Project 001
A 50-state survey of Sustainable Aviation Fuel Policy

Motivation and Objectives

Aviation contributes ~2.5% of global carbon emissions and is a challenging industry to decarbonize, especially longer flights. To achieve the industry goal of net-zero emissions by 2050, an estimated 65% reduction will need to come from sustainable aviation fuel (SAF). SAF is a "drop-in fuel" that can be blended with petroleum-based fuel and used without modifying an aircraft. While reducing greenhouse gas emissions, SAF provides energy independence and economic benefits to American farmers and manufacturers.

There are 8 currently approved pathways for SAF production. Example feedstocks include fatty acids (e.g., used cooking oil), ethanol (e.g., from corn, other biomass fermentation), and carbon dioxide (in the Power-to-Liquid process).

Despite its many benefits, SAF only accounted for 0.3% of global jet fuel production in 2024. The challenge? The cost of SAF is 3–5x the cost of petroleum-based fuel.

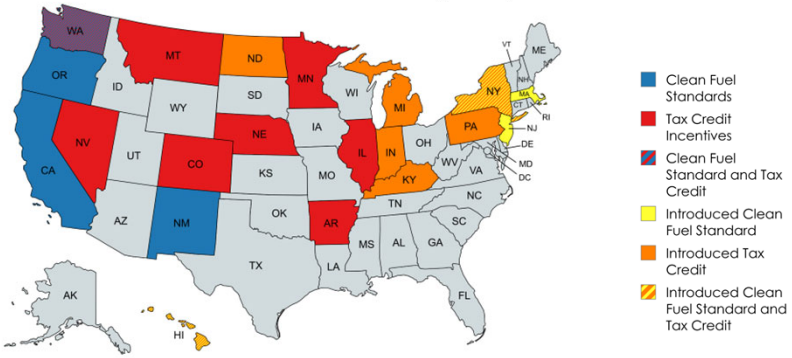
To realize SAF benefits under current economic conditions, government officials have recognized the importance of policy to minimize the cost gap.

Federal programs include FAST SAF Grants, Clean Fuel Production Credit (45Z), Clean H2 Production Tax Credit (45V), and the Carbon Oxide Capture/Sequestration (CCS) Credit (45Q).

Research Method

This project employs a combined law, policy, and empirical research approach to assess the impact of state initiatives on the deployment of SAF. Research methods include:

- Legal & Policy Review: Examined federal and state laws, administrative codes, executive orders, and court cases shaping SAF.
- 50-State Survey: Identified clean fuel standards, SAF tax credits, proposed initiatives, and states with no action. Some states incentivize SAF through clean fuel standards and tax credits. While smaller than federal efforts, these policies help narrow the cost gap with petroleum-based fuel.
- International Context: Reviewed ICAO's CORSIA and global policies affecting U.S. SAF adoption.

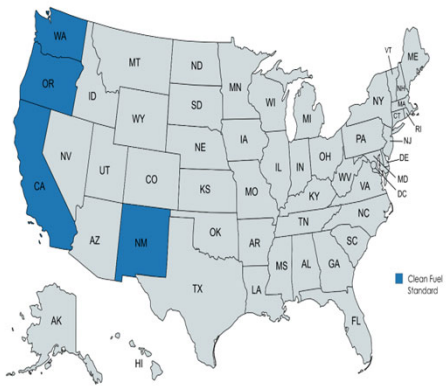


Findings

Many state initiatives to support SAF are through clean fuel standards or tax credits.

Clean fuel standards use a market mechanism to reduce the carbon intensity (CI) of fuels by setting targets that decline over time. Fuel producers above the target generate deficits, which must be balanced by producing lower-CI fuels or purchasing credits from low-carbon producers. Some programs even allow trading across states.

Clean Fuel Standards



California Low Carbon Fuel Standard (LCFS) (2009)
- Requires a 30% reduction from a 2010 baseline in the carbon intensity (CI) of California's transportation fuels by 2030 and a 90% reduction by 2045.

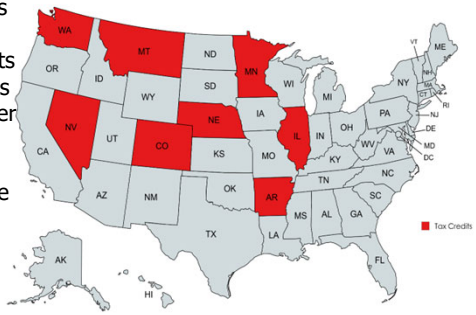
Oregon Clean Fuels Program (2016)
- 10% reduction from 2015 levels of GHG emissions from the transportation sector by 2025, followed by a 20% reduction by 2030 and a 37% reduction by 2035.

Washington Clean Fuels Program (2021)
- 20% reduction below 2017 levels by 2038.

New Mexico Clean Fuel Standard (2024)
- 45% reduction by 2030 as compared to 2005 levels.

Tax credits reduce the financial burden on producers or distributors of SAF. States apply them in different ways: some provide credits per gallon of SAF purchased, others per gallon produced, and some offer credits based on a percentage of investment in SAF infrastructure. Together, these policies help reduce the cost gap with petroleum fuels and create incentives for the wider adoption of SAF.

Tax Credits



- Colorado Sustainable Advancements in Aviation Fuel Tax Credits (2023)
- Illinois SAF Purchase Credit (SAFPC) (2023)
- Minnesota SAF Tax Credit (2023)
- Montana Tax Incentives for Alternative Fuel Production (2023)
- Washington SAF Tax Credit (2023)
- Nebraska SAF Tax Credit (2024)
- Nevada SAF Tax Abatement (2024)
- Arkansas Sustainable Aviation Fuel Incentive (2025)

Conclusions and Next Steps

Policies reveal both opportunities and limitations in scaling SAF. While federal incentives remain central, state initiatives add important layers that can spur innovation and investment. Clean fuel standards and tax credits help mitigate SAF's cost disadvantage, but broader adoption and harmonization across jurisdictions will be critical to ensuring long-term sustainability.

Next Steps:

- Continue to monitor new state proposals and policy evolution.
- Assess the interaction of state and federal measures along with international context.
- Evaluate the long-term impact of SAF policies on market development/emissions reduction.

Lead investigator: Lara B. Fowler, Penn State University
Somtochukwu Attamah, Penn State Dickinson Law
Mary Johnson, Penn State Dickinson Law
Michael Helbing, Executive Director, Center for Energy Law and Policy

Project manager: Theodore W. Johnson, PhD, FAA
October 15, 2025

This research was funded by the U.S. Federal Aviation Administration Office of Environment and Energy through ASCENT, the FAA Center of Excellence for Alternative Jet Fuels and the Environment, project 001 through FAA Award Number 13_C-AJFE-PSU (Amend #46) under the supervision of Prem Lobo and Theodore W. Johnson. Any opinions, findings, conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the FAA.