Sustainable aviation fuel policy in the United States

- The US regulatory landscape is much more favourable towards bio-based SAFs, particularly those using a crop feedstock, as compared to other geographies like the UK and EU.
- The Biden administration has deployed a number of measures to support the growth of the domestic SAF market, particularly tax credits and subsidies.
- While the incoming Trump administration has promised to cut support for renewables in favour of fossil fuels, red state-favouring biofuel incentives are likely to remain in place.
- SAF plants in the US have been able to overcome financial hurdles more quickly than European counterparts, and some investment has been funnelled towards e-fuel producers as disruptors in the SAF market. However, it is unclear whether this will continue to be the case under a Trump presidency, where fossil fuels and some biofuels will likely be favoured.

The United States (US) government has enacted several initiatives in support of the growth of their domestic sustainable aviation fuel (SAF) market as a key instrument to addressing the climate impacts of aviation. Due to its geography, the US is home to one of the most extensive aviation networks in the world, and its citizens far exceed those of any other country or region in terms of flights per capita[1]. In 2021, aviation represented 11 per cent of US transportation-related emissions[2], with the sector expected to see "rapid year-over-year growth"[3].

As the global aviation industry increasingly recognises the importance of reducing greenhouse gas (GHG) emissions, collaboration and harmonisation of SAF policies across countries is becoming more common through mechanisms like CORSIA. However, the US regulatory landscape does have some distinct approaches to tackling aviation's climate impact. While other governments have taken an approach to supporting SAFs that combines funding, legislation, incentives, and research and development initiatives, the US has chosen to heavily prioritise subsidy and tax credit mechanisms.

Furthermore, when compared to the SAF policy landscapes of other developed countries, US SAF policy is much more accommodating to biomass-based fuels — particularly crop-based SAF derived from corn or sugarcane — which are not permitted under environmental legislation in the EU[4] or the UK[5]. ICCT found that the "US has approximately 21.7 billion gallons of theoretical

[1] Airline passengers worldwide by country | Statista
[2] FACT SHEET: Biden Administration Advances the Future of Sustainable Fuels in American Aviation | The White House
[3] Issue Brief | The Growth in Greenhouse Gas Emissions from Commercial Aviation (2019, updated 2022) | White Papers | EESI
[4] RefuelEU aviation initiative: Council adopts new law to decarbonise the aviation sector
[5] Pathway to net zero aviation: developing the UK sustainable aviation fuel mandate - GOV.UK.

SAF production potential from available biomass, but only 12.2 billion gallons of that is from sustainably available biomass[6].” As such, SAF has become a highly politicised topic in terms of the environmental and socio-economic opportunities and risks it presents[7].

The Trump Administration has issued few specifics on how SAF policies will change during his second term. While Trump is expected to pursue a largely deregulatory environmental agenda, and based on his election platform may use the cost of living as justification to lend support for the fossil fuel industry, Biden-era incentives for the production of biofuels (over, say, SAFs made from imported feedstocks) will most likely remain in place, given Trump’s pro-farmer and America-first stances.

SAF Grand Challenge

The Biden Administration launched the SAF Grand Challenge in 2021 which aims to scale domestic production, establishing a production target of three billion gallons by 2030 and 35 billion gallons by 2050[8] (compared to around 15.8 million available today[9]). The Grand Challenge is a collaborative programme between the Department of Energy (DOE), Department of Transportation (DOT), the Department of Agriculture (USDA), and other federal agencies, allowing for a harmonised approach to strategy and resource allocation, alongside acknowledging the need to engage the wider supply chain for SAF and diverse industry stakeholders with a role to play. Some examples of initiatives and funding linked to the Grand Challenge include:

- Department of Energy grants: Some 13 SAF projects have received support, with the DOE awarding over $100 million in funding[10] and $64.7 million given for projects producing cost-effective, low-carbon biofuels for heavy-duty transportation[11].
    - Bioenergy Technologies Office (BETO): The DOE has provided $16.7 million for biofuel and biochemical projects via BETO ‘that will significantly reduce GHG emission’ in support of the SAF Grand Challenge[12]. BETO provides funding and support for SAF research, development, and demonstration projects.
- Fueling Aviation’s Sustainable Transition (FAST) programme: The FAA has made $291 million available to support the goal of net-zero GHG emissions from aviation by 2050,

[6] Meeting The SAF Grand Challenge: Current and Future Measures To Increase US Sustainable Aviation Fuel Production Capacity
[7] Exclusive: Biden administration's initial SAF subsidy model to raise climate hurdle for ethanol | Reuters
[8] Sustainable Aviation Fuel Grand Challenge | Department of Energy
[9] Sustainable Aviation Fuel | Department of Energy
[10] US Department of Energy awards $108m to 13 SAF projects
[11] DOE Announces Nearly $65 Million for Biofuels Research to Reduce Airplane and Ship Emissions | Department of Energy
[12] The U.S. Department of Energy Announces $16.7 Million in Project Selections to Advance Production of Affordable Biofuels and Biochemicals

comprising $244.5 million for SAF projects, and $46.5 million for low-emission aviation technology projects[13].

