of fuel-efficient technologies into aircraft design and development and is based on an aircraft's performance during the 'cruise' phase of flight. Analysis has shown that the standard will not drive any real reductions in emissions because the average newly delivered aircraft already meet the standard so there is no incentive for manufacturers to further improve their aircraft.[16]

ICAO's long term global aspirational goal

In 2022 ICAO Member States adopted a 'long-term global aspirational goal' (LTAG) of net-zero carbon emissions by 2050. The agreement does not commit Member States to any direct obligations, set interim targets, nor account for non-CO_2 effects.[17]

The premise for extra-EEA aviation's exemption from the EU ETS was the introduction of ICAO's CORSIA system. In the 13 years since the first exemption, ICAO has slowly introduced a system that has proved inadequate to cut emissions.

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[13] Yan, Z., Zhang, J., Wang, Z., Du, Z., 2025. Does international coordinated industrial policy stimulate regional low-carbon aviation development?. Energy Economics 143, 108220. https://doi.org/10.1016/j.eneco.2025.108220

[14] ICAO, 2020. ICAO Council adopts new CO2 emissions standard for aircraft. Retrieved 20 May, 2025 from https://www.icao.int/newsroom/pages/icao-council-adopts-new-co2-emissions-standard-for-aircraft.aspx

[15] ICAO, 2025. International community achieves progress towards sustainable aviation, net zero carbon emissions. Retrieved 10 May, 2025 from https://www.icao.int/Newsroom/Pages/International-community-achieves-progress-towards-sustainable-aviation-net-zero-carbon-emissions.aspx

[16] Hameed, M., Rutherford, D., 2025. Fuel burn of new commercial jet aircraft: 1960 to 2024. Retrieved 18 June, 2025 from https://theicct.org/publication/fuel-burn-of-new-commercial-jet-aircraft-1960-to-2024-feb25/

[17] Mithal, S., Rutherford, D., 2023. ICAO's 2050 Net-Zero CO_2 Goal for International Aviation. Retrieved 18 June, 2025 from https://theicct.org/publication/global-aviation-icao-net-zero-goal-jan23/

2. The missed opportunity for climate action

2.1 – Unregulated emissions

Extra-EEA flights

With the EU ETS exemption for extra-EEA aviation and CORSIA not effectively mitigating international aviation emissions, the aviation industry has to date enjoyed the privilege of having a majority of its emissions effectively escape regulation.

Between 2012 and 2023, verified CO_2 emissions reported within the scope of the EU ETS[18] totalled 670mn tCO_2.[19] In the same period, we estimate that, had the EU ETS instead included all flights departing EEA countries (both intra- and extra-EEA), the ETS would have incorporated an additional 1.1bn tCO_2 (see Annex 1 for methods).[20]

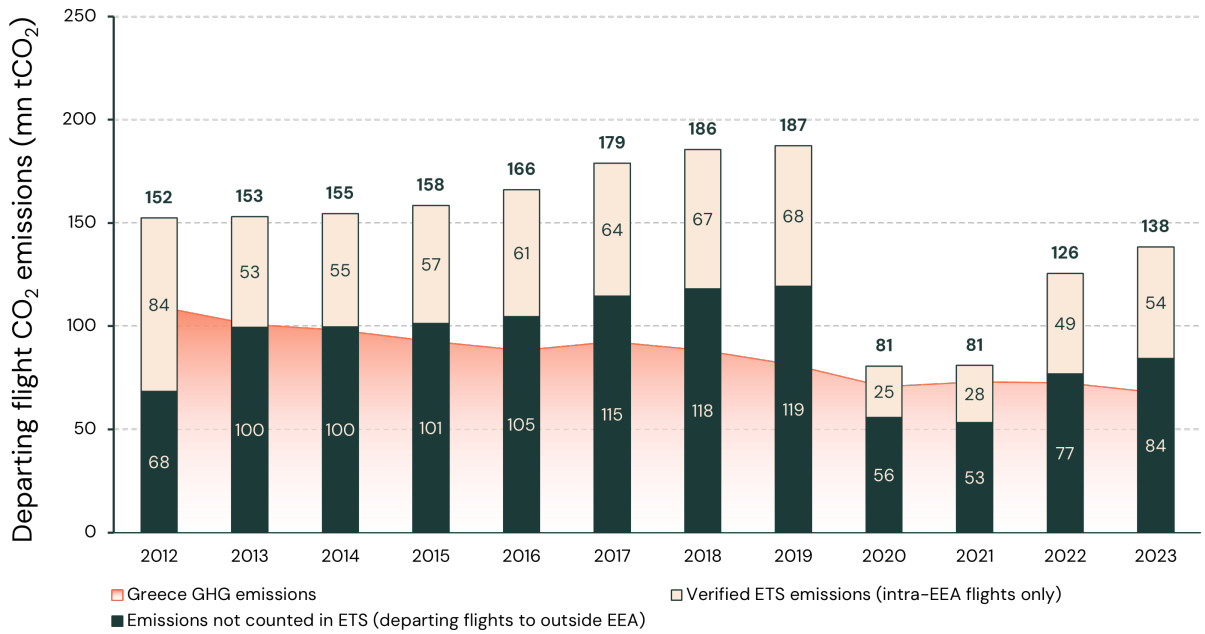

Figure 1. CO_2 emissions from flights departing countries participating in the EU ETS between 2012 and 2023 both in (light bars) and out (black bars) of scope of the EU ETS compared with total GHG emissions from Greece (orange shading).

[18] From 2012–2023, the EU ETS applied to emissions from domestic flights within, and international flights between, EU member states, as well as Norway, Liechtenstein and Iceland (collectively the European Economic Area, EEA). The UK was part of the EU ETS until the end of 2020. The EU ETS has applied to flights departing the EEA to Switzerland since 2020, and to the UK since 2021.
[19] European Environment Agency, 2025. EU Emissions Trading System (ETS) data viewer. Retrieved 10 June, 2025 from https://www.eea.europa.eu/en/analysis/maps-and-charts/emissions-trading-viewer-1-dashboards
[20] Emission calculations are based on CO_2 emissions only. **EU27, Liechtenstein, Norway and Iceland aviation emissions**: European Environment Agency, 2025. National emissions reported to the UNFCCC and to the EU under the Governance Regulation, 2025 ver. 3.0. Retrieved 10 June, 2025 from https://www.eea.europa.eu/en/datahub/datahubitem-view/3b7fe76c-524a-439a-bfd2-a6e4046302a2. **UK aviation emissions**: Department for Energy Security and Net Zero, 2025. Final UK greenhouse gas emissions statistics: 1990 to 2023. Retrieved 1 April, 2025 from https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-statistics-1990-to-2023

This is **equivalent to the total GHG emissions from Greece** over the same period (1.04bn tCO_2e).[21]

Looking ahead, based on Member States' own emission projections,[22] flights departing the EEA are expected to emit a total of **around 1.3bn tCO_2 between 2027 and 2035** (see Annex 1 for calculation details).

Non-CO_2 emissions

The EU ETS has also so far neglected to account for aviation's non-CO_2 climate impacts. In addition to CO_2, aircraft also emit nitrogen oxides (NO_x), as well as water vapour, soot and other particles. These emissions are left in a trail (known as a contrail) behind the aircraft. If the atmosphere is sufficiently cold and humid, the water vapour condenses around the particles, leading to contrails persisting in the atmosphere and forming contrail cirrus clouds.

The warming impacts of non-CO_2 emissions and contrail formation are responsible for a significant proportion of aviation's total climate impact. In 2018, these terms accounted for two thirds of aviation's total climate impact, and based on the commonly-applied Global Warming Potential (GWP) metric could be responsible for more than 40% of aviation's total contribution to global warming on a 100-year timescale.[23] Using this GWP estimate suggests that, had the EU ETS included non-CO_2 climate impacts between 2012-2023, additional emissions equivalent to 470mn tCO_2 would have been accounted for from flights within the original EU ETS scope alone (see Annex 1).

The climate impacts of aviation's non-CO_2 emissions are more uncertain than the climate impacts of the industry's CO_2 emissions, and also depend heavily on the timescale considered and emissions metric used.[23] However, scientific understanding of these impacts is continuing to develop, and it is clear that the omission of non-CO_2 climate impacts from the EU ETS has enabled the aviation

[21] Greece emissions data are net domestic greenhouse gas emissions reported to UNFCCC (all GHGs). Total does not include contributions from international aviation or shipping. Data sourced from: European Environment Agency, 2025. National emissions reported to the UNFCCC and to the EU under the Governance Regulation, 2025 ver. 3.0. Retrieved 10 June, 2025 from https://www.eea.europa.eu/en/datahub/datahubitem-view/3b7fe76c-524a-439a-bfd2-a6e4046302a2?activeAccordion=

[22] European Environment Agency, 2024. Member States' greenhouse gas (GHG) emission projections 2024. Retrieved 11 June, 2025 from https://sdi.eea.europa.eu/catalogue/srv/api/records/d5d2a7ab-dd89-410d-9f92-b5180759a06d

[23] Lee, D.S., Fahey, D.W., Skowron, A., Allen, M.R., Burkhardt, U., Chen, Q., Doherty, S.J., Freeman, S., Forster, P.M., Fuglestvedt, J., Gettelman, A., De León, R.R., Lim, L.L., Lund, M.T., Millar, R.J., Owen, B., Penner, J.E., Pitari, G., Prather, M.J., Sausen, R., Wilcox, L.J., 2021. The contribution of global aviation to anthropogenic climate forcing for 2000 to 2018. Atmospheric Environment 244, 117834. https://doi.org/10.1016/j.atmosenv.2020.117834

industry to avoid paying for a substantial proportion of the climate damages it is responsible for.

2.2 – Untapped revenues

How much revenue is being missed?

The bulk of unregulated CO_2 emissions from extra-EEA aviation scale up to a huge amount of revenue that could have been collected by the ETS. Between 2012-2023, **the EU ETS could have generated an additional €26bn in revenue**, if the scope had included all departing flights from EEA airports. This figure is calculated from the estimated average annual ETS allowance prices,[24] accounting for the historical allocation of free allowances and does not include any potential revenues from non-CO_2 emissions, which are more uncertain (see full method in Annex 1).

What's more, the allowances allocated for free on intra-EEA aviation in this period amounted to roughly €8bn. Overall, if CO_2 emissions from all flights departing the EEA between 2012 and 2023 had been priced by the EU ETS these could have generated total revenues of around €41bn. This figure is more than the total revenue collected by EU member states from the entire EU ETS in 2023, €33bn.[25]

In the future, based on projections that flights departing the EEA are expected to emit a total of around 1.3bn tCO_2 between 2027 and 2035, and assuming a representative carbon price of €100/tCO_2, pricing the aviation industry's CO_2 emissions could raise €130bn (see Annex 1 for methods). Meanwhile, continuing to price CO_2 emissions from only intra-EEA flights across the same period would raise just €50bn, illustrating the importance of extending the ETS scope to ensure the aviation industry pays for the climate harms it causes.

Where could that revenue have been used?

Member States are responsible for auctioning ETS allowances, which raises revenues for the Innovation Fund,[26] the Modernisation Fund,[27] and Member State national budgets, which receive the vast majority of revenues.[28]

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[24] European Energy Exchange (EEX), 2025. History Emission Spot Primary Market Auction Report 2012 – 2024. Retrieved 7 April, 2025 from https://www.eex.com/en/markets/environmental-markets/eu-ets-auctions. Average annual prices calculated as the mean of all auction prices for a given year.
[25] European Environment Agency, 2024. Use of auctioning revenues generated under the EU Emissions Trading System. Retrieved 8 April, 2025 from https://www.eea.europa.eu/en/analysis/indicators/use-of-auctioning-revenues-generated
[26] European Commission. Innovation Fund. Retrieved 18 June, 2026 from https://climate.ec.europa.eu/eu-action/eu-funding-climate-action/innovation-fund_en
[27] European Commission. Modernisation Fund. Retrieved 18 June, 2025 from https://climate.ec.europa.eu/eu-action/eu-funding-climate-action/modernisation-fund_en
[28] In 2023, €33 billion of a total of €43.6billion in auction revenues was distributed directly to EU Member States (see footnote 25).

As of June 2023, all revenues, or their equivalent financial value, must be used for climate-related purposes,[29] as dictated by the ETS Directive, Article 10(3).[30] Member States are required to report annually to demonstrate that they used their revenues in line with the legitimate end uses as defined in Article 10(3).

Within this framework, the substantial revenues that could be generated from international aviation could be used for three clear purposes:

1. **International climate finance**: The aviation sector bears a historical responsibility for a large proportion of the climate change that is already happening.[31] As such, it is right that it contributes to climate change adaptation and mitigation finance for climate vulnerable countries.

   It is also in Europe's best interest to mobilise international climate finance. Every 1tCO_2 emitted globally is projected to cause between $22.53 and $125.27 in damages within the EEA bloc (including Switzerland). Indeed, in 2024 Europe experienced its warmest year on record, causing €18.2bn worth of damage and destruction.[32] By financing climate mitigation in developing countries and thus reducing the climate impacts, developed countries can see a return on investment between 180.2% and 1457.2%.[33] Thus, it is economically rational to invest revenues from the EU ETS in mitigation in developing countries due to the savings the EU economy will make in terms of avoided climate events, even in the absence of any other financial return on that investment.

   The EU must not miss the opportunity to contribute fairly and proportionately to the global goal of $1.3tn a year of climate finance to developing countries, as agreed at COP29. Mandating a proportion of revenue from aviation allowances to meet the EU's climate finance goals from this global sector is only fair, as well as likely to be well received by partner nations across the world.

