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Private jet levies for equitable taxation

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SUMMARY

Private jets represent a small fraction of global flights but have a disproportionately high environmental impact, emitting up to 14 times more CO_2 per passenger than commercial flights. Given their use in discretionary luxury travel by high-net-worth individuals, private jets also present a unique opportunity for equitable taxation.

This study analyzes five taxation mechanisms to support net-zero aviation: a fuel tax, emissions charge, air passenger duty, landing charge, and sales tax. These instruments are already being used to generate revenues for governments and airports but could be repurposed or act as a supplement to support international climate action. The analysis estimates the minimum rate necessary for each instrument to generate $100 billion in cumulative revenue by 2045—funding that could be used for public investments to derisk investment in emerging technologies.

We find that generating $100 billion in revenue would require a minimum fuel tax of $0.74 per kilogram of Jet A fuel (with adjustments for sustainable aviation fuel use), an emissions charge of $239 per tonne of carbon dioxide equivalent, an air passenger duty of $393, a landing charge of $1,087, or a sales tax on private jet sales and charters of 6.54%. We compare these minimum rates to existing policies and find examples where air passenger duties, landing charges, and sales taxes are already set high enough to generate this level of revenue.

Each instrument presents distinct trade-offs in terms of revenue potential, ease of implementation, robustness to leakage, transparency, potential for climate earmarking, and price stability. This study concludes that a multi-instrument taxation framework could be the most effective path forward to diversify the revenue base and reduce avoidance risks.

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INTRODUCTION

Aviation plays a crucial role in the global economy but produces significant greenhouse gas (GHG) emissions and air pollution. The International Air Transport Association projected that the aviation sector, encompassing commercial, private, and military aviation, would emit approximately 985 million tonnes (Mt) of GHG from 103 billion gallons of jet fuel in 2025 (Surgenor, 2025). Private jet flights contribute a disproportionate share of aviation GHG emissions, accounting for approximately 18.4 million tonnes of carbon dioxide equivalent (CO_2e) in 2023 (Sitompul & Rutherford, 2025), despite representing a minuscule fraction of total aviation activity. On average, a single private jet emits an estimated 812.4 tonnes of CO_2e annually, equivalent to the annual emissions from 177 passenger vehicles. Moreover, private jets can emit up to 14 times more CO_2e per passenger than commercial flights; most private jets carry 19 passengers or fewer, with many flights operating well below full capacity (Murphy & Simon, 2021).

Private jets are widely regarded as a luxury form of air travel: the median net worth of full owners is $190 million and of fractional owners is $140 million (IPS, 2023). Two-thirds of private jet flights originate from U.S. airports. Such operations are predominantly short-haul, with 50% of flights under 900 kilometers (Sitompul & Rutherford, 2025)—distances traversable by more fuel-efficient turboprops and sustainable transportation modes like high-speed rail, where available. These aircraft thus represent a quintessential example of a high-emission, low-necessity transportation mode.

Recognizing the economic and environmental inequity of private aviation, policymakers have begun considering the taxation of private jets for the purpose of both emission reductions and climate finance. In the 119th Congress, the Fueling Alternative Transportation with a Carbon Aviation Tax Act (2025) proposes increasing excise taxes on private jet fuel; in the 118th Congress, the AIR FAIR Act (2023) would have levied surcharges on private jet travel and certain first class and business tickets. According to one estimate, a U.S. proposal for luxury taxes on aircraft sales and resales could have generated $2.6 billion in 2022 (Collins et al., 2023).

Internationally, organizations like Oxfam have proposed levies on jet fuel, air passenger duties, and VAT for private aviation, estimating these could raise up to £2 billion annually in the United Kingdom alone (Oxfam, 2024). The Global Solidarity Levies Task Force (2025a, 2025b), which advocates for levies to raise funding for climate and development efforts, has identified taxation on premium air travel as a key potential source of revenue, as it would target those with disproportionately high per-capita emissions.

Zheng (2023) estimated that of the $4 trillion of net investment needed for transitioning to net-zero international aviation between 2020 and 2050, government contributions of about $0.8–$1.4 trillion are necessary to help scale emerging technologies. Of this amount, an estimated $94 billion would be needed for capital expenditure subsidies to derisk investment. Private jet taxation is well positioned to generate revenue for these early-stage, supply-side incentives. This is because private aviation is used by a very small and wealthy subset of the population that is considered to be comparatively insensitive to gradual price changes, meaning climate taxes would likely have only a moderate impact on their demand. Taxing private aviation also avoids the concern of limiting lower income households' access to air travel. On the other hand, the small tax base of private jet users means that such taxes would have lower revenue potential compared with taxes on commercial aviation.

Despite the clear environmental and fiscal rationale for private jet taxation, research on such mechanisms remains limited, particularly at the global level. Building on Zheng's

(2023) finding that around $100 billion would be needed for capital expenditure subsidies by 2050, this study seeks to address this gap by answering the following questions: what private jet tax instruments could generate $100 billion by 2045 to support investments in net-zero aviation, and what are the potential advantages and disadvantages of each proposed approach?

METHODOLOGY

In this study, we combine quantitative scenario modeling with qualitative policy analysis to evaluate the feasibility and revenue-generating potential of five tax options on private jets: a fuel tax, an emissions charge, an air passenger duty (APD), a landing charge, and a sales tax. To conduct the scenario modeling, we acquired 2023 Automatic Dependent Surveillance-Broadcast (ADS-B) data on private jet operations from Spire Aviation (2023), 2023 private jet charter pricing from SOLJETS (n.d.), and 2023 statistics on private jet sales from JETNET (2023). With more than 75% of global private jet activity originating from U.S. and European airports (Sitompul & Rutherford, 2025), we focus primarily on policies and taxation methods in these regions.

FUEL BURN AND EMISSIONS

To project cumulative revenue through 2045, we assumed a starting year of 2026 and a constant taxation value in real terms (expressed in 2025 U.S. dollars) through 2045. This section presents the assumptions we made to model the tax rate over time.

Using the ICCT's 2023 private jet emissions inventory data, we established a baseline fuel consumption of private jet travel of 5.84 million tonnes (Spire Aviation, 2023). We assumed a 2% annual increase in private jet flights, based on the 10-year historical trend from 2013 to 2023 (Sitompul & Rutherford, 2025). For fuel efficiency, we assumed a nominal improvement of 0.4% per year, based on Federal Aviation Administration (FAA) projections on hourly fuel burn reductions from 2026 to 2045 (FAA, 2024).

A key variable in our modeling is the adoption rate of sustainable aviation fuel (SAF), which refers to alternative jet fuels produced from biomass (bio-SAF) or renewable electricity (e-SAF) and is expected to contribute about half of all emission reductions under net-zero roadmaps for commercial aviation (International Air Transport Association, 2024). Incorporating the projected adoption of SAF in private aviation is critical for assessing the fiscal impacts of levy instruments based on fuel use.

We used the Current Commitments scenario from Zheng et al. (2025) as the baseline for SAF use across all revenue calculations. This scenario accounts for policies to curb aviation GHG emissions announced as of September 2025. The Current Commitments scenario notably accounts for the European Union's (EU's) ReFuelEU Aviation Regulation, which requires aviation fuel suppliers at EU airports to blend a minimum share of SAF, increasing from 2% in 2025 to 70% by 2050, and obliges aircraft operators to uplift most of their fuel within the EU (European Commission, 2024). Although these provisions apply primarily to fuel suppliers, private jets refueling at EU airports are indirectly affected, as they will receive the mandated SAF blend.

Table 1 presents the SAF blending rates assumed in Zheng et al.'s (2025) Current Commitments scenario and adopted in this analysis. The global blend share of SAF is projected to increase from 0.8% in 2026 to 7.7% in 2045.

Table 1
Global SAF average blending assumptions

Year	% Jet A	% e-SAF	Bio-SAF		Well-to-wheel GHG intensity (g CO_2e/MJ)
			% HEFA	% others	
2026	99.2%	0.0%	0.6%	0.2%	86
2027	98.9%	0.1%	0.7%	0.3%	85
2028	98.6%	0.1%	0.7%	0.6%	85
2029	98.3%	0.1%	0.6%	1.0%	85
2030	98.0%	0.2%	0.4%	1.4%	85
2031	97.6%	0.4%	0.4%	1.7%	84
2032	97.1%	0.6%	0.4%	1.9%	84
2033	96.7%	0.9%	0.3%	2.2%	84
2034	96.3%	1.1%	0.2%	2.4%	83
2035	95.8%	1.3%	0.2%	2.7%	83
2036	95.4%	1.5%	0.2%	2.9%	83
2037	95.0%	1.7%	0.2%	3.1%	82
2038	94.6%	1.9%	0.2%	3.2%	82
2039	94.2%	2.2%	0.2%	3.4%	82
2040	93.9%	2.4%	0.2%	3.6%	81
2041	93.5%	2.6%	0.2%	3.7%	81
2042	93.2%	2.7%	0.2%	3.8%	81
2043	92.9%	2.9%	0.2%	4.0%	81
2044	92.6%	3.1%	0.2%	4.1%	80
2045	92.3%	3.3%	0.2%	4.2%	80

Note: Jet A is a conventional petroleum-based jet fuel refined from crude oil and accounts for more than 99% of fuel use today. Hydroprocessed esters and fatty acids (HEFA) fuels are those produced with waste oils and fats.

LEVY INSTRUMENTS

We considered five options to generate $100 billion in cumulative revenue from 2026 to 2045: a fuel tax, emissions charge, APD, landing charge, and sales tax. Based on the traffic and emission assumptions described above, we calculated the level or rate for each instrument to reach the cumulative revenue goal in 2045. This section presents the additional assumptions and methodologies used to assess each instrument.

