Briefing

Kerosene tax: how to embed the polluter pays principle in aviation

May 2024

Summary

Flying is the most polluting form of transport on a per journey basis, yet it does not pay its fair share of taxes; no tax is levied on jet fuel (kerosene). In contrast, drivers are expected to pay fuel duty and VAT on the petrol and diesel they use. Current tax arrangements mean someone driving from London to Edinburgh pays five and half times more tax than someone flying the same journey.[1]

Taxes, as identified by the Climate Change Committee (CCC), will help to meet climate goals, including in aviation. A kerosene tax would better reflect the environmental impact of flying, closing the price gap between alternative fuels and fossil kerosene and raising revenue for technological development or other environmental policies.

The next government should phase in a kerosene tax from 2025 on all flights where Air Service Agreements (ASAs) currently allow. Rates on kerosene should begin at 9p per litre in 2025, before rising over the next decade. If the full carbon impact of fossil kerosene were reflected in the kerosene tax, rates should reach 97p per litre by 2035, by which time the tax could raise £8.5 billion in revenue, as well as saving 4.1MtCO_2e per year in emissions.

Exact charges should be regularly reviewed, in light of prices in the Emissions Trading Scheme (ETS) and the rollout of sustainable aviation fuel (SAF). The government should also seek to renegotiate ASAs to allow for wider application, increasing both carbon savings and revenues.

The kerosene tax should be implemented in addition to current forms of carbon pricing, with a longer term ambition to replace air passenger duty (APD) with a frequent flyer levy. Higher kerosene tax rates should be introduced for private jets, as they are the most polluting form of travel (see our briefing on private jet taxes for more information).

The case for aviation taxation

The UK's total aviation emissions (international and domestic) are significant, at 32MtCO_2e in 2023. Flying is the second biggest source of carbon emissions in the UK transport system, after the 35 million cars on UK roads.[2] And, following the lifting of pandemic restrictions, UK flights have rebounded fast towards peak 2019 levels.[3]

In 2022, the Department for Transport published its Jet Zero Strategy, setting out a plan to reach net zero aviation emissions by 2050. The strategy anticipated a 70 per cent growth in passenger numbers to 2050 (although this has been revised down to 52 per cent more recently), so it relies on the rollout of sustainable aviation fuel (SAF), zero emission flight technology and carbon offsetting schemes to achieve decarbonisation.[4]

Despite recent publication of a SAF mandate, many questions remain around the potential of different alternative fuels to cut carbon emissions. There are also production challenges, such as feedstock limitations and financing challenges. If progress is not made quickly and passenger numbers grow as predicted, there is a real danger aviation emissions will continue to rise in the short term.

While alternative technologies urgently need to be developed and scaled up, the government's independent adviser, the CCC, has recommended that passenger numbers should not be allowed to grow as quickly as anticipated by government.[5]

Tax could be used to give the sector the breathing room to develop new technologies at scale and provide a crucial revenue stream at a time of fiscal constraint.

Fairness of aviation taxation

There is a fundamental fairness argument in favour of aviation taxation. Under current transport taxes, a nurse driving to work will pay more tax on the fuel for a journey than a CEO does to fly in a private jet.[6]

While air passenger duty (APD) and the emissions trading scheme (ETS) influence commercial aviation ticket prices, they fall a long way short of effectively pricing carbon. The Energy Systems Catapult's assessment of 'effective carbon prices' show that, once taxes, subsidies, regulations and standards are taken into account, aviation is effectively being subsidised to pollute, and rail passengers and drivers pay significantly more per tonne of emissions.[7] If we value the services provided by rail and road transport but pay for their impacts through taxes and charges, it is only fair that aviation's tax loophole is closed.

Administering a kerosene tax

A kerosene tax would work in the same way that fuel duty is levied on petrol and diesel. It is simple to understand and easy to administer as there is already a duty present on jet fuel which is currently zero rated.[8] This means the Chancellor could announce a change to fuel duty rates without the need for legislative change.

If the charge's costs are passed on by fuel producers, the amount of tax paid will vary according to passenger behaviour. Pre-pandemic data shows that two thirds of the poorest 20 per cent in society do not fly, while higher income groups fly more.[9]

It is difficult to precisely predict the ways in which a kerosene tax's cost will be distributed although they will likely be passed on. Airlines may also choose to absorb some tax costs, particularly if they are concerned about their position relative to competitors, or they could pass a greater proportion of the tax onto business and first class passengers, compared to those who fly economy.

Modelling the impacts of a kerosene tax

Green Alliance has modelled a kerosene tax to be introduced in 2025 at 9p per litre, ramping up steadily to 97p per litre in 2035 on all domestic, EU and US flights. We used government carbon values as a proxy for the financial cost of carbon emissions, ensuring that the full carbon impact of fossil kerosene is embedded in the charge by 2035.[10] Rates should be consistently monitored with appropriate adjustments made, if necessary, as other costs such as ETS prices change over time. For a detailed explanation of how we calculated the rates, see annex.