2. **General climate budgetary support across the EU**: EU member states need new or additional sources of finance to satisfy urgent climate mitigation and adaptation needs. The World Bank estimates that EU climate change adaptation could cost €15bn to €64bn annually up to the 2030s.[34] It is widely recognised that aviation has been historically undertaxed, through fuel tax and VAT exemptions, and therefore contributes little to the general budgets of EU

[29] With the exception of money used to pay indirect carbon costs to some energy-intensive producers.
[30] As amended by DIRECTIVE (EU) 2023/959 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 10 May 2023. Retrieved 18 June, 2025 from https://eur-lex.europa.eu/eli/dir/2023/959/oj/eng
[31] Ritchie, H., 2024. What share of global CO_2 emissions come from aviation? Published online at OurWorldinData.org. Retrieved 18 June, 2025 from https://ourworldindata.org/global-aviation-emissions
[32] Copernicus Climate Change Service (C3S) and World Meteorological Organization (WMO), 2025. European State of the Climate 2024. https://climate.copernicus.eu/esotc/2024, doi.org/10.24381/14j9-s541
[33] These returns are projected to be actualised when climate finance payments are being made not at the promised scale of $1.3 trillion, but the needed scale of $2.8 trillion.
[34] World Bank, 2024. Climate Adaptation Costing in a Changing World. Retrieved 18 June, 2025 from https://www.worldbank.org/en/region/eca/brief/economics-for-disaster-prevention-preparedness-europe

Member States.[35] Bringing aviation's full climate impacts under the ETS would increase the stock of revenues available for national climate action and therefore free up other general tax revenues to be spent where aviation has not heretofore contributed its fair share to national finances.

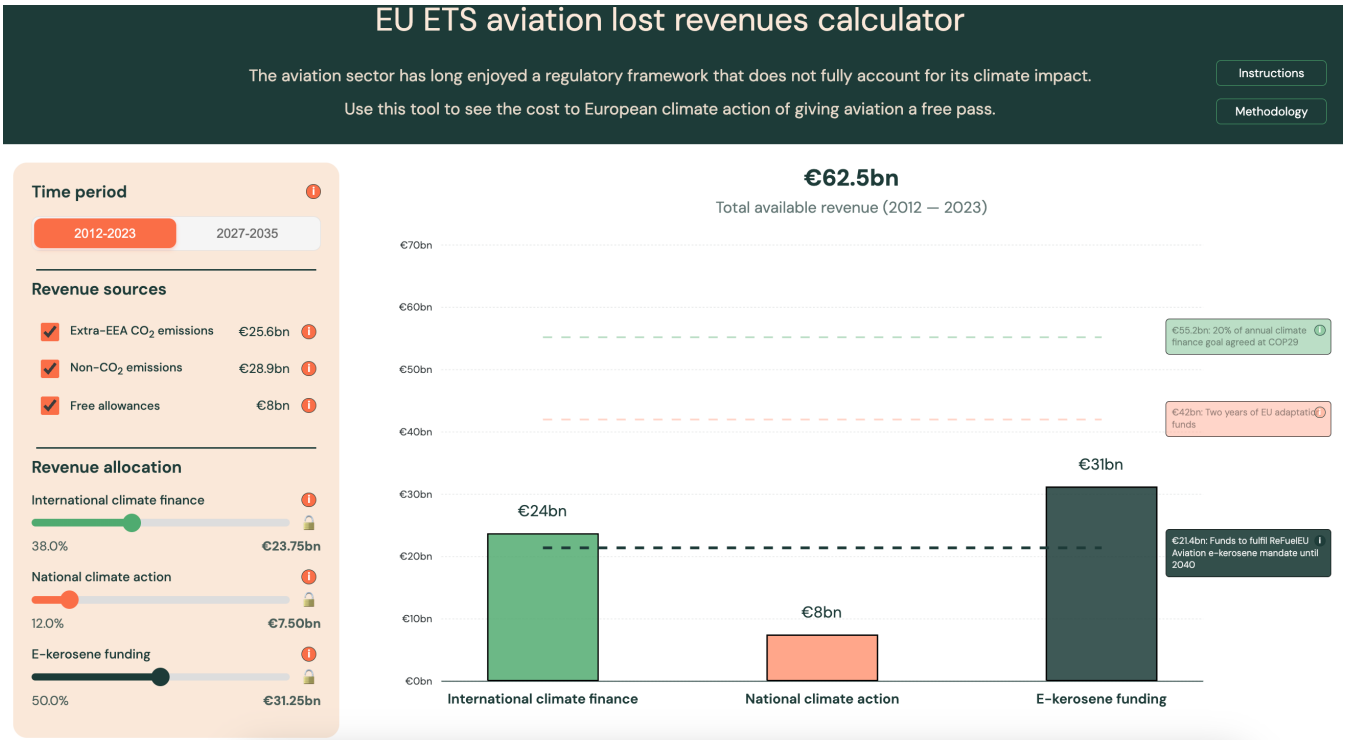
On this front it would also be of benefit to use the long-awaited revision of the European Tax Directive (ETD) to include kerosene tax, aligning aviation with road transport.

3. **Driving innovation in truly sustainable fuels**: A portion of funding needs to go towards aviation's own energy transition. The only credible fuel solution for net zero aviation is renewable fuels of non-biological origin (RFNBOs), such as e-kerosene produced from renewable hydrogen and/or renewable hydrogen itself. Beyond its climate credentials, producing RFNBOs in the EU is both an economic opportunity and a means to mitigate the energy security risks brought about by relying on imported fossil fuels. But a wide range of so-called sustainable aviation fuels (SAFs) are currently supported under the ETS.

   A proportion of ETS aviation revenues should be mandated for financing RFNBO development and deployment specifically, and not other unsustainable SAFs. How the ETS can better be designed to support the development of truly sustainable aviation fuels is discussed in the following section.

Since the default is that revenues, rightly, enter Member State budgets, we recommend that certain proportions of revenues be allocated to meet the EU's climate finance commitments, helping build international support.

[35] Transport and Environment (T&E), 2025. Leaked study shows aviation in Europe undertaxed. Retrieved 18 June, 2025 from https://www.transportenvironment.org/articles/leaked-european-commission-study-aviation-taxes#:~:text=It%20finds%20that%20Europe%20is%20chronically%20undertaxing%20the,or%20GDP.%20T%26E%E2%80%99s%20briefing%20paper%20analyses%20these%20findings



Use our digital EU ETS aviation revenue calculator to see the climate cost of aviation's privileged regulatory regime — and what's at stake if the EU Commission does not decide to expand the ETS scope in 2026.

2.3 – Undermining the aviation energy transition

The EU ETS has an important role to play in incentivising the aviation energy transition by supporting truly sustainable fuels, both through the use of revenues and otherwise. These fuels are RFNBOs, such as e-kerosene, derived from renewable hydrogen, and present the only credible fuel path to net zero for the aviation industry. Despite their core role in the energy transition, their deployment is today hampered by high prices and competition not just with fossil kerosene but also with cheaper yet less sustainable biofuels.

The ETS has an automatically supportive effect on RFNBOs in pricing fossil kerosene and therefore narrowing the price gap between the two fuels. This makes e-kerosene more competitive, helping it attract the private investment it needs to scale up and ultimately meet ReFuelEU Aviation targets.