Fuel tax. In our analysis, the fuel tax is applied as a per-kilogram rate on both Jet A and SAF. We distinguished between Jet A and SAF due to their differing emissions profiles and climate impacts. The discounted rate for SAF compared to the base rate for Jet A is derived from the EU kerosene tax proposal, which sets a rate of €10.75/GJ for Jet A, €5.38/GJ for mature biofuel pathways, and €0.15/GJ for advanced SAF pathways (European Commission, 2021). This results in a ratio between kerosene Jet A, hydroprocessed esters and fatty acids (HEFA) bio-SAF, and e-SAF or non-HEFA bio-SAF of 72:36:1. This ratio was applied to our projected Jet A and SAF demand.

Emissions charge. We assumed a carbon pricing mechanism whereby private jet operators pay a flat per-tonne rate for the CO_2e emissions they produce. It was assumed to operate like a carbon tax, under which CO_2 is charged at a fixed rate rather than fluctuating with market conditions. To project global private jet emissions, we used a baseline value of 18.4 million tonnes GHG emissions for 2023 (Sitompul & Rutherford, 2025) and applied an annual 2% increase, reduced by a 0.4% nominal engine efficiency improvement to account for new engines and technology.

Air passenger duty. An APD is a tax imposed on passengers per flight. To model the total number of passengers on private jets, we assumed 59% of flights have an average of 4.7 passengers onboard, while the remaining 41% of flights are empty legs, based on a Transport & Environment analysis (Murphy & Simon, 2021). We then calculated the APD needed to reach the $100 billion cumulative revenue goal. In addition, we modeled APD rates using distance-based categories consistent with an existing levy scheme in France, which applies charges of €420 for flights under 1,000 km, €1,015 for flights between 1,000 and 5,500 km, and €2,100 for flights exceeding 5,500 km (Global Charter, 2025).

Landing charge. We assumed a fixed fee imposed per landing or take-off. These types of charges are often scaled by aircraft weight class or emissions rating. To calculate the landing charge, we used our 2023 inventory of 3.57 million flights as a baseline and applied a 2% annual increase in flight traffic. This resulted in 3.78 million private jet flights in 2026 and a peak of 5.52 million private jet flights in 2045. We then estimated the landing charge in 2026 and projected it to 2045 with and without differentiation by the aircraft's maximum take-off mass (MTOM) to show how MTOM-based differentiation affects projected levy revenues. The MTOM categories (and, by extension, MTOM-based tax rate groupings) used in our calculation were based on the MTOM distribution of the top 10 private jet aircraft in the ICCT's private jet inventory (Sitompul & Rutherford, 2025) and MTOM groupings used at Heathrow Airport (Heathrow Airport Limited, 2024). We assumed this distribution of landings by MTOM category remains constant over time (see Table 3A in Appendix A).

Sales tax. The sales tax was modeled to be applied to all private jet transactions, including the purchase of new and pre-owned aircraft and hourly charters for leased jets. To calculate potential taxation revenue from new aircraft sales, we used 2023 market data from SOLJETS (n.d.) to estimate the average price of taxable sales by jet size. We then used the average of the maximum and minimum value per category in our calculation (Table 2). For the total number of new jets sold per year, we used data on 730 aircraft sold in 2020 from Private Jet Card Comparisons (Doug Gollan, 2021) and the proportion of each category from JETNET (2025), assuming the same ratio of preowned private jet sales until 2045.

Table 2
Private jet sales assumptions

Category	Passenger capacity	Maximum takeoff mass (tonnes)	Maximum range (km)	Aircraft sold		Aircraft price (million USD / aircraft)	
				New (2020)	Pre-owned (2023)	New	Pre-owned
Light jets	5–8	5–10	1,000–4,000	299 (41%)	1,085 (48%)	$5.50	$4.0
Midsize jets	8–10	10–18	2,900–4,200	183 (25%)	578 (24%)	$17.0	$6.0
Large and ultra-long-range jets	11+	18–85	4,000–14,000	248 (34%)	675 (28%)	$50.0	$17.5
Total				**730 (100%)**	**2,338 (100%)**	**$23.5**	**$8.40**

We used 2023 JETNET data and the percentage of flights per size category to project pre-owned private jet sales globally. Based on these data, 2,338 preowned aircraft were sold in 2024, of which 48% were light jets, 24% mid-size jets, and 28% large and ultra-long-range jets. We considered 2% annual sales growth, consistent with our traffic growth assumption.

LEVY ASSESSMENT AND COMPARISON

To assess the potential tax revenue from private jet charter operations, we began by establishing a baseline for global market activity. The Business Research Company (n.d.) estimated that total global revenue from private jet charter services was $21.24 billion in 2024. We assumed a 2% compound annual growth rate in revenue, consistent with traffic growth trends. Based on the cumulative projected charter revenue from 2025, we estimated the minimum effective tax rate necessary to meet the revenue target of $100 billion by 2045 across new and pre-owned aircraft sales plus chartered jets.

Importantly, we did not model the decrease in travel demand that would be expected due to levy implementation; in practice, the total amount of levy revenue generated with our calculated rates would be lower than $100 billion, as some portion of travelers may respond to the tax rates by switching their mode of travel. We applied this static analytical framework for three reasons. First, the demand elasticity of private flying is largely unresearched in the literature, leaving no defensible empirical basis for applying a representative value. Second, using generic elasticities from commercial aviation would likely overstate the demand response to price increases and inflate the implied levies needed to meet the revenue goal. Finally, the cost-increase estimates developed in Appendix B carry uncertainties—most notably pertaining to a lack of data on empty flight segments needed to reliably allocate passenger duties and sales tax to individual trips—which makes layering additional elasticity assumptions inappropriate. The results of this paper should thus be interpreted as notional approximations designed to scope and compare levy design options rather than as precise estimates.

We compared the five tax instruments based on two quantitative measures: alignment with existing rates and expected impact on the cost of private jet travel, or price stability. We measured alignment with existing rates by projecting the revenue potential of each instrument at both the lowest and highest tax rates currently applied in any region, country, or airport, assuming global implementation. The purpose of this is to provide a benchmark against current tax rates, an indicator of the practical feasibility of implementation. The price stability of each instrument was quantified by calculating the expected percentage cost increase per charter flight, broken down by flight duration and jet size (see Appendix B). This metric assesses how each tax would affect the final cost to consumers.

To complement these two quantitative measures, we qualitatively assessed the feasibility of implementing each tax instrument across four dimensions:

- Ease of administration, reflecting the availability and accuracy of data to enforce and monitor implementation[1]
- Robustness to leakage, or how resistant a policy instrument is to emissions or tax avoidance
- Transparency and visibility, reflecting how this tax will be shown to passengers based on current invoicing
- Potential for climate earmarking, which gauges the extent to which revenues from the levy instrument could feasibly be used for climate-related purposes

1 While political feasibility is an important consideration for policy adoption, this analysis focuses on administrative feasibility to enable consistent comparison across instruments.

We scored all indicators except price stability on a simple three-point scale: low, medium, and high. For price stability, a lower estimated percentage-point cost increase indicates greater stability; instruments with greater price stability could raise the same amount of revenue with less disruption to travel demand. As noted above, our assessment mainly focuses on policy contexts in the United States and European Union, as these regions account for the large majority of private jet activity.