Inflation Reduction Act

The Inflation Reduction Act (IRA) has a significant impact on the SAF market in the US by offering comprehensive support to encourage the production and adoption of these fuels. In addition to providing tax incentives, research funding, infrastructure investment, and market stability measures, the IRA offers key financial support through the SAF Blenders Tax Credit (BTC). Airlines blending SAFs with jet fuel can receive a monetary credit based on the lifecycle GHG reduction achieved. A base credit of $1.25 per gallon is provided when SAFs achieve a reduction of at least 50 per cent in GHG emissions compared to conventional jet fuel; every additional percentage point of GHG reduction earns an additional $0.01 credit, up to a maximum of $1.75 per gallon. This tiered structure motivates the development and use of SAFs with greater environmental benefits.

The BTC will be replaced at the start of 2025 with the Clean Fuel Production Credit (CFPC), which runs until the end of 2027 and shifts the financial reward for GHG reductions from SAFs from blenders to producers. It also differs from the BTC in that it will award an amount equal to the applicable credit amount per gallon multiplied by an annually announced carbon dioxide emissions factor set by the Secretary of the Treasury[14].

Since the introduction of the IRA, which has been widely compared and contrasted to the EU Green Deal[15], European policymakers have been responding to the implications of the legislation within their own markets[16]. The approach to a regulatory framework to support SAF has differed between the two regions, but neither approach is yet viewed as "complete" in terms of assuring market certainty[17].

A contentious issue surrounding the implementation of the BTC — and the future CFPC — has been the methodology used to determine the emissions of SAFs, and, thus, which fuels qualify for either credit. Guidance launched in May 2024 by the Biden administration solidified support for the use of crop-derived ethanol in jet fuel[18]. And now, looking ahead to the CFPC, certain stakeholders are pushing to exclude SAFs made from imported feedstocks from eligibility in favour of domestic biofuels, as well as extending the credit until 2037, locking in such incentives

[13] Biden-Harris Administration Announces Nearly $300 Million in Awards for Sustainable Aviation Fuels and Technologies as part of Investing in America Agenda | Federal Aviation Administration
[14] Clean Fuel Production Credit | US Department of Energy
[15] EU Green Deal vs. US Inflation Reduction Act | KPMG Switzerland
[16] EU's response to the US Inflation Reduction Act (IRA) | European Parliament
[17] Briefing: Status and progress of UK, EU and US SAF policy | Ishka
[18] A US push to use ethanol as aviation fuel raises major climate concerns | MIT

for a longer period[19]. NGOs have opposed such moves on the basis that they exclude potentially lower-carbon e-fuels from eligibility for the tax credits[20].

While incoming President Trump has threatened to roll back large parts of the IRA as part of his administration's deregulatory environmental agenda, conservative states are the beneficiaries of the majority of the legislation's SAF incentives, leading experts to believe that it will not be dismantled.[21]

Renewable Fuel Standard

While primarily focused on transportation fuels like ethanol and biodiesel, the Renewable Fuel Standard (RFS) also includes provisions for advanced biofuels, which qualify as SAFs. This policy sets annual targets for the blending of renewable fuels, called Renewable Volume Obligations (RVOs), creating market incentives for SAF production, and has supported investment into biofuel production infrastructure. SAF must achieve at least a 50 per cent improvement in GHG emissions performance on a life cycle basis as compared with conventional jet fuel as per the RFS.

In 2023, the Environmental Protection Agency (EPA) revised the RFS and established new biofuel volume requirements by increasing targets for renewable natural gas — produced from organic waste sources such as landfills, farms, and food waste — requiring a 25 per cent volume target increase for 2023 and a 33 per cent target for 2025 as compared to previous targets[22].

It is possible that a second Trump term could see the RFS weakened, as was the case during the President-elect's first term. This was through the generous issuance of Small Refinery Exemptions (SREs) to oil refiners[23], which reduced RVOs at ethanol producers' expense[24]. Trump's nominee to head the EPA, Lee Zeldin, is backed by the oil and gas industry and is expected to undermine the RFS[25].