Beyond this, the ETS Directive also includes other mechanisms for supporting SAF, but these have neither been strong enough nor specific enough to help e-RFNBOs compete against both fossil kerosene and biofuels.

The EU ETS can be augmented to support RFNBOs in four ways, by:

1. Allocating free allowances for RFNBO use.

2. Earmarking portions of ETS revenues to invest in RFNBO development and deployment.
3. Giving exclusively RFNBOs a 'zero-rating'.
4. Expand the ETS's scope to amplify price support.

SAF allowances

Current measures to make SAFs more cost-competitive with fossil fuels benefit unsustainable biofuels at RFNBOs' expense. A 2023 revision of the EU ETS Directive set out that, from 1 January 2024 to 31 December 2030, 20m EU ETS allowances (estimated to be worth around €1.6bn) would be available to aircraft operators to cover a proportion of the price differential between fossil kerosene and alternative aviation fuels.[36] There are caps for how much of the price differential can be covered by allowances giving a greater degree of support to the more sustainable fuels, with RFNBOs enjoying the highest cap (95%), followed by advanced biofuels (70%) and other eligible aviation fuels not derived from fossil fuels (50%).[37]

[36] DIRECTIVE (EU) 2023/959 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 10 May 2023. Retrieved 18 June, 2025 from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32023L0959
[37] European Commission, 2023. ETS allowances for SAF. Retrieved 18 June, 2025 from https://climate.ec.europa.eu/document/download/9a82627a-8a5c-4419-93de-e5ed2d6248eb_en?filename=policy_ets_allowances_for_saf_en.pdf&prefLang=hu

Box 2 – E-kerosene and biofuels

The majority of emissions reductions in aviation are expected to be achieved through the adoption of so-called "sustainable aviation fuels" (SAF), but this umbrella term encompasses a range of fuels, some of which are not sustainable. The two main SAFs are biofuels and e-kerosene.

E-kerosene

Renewable hydrogen fuels including e-kerosene, otherwise known as renewable fuels of non-biological origin (RFNBOs), are the drop-in fuel with the greatest potential to lower emissions[1] on a lifecycle basis, and the least impact on biodiversity. When made using renewable hydrogen, produced via water electrolysis, and a sustainable carbon feedstock, they can have close to 100% emissions reduction.

There is also a significant energy security benefit to the EU by moving to RFNBOs produced domestically as the EU imports 97% of its oil, including kerosene.[38]

Biofuels

Fuels derived from various biomass feedstocks can cause negative biodiversity outcomes arising from land use change and intensification, use of fertilisers and pesticides, and the introduction of non-native species, and may have significantly higher emissions on a lifecycle basis.[39]

As such, any mechanisms through which the EU ETS incentivises the adoption of alternative fuels must target those with the lowest lifecycle emissions while limiting impacts on biodiversity: namely renewable hydrogen-derived RFNBOs.

Supplies of domestic sustainable biomass feedstocks will not meet EU aviation fuel demand, meaning opting to fulfil aviation SAF targets using biofuels will leave Europe dependent on foreign imports, undermining energy security and environmental credentials.

However, despite this weighted support, this approach still targets all SAF including biofuels, and does not provide the long-term certainty needed to incentivise production and uptake of RFNBOs. There is a further concern that these allowances

may be exhausted before the end of the eligibility period in 2030[40], which is before we expect to see the commercial roll-out of RFNBOs.

With this support mechanism up for review in 2028, revisions should be made to ensure more support is targeted to RFNBOs, due to their greater climate benefits

[38] Oil import dependency at its highest in 2022 - Actualités - Eurostat
[39] https://www.sashacoalition.org/biodiversity-risks-eu-aviation-maritime-policy
[40] PtX Lab, 2024. Fit for Zero: Climate-neutral European Aviation in 2050. Retrieved 18 June, 2025 from https://ptxlablausitz.de/en/publications/

and relatively higher barriers to production at scale compared to other SAF, in addition to considering further policies to create the long-term stability needed to accelerate RFNBO development.[41]

Earmarking revenues for clean flying technology development

The path to meeting the EU's aviation emissions targets will involve electric and green hydrogen-powered zero-emission flight technologies and net-zero RFNBOs produced using green hydrogen, yet adequate funds are not being dedicated to supporting the development and deployment of these technologies. As noted in the preceding section, the deficit in revenues caused by the narrow scope of aviation emissions covered in the EU ETS constitutes a missed opportunity for supporting RFNBO development. ETS revenues can be used most efficiently to this end by establishing financial support mechanisms to create long-term stability and lower barriers to investment. One such instrument could be an output-focused contracts for difference scheme that also covers a percentage of capital expenditure for RFNBO producers.[42] Dedicating ETS revenues in this way is an effective means of ensuring that efforts to decarbonise aviation are funded by the industry itself, in line with the polluter pays principle from the EU Treaties.[43]

Zero-rating RFNBOs

The current blanket zero-rating of all SAFs undermines RFNBOs' ability to compete with biofuels and fossil fuels. Under the EU ETS, certain SAFs are zero-rated, meaning they are classified as having an emission factor of zero and therefore are not priced.[44]

Zero-rating is an effective means to incentivise the uptake of alternative fuels, indirectly affecting the market price by removing cost of ETS compliance for off-takers. But the current regulation gives a blanket zero-rating across a range of SAFs, including RFNBOs, but also biofuels and low-carbon synthetic fuels that comply with RED II sustainability criteria. Not only do biofuels have greater climate and environmental impacts than RFNBOs, but they are also currently more technologically advanced and cost less, making them less in need of support. The zero rating should be exclusive to RFNBOs.

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[41] Article 3c of the 2023 revision of the EU ETS states that the Commission must report on the implementation of the SAF allowances mechanism to the European Parliament and Council by January 2028. This report may then be accompanied by a legislative proposal to extend the mechanism to the end of 2034.

[42] Dings, J., Sol, X., 2025. State Aid 2.0. Lean, clean, European. Retrieved 18 June, 2025 from https://www.transportenvironment.org/articles/eu-commissions-state-aid-plans-fail-to-deliver-for-cleantech

[43] CONSOLIDATED VERSIONS OF THE TREATY ON EUROPEAN UNION AND THE TREATY ON THE FUNCTIONING OF THE EUROPEAN UNION (2016/C 202/01). Article 191(2). Retrieved 18 June, 2025 from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A12016ME%2FTXT

[44] European Commission Directorate-General for Climate Action, 2024. New monitoring rules agreed for the EU ETS, including non-CO_2 emissions from the aviation sector. Retrieved 18 June, 2025 from https://climate.ec.europa.eu/news-your-voice/news/new-monitoring-rules-agreed-eu-ets-including-non-co2-emissions-aviation-sector-2024-08-30_en

ETS scope

The narrow scope of aviation emissions covered in the EU ETS, excluding extra-EEA flights and non-CO_2 emissions, has diluted the ETS's positive effect on the aviation energy transition. Years of exempting aviation's climate impacts has weakened the incentive to phase out fossil kerosene, the price-narrowing impact of the ETS, and lowered the available finances for investment. Conversely, expanding the ETS scope would augment these positive effects on the transition.