RESULTS

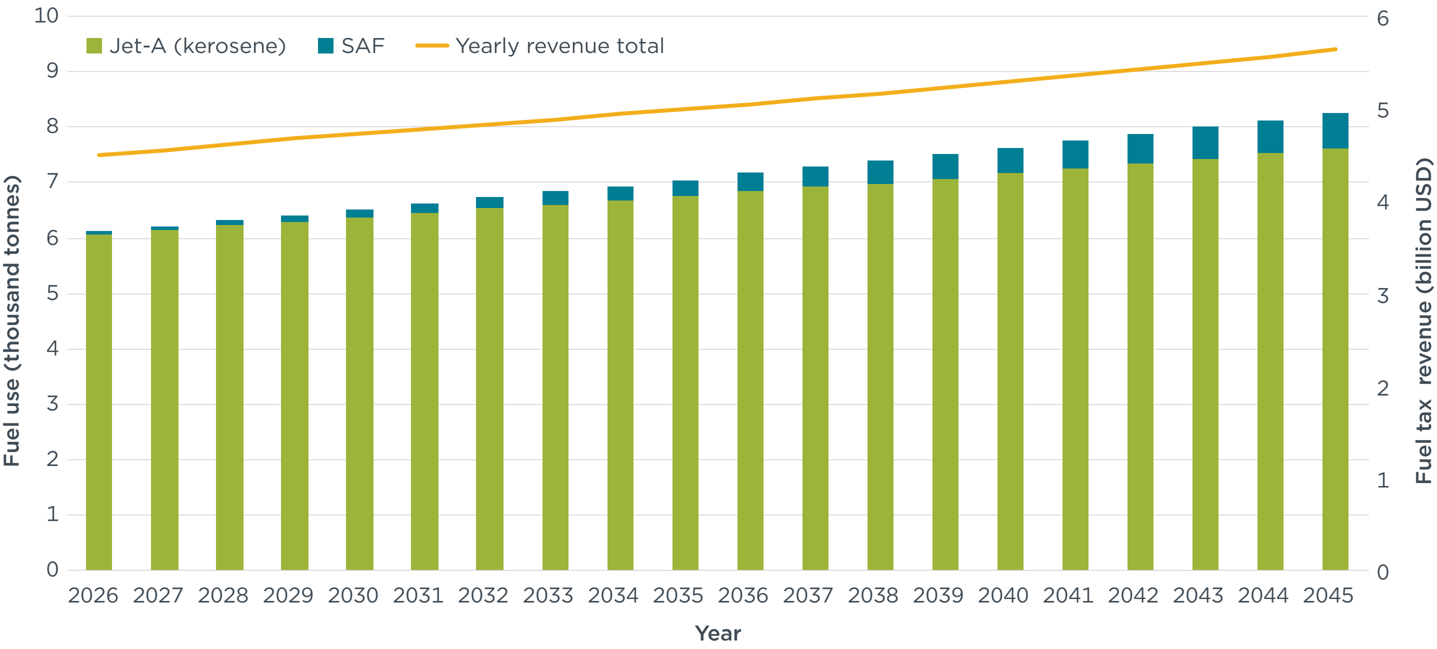
TAX RATES AND REVENUE PROJECTION BY INSTRUMENT

Fuel tax

A fuel tax is applied based on the mass of fuel consumed by an aircraft. We estimated that private jets would consume a total of 142.7 million tonnes of fuel between 2026 and 2045. Assuming rates of SAF uptake in line with existing blending mandates, as captured in the Current Commitments scenario in Zheng et al. (2025), we estimated that generating $100 billion in cumulative revenue by 2045 would require a tax rate of $0.737 per kilogram of kerosene-based Jet A fuel, $0.37 per kilogram of HEFA SAF, and $0.01 per kilogram of e-SAF and non-HEFA bio-SAF (Figure 1).[2] A fuel tax would generate a cumulative $4.49 billion in revenue over the first year of implementation, rising to $5.64 billion in 2045.

Figure 1

Projected SAF and Jet A usage and total fuel tax revenue



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Alignment with existing rates. To assess alignment with existing tax rates, we compared our target fuel tax rate to existing fuel tax rates around the world.[3] Japan imposes the highest rates, at ¥18/kg (approximately $0.15/kg) on domestic jet fuel use

2 While we modeled discounted tax rates for lower-carbon fuels, as seen in the EU kerosene tax proposal, it is also possible for policymakers to tax all kerosene use regardless of its composition, in which case the necessary tax rate to generate $100 billion in cumulative revenue would be lower than the Jet A rate shown here.

3 We used the following exchange rates, current at the time of writing, for all currency conversions in our analysis: 1 EUR = 1.1385 USD; 1 GBP = 1.3567 USD; 1 JPY = 0.00694 USD.

(Organisation for Economic Co-operation and Development, 2021). The United States applies a federal tax of $0.219/gallon ($0.0724/kg), with state taxes ranging from $0 to $0.235/gallon ($0.078/kg; U.S. Energy Information Administration, 2025). The EU has proposed a fuel tax rate of €10.75/GJ (approximately $0.50/kg) on private jet flights. The cumulative revenue by 2045 assuming the lowest (U.S.) and highest (Japanese) tax rates would be $9.84 billion and $18.93 billion, respectively (see Appendix A)—both falling well short of the $100 billion revenue goal.

Ease of administration. Authorities can apply fuel taxes at the point of sale and use fuel management systems—platforms that monitor fuel storage, distribution, and aircraft refueling in real time—to audit purchase volumes. A notable challenge, however, is the lack of robust fuel management systems at small airports; this is especially relevant for private jets, which frequently operate from such facilities. Ensuring accurate tax collection would also require additional oversight to confirm that ground staff and systems correctly classify the fuel type and applicable tax. Further, country or airport authorities would need to mitigate tankering—whereby aircraft operators carry extra fuel to avoid purchasing more expensive fuel at the destination—by mandating maximum landing fuel levels or aligning fuel tax structures across jurisdictions to limit opportunities for tax avoidance.

Robustness to leakage. Fuel taxes on private jets are moderately susceptible to leakage because operators can adjust where and when they uplift fuel to minimize tax exposure. Private jets often operate out of smaller airports with a choice of refueling locations, creating opportunities to tanker fuel or refuel in jurisdictions with lower or no fuel taxes and then consume it across borders without paying the tax. Research on fuel tax policy shows that differential tax rates across borders can lead to cross-border fuel sales increases and leakage (Teixidó et al., 2024).

Transparency and visibility. In private aviation, fuel costs are often passed through to customers via fuel surcharges, which can make fuel-related cost changes—including those linked to fuel taxation—more visible on quotes and invoices than in commercial aviation (Copley, 2011).

Potential for climate earmarking. Historically, fuel-tax revenues have often been routed to general budgets or broad aviation-related funds, rather than being automatically dedicated to climate spending. In the United States, for example, aviation-related excise taxes—including aviation fuel taxes—are a major revenue source for the Airport and Airway Trust Fund, which primarily funds FAA and aviation system programs (FAA, 2025; Legal Information Institute, n.d.).

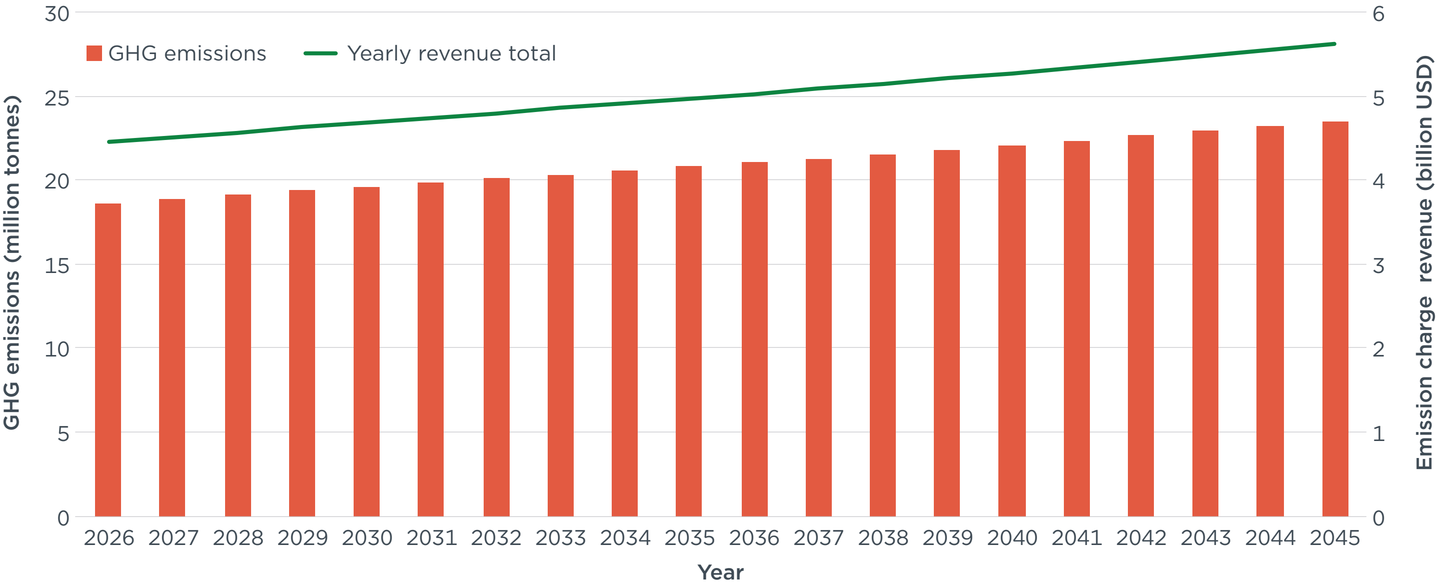
Fuel taxes have several advantages. They can be used to incentivize the production and adoption of more fuel-efficient business jets, encouraging manufacturers to invest in newer, lower-emission engines and aircraft designs. Further, private jet charter companies may be pressured to optimize aircraft deployment to reduce fuel costs, considering that 41% of private jet flights are reported as empty repositioning trips (Murphy & Simon, 2021). This could lead to improved operational efficiency and fewer emissions per passenger-kilometer.

Emissions charge

An emissions charge, also known as carbon pricing, is applied based on the total GHG emitted per flight. The total GHG emissions are predominately a function of the aircraft type and the distance flown. To meet the $100 billion cumulative revenue target, we estimated that a tax rate of $239 per tonne of CO_2 would be necessary for private jets (Figure 2). This emissions charge results in annual revenue rising from $4.45 billion in 2026 to $5.62 billion in 2045.

Figure 2

Projected revenue generated from an emissions charge of $239/tonne CO_2



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Alignment with existing rates. Among existing global carbon pricing mechanisms for aviation, the lowest emissions charge is applied in South Korea and the highest is in the EU. Both the Korean system and the EU Emissions Trading System feature fluctuating prices. For consistency, we used the observed value in mid-2024: ₩8,910 ($6.46) per tonne of CO_2e in Korea and €80 ($91.08) per tonne of CO_2e in the EU. If applied to all private jet flights worldwide, the cumulative revenue by 2045 based on the lowest (Korean) and highest (EU) rates would be $2.51 billion and $37.57 billion, respectively (see Appendix A)—both significantly below the $100 billion revenue goal.

Private jet emissions are mostly exempted from current carbon pricing policies. In the United States, there are no carbon pricing policies directly targeting private jet emissions; there is a nominal federal excise tax on non-commercial jet fuel of $0.219/gallon, but it does not reflect the cost of carbon. In the EU, two-thirds of private jet emissions were exempted from Emissions Trading System pricing in 2023 due to de minimis exemptions (ICCT, 2025). Other countries do apply emissions charges—such as a charge of £50 ($68) per tonne CO_2e in the United Kingdom—but these are limited to domestic aviation and fall short of the revenue target. Increasing emissions charging would require stronger international coordination, robust emissions monitoring systems, and the expansion of carbon pricing coverage to include international aviation (World Bank, 2024).

Ease of administration. To implement emissions charges, authorities could utilize ADS-B data and engine-specific emission databanks to estimate emissions per flight (International Civil Aviation Organization [ICAO], 2024). One existing approach is the Small Emitter Tool used in the EU, which estimates emissions based on airport-to-airport distance (EUROCONTROL, n.d.). However, this method may be unsuitable for recreational flights, especially those that depart and return to the same airport. In such cases, flight time may serve as a more accurate proxy for emissions than distance alone. Additionally, ADS-B tracking can be used to audit actual flight paths and durations, providing a more precise emissions estimate.

Another key administration challenge is the lack of certified CO_2 data for most private jet engines, which makes it difficult to accurately calculate flight emissions.

Nonetheless, this gap could serve as a market signal, prompting engine and aircraft manufacturers to report emissions data and improve transparency regarding their environmental performance.

Robustness to leakage. Like fuel taxes, emissions charges have moderate robustness to leakage due to differential adoption across jurisdictions, which opens avenues for avoidance when enforcement is uneven. Research has shown that the design of emissions pricing instruments affects their vulnerability to leakage: without coordinated pricing or border adjustments, emissions can "leak" to regions with looser or no pricing, weakening climate effectiveness (Salguero, 2025). In the case of private jets, this could take the form of registering operations in jurisdictions with weaker carbon pricing or accounting frameworks.

Transparency and visibility. Emissions charges are not itemized on private jet invoices and are instead often embedded within the overhead or operating costs charged by charter operators (Copley, 2011; JetOptions, 2025). As a result, passengers generally may not be aware of emissions charges per flight, making this instrument low in transparency and visibility relative to other taxes. While some operators offer voluntary carbon offset options, these are discretionary and separate from mandatory pricing (Air Charter Service, n.d.).

Potential for climate earmarking. Historically, emissions charges have had the strongest linkage to climate-related spending among transport taxes. Globally, an estimated 57.9% of carbon-pricing revenues in 2024 were earmarked for environmental, climate, or development purposes, although earmarking practices vary by jurisdiction and some revenues still flow to general budgets (Cayol & Monar, 2025). This suggests that emissions charges have a high potential for climate earmarking.

Like fuel taxes, emissions-based charges provide both supply- and demand-side incentives. They encourage aircraft manufacturers to develop lower-carbon, or even zero-emission, aircraft types, while motivating private jet users to purchase newer, more efficient aircraft as well as SAF. Additionally, these charges can incentivize users to deploy SAF with greater life-cycle emissions reductions from reputable vendors.

Air passenger duty

An APD is a tax levied on individual passengers, in this case those flying on private jets. Using the same flight distance categories and maintaining the same ratio of tax rates applied under France's APD, we derived the minimum per-passenger taxes for each category required to reach $100 billion in cumulative revenue, based on 2023 private jet activity. Assuming the same escalating structure, to achieve the targeted revenue the minimum rates are $235 for flights under 1,000 km, $568 for flights between 1,000 and 5,500 km, and $1,176 for flights exceeding 5,500 km (Table 3).

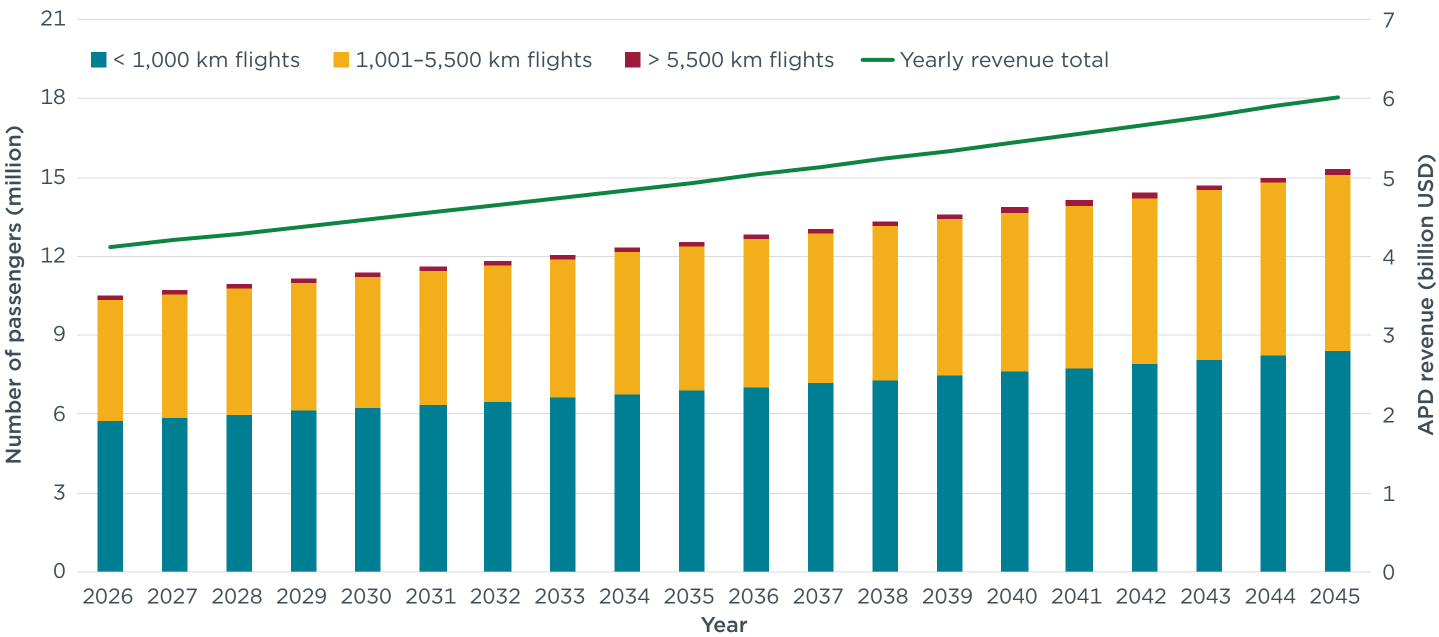
Table 3
Distance-based escalated APD pricing

Flight distance	Number of flights	France current APD (per passenger)	Modeled minimum price (per passenger)
< 1000 km	1,958,571 (55%)	€420 ($478)	$235
1000–5500 km	1,560,569 (44%)	€1,015 ($1,155)	$568
> 5,500 km	46,661 (1%)	€2,100 ($2,391)	$1,176

A weighted average charge of $393 per passenger would be necessary to yield the same yearly revenue as the distance-based escalated APD pricing and meet the cumulative revenue target of $100 billion. Under these assumptions, annual APD revenue is projected to start at $4.1 billion in 2026, rising to a peak of $6 billion in 2045 (Figure 3), reflecting the growth in passengers. If a distance-based APD were applied, most revenue would come from flights between 1,000 and 5,500 km (63%), while flights exceeding 5,500 km would contribute the least (4%).

Figure 3

Projected revenue generated from an APD



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Alignment with existing rates. The proposed charge of $393 per passenger is in range of policy precedents. The highest APD is currently applied in France, where it ranges between €420 and €2,100 ($478–$2,391) per passenger depending on flight distance (Global Charter, 2025). As of 2025, the United Kingdom taxed private jets at £84–£673 ($114–$913) per passenger depending on class and distance and has plans to increase this to £142–£1,141 ($193–$1,914) in 2026 (Sentinel Aviation, n.d.). Among EU countries that impose APDs for private jets, Italy has the lowest rate of between €10 and €200 ($11–$228) according to the flight distance. Based on the weighted average values of $138.60 (Italy) and $799.70 (France), we found that an APD would result in cumulative revenues of $35.4 billion at the low end and $204 billion at the high end (see Appendix A).

Ease of administration. Accurate passenger count data for each private jet flight is essential to implement this policy effectively. This poses a challenge at smaller private airports, where ground personnel and administrative systems may be limited in their ability to verify passenger numbers. While the Chicago Convention (Article 13) requires compliance with immigration and customs laws, ICAO Annex 9 further recommends the use of Advance Passenger Information (API) systems to electronically submit passenger manifests for international flights (ICAO, 2017, 2006). These manifests can serve as a basis for auditing and verifying passenger data.

Robustness to leakage. APDs are robust against leakage because they are applied to the passenger rather than the aircraft operator alone and are triggered by take-off from a taxing jurisdiction. Unlike fuel taxes, there is limited scope for avoidance except by choosing not to fly from a taxed airport—undermining the core convenience of private jets. APDs cannot easily be shifted abroad because passengers still need to use the departure infrastructure of the taxing jurisdiction. As a result, avoidance is minimal when APDs are applied to all flights from a jurisdiction.

Transparency and visibility. In the jurisdictions where an APD is currently applied—the United Kingdom and France—charges are applied per passenger, though there is no publicly available information on whether they are visible in the invoice for private jet charters (Global Charter, 2025; UK Government, 2018). If we assume the APD charge is itemized on invoices like for commercial aircraft, then it would be possible for such charges to be reflected directly in the invoice or for pricing to be passed to passengers in the ticket price.

Potential for climate earmarking. APDs currently in effect are designed to raise general government revenues, rather than being directed specifically toward environmental or climate purposes (O'Leary, 2025). In the United Kingdom, revenues from the duty flow into the general treasury and are not earmarked for climate- or SAF-related expenditures, although policymakers have referred to the "secondary environmental benefits" of APDs associated with discouraging some flights (Chapman, 2025).