Ticket prices

Based on a 100 per cent of the tax passed from airline to passenger and an even distribution of costs across ticket classes, a single flight from Heathrow to Newark (New York) would mean around a £16 increase in ticket price in 2025. As the charge ramps up, this would increase further to around £175 for the same journey in 2035 (all figures were calculated at 2022 prices), assuming the flight continues to be powered only by fossil fuels.

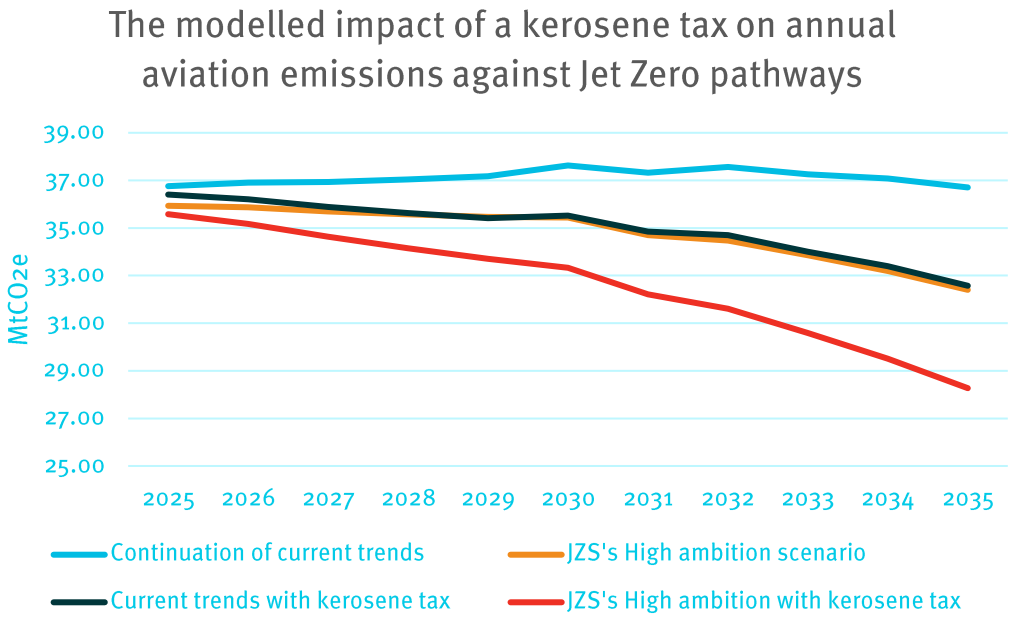
However, the government's pathway for SAF uptake suggests that, by 2035, 15 per cent of aviation fuel will be SAF.[11] Currently, the government's proposed SAF mandate will sit alongside the ETS, under which SAFs are zero-rated, allowing operators to claim a reduction on their ETS obligations when using it.[12] If SAF was similarly discounted under a kerosene tax regime, it would lower the average increase in charge to £149.

Revenue generation

A kerosene tax has the potential to be a significant revenue raiser. In 2025, the first year of operation, it could raise £800 million. By 2035, our modelled rate shows tax income of £8.5 billion.

Emissions savings

As the kerosene tax ramps up over time, it drives greater emissions savings. In 2025, the tax would cut 0.4MtCO_2e and this increases to 4.1MtCO_2e by 2035, assuming the costs are passed onto consumers and influence behaviour. Across the ten year phase in, cumulative emissions savings reach almost 24MtCO_2e.[13]



The graph above shows the impacts of our modelled tax against two scenarios highlighted in the government's Jet Zero strategy. The results show that if the Jet Zero strategy's (the 'High ambition scenario') emissions cuts were not realised for any reason, the modelled kerosene tax would keep the emissions reduction pathway on track. It, therefore, provides a valuable lever to safeguard against policy failure. However, if the government's expected increase in SAF were realised, any kerosene tax induced emissions savings would be additional.

Implementing a kerosene tax

It is a common misconception that tax on jet fuel is prohibited under the Convention on International Civil Aviation (Chicago Convention). Instead, fuel that is uplifted on to a plane in any country can be taxed by that country. It is only fuel that is already on board that cannot be taxed.[14]

The UK, however, holds Air Service Agreements (ASAs) with countries around the world and the rules on taxation differ across these agreements.[15] Crucially, the Trade and Cooperation Agreement held between the UK and EU, where the majority of UK flights go, allows for kerosene taxation.[16,17] Moreover, analysis by CE Delft suggest that the wording of the ASA between the UK and the US may also allow for tax to be levied unilaterally.[18, 19] In 2022, over 80 per cent of international flights from UK airports were to European and North American destinations.[20]

Alongside kerosene tax implementation where agreements already allow, the government could negotiate the allowance of kerosene tax in all bilateral ASAs.

Recommendations

- Introduce a kerosene tax at 9p per litre in 2025, before ramping up annually to reach up to 97p per litre in 2035 for all flights where ASAs allow.
- Simultaneously, commission research into an appropriate cost schedule to introduce a frequent flyer levy to complement a kerosene tax and any administrative and implementation challenges to be overcome.
- Introduce a higher £1 per litre tax rate on private jets in 2025, raising up to £200 million a year.

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Annex

Calculation of kerosene tax rates

We used the government's carbon value for a tonne of CO_2 as the basis for our per litre charge.[21] This is a monetary value published by government for policy evaluation, expressed in 2020 prices.

In 2020, the value of a tonne of CO_2 equivalent (CO_2e) calculated for policy appraisal and evaluation was £241. The carbon value rises each year to 2050, influenced by the interplay between the increased need to cut emissions close to that date, requiring more expensive technologies and the innovation and deployment of necessary technologies. The UK government's carbon value trajectory is in line with the Intergovernmental Panel on Climate Change's (IPCC's) predictions for 2040. In 2035, the end of our modelled period, the carbon value reaches £302 per tCO_2e.

We worked with WPI Economics to translate the carbon value into a per litre charge, using UK aviation emissions data and government greenhouse gas conversion figures. To give businesses and consumers time to adjust to the new tax, we chose gradual introduction with the rate increasing year on year until it reached a rate consistent with the carbon value in 2035. It is worth noting that this methodology internalises the cost of carbon emissions, but it does not reflect an effort to tackle other undesirable impacts of aviation, including noise, air pollution and broader non-CO_2 impacts.

Rates, revenue and emissions

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Tax rate (£/litre)	0.09	0.18	0.26	0.35	0.44	0.53	0.62	0.71	0.79	0.88	0.97
Revenue raised (£billion)	0.8	1.6	2.4	3.2	4.0	4.7	5.5	6.2	7.0	7.8	8.5
Carbon savings ($MtCO_2e$)	-0.4	-0.7	-1.1	-1.4	-1.8	-2.1	-2.5	-2.9	-3.3	-3.7	-4.1

Endnotes

[1] Figures based on £7 domestic APD rate from 1 April 2024 and a combined fuel duty and VAT charge of of 77 p per litre on petrol across a driving distance of 442 miles.
[2] M Finch, April 2024, 'Above the clouds: UK aviation trends in 2023', Transport & Environment briefing.
[3] National Air Traffic Services (NATS), 23 October 2023, 'NATS performance figures show continued traffic growth'
[4] Department for Transport (DfT), July 2022, *Jet zero strategy: delivering net zero aviation by 2050*.
[5] Climate Change Committee (CCC), December 2020, *Sixth carbon budget: aviation*
[6] H Bennett, July 2023, 'Taxing private jets: raising revenue from highly polluting, luxury aviation', Green Alliance briefing
[7] Energy Systems Catapult (ESC), May 2018, *Rethinking decarbonisation incentives: current economic signals for decarbonisation in the UK*
[8] His Majesty's Revenue and Customs (HMRC), 1 May 2014, 'Guidance Aviation turbine fuel (Excise Notice 179a)'
[9] DfT, 30 August 2023, 'NTSQ08005: Number of flights abroad in the last 12 months by household income quintiles: England, 2006 to 2020', *National travel survey*
[10] For information on carbon values see Department for Energy Security and Net Zero (DESNZ), 2 September 2021, 'Valuation of greenhouse gas emissions: for policy appraisal and evaluation'
[11] DfT, April 2024, 'Sustainable aviation fuel mandate: final stage cost benefit analysis'
[12] Ibid
[13] These savings have been calculated by assessing the impact of price changes on demand. What they do not account for is the how taxes make sustainable aviation fuel (SAF) or zero emission aircraft more cost competitive and the subsequent emissions impact of these changes.
[14] M Finch, November 2022, 'Applying kerosene duty to aviation: what would the effects of different duty levels be?', Transport & Environment.
[15] Ibid
[16] *Official Journal of the European Union*, 30 April 2021, 'Trade and Cooperation Agreement between the European Union and the European Atomic Energy Community, of the one part, and the United Kingdom of Great Britain and Northern Ireland, of the other part'
[17] M Finch, April 2024, op cit
[18] Foreign, Commonwealth and Development Office (FCDO), 2021, 'Air Transport Agreement between the government of the United Kingdom of Great Britain and Northern Ireland and the government of the United States of America'.
[19] J Faber & A O'Leary, November 2018, *Taxing aviation fuels in the EU*, CE Delft
[20] DfT, 14 December 2023, 'Transport statistics Great Britain: 2022 international travel'
[21] Department for Business, Energy and Industrial Strategy (BEIS) and Department for Energy Security and Net Zero (DESNZ), 2 September 2021, 'Valuation of greenhouse gas emissions: for policy appraisal and evaluation'