3. Making up for lost time: recommendations for reforming the EU aviation ETS

3.1 – End the exemption of extra-EEA flights from the EU ETS

The 'stop the clock' derogation is temporary, meaning that on its expiry on 31 December 2026 the ETS will revert back to its original scope for aviation activities, i.e. all flights arriving or departing from an EU airport will be subject to the ETS (subject to limited exceptions), provided no further extension is adopted.

To determine the next phase of the EU ETS, ahead of this deadline the European Commission is tasked by Directive (EU) 2023/958 with submitting a report by 1 July 2026 assessing the environmental integrity of CORSIA. This is set to evaluate CORSIA's "*general ambition in relation to targets under the Paris Agreement, the level of participation in offsetting under CORSIA, its enforceability, transparency, the penalties for non-compliance, the processes for public input, the quality of offset credits, monitoring, reporting and verification of emissions, registries, accountability as well as rules on the use of biofuels*".[45]

If the report finds CORSIA to be insufficient, the Commission is to produce a legislative proposal to reform the ETS, *"to amend the ETS Directive in a way consistent with the Paris Agreement temperature goal, the EU's 2030 GHG emission reduction commitment, and the objective of climate neutrality by 2050 at the latest, and with the aim of preserving the environmental integrity and effectiveness of the Union's climate action."*

Specifically, this new legislation will be proposed if CORSIA fails to meet at least one of two conditions against which it will be assessed:

a) "ICAO has not strengthened CORSIA by 31 December 2025 in line with its long-term aspirational goal of meeting the Paris Agreement temperature targets."

[45] DIRECTIVE (EU) 2023/958 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 10 May 2023. Article 28b(2). Retrieved 18 June, 2025 from https://eur-lex.europa.eu/eli/dir/2023/958/oj/eng

b) "States [participating in CORSIA] represent less than 70% of international aviation emissions."[46]

At the time of writing, condition (a) has been met, i.e., ICAO has not strengthened CORSIA appropriately. For the reasons outlined above – that the scheme is limited in scope to 2035, reduces emissions relative to only a low baseline that does not decrease, and that it only offsets rather than reduces emissions – means CORSIA cannot set international aviation on track to meet ICAO's long-term aspirational goal of net zero emissions by 2050.

Indeed, as early as 2021 an ultimately unpublished report by the EU Commission concluded that CORSIA was unlikely to materially alter the direct climate impact associated with air travel" and create a scenario "in which international aviation emissions remain unregulated".[47]

Evaluating condition (b) is harder since even countries which have declared their intention to participate in CORSIA going forward have not necessarily introduced legislation which would enable them to participate.

Since CORSIA is structurally incapable of reducing international aviation's climate impacts in line with the Paris Agreement, the European Commission should end the exemption of extra-EEA aviation from the EU ETS, by applying the ETS to departing international flights from the EEA (excluding arriving international flights).

3.2 – Include non-CO_2 climate impacts in the EU ETS

While the non-CO_2 climate effects of aviation are not priced in the ETS, Directive (EU) 2023/958 in 2023 introduced monitoring, reporting and verification obligations relating to the non-CO_2 effects of aviation.[48] In 2024, the European Commission adopted Commission Implementing Regulation 2024/2493, which provided that from 1 January 2025 airlines are to monitor and report non-CO_2 aviation effects.[49] While reporting in 2025 and 2026 is only required for routes between airports within the EEA, or from EEA airports to airports in the UK or Switzerland (i.e.,

[46] DIRECTIVE (EU) 2023/958 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 10 May 2023. Article 28b(3). Retrieved 18 June, 2025 from https://eur-lex.europa.eu/eli/dir/2023/958/oj/eng
[47] Hodgson, C., Philip Georgiadis, Leslie Hook and Mehreen Khan. 2021. Aviation industry carbon scheme highly flawed, Brussels warned. Retrieved 10 May, 2025 from https://www.ft.com/content/296121c6-1af5-4ef4-b674-c3389b6de33c
[48] DIRECTIVE (EU) 2023/958 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 10 May 2023. Retrieved 18 June, 2025 from https://eur-lex.europa.eu/eli/dir/2023/958/oj/eng
[49] Commission Implementing Regulation (EU) 2024/2493 of 23 September 2024. Retrieved 23 June, 2025 from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L_202402493

reflecting the current scope of CO_2 reporting), from 1 January 2027, the monitoring and reporting obligations for non-CO_2 effects shall cover all flights to or from an airport in the EEA.

By 31 December 2027, the Commission is required to submit a report on the results of the monitoring, reporting and verification framework for non-CO_2 emissions and, as appropriate, a legislative proposal to expand the scope of the ETS to include the non-CO_2 effects from aviation.

Even though the non-CO_2 emissions report and proposal will only be published after the 2027 ETS review on including extra-EEA flights, policymakers on the 2027 review should nevertheless also consider the reduction of non-CO_2 impacts. Ideally the non-CO_2 report should be moved forward so it could be considered alongside the ETS revision and aviation's full climate impacts, and mitigative measures, can be considered holistically.

Measures to reduce non-CO_2 emissions include using fuels with lower concentrations of aromatics and naphthalene, and rerouting, and are very cost-efficient. Implementing such policies would not necessitate increasing the cap to include non-CO_2 emissions, as the fee could be separate but based on the CO_2 emissions each airline submits under the ETS. For example, if airlines do not reduce their aromatics and naphthalene or participate in rerouting programs they would pay an extra fee representing their non-CO_2 emissions for every ton of CO_2 on top of that already paid for CO_2 emissions. Whilst the exact science of aviation non-CO_2 mitigation is still developing, the polluter pays principle under EU law means that airlines should at least provide the finances required to adapt to the climate damage that their non-CO_2 emissions cause.

The 2027 ETS revision should reduce non-CO_2 impacts by requiring that airlines:

1. Use fuels with a reduced concentration of aromatics and naphthalenes.[50]
2. Participate in a contrail avoidance program (i.e. rerouting).

Airlines not adopting these actions should be subjected to a fee in addition to their ETS allowances.

[50] Faber, J., et al. 2022. Potential for reducing aviation non-CO2 emissions through cleaner jet fuel. CE_Delft_210410_Potential_reducing_aviation_non-CO2_emissions_cleaner_jet_fuel_FINAL.pdf

3.3 – Limit zero-rating and SAF allowances to RFNBOs

If the EU ETS is to effectively incentivise the use of RFNBOs, it must review the zero-rating of all RED II-compliant alternative fuels and instead limit zero-rating and SAF allowances to only RFNBOs.

While RED II does include biodiversity considerations, they do not fully take into account lower value land, nor whether the EU's decarbonisation goals are compatible with the EU's biodiversity targets. Over-reliance on the less sustainable fuels that currently are awarded zero-rating under the EU ETS would render the EU's biodiversity targets unachievable.[51] Holistic policymaking requires the EU ETS to account for the biodiversity targets and thus ensure that fuel zero-rating and SAF allowances are limited to RFNBOs.

Recognition of the stronger environmental credential of RFNBOs compared to biofuels, both achieving lower lifecycle emissions and limiting biodiversity damage, should be recognised by:

1. Ending the blanket zero-rating on all SAF and maintain it exclusively for RFNBOs in the 2027 ETS review.

2. Restricting the criteria of eligibility for SAF allowances to just RFNBOs in the 2028 ETS-support review.

3.4 – Mandate ETS revenue allocation to international climate finance, and the aviation transition

Having long benefited from privileges and exemptions, it is high time the aviation industry pays for its own energy transition, in line with the polluter pays principle. As an internationally polluting sector whose benefits are enjoyed by a wealthy global minority, it is only just that revenues from the aviation ETS are also distributed in part to pay for mitigation, adaptation and loss and damage in climate vulnerable and developing countries.

[51] Phillips, J., Sandford, C., Kebbie, S., Malins, C., 2024. Fuelling nature. Retrieved 18 June, 2025 from https://www.sashacoalition.org/biodiversity-risks-eu-aviation-maritime-policy

Portions of revenues generated from pricing aviation emissions should be mandated for:

1. Contributing to meeting the EU's commitments with regards to international climate finance.
2. Providing long-term financial support to RFNBO development and deployment.

4. The EU ETS and the international landscape

4.1 – Governance at ICAO

ICAO does not meet the standards of governance in environmental decision making that the EU has committed to.[52] ICAO lacks transparency[53] and has a high rate of industry capture.[54] However, potentially most concerning for these purposes is that ICAO rules mean its 193 Member States only attend once every three years at the Assembly, leaving most of the work to be conducted by the 36 Member States on the ICAO Council in the interim. The ICAO Council is made up of Member States who are either elected by the Assembly or are permanently represented on the basis of the size of their aviation market. This structure seriously calls into question whether any policy developed at ICAO is truly representative of all Member States. Climate vulnerable countries in particular are drastically under-represented on the Council – the overwhelming majority of the 11 permanent members of the ICAO Council are rich Global North countries.

4.2 – Could ending international aviation's ETS exemption exacerbate tensions with the US?

States have a responsibility under international law to go beyond ICAO and the International Maritime Organization (IMO), the UN specialised agency for international shipping, to align themselves with the Paris agreement 1.5°C temperature goal. For this reason, the ICAO's remit covering international aviation emissions does not exempt the EU from responsibility to reduce its contribution to these emissions since ICAO is not adequately cutting them itself.

[52] The EU is a Party to the Aarhus Convention on environmental democracy, which protects the three key rights of access to information, public participation in decision-making and access to justice in environmental matters. The Aarhus Regulation implements the principles of the Aarhus Convention in relation to the making of EU law. For further information, see footnote 53.
[53] Hicks, C., 2022. Clear Sky and Transparent Sea. Retrieved 18 June, 2025 from https://www.opportunitygreen.org/publication-clear-sky-and-transparent-sea
[54] InfluenceMap, 2022. Corporate Capture and the UN International Civil Aviation Organization. Retrieved 18 June, 2025 from https://influencemap.org/report/Corporate-Capture-of-the-UN-International-Civil-Aviation-Organization-19779

The original decision to exempt extra-EEA aviation from the EU ETS was in large part due to pressure from the US. While concerns around how the US could respond to a decision to end the exemption, they should not constitute a reason to shy away from strengthening the ETS. On the contrary, extending the EU ETS would constitute an apt response to today's aggressive US trade policy, as well as an indispensable policy in the face of the climate crisis.

In 2011, the US placed the EU under diplomatic pressure to roll back the EU ETS aviation expansion. This included repeated expressions of formal objection to the prospective expansion and warning that it may lead to a trade war[55]; threatened a complaint to the World Trade Organization[56]; a letter of opposition signed by 26 ICAO members allegedly initiated by the US delegation[5758]; a Department of Transportation order for information from European airlines[59]; then-Secretary of State Hilary Clinton and Transport Secretary Ray LaHood writing to urge the EU Commission against the inclusion of extra-EEA aviation in the ETS, strategically timed just days ahead of the European Court of Justice (ECJ) verdict against US airlines challenging the ETS expansion (see section 4.3)[60]; and a government denouncement of the ECJ's finding the policy to be compliant with international law.[61] These efforts were in large part prompted by industry lobbying efforts.[57;62;63]

In 2013 (under the Obama Presidency) the United States passed the **European Union Emissions Trading Scheme Prohibition Act**.[64] This was referred to as the 'Thune Bill' after Republican Senator John Thune from South Dakota who led on the Bill. He is now the majority leader in the US Senate. The Act gives the US Secretary of Transportation the authority to prohibit a US airline from participating in the EU ETS. The legislation also directs the Secretary of Transportation and other government officials to use "their authority to conduct international negotiations to pursue a worldwide approach to address aircraft emissions". However, the

[55] AIN, 2011. House Transportation Leaders Launch Attack on EU-ETS. Retrieved 18 June, 2025 from https://www.ainonline.com/aviation-news/business-aviation/2011-07-21/house-transportation-leaders-launch-attack-eu-ets
[56] Argus, 2011. US may retaliate on EU ETS aviation rule, official says. Retrieved 18 June, 2025 from https://www.argusmedia.com/pages/NewsBody.aspx
[57] Foster, C., 2012. American Policy Development: Mitigating the U.S. Response to the EU ETS Aviation Directive. Retrieved 18 June, 2025 from https://ash.harvard.edu/wp-content/uploads/2024/02/2345329.pdf
[58] Reuters, 2011. India, 25 others oppose EU airline carbon charge plan. Retrieved 18 June, 2025 from https://www.reuters.com/article/2011/09/30/us-eu-aviation-emission-idUSTRE78T1TX20110930/
[59] United States of America Department of Transportation. Order 2011-12-10. Retrieved 18 June, 2025 from https://www.archives.greenairnews.com/www.greenaironline.com/photos/DOT_EU_ETS_ORDER_EU_Carriers_12-16-11.pdf
[60] Bloomberg Law, 2011. Clinton Asks EU to Halt Plan to Include U.S. Airlines in Emissions Trading System. Retrieved 18 June, 2025 from https://news.bloomberglaw.com/environment-and-energy/clinton-asks-eu-to-halt-plan-to-include-us-airlines-in-emissions-trading-system
[61] Euractiv, Reuters, 2011. US voices 'objections' to EU aviation emissions ruling. Retrieved 18 June, 2025 from https://www.euractiv.com/section/eet/news/us-voices-objections-to-eu-aviation-emissions-ruling/
[62] Transport and Environment (T&E), 2011. USA orchestrating major push to stop aviation emissions trading. Retrieved 18 June, 2025 from https://www.transportenvironment.org/articles/usa-orchestrating-major-push-stop-aviation-emissions-trading
[63] National Business Aviation Association (NBAA), 2012. Coalition Calls on Clinton, LaHood to Take Further Action in Opposition to EU-ETS. Retrieved 18 June, 2025 from https://nbaa.org/press-releases/coalition-calls-on-clinton-lahood-to-take-further-action-in-opposition-to-eu-ets/
[64] S.1956 - European Union Emissions Trading Scheme Prohibition Act of 2011. Retrieved 18 June, 2025 from https://www.congress.gov/bill/112th-congress/senate-bill/1956/text

authority to prohibit US airlines from participating in the EU ETS is not conditioned on the US pursuing global action.