As an APD is not linked to emissions, it does not incentivize fuller flights; the total tax burden increases with each additional passenger. A way to partially align an APD with emissions reduction goals would be to apply an APD that escalates based on flight length, as in the United Kingdom and France.

Landing charge

Landing charges are applied per flight arriving at an airport. To calculate the landing charges needed to reach our revenue goal, we used the MTOM categories from Heathrow Airport (of less than or equal to 16,000 kg and greater than 16,000 kg), preserved the same ratio of landing charges for each category, and derived the minimum rates based on the 2023 global private jet flight distribution from the ICCT inventory (Sitompul & Rutherford, 2025). To achieve the targeted revenue, the minimum rates are $945 for aircraft with a mass up to 16 tonnes and $1,612 for aircraft exceeding 16 tonnes (Table 4).

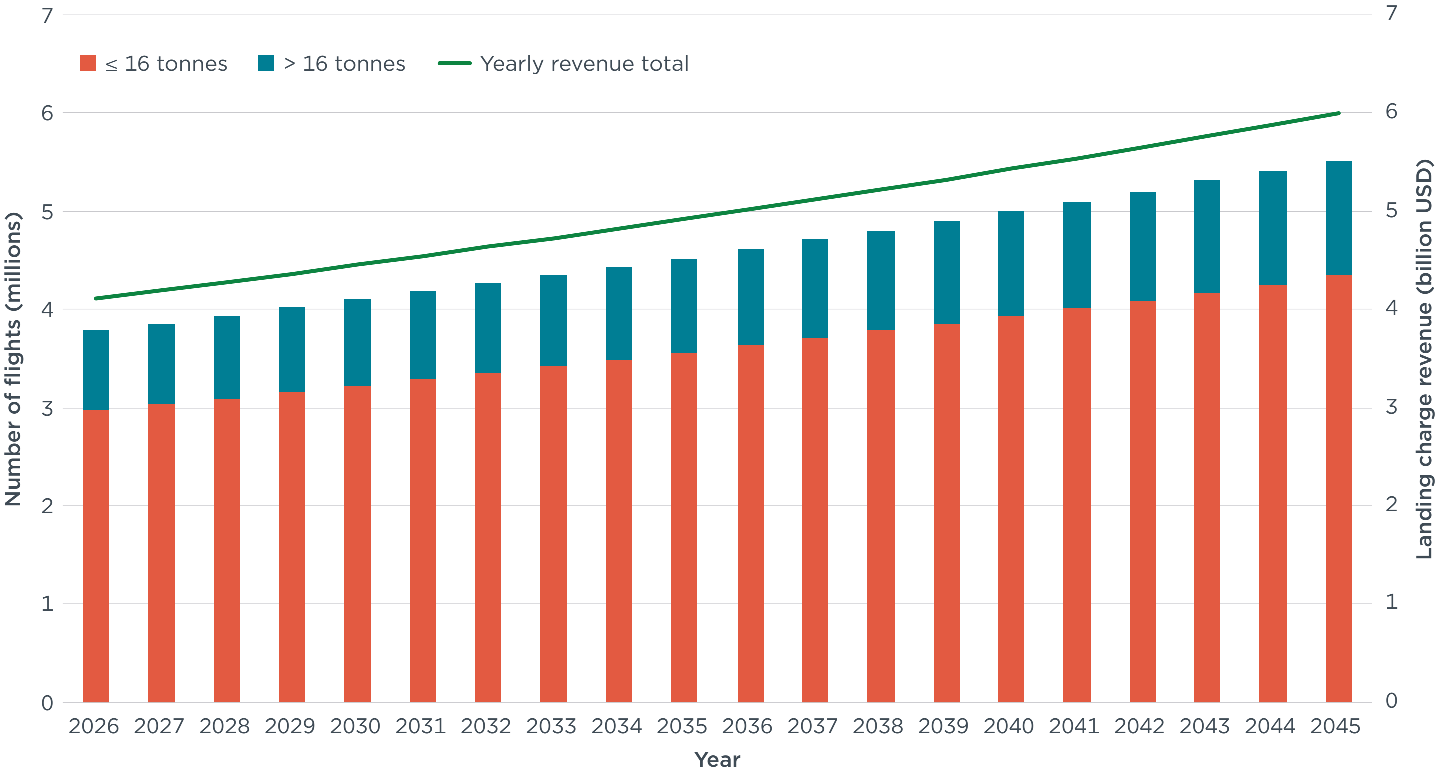
Table 4
MTOM-based escalated landing charge pricing

Aircraft MTOM category	Flights out of the top 10 private jet aircrafts	Current landing charge (per landing) at Heathrow	Modeled minimum charge (per landing)
≤ 16,000 kg	866,541 (78.72%)	£1,930 ($2,619)	$945
> 16,000 kg	234,251 (21.28%)	£3,290 ($4,467)	$1,613

On average, a landing charge of at least $1,087 is needed to meet the revenue target. This minimum charge would yield $4.1 billion of revenue in 2026, steadily increasing to $6 billion in 2045 (Figure 4). If an MTOM landing charge were applied, 68% of revenue would come from aircraft with a mass less than 16 tonnes, while aircraft exceeding 16 tonnes would contribute 32%.

Figure 4

Projected revenue generated from a landing charge



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Alignment with existing rates. Heathrow Airport currently imposes the highest landing charge for private jets, at £1,930 ($2,619) for aircraft up to 16,000 kg and £3,290[4] ($4,467) for aircraft over 16,000 kg (Heathrow Airport Limited, 2024). Other airports implement significantly lower charges. For instance, Teterboro Airport in the United States, the airport with most private jet departures in 2023, applies a fee starting at $21.25 for aircraft with an MTOM not exceeding 6,000 pounds and up to $815 for aircraft with an MTOM of 100,000 pounds (Aviation Department The Port Authority of NY & NJ, 2025). The cumulative revenue based on the lowest (Teterboro Airport) and highest (Heathrow Airport) landing charges would be $10.48 billion and $204.94 billion, respectively (see Appendix A).

Ease of administration. To implement this policy, airports would need to collect accurate data for all arriving and departing private jet flights. Compared to an APD, this instrument may be easier to administer, as aircraft landing data are typically readily available; authorities could also leverage ADS-B data for auditing.

Robustness to leakage. Landing charges are robust to leakage because they are applied at the point of service, like an APD. To avoid these charges, an operator would need to land at an airport where the fee is absent or lower, which in practice often means sacrificing the convenience and proximity that make private jet travel attractive in the first place. The limited options for re-routing without significant operational cost or delay give landing charges an advantage in robustness to evasion.

Transparency and visibility. Landing charges are applied based on the aircraft MTOM and not directly charged per passenger. Although some private jet rentals may itemize

4 Taken from the average of peak night (£5,645.44), night (£3,528.40), and outside night (£705.68) quota period in the Ultra Low category.

it in the invoice, landing charges may not always be clearly visible to the customer (Wynbrandt, 2011).

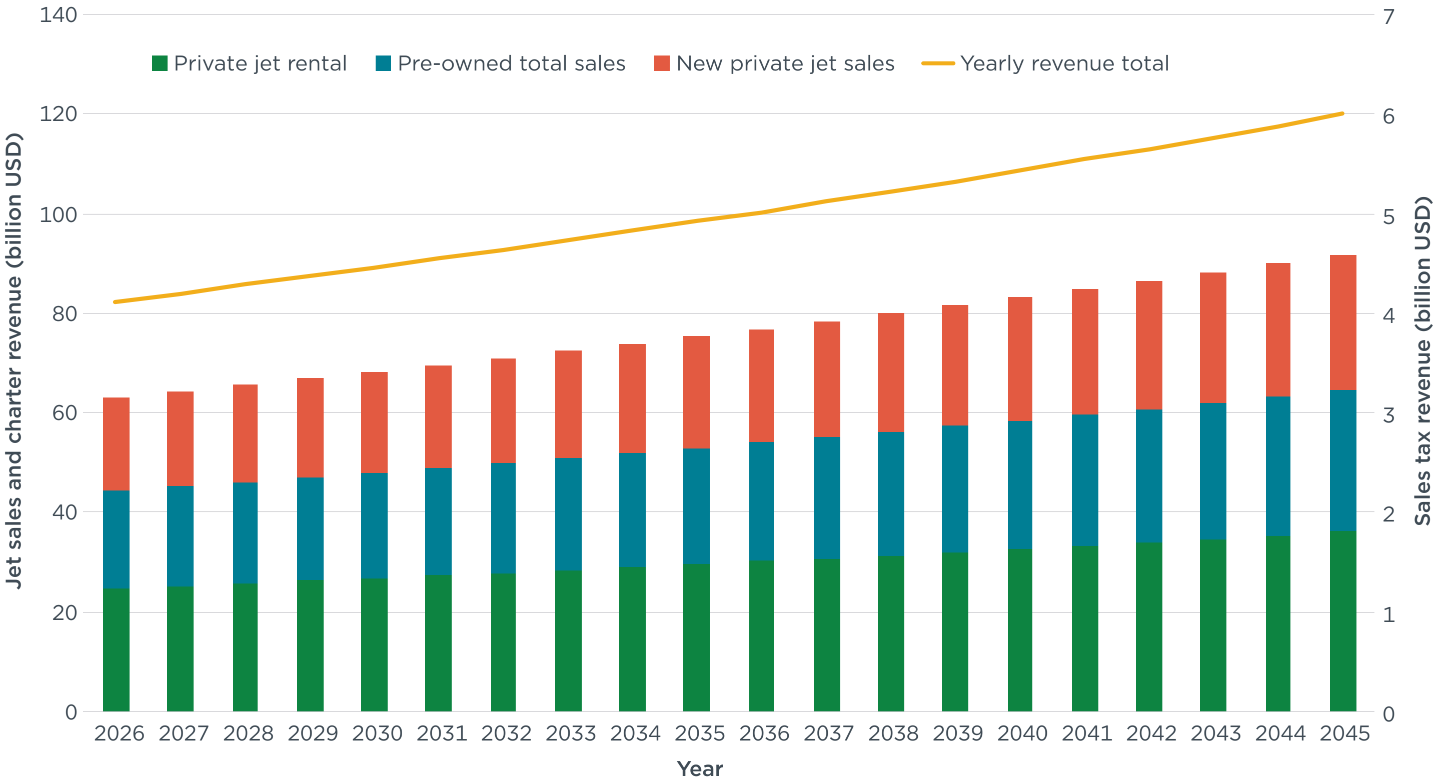
Potential for climate earmarking. Unlike other instruments assessed in this study, landing charges are levied by airports rather than governments; current landing charge revenues primarily fund airport operations rather than environmental initiatives (Spray, 2024). Directing these revenues toward climate finance would therefore require explicit policy intervention: governments would need to either regulate how airports allocate landing charge revenues or impose an additional surcharge that airports would collect on behalf of climate finance mechanisms.

Sales tax

A sales tax is a transaction-based consumption tax applied at the point of final sale, typically levied as a percentage of the purchase price and paid by the end user. In the EU, consumption taxation is implemented as value added tax (VAT), which is collected at each stage of the supply or import chain (Bloomberg Tax, 2025). For this analysis, we modeled a consumption tax in the form of a uniform percentage charge at the point of sale.

We assumed that a sales tax on private jets would be applied on three different transactions: charter services, sales of pre-owned aircraft, and sales of new aircraft.[5] To achieve the target of $100 billion cumulative revenue would require a sales tax of 6.54% on all such transactions. As shown in Figure 5, with this sales tax in place, revenues would increase year-over-year from $4.1 billion in 2026 to $6 billion in 2045 if the tax rate remains the same over time.

Figure 5
Projected revenue from a sales tax of 6.54%



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5 While VAT is commonly applied in each production stage of a good or service, in this study we only analyze the VAT applied at point of purchase of a jet or a chartering service due to limited data availability.

Alignment with existing rates. The United States administers a 7.5% federal excise tax on domestic commercial air transport of persons, including commercial airline services and charter flights, while state-level sales taxes on aircraft vary from 0% to 10.25%. In Europe, Germany imposes a standard VAT of 19% on aircraft-related transactions, including private jet charters and sales. In France, domestic private jet flights incur a 10% VAT, in addition to an eco-tax of €420 per passenger for jet flights (Luxaviation, 2025). Similarly, Italy applies a 22% VAT on aircraft sales, while Austria charges 13% on charters, and the Netherlands and the United Kingdom apply a 21% and 20% VAT on all aircraft-related transactions, respectively. These rates are well above the proposed 6.54% VAT threshold, suggesting that applying a lower, uniform VAT would still be comparatively moderate against current European standards.

The U.S. federal excise tax applies to commercial charter services (private jet rentals) but not to the purchase of private aircraft. As an exploratory exercise, we assume a scenario in which this 7.5% tax rate applies to all private aviation-related transactions (i.e., sales and rentals). In this case, the cumulative revenue based on the lowest (United States) and highest (Italy) sales tax would be $114.81 billion and $336.76 billion, respectively (Appendix A).

Ease of administration. Sales taxes are widely used and administratively familiar instruments, as they are commonly applied and collected at the point of transaction by national or subnational tax authorities. Applying a sales tax style instrument to private aviation transactions would therefore leverage existing tax collection and invoicing frameworks, particularly for charter services and aircraft sales. Data on new and pre-owned jet sales and charters from market intelligence databases (e.g., JETNET and SOLJETS) could be used to audit these taxes, though private transfers or offshore leasing structures may have limited transparency. Auditing may thus require cooperation across borders and registration authorities.

Robustness to leakage. Aircraft purchases and leases can be structured in jurisdictions with lower or no sales taxes without affecting where or how the aircraft operates, creating significant opportunities for avoidance. Evidence from aircraft and other mobile capital markets shows that differences in sub-national sales tax rates influence transaction location rather than underlying activity (Garside, 2017). As a result, sales taxes are more vulnerable to leakage than taxes tied directly to departures, landings, or fuel consumption.

Transparency and visibility. The sales tax is typically itemized on invoices for charter services and aircraft sales, with the applicable tax rate and amount shown separately from the pre-tax price, making the tax clearly visible to passengers or purchasers. Compared with emissions charges or some operating fees that may be embedded within hourly rates or overhead costs, sales taxes are designed to be transparent and auditable at the transaction level. As a result, sales taxes rank high in transparency and visibility among the five tax instruments considered.

Potential for climate earmarking. Historically, sales tax revenues have been treated as general fiscal revenues and have rarely been earmarked for specific policy objectives, including climate or environmental spending. In EU Member States and other VAT-applying jurisdictions, VAT receipts typically flow into central government budgets and support a wide range of public expenditures, rather than being dedicated to climate mitigation or aviation decarbonization (Organisation for Economic Co-operation and Development, 2020; European Commission, 2023). Unlike emissions charges or carbon pricing mechanisms, a sales tax or VAT is not classified as an environmental tax and has no intrinsic linkage to emissions or fuel use.

COMPARING DIFFERENT TAX INSTRUMENTS

Table 5 shows the highest and lowest assessed rates alongside our calculated rate to reach $100 billion in revenue for each instrument. It shows that some countries already apply air passenger duties, landing charges, and sales taxes at rates higher than needed to meet the climate revenue target.

Table 5

Highest and lowest tax rate assessed compared to tax needed to reach $100 billion in revenue

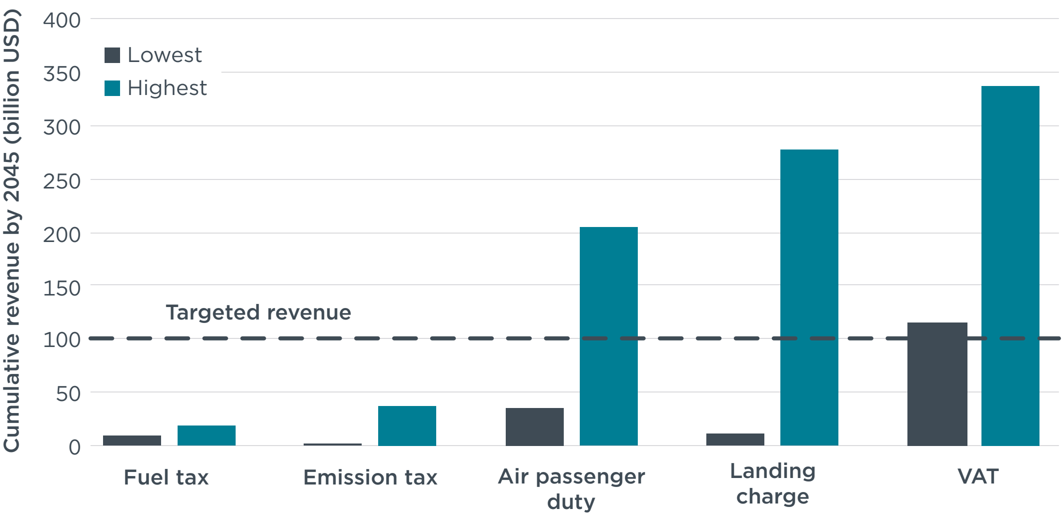
Instrument	Target tax rate	Highest assessed rate	Lowest assessed rate
Fuel tax (per kg fuel)	Jet A: $0.737	Japan: $0.15 (¥18)	United States: $0.08
	HEFA SAF: $0.37	-	-
	Non-HEFA SAF: $0.01	-	-
Emissions charge (per tonne of CO_2e)	$239	European Union: $96.77 (€85)	South Korea: $6.46 (₩8,910)
Air passenger duty (per passenger)	$393	France: $478–$2,391 (€420–€2,100)	Italy: $11–$228 (€10–€200)
Landing charge (per landing)	$1,087	Heathrow: $2,619 (£1,930)	Teterboro: $21.25–$815.00
Sales tax	6.54%	Italy: 22%	United States: 7.5%[a]

Note: The highest and lowest values for the APD are calculated using the global average flight distance of private jet flights.
[a] As noted above, this study assumes that the 7.5% federal excise tax on commercial air transportation of passengers applies to all private jet transactions, including charters and sales of new and used aircraft.

Using the highest and lowest assessed tax rates, we projected potential cumulative revenue through 2045. Figure 6 compares the cumulative revenue generated under assessed tax rates with the target of $100 billion, indicated by the vertical dashed line; details of the calculation can be found in Appendix A. This comparison illustrates the feasibility of implementing new taxation policies for climate finance and provides a benchmark against which different regions or countries can be assessed.

Figure 6

Estimated revenue from targeted versus highest and lowest assessed rates



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At present, even the highest fuel and emissions charges globally would yield revenues that would fall short of the $100 billion revenue target, as would the minimum observed rates for the APD and landing charge. In contrast, the maximum observed rates for the

APD and landing charge result in revenues exceeding the target. For the sales tax, both the minimum and maximum projections surpass the target.

We assessed the price stability of each instrument by applying each levy to modeled fuel burn, emissions, passenger load factors, flight duration, and aircraft size and calculating the percentage cost increase compared with baseline trip costs for chartering flights in 2035 (Appendix B). We chose 2035 as it marks the midpoint of the 2026–2045 taxation period; only charter flights were analyzed because their per-trip prices are observable and comparable, whereas ownership models bundle capital, fixed, and variable costs that cannot be consistently allocated at the flight level. Hourly chartering rates were taken from industry sources and applied by aircraft size category, combined with representative average flight durations for each distance band, to estimate per-trip charter prices. Table 6 shows the summary of calculations based on the flight duration and tax instrument.

Table 6
Price stability based on flight duration and tax instrument

Flight duration (minutes)	Cost increase (%)				
	Fuel tax	Emissions charge	APD	Landing charge	Sales tax
0–59	16%	16%	30%	39%	16%
60–119	9%	9%	10%	13%	10%
120+	6%	6%	9%	5%	8%
Average	10%	10%	15%	18%	11%

On average, the projected cost increase for a typical private jet charter trip from the five levy instruments ranged from 10% to 18% in 2035. As shown in Table 6, higher percentage cost increases were evident for flights with lower durations, indicating that each instrument has a relatively greater impact on short-haul flights. The APD and landing charge yielded the highest cost increase for short flights compared to others, with more than a 30% increase for flights under one hour.

Table 7 presents a comparison of the five instruments across our quantitative and qualitative indicators. Because of the marginal difference in average cost increase across instruments, we did not include price stability as a metric in the table. The five remaining indicators were assigned scores of low, medium, or high based on the criteria described below.

1. **Alignment with existing rates**

   High: Both the maximum and minimum assessed rates generate at least $100 billion.

   Medium: Only the maximum rate generates $100 billion.

   Low: Neither the maximum nor minimum rates generate $100 billion.

2. **Ease of administration**

   High: Data such as in-flight logs or standardized transactional records are readily available, enabling straightforward implementation and auditing.

   Medium: Data availability is strong at major airports, while smaller airports may face gaps that could require additional system upgrades or institutional adjustments.

Low: Administration faces substantial barriers, such as requirements for extensive new datasets, significant coordination across various institutions, or complex auditing processes.

3. **Robustness to leakage**

   High: Minimal risk, typically due to universally applied regulatory measures or strong, enforceable compliance mechanisms.

   Medium: Moderate risk, generally enforceable but potentially vulnerable in specific scenarios or smaller jurisdictions lacking robust enforcement frameworks.

   Low: Highly susceptible to avoidance through regulatory arbitrage, including relocating operations or transactions to jurisdictions with favorable tax conditions or using loopholes such as offshore registrations.

4. **Transparency and visibility**

   High: Taxes are clear to passengers, potentially directly itemized in bills, thus inviting significant public and political attention.

   Medium: Taxes are somewhat noticeable to passengers, possibly indirectly through charter cost adjustments or periodic reporting.

   Low: Taxes are embedded deeply within operational or transactional costs, resulting in limited visibility and minimal public or political scrutiny.

5. **Potential for climate earmarking**

   High: Existing policies already earmark revenues for climate actions.

   Medium: Policy proposals to earmark revenues for climate actions exist.

   Low: No policy precedents or proposals allocate revenue to climate action.

Table 7
Comparison of taxation instruments

Type	Ease of administration	Robustness to leakage	Transparency and visibility	Potential for climate earmarking	Alignment with existing rates
Fuel tax	Medium	Medium	High	Medium	Low
Emissions charge	Low	Medium	Low	High	Low
Air passenger duty	Medium	High	High	Medium	Medium
Landing charge	High	High	Medium	Low	Medium
Sales tax	High	Low	High	Low	High

Potential private jet taxation in the United States and European Union

The United States and the European Union account for the highest levels of private jet activity globally. We aggregated four of the five instruments considered into either fuel-based taxes (the fuel and emissions charge) or flight-based taxes (the landing charge and the APD). The sales tax was not assessed due to the absence of regional-level transaction data. The projected revenue differs between these two tax categories due to regional differences in fuel use and flight frequency. As noted above, we use a static analytical framework and do not model demand elasticity in response to tax implementation.

As shown in Table 8, applying the fuel-based taxes at the target rates established in this paper in the United States would generate 55% of the global revenue goal, while applying them in the EU would generate 11% of the goal. In contrast, under the flight-based tax scenario, the United States would contribute 65% toward the target and the EU would contribute 10%. This indicates that applying taxes in just these two regions—where private jet activity is most concentrated—could generate between 66% and 75% of the total revenue goal. Conversely, if the $100 billion target is to be met only through revenue generation in the United States and the EU, then fuel-based taxes would need to increase by 52%, while flight-based taxes would need to increase by 33% relative to the minimum necessary tax.

Table 8
Tax instruments cumulative revenue by region

Region	Fuel-based tax total revenue (billion USD)	% of targeted goal	Flight-based tax total revenue (billion USD)	% of targeted goal
United States	$55.14	55%	$64.56	65%
European Union	$10.55	11%	$9.83	10%
Others	$34.31	34%	$25.61	26%
Total	**$100.00**	**100%**	**$100.00**	**100%**

Implementation of multiple taxation methods

Implementing multiple taxation methods simultaneously could offer a more resilient and future-proof approach to achieving the $100 billion cumulative revenue target for supporting the net-zero aviation transition. While some instruments, such as fuel taxes and emissions charges, are closely related in that they both reflect environmental impact, they operate through different mechanisms and enforcement points. Similarly, APD and landing charge instruments both relate to flight activity, yet one targets passengers directly while the other applies to aircraft operations. These instruments may be complementary, and their combined use would allow policymakers to influence behavior and capture revenue from multiple angles—operational, environmental, and economic.

This approach will grow more important over time, as the revenue potential from fuel and emissions charges is expected to gradually decline with the increased uptake of SAF. Other tax instruments also have their drawbacks—for example, a sales tax has a low likelihood of being directed toward climate finance absent regulatory mechanisms that require it. Combining multiple taxation methods, such as pairing an emissions charge with a sales tax on aircraft sales and charters or applying both an APD and a fuel tax, may partially offset the expected decline in revenue from these instruments and help ensure consistent long-term funding.

Using a range of tax instruments also broadens the distribution of the fiscal burden across both emissions and wealth dimensions. While fuel and emissions charges create incentives for environmental responsibility, sales taxes and APDs ensure that wealthier individuals and corporate jet users continue to contribute over time, based on ownership and travel frequency. This combination could help ensure that heavier polluters and higher-income users bear a proportionally greater share of the costs, aligning with both the polluter-pays and ability-to-pay principles. Applied together, these instruments can enhance fairness, political feasibility, and revenue stability as the sector decarbonizes.

CONCLUSION

Policymakers have shown increasing interest in taxing private jets due to the high wealth of their users and their disproportionately high GHG emissions per passenger. This study evaluated five levy instruments—fuel tax, emissions charge, air passenger duty, landing charge, and sales tax—that could be applied globally to private jet operations to generate $100 billion in revenue from 2026 to 2045 for climate finance.

Among the fuel-based instruments, reaching the $100 billion revenue goal would require a minimum fuel tax of $0.737/kg for kerosene Jet A fuel, $0.37 for HEFA SAF, and $0.01 for e-SAF or non-HEFA SAF, or a minimum emissions charge of $239 per tonne of CO_2. Both fuel taxes and emissions charges are sensitive to SAF implementation and would be expected to decline over time with greater SAF use. Based on our assessment, an emissions charge has the highest potential for climate earmarking, as there is precedent of existing policies under which emissions charge revenue has been directed toward climate action. On the other hand, a fuel tax may offer higher transparency for passengers, given that it is typically itemized in invoices. There are no fuel taxes or emissions charges currently in place that would reach the $100 billion revenue goal if applied consistently across the globe.

Among flight-based charges, reaching the target would require an average minimum landing charge of $1,087 per flight—a rate already exceeded by Heathrow Airport. Alternatively, it would require an average APD of $393 per passenger, lower than that currently imposed by the French government. On the other hand, the revenue target could be met through a minimum sales tax of 6.5% on aircraft sales and charters, a level already surpassed in many countries; however, in practice, revenues from such taxes have not typically been directed toward climate finance. From an implementation perspective, landing charges and sales tax offer high administrative ease and price stability, while passenger duties provide strong transparency and robustness to tax leakage. Collectively, these instruments balance feasibility, transparency, and robustness, although each method entails a trade-off.

Each taxation instrument varies in its vulnerability to leakage, particularly in jurisdictions with uneven enforcement. Both air passenger duties and landing charges have high robustness to leakage while sales taxes have the lowest. To ensure effectiveness, strong oversight, transparent auditing systems, and international coordination would be essential.

While some countries or airports have implemented tax rates higher than the target rates in this study, most or all the revenue from these taxes is currently directed toward airport operations or national budgets rather than net-zero efforts. Therefore, new mechanisms may be needed to earmark any new tax to climate-related initiatives. Applying the minimum recommended tax rates in the two regions with the highest private jet activity—the United States and the European Union—would generate 55% and 11% of the targeted revenue, respectively.

To meet the cumulative revenue target of $100 billion, a multi-instrument taxation approach may be most effective. This strategy would diversify the revenue base, enhance resilience against tax avoidance and market fluctuations, and balance trade-offs between feasibility, equity, and enforceability. By combining a fuel-based levy, a flight-based levy, and potentially sales taxes, policymakers can more effectively capture the environmental and social costs of private jet operations while minimizing loopholes.

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APPENDIX A: PROJECTED CUMULATIVE REVENUE CALCULATIONS USING EXISTING MAXIMUM AND MINIMUM RATES

The projected revenue from the lowest and highest existing rates in Figure 6 are derived from Table A1.

