



## Sustainable Aviation Fuel Grand Challenge

# Sustainable Aviation Fuel Grand Challenge Roadmap Implementation Framework



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The U.S. Department of Energy (DOE), U.S. Department of Transportation (DOT), and the U.S. Department of Agriculture (USDA) have released the Implementation Framework for the Sustainable Aviation Fuel (SAF) Grand Challenge Roadmap.

The Implementation Framework is a supplement to the SAF Grand Challenge Roadmap ([biomassboard.gov/sustainable-aviation-fuel-grand-challenge-roadmap](https://biomassboard.gov/sustainable-aviation-fuel-grand-challenge-roadmap)) that identifies federal agency capabilities and programs and underscores the U.S. government's unprecedented commitment to the unified SAF Grand Challenge goals ([biomassboard.gov/sustainable-aviation-fuel-grand-challenge](https://biomassboard.gov/sustainable-aviation-fuel-grand-challenge)). In addition, the Implementation Framework finds that there are existing gaps where additional effort and future public-private partnerships will be needed to meet the goals set forth in the SAF Grand Challenge. The Implementation Framework also pinpoints where additional data and analysis can inform new policy direction and decisions.

The SAF Grand Challenge is the result of DOE, DOT, and USDA launching a government-wide Memorandum of Understanding (MOU) ([www.energy.gov/sites/default/files/2021-09/S1-Signed-SAF-MOU-9-08-21\\_0.pdf](https://www.energy.gov/sites/default/files/2021-09/S1-Signed-SAF-MOU-9-08-21_0.pdf)) released in 2021.

### September 2021 - SAF Grand Challenge

Launched in 2021, the SAF Grand Challenge is a U.S. government-wide comprehensive strategy for scaling up new technologies to produce SAF on a commercial scale while working with industry to reduce cost, enhance sustainability, and expand SAF production to:

- Achieve a minimum of a 50% reduction in life cycle greenhouse gas emissions (GHG) compared to conventional fuel.
- Produce 3 billion gallons per year of domestic SAF by 2030.
- Supply sufficient SAF to meet 100% of domestic aviation fuel demand by 2050.

SAFs made from renewable biomass and waste resources have the potential to deliver the performance of petroleum-based jet fuel but with a fraction of its carbon footprint, giving airlines a solid footing for decoupling GHG emissions from flight operations. SAF production and growth not only powers aircraft, it generates jobs by boosting domestic manufacturing, creates new economic opportunities in agricultural and rural communities, and supports U.S. energy independence.

### September 2022 - SAF Grand Challenge Roadmap

The release of the 2022 SAF Grand Challenge Roadmap<sup>1</sup> outlined a whole-of-government approach to work with and support industry to decarbonize the aviation industry. Six action areas and associated activities are

<sup>1</sup> [biomassboard.gov/sustainable-aviation-fuel-grand-challenge-roadmap](https://biomassboard.gov/sustainable-aviation-fuel-grand-challenge-roadmap)

identified in the SAF Grand Challenge Roadmap that should be coordinated and undertaken by the federal agencies within the limits of government policy to support achievement of both the 2030 and 2050 goals of the SAF Grand Challenge. The action areas are:

1. Feedstock Innovation
2. Conversion Technology Innovation
3. Building Supply Chains
4. Policy and Valuation Analysis
5. Enabling End Use
6. Communicating Progress and Building Support.

### September 2024 – SAF Grand Challenge Roadmap Tracking Metrics and Mid-2024 Dashboard

Developing innovative technologies to produce SAF will enable the United States to meet its domestic goals for decarbonizing America’s transportation sector.<sup>2</sup> The Metrics Dashboard Fact Sheet<sup>3</sup> ([www.energy.gov/eere/bioenergy/articles/sustainable-aviation-fuel-grand-challenge-tracking-metrics-and-mid-2024](http://www.energy.gov/eere/bioenergy/articles/sustainable-aviation-fuel-grand-challenge-tracking-metrics-and-mid-2024)) summarizes actions and progress to help drive innovation and expand the production and use of SAF to meet the SAF Grand Challenge target of 3 billion gallons of SAF in the United States by 2030. The Metrics Dashboard Fact Sheet includes key accomplishments from federal agencies:

- **Domestic SAF use has grown 10x.** Since the SAF Grand Challenge ([www.energy.gov/eere/bioenergy/sustainable-aviation-fuel-grand-challenge](http://www.energy.gov/eere/bioenergy/sustainable-aviation-fuel-grand-challenge)) was announced in 2021, annual SAF production and imports have grown from 5 million gallons to 52 million gallons through the first six months of 2024.
- **We have a pathway to meet the ambitious 2030 SAF Grand Challenge target.** Based on announced projects, between 2.6 and 4.9 billion gallons per year of SAF may be produced domestically by 2030, creating a clear pathway to achieve the SAF Grand Challenge near-term goal.

<sup>2</sup> <https://www.energy.gov/articles/biden-harris-administration-releases-first-ever-blueprint-decarbonize-america>

<sup>3</sup> <https://www.energy.gov/eere/bioenergy/articles/sustainable-aviation-fuel-grand-challenge-tracking-metrics-and-mid-2024>

Download the SAF Grand Challenge Roadmap Implementation Framework: [biomassboard.gov/sustainable-aviation-fuel-grand-challenge-implementation-framework](https://www.biomassboard.gov/sustainable-aviation-fuel-grand-challenge-implementation-framework)

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- **U.S. SAF use is cutting emissions.** 570,000 metric tons of CO<sub>2</sub> emissions have been reduced since the SAF Grand Challenge was launched in 2021.

### November 2024 - SAF Grand Challenge Roadmap Implementation Framework

The SAF Grand Challenge interagency team released the SAF Grand Challenge Roadmap Implementation Framework in 2024, a supplemental document to the roadmap. Whereas the roadmap identified the actions needed to achieve the goals of the SAF Grand Challenge, the framework provides SAF stakeholders with an understanding of what capabilities and programs federal agencies currently have in place to implement the roadmap actions.

The Implementation Framework also identifies gaps in current programs and existing barriers to achieving SAF Grand Challenge near-term goals. Many of these gaps need support from the public and SAF industry partners to meet these goals. The gaps include:

- Creating certainty in U.S. government policy to support build-out of SAF supply chains.
- Expanding data and analysis and improving models to perform transparent and credible SAF supply chain analysis to inform business models and policy development.
- Expanding purpose-grown feedstocks and tapping the potential of waste and residual feedstocks.
- Optimizing economically viable and sustainable feedstock supply chains.
- Using existing ethanol and petroleum industry infrastructure to rapidly scale up and deploy.
- Reducing risk and building coalitions.
- Communicating SAF Grand Challenge progress and benefits transparently and effectively. ⚡