Given the US's recent withdrawal from the Paris Agreement, its failure to date to implement CORSIA, and its aggressive tariff policy, it is entirely plausible that the US may use the Thune Bill if the ETS is extended to extra-EEA flights.

In considering the revocation of international aviation's ETS exemption, EU policymakers will have to decide whether or not to give ICAO more time on top of the 13 years it has had to reach to a strong global deal on aviation emissions and/or run the risk of eliciting a US response in triggering the Thune Bill. While the current political environment means it is impossible to predict what EU-US trade will look like in 2026 when the ETS expansion will be proposed, there are many reasons why the EU should, regardless of what the US does, strengthen its regulations on aviation emissions and impose the ETS on all flights leaving the EU.

The EU has historically positioned itself as a leader on climate action, not least by implementing the world's first ETS for climate. Aviation is a glaring exception on this otherwise admirable record, and hampers the EU's achievement of its own climate goals. It's now time for the EU to lead again and stand up for European values by imposing what, in the face of the climate crisis we are facing, are moderate and reasonable regulations, despite potential backlash. Shying away from action for fear of repercussions only emboldens bad faith actors.

Furthermore, EU action has a global multiplier effect: standing up for climate action enables other countries to follow suit. There is no clearer example of this than the maritime sector where the EU's FuelEU Maritime regulation and inclusion of international shipping in the ETS, was a key driver of very recent action at the IMO.

Indeed, flights between Europe and the North Atlantic are responsible for a vastly outsized proportion of EU aviation emissions. In 2023, just 2% of flights leaving EU+EFTA airports were set destinations in the North Atlantic, yet they emitted about 22m tCO_2, 16% of all EU aviation's CO_2 emissions that year. These emissions would have generated to €1.9bn had they been covered by the ETS. Indeed, a narrower number of transatlantic routes have an even more disproportionate contribution to aviation's climate impact, with flights from London and Paris to New York alone emitting more than 2mn tCO_2 in 2024.[65]

4.3 – Including international aviation in the EU ETS is legally permissible

In 2011, the Air Transport Association of America and certain American airlines brought a case in the English High Court against the UK Secretary of State for Energy and Climate Change (*Air Transport Association of America and others v*

[65] Hencz, K., 2025. Polluter pays? A large share of Europe's aviation emissions remain unpriced. Retrieved June 18, 2025 from https://www.transportenvironment.org/articles/airline-emissions-soar-to-pre-covid-levels

Secretary of State for Energy and Climate Change) against the validity of the UK's implementation of the Aviation ETS Directive, claiming that the inclusion of international flights breached international law.

The English High Court referred the case to the ECJ. The ECJ held that the Aviation ETS Directive is valid and does not contravene:

- The International Convention on Civil Aviation (the 'Chicago Convention').
- The EU/US Open Skies Agreement.
- The Kyoto Protocol (as then in force).
- Customary international law.[66]

The ECJ's verdict concluded that the EU has competence to regulate aircraft emissions for flights arriving at or departing from EU airports, as those aircraft are physically in the territory of an EU Member State and so are subject to the 'unlimited jurisdiction' of the relevant Member State and the European Union.

4.4 – The aviation ETS and European competitiveness and economic resilience

Including international aviation in the EU ETS will strengthen the competitiveness of EU businesses, and improve general European resilience. Currently airlines that operate primarily within the EEA are disproportionately affected by the EU ETS compared to those that also operate outside of it. In 2024, the three airlines with the smallest proportion of extra-EEA routes, Ryanair, easyJet and Wizz Air, paid effective carbon prices of €40, €33.6 and €35.4 per tCO_2 respectively. By contrast, British Airways, Deutsche Lufthansa AG, Air France, and KLM paid effective carbon prices in the range of €10–€16.4/tCO_2.[65]

Not only would the ETS extension level the playing field between airlines within Europe, it would also improve competitiveness by making non-EU industries pay for their climate impacts just as EU companies do. The international nature of aviation means that the ETS uniquely prices emissions from non-EU companies on the same route basis as EU companies. In this way, revoking extra-EEA's ETS exemption improves, rather than undermines, EU competitiveness.

Beyond this, extending the ETS amounts to an investment in the future resilience of the European aviation industry and of Europe itself. Increasing the pool of revenues to invest in the sector's energy transition will strengthen its long-term energy security and economic sustainability, as decarbonisation will only cost more the longer it is delayed.[67]

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[66] Air Transport Association of America and Others v Secretary of State for Energy and Climate Change, 2011. Retrieved 22 June, 2025 from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62010CJ0366

[67] Gongloff, M., Denning, L., 2024. $215 Trillion to Save the Planet Is a Bargain. Retrieved 18 June, 2025 from https://www.bloomberg.com/opinion/articles/2024-05-22/climate-change-215-trillion-to-save-the-planet-is-a-bargain

Investment in climate mitigation has a further multiplier effect in reducing future costs for adaptation and loss and damage. The externalities of flying do not disappear when left out of the ETS. If they are not paid for by the aviation industry today, they will inevitably be shouldered by the public down the line, be it through climate-induced flooding in Pakistan, Pacific islands or Germany, or wildfires in the Congo Basin, Greece or Italy. It is invariably the most vulnerable, globally and within Europe, who bear the brunt of these costs.

Half of all aviation emissions are produced by just 1% of the world's population. Specifically, within Europe research shows that the highest-income households (over £/€100,000 per year) are six times more likely to take three or more return flights per year than those on the lowest incomes (under £/€20,000 per year).[68] Any extra ETS costs that airlines pass on to consumers, will therefore primarily be absorbed by higher-income households across the EU.

For these reasons, extending the ETS to extra-EEA flights does not just make economic sense, constituting a driver for the EU's Clean Industrial Deal, but is also in line with its socially democratic values. The ETS does not create new costs, it redistributes those that will eventually be borne by Europe's least culpable to the privileged sector that is responsible for the cost-inflicting damages and that has long evaded accountability.

5. Key takeaways and recommendations

The aviation industry has long enjoyed many privileges that leave its climate impacts underregulated by the EU at the regional level and ICAO at the international level. This is most consequential in the failure to regulate emissions from international flights, and non-CO_2 emissions.

The consequences for climate action are twofold: years of emissions that have escaped regulation, and of revenues uncollected that could have been used to drive mitigation within and outside of the aviation sector, and in Europe as well as in climate vulnerable countries.