Table A1

Projected revenue from lowest and highest existing rates, 2026–2045 (billion USD)

Year	Fuel tax		Emissions charge		APD		Landing charge		Sales tax	
	Lowest	Highest	Lowest	Highest	Lowest	Highest	Lowest	Highest	Lowest	Highest
2026–2029	1.88	3.61	0.48	7.15	5.98	34.59	1.77	46.99	19.48	57.13
2030–2033	1.92	3.70	0.49	7.34	6.49	37.45	1.92	50.88	21.09	61.83
2034–2037	1.97	3.78	0.50	7.51	7.02	40.54	2.08	55.08	22.82	66.92
2038–2041	2.01	3.87	0.51	7.69	7.61	43.89	2.25	59.63	24.70	72.45
2042–2045	2.06	3.97	0.53	7.89	8.24	47.53	2.43	64.56	26.73	78.41
Total	**9.84**	**18.93**	**2.51**	**37.57**	**35.34**	**204.00**	**10.45**	**277.13**	**114.82**	**336.74**

Projected APD revenue

We calculate the projected revenue of the highest (France) and lowest (Italy) APD rate to compare the existing available APD rates with the recommended value. Each country applies a different rate based on distance categories, as shown in Table A2.

Table A2

Projected highest and lowest existing APD rates used for comparison

Country	Distance category (km)	APD price		Flights	Passengers	Total passengers in 2023
		Euros	U.S. dollars			
France (highest)	< 1,000	420	478.17	1,958,571	5,431,117	2,596,997,399
	1,001–5,500	1,015	1,155.5775	1,560,569	4,327,458	5,000,712,909
	> 5,500	2,100	2,390.85	46,661	129,391	309,354,360
	Weighted average	**702.39**	**799.67**			
Italy (lowest)	< 100	10	11.385	130,113	360,803	4,107,746
	100–1,500	100	113.85	2,543,160	7,052,183	802,890,998
	> 1,500	200	227.7	892,528	2,474,980	563,552,979
	Weighted average	**121.75**	**138.61**			

Projected landing charge revenue

We use the weighted average value of the top 10 private jet models to make as the landing charge from Teterboro and Heathrow airport to calculate the landing charge of the highest and lowest existing rate respectively. Table A3 shows the MTOW and number of flights for each model of aircraft in the top 10 most used private jet globally. The weighted average of private jet is 11,759.2 kg resulting on a landing charge of $114 and 2,220.41GBP ($3,012) in Teterboro and Heathrow airport, respectively.

Table A3

Estimated landing charge of the top 10 aircraft by number of flights at Teterboro and Heathrow airport, 2023

Aircraft model	Flights	MTOW (kg)[a]	Landing charge: Teterboro airport (per landing, USD)	Landing charge: Heathrow airport (per landing, GBP)
Embraer EMB 505 Phenom 300	238,141	8,415	81.25	1,930.46
Cessna 680A Citation Latitude	167,513	13,971	134.90	1,930.46
Bombardier BD-100-1A10 Challenger 350	145,221	18,416	177.83	3,293.17[b]
Cessna 560XL Citation XLS	99,139	9,163	88.48	1,930.46
Bombardier BD-100-1A10 Challenger 300	89,030	17,622	170.16	3,293.17[b]
Cessna 525B CitationJet CJ3	76,307	6,291	60.75	1,930.46
Cessna 560XL Citation XLS+	74,962	9,163	88.48	1,930.46
Bombardier Learjet 45	73,202	9,752	94.17	1,930.46
Cessna 560XL Citation Excel	69,703	8,948	86.51	1,930.46
Cessna 680 Citation Sovereign	67,574	13,971	134.90	1,930.46
Weighted average		**11,759**	**113.56**	**2,220.41**

[a] MTOW obtained from the FAA's aircraft characteristics database (FAA, 2024)
[b] Taken from the average of peak night (£5,645.44), night (£3,528.40), and outside night (£705.68) quota period in the Ultra Low category

APPENDIX B: PRICE STABILITY BY LEVY

While the luxury nature of private flying suggests that its demand would be relatively inelastic, the specific demand elasticities to price change has not been well studied in existing literature, likely due to private jets' small market size and diverse pricing models across products and providers. Even at a given demand elasticity level, it is uncertain whether any trip would be avoided due to price increase, as a cascade of substitution could plausibly occur—from entire jet ownership to fractional ownership, from fractional ownership to chartering, and from chartering to first-class commercial air travel. Due to these uncertainties in demand response, we calculated the percentage of cost increase under each tax instrument as proxies for how likely demand for private flying would shift under these proposed taxations.

We mainly focus on the charter segment, as the clientele can be more price sensitive compared with individuals and corporations owing entire jets; in addition, the cost per trip is clear cut for charter services is transparent, while ownerships involve jet purchase cost, fixed operational cost, and variable operational cost. Table B1 shows the potential tax amount in base year 2035 and the percentage of cost increase by flight duration, aircraft size, and tax instrument. Fuel taxes and emissions charges show similar patterns, averaging around 10% across segments and incurring larger cost increases for shorter flights. The difference in cost increase between shorter and longer flights is even more pronounced for the APD and landing charge, as the tax rate is independent of flight distances. An APD could increase the cost of an under-one-hour flight by more than 30%, while the cost increase for a four-hour flight is estimated to be 8%–10%. A landing charge can range from 3% of the cost of a long flight on ultra-long-range jets to 63% of the cost of a short city hop via a very-light jet, averaging at 18% per flight. Both an APD and landing charge are likely to reduce the frequency of short city-hop flights but have limited impact on longer, especially intercontinental, flights. Lastly, the sales tax is modeled as 6.5% of the average charter trip cost plus 6.5% of charter jet sales revenue in each year preceding 2035, spread out among all trips in a year; the per-trip cost increases due to sales tax on jet sales averages $27 per year, thus $270 in 2035.

Table B1

Tax base, tax amount, and percentage of cost increase by tax instrument for private jet charter services

Flight duration (hours)	Aircraft category[a]	Tax base					2035 tax amount per flight (USD)					Cost increase				
		Flight fuel (kg)	Flight CO_2 (kg)	# of seats	Flights	Avg cost per trip (USD)[b]	Fuel tax	Emissions charge	APD[c]	Landing Charge	Sales tax	Fuel tax	Emissions charge	APD	Landing charge	Sales tax
[0,1]	**Very-light jet**	298	908	3	12,089	1,500	219	217	227	945	366	15%	14%	15%	63%	24%
	Light jet	484	1,477	9	175,997	2,000	357	353	652	945	399	18%	18%	33%	47%	20%
	Midsize jet	612	1,866	12	104,198	3,000	451	446	869	945	464	15%	15%	29%	32%	15%
	Heavy jet	972	2,965	19	118,151	5,000	717	709	1,376	1,613	595	14%	14%	28%	32%	12%
	Ultra-long- range jet	2,328	7,099	25	21,731	7,000	1,716	1,697	1,810	1,613	725	25%	24%	26%	23%	10%
[1,2]	**Very-light-jet**	428	1,307	6	16,129	4,500	316	312	434	945	562	7%	7%	10%	21%	12%
	Light jet	751	2,291	9	222,079	6,000	554	548	652	945	660	9%	9%	11%	16%	11%
	Midsize jet	1,027	3,132	12	121,793	9,000	757	749	869	945	856	8%	8%	10%	11%	10%
	Heavy jet	1,596	4,867	19	125,586	15,000	1,176	1,163	1,376	1,613	1,248	8%	8%	9%	11%	8%
	Ultra-long- range jet	3,078	9,388	25	28,507	21,000	2,269	2,244	1,810	1,613	1,639	11%	11%	9%	8%	8%
[2,inf]	**Very-light jet**	656	2,001	6	6,711	12,000	484	478	1,050	945	1,052	4%	4%	9%	8%	9%
	Light jet	1,241	3,785	9	176,602	16,000	915	905	1,575	945	1,313	6%	6%	10%	6%	8%
	Midsize	1,818	5,543	12	114,584	24,000	1,340	1,325	2,100	945	1,835	6%	6%	9%	4%	8%
	Heavy jet	3,312	10,100	19	182,757	40,000	2,441	2,414	3,325	1,613	2,880	6%	6%	8%	4%	7%
	Ultra-long-range jet	7,258	22,136	25	40,501	56,000	5,349	5,290	4,375	1,613	3,925	10%	9%	8%	3%	7%
Average (weighted by number of flights)		–					**1,123**	**1,111**	**1,501**	**1,180**	**1,231**	**10%**	**10%**	**15%**	**18%**	**11%**

[a] Aircraft category is defined based on seat count: very light jet (under 6 seats), light jet (6-9 seats), midsize jet (10-12 seats), heavy jet (12-19 seats), and ultra-long-range jet (more than 19 seats).
[b] Average hourly rates in 2025 dollars were obtained from industry websites, at $3,000 for very light jet, $4,000 for light jet, $6,000 for midsize jet, $10,000 for heavy jet, and $14,000 for ultra-long-range jet (Paramount Business Jets, n.d.; Flying Magazine, 2025; Charter Jet Airlines; 2024). Average flight durations of each category were used for calculation: 0.5 hour for [0,1] hour range, 1.5 hour for [1,2] hour range, and 4 hours for [2,inf] range.
[c] Load factor was assumed to be 52% on non-empty flights, based on Transport & Environment's estimate of private jet trips averaging 4.7 passenger per flight and the most common jet size of 9 seats, and 31% across all flights using Transport & Environment's estimate of 41% of flights being empty legs (Murphy & Simon, 2021). The nominal load factor was used instead of the flat number of passengers for this analysis to differentiate potential APD amounts on trips of different lengths and aircraft sizes. The overall load factor of 31% was used because operators tend to bundle revenue flights with empty repositioning flights when evaluating cost increase.

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