State-level

Independent US states are also pursuing their own SAF activities, including California's Low-Carbon Fuel Standard, Oregon's Clean Fuels programme and Washington's Clean Fuels Standard, all of which have aviation fuels as "opt-in" fuels whereby SAF can generate credits;

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[19] Schneider Introduces Bill To Extend 45Z Clean Fuel Production Credit Through 2037 | Ethanol Producer
[20] Synthetic SAF can, and should, qualify for 45Z | Clean Air Task Force
[21] President-Elect Trump Seeks Level Playing Field In Energy Policy | Forbes
[22] New Renewable Fuel Standard volume targets facilitate renewable natural gas production - U.S. Energy Information Administration (EIA)
[23] Trump EPA finalizes 2020 biofuel rule, corn lobby objects | Reuters
[24] Trump Breaks Promise to Rural America with Renewable Volume Obligations | National Farmers Union
[25] Zeldin Opposed RFS as NY Congressman | Progressive Farmer

however, conventional jet fuel use is not penalised[26]. States are expected to become the hub for American SAF innovation as many look to "Trump-proof" their existing renewable energy programmes[27].

There are a handful of SAF projects scaling up across the US[28] and some investments are starting to flow into e-fuel first-of-a-kind (FOAK) projects at the state-level. Project Roadrunner in Texas, which will convert waste carbon dioxide and renewable power into SAF and other low-carbon fuels through financial support from Breakthrough Energy Catalyst, Citi and American Airlines[29].

Other financial mechanisms

The US government has several other funding, tax credit and subsidy schemes it has deployed that can benefit the SAF market, as outlined in Table 1.

Table 1: A summary of key financial schemes that the SAF market can access

Department	Scheme	Purpose
Department of Agriculture (USDA)	Biomass Crop Assistance programme (BCAP)	Offers financial assistance to farmers and biofuel producers for growing and harvesting biomass crops that can be used to produce SAFs.
	Rural Energy for America programme (REAP)	Provides grants and loan guarantees to rural businesses and agricultural producers for renewable energy projects, including SAF production facilities.
	BioPreferred programme	Aims to increase the use of bio-based products, including fuels, across federal agencies. It provides opportunities for SAF producers to gain visibility and access federal procurement opportunities.
Internal Revenue Service (IRS)	Biofuel Producer Tax Credit	Provides financial incentives for biofuel producers, including SAF producers, based on the volume of biofuels they produce.
	Alternative Fuel and Alternative Fuel Mixture Excise Tax Credit	Offers a tax credit for the use of SAFs in aviation, encouraging airlines to adopt these fuels.
	Inflation Reduction Act - SAF Blender's Tax Credit (BTC)	Offers a credit of up to $1.75 per gallon for SAF blends that meet specific GHG reduction criteria.

[26] How States Can Use Low-Carbon Fuel Standards to Incentivize Clean Hydrogen-Derived Fuels | RMI
[27] US Election 2024: How a Trump win could reshape sustainable aviation | SimpliFlying
[28] Existing and Planned SAF Projects | SAF Investor
[29] Project Roadrunner | Infinium

	Inflation Reduction Act - Clean Fuel Production Credit (CFPC)	Replaces the BTC at the start of 2025 and runs through to the end of 2027. Awarded to the producer of the fuel rather than the blender.
Department of Defense (DOD) & NASA	Federal procurement	The US Government has shown interest in using SAFs for its own fleet of aircraft. Federal agencies have been exploring opportunities to incorporate SAFs into their operations, setting an example for the broader aviation industry.
Department of Transport (DOT) & Federal Aviation Administration (FAA)	Commercial Aviation Alternative Fuels Initiative	CAAFI works to promote the development and deployment of SAFs. It facilitates collaborations between government, industry, and academia to accelerate the commercialisation of SAFs.
	Research and development programmes	The FAA also supports SAF testing and analysis Aviation Sustainability Center (ASCENT) research projects and through the Continuous Lower Energy, Emissions, and Noise (CLEEN) programme.

Further analysis of US policy

- InfluenceMap have produced an extensive briefing outlining the US SAF policy landscape and how industry has been responding to and engaging with policy development. Read their briefing here.
- The International Council on Clean Transportation (ICCT) have produced a white paper outlining the current and future policy measures needed to be able to meet the aspirations of the SAF Grand Challenge, expertly outlined here.
    - ICCT have also conducted an extensive analysis of the current and projected future costs of e-kerosene in the US and Europe, noting the role policy can play in scaling these fuels that are more sustainable and scalable than their bio-SAF counterparts. Read more here.
- The Rocky Mountains Institute (RMI) have conducted research and analysis into the evolution of US SAF Policy and regional opportunities in their extensive report you can read here.
    - RMI have also summarised the role of state-level action, focusing on hydrogen-derived fuels in hard to abate sectors like aviation in their analysis here.
- The World Resources Institute (WRI) have outlined how recent lobbying campaigns and industry action in the US have allowed less sustainable aviation fuels to be eligible for tax credits. Read that analysis here.

Our aviation programme focuses on Europe as a key region where action on addressing the climate impact of aviation is needed through scaling high integrity synthetic SAF, challenging dominant industry narratives and accelerating zero emission flight. The US is an influential global player in the SAF space, and its regulatory framework is actively shaping investment and action in Europe and beyond which this briefing aims to summarise. To hear more about our aviation work, get in touch.

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