The emissions missed by the EU ETS by exempting departing flights on extra-EEA journeys alone amount to 1.1bn tCO_2 between 2012-2023: the equivalent of Greece's overall climate impact. Pricing these emissions could have raised an additional €26bn in revenues.

While the prospect of US reprise may be considered a barrier to expanding the EU ETS, **doing so would be an apt response to aggressive US trade policy**. Beyond fairly pricing emissions and accelerating the energy transition, strengthening the ETS

[68] Chapman, A., Mang, S., Heuwieser, M., 2024. A frequent flying levy in Europe. Retrieved 18 June, 2025 from https://neweconomics.org/2024/10/a-frequent-flying-levy-in-europe

would level the playing field between airlines operating mainly in the EU that pay for their emissions, and those accessing European markets that do not. Conversely, allowing US pressure to halt ETS expansion would constitute a betrayal of European values, climate action, and competitiveness.

The EU has a truly admirable track record in climate action – indeed the ETS itself implemented in 2005 marked a global first, paving the way for other such systems in South Korea, China, and New Zealand to name but a few. The privileged regime that the EU has allowed aviation is a blemish on this record. The time has come for the EU to take another step as a global climate policy leader, and right this failure. It can do so by adopting the four following policies:

Policy recommendations to reform the EU ETS for aviation:	
1. Extend EU ETS to extra-EEA aviation	With ICAO's CORSIA not reducing international aviation emissions, **the EU must end the exemption of extra-EEA aviation from the ETS by including all outbound flights in the ETS** to incentivise the transition away from fossil fuels, accrue revenues to finance climate action, and make polluters pay fairly for their climate damages.
2. Include aviation's non-CO_2 climate impacts in the EU ETS	**The 2027 ETS revision should reduce non-CO_2 impacts** by requiring that airlines: 1. Use fuels with a reduced concentration of aromatics and naphthalenes. 2. Participate in a contrail avoidance program (i.e. rerouting). Airlines not adopting these actions should be subjected to a fee in addition to but separate from their ETS allowances. This would not necessitate increasing the cap to include non-CO_2 emissions, as the fee could be separate but based on the number of allowances submitted.
3. Limit zero-rating and SAF allowances to RFNBOs	**Since RFNBOs have stronger environmental credentials than biofuels**, both achieving lower lifecycle emissions and limiting biodiversity damage, support should be designed to target them by: 1. Ending the blanket zero-rating on all SAF and keep it exclusively for RFNBOs. 2. Restricting the criteria of eligibility for SAF allowances to just RFNBOs in the 2028 ETS-support review.
4. Allocate ETS revenues to international climate finance, and supporting the aviation energy transition	Portions of aviation ETS revenues should be mandated for: 1. Contributing to meeting the EU's commitments with regards to international climate finance. 2. Providing long term financial support to RFNBO development and deployment.

Annex 1: Methodology for emissions and revenue calculations

Historical emissions and revenues

We estimated the additional CO_2 emissions which would have been included in the EU ETS between 2012 and 2023, had the ETS included all departing flights from airports in participating states. To do this, we took the reported civil domestic and international aviation CO_2 emissions recorded in national GHG inventories and country submissions to the UNFCCC.[20] Data were obtained for the EU27, Iceland, Norway and Liechtenstein from 2012-2023, while data for the UK were included for the period 2012-2020.

Domestic aviation CO_2 emissions as reported in national GHG inventories include civilian flights within individual countries, and count toward national total GHG emissions. International aviation CO_2 emissions, which do not count toward national totals but are reported separately, include all departing flights out of a country. Together, the total of these contributions constitutes an estimate of the CO_2 emissions from all flights departing from airports in the relevant countries. The difference between this value and the verified emissions reported under the EU ETS[19] is equal to the CO_2 emissions which would have been included in the EU ETS, had it included all flights departing from airports in participating states.

Iceland and Croatia joined the EU ETS in 2013. For simplicity, all calculations include emissions from these two countries for the year 2012. In practice, inclusion of Iceland and Croatia for the year 2012 makes no difference to our overall conclusions.

We then calculated the average price of EU ETS allowances and aviation allowances (EUAs and EUAAs) for each year between 2012 and 2023 by taking the mean of publicly available records of EUA/EUAA auction clearance prices in each year.[24] Combining this with estimates of the CO_2 emissions then permits calculation of potential revenues. We assumed no use of offsetting and that emissions for each year are covered by allowances traded in that year (i.e., emissions for the year 2014 are assumed to be covered by allowances purchased at the average EUA/EUAA price for 2014). For the year 2012, allowances originally allocated for free were adjusted to account for the free allowances returned by airlines following the stop the clock decision.[19]

Future emissions and revenues

We also estimated future CO_2 emissions and potential revenues from flights departing the EEA between 2027 and 2035. To calculate emissions, we used EEA Member States' own projections of CO_2 emissions across this period, based on a "with additional measures" (WAM) policy scenario.[22] This means that these

projections include the effects of both existing and planned policies and regulations. Data for domestic and international aviation emissions were not available across the whole period for Norway and Liechtenstein. To account for emissions from these countries, we calculated the average ratio of emissions from Norway and Liechtenstein to emissions from the EU27 and Iceland over the period 2012-2023 (2.1%), and applied this correction factor to available emissions projections for the EU27 and Iceland. Emissions from intra- and extra-EEA flights were estimated based on the contribution of intra- and extra-EEA flights to total emissions in 2023 (39 and 61%, respectively).

Potential revenues were then calculated based on a representative carbon price of €100 per tonne of CO_2. Projections of future EUA/EUAA prices vary significantly, with one recent projection suggesting prices may surge to almost €150 per tonne of CO_2 in 2030.[69]

Non-CO_2 emissions

As outlined above, aviation's non-CO_2 emissions have significant climate impacts which are not currently included in the EU ETS. The extent of these impacts is less certain than that of CO_2, and translating these into CO_2 equivalence depends heavily on the timescale considered and metric used.[23] Using the commonly-applied GWP metric on a 100-year timescale suggests that aviation's total climate impact – including non-CO_2 impacts – is 1.7 times larger than that from CO_2 emissions alone.[23] Therefore, we applied this multiplier to our calculations of CO_2 emissions to estimate the magnitude of non-CO_2 climate impacts.

[69] BloombergNEF, 2025. Europe's New Emissions Trading System Expected to Have World's Highest Carbon Price in 2030 at €149, BloombergNEF Forecast Reveals. Retrieved 11 June, 2025 from https://about.bnef.com/insights/finance/europes-new-emissions-trading-system-expected-to-have-worlds-highest-carbon-price-in-2030-at-e149-bloombergnef-forecast-reveals/

Opportunity Green

At Opportunity Green we use legal, economic and policy knowledge to tackle climate change. We do this by amplifying diverse voices, forging ambitious collaborations and using legal innovation to motivate decision makers and achieve climate justice.

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This paper was written by Opportunity Green staff: Aoife O'Leary, Daniel Lubin, James Kershaw, Nuala Doyle, David Kay. We are grateful to Carbon Market Watch and Transport & Environment for their review. All errors remain the authors' own.

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