

# How the Farm Bill Can Jumpstart the Emerging SAF Industry



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## Takeaways

- Policymakers should use the 2023 farm bill as an opportunity to modernize and fund clean energy programs to help build new advanced biofuel markets like sustainable aviation fuel (SAF) and diversify the agricultural value chain.
- The Section 9003 Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program has the potential to be one of USDA's most powerful tools to help finance innovative biofuel technologies like SAF, but limited funding and other factors have limited its effectiveness.

- Modernizing the Section 9003 program would accelerate the deployment of advanced biofuels and make the United States more competitive in emerging global energy markets for these fuels.
- These investments will provide new economic opportunities for American farmers and rural communities, increase our energy independence, and lower emissions in the process.

## Introduction

Congress is slated to reauthorize the farm bill this year, defining national agriculture, nutrition, and rural economic development policy for the next five years. This is not just another rubber stamp for policymakers, it's a powerful lever to elevate American leadership in global agriculture and energy markets. The farm bill presents an opportunity to build upon the accomplishments of the Bipartisan Infrastructure Law and the Inflation Reduction Act to diversify the agricultural value chain, create new economic opportunities for American farmers, and make the United States a hub for a rapidly growing bioeconomy.

The energy title of the farm bill—accounting for less than one percent of its total spending—includes a suite of programs designed to accelerate the deployment and utilization of different types of biomass. But due to years of underfunding, many of these programs have never been able to realize their full potential. As emerging industries like sustainable aviation fuel (SAF) begin to take off, it's time for Congress to modernize these programs and provide them with substantial resources to fulfill their goals. One such program – the Section 9003 Biorefinery Program – offers a particularly promising opportunity for Congress to improve financing for innovative new bioeconomy projects to help emerging industries like SAF prosper.

## Why Support SAF?

Global demand for SAF, a drop-in low-carbon alternative to conventional jet fuel, is expected to dramatically increase over the next several decades.<sup>1</sup> Most of the world's largest airlines have committed to net-zero emissions by mid-century and certain jurisdictions, such as the European Union, have set binding targets to blend SAF into the fuel supply. The Biden Administration has also set an ambitious goal of increasing domestic SAF production to 3 billion gallons by 2030 and 35 billion gallons by 2050 as part of the [SAF Grand Challenge](#).

American producers are well-positioned to be leaders in this emerging SAF market, but policymakers need to make the right tools available to enable growth in the industry. Congress has made some progress with an array of [new policy incentives](#) for SAF and other biofuels thanks to the Inflation Reduction Act (IRA), but these policies are only part of the solution. Low-cost capital and additional research, development, and demonstration (RD&D) funding, among other things, are

needed to facilitate deployment and achieve economies of scale for SAF and other products in the multi-billion-dollar bioeconomy.<sup>2</sup> The global SAF marketplace is more than an economic opportunity, it's a stage to put American ingenuity, innovation, and leadership on display.

## **Using the Farm Bill to Foster Innovation in Rural America**

Since 2002, the farm bill has included an energy title consisting of programs principally designed to support agriculture-related energy projects and the deployment of alternative transportation fuels. Some of these programs, such as the Rural Energy for America Program (REAP), have enjoyed reasonably consistent support from lawmakers and been widely successful as a result. Meanwhile, others have suffered from inconsistent or virtually nonexistent funding over the years, significantly impeding the ability for these programs to achieve their goals. If Congress wants to support rural communities and give our farmers and producers the opportunity to compete in industries like SAF, they need to seize opportunities to modernize and fund these programs. The Section 9003 program offers a prime opportunity to do that.

### **Modernizing the Section 9003 Loan Guarantee Program**

The Section 9003 Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program (Section 9003) is a program within the US Department of Agriculture (USDA) that provides loan guarantees of up to \$250 million to assist in the development, construction, and retrofitting of commercial biorefineries for advanced biofuels, renewable chemicals, and biobased product manufacturing facilities. Under the program, eligible lenders like banks, credit unions, and federally recognized tribes can apply to have USDA guarantee up to 80% of total eligible project costs, giving investors the confidence to invest in innovative biomass technologies on the road toward commercialization.

The 9003 program was originally created in 2008 to help producers meet demand for advanced biofuels prompted, in large part, by the then-recently passed Renewable Fuel Standard (RFS). The RFS requires renewable fuels to be gradually blended into the ground transportation fuel supply and specifies minimum volumes of 'conventional' biofuel and 'advanced' biofuels (i.e., not derived from corn kernel starch), the latter of which are generally more expensive to produce but are more effective at cutting greenhouse gas emissions.

Advanced biofuels – which can be made from things like crop residues, vegetable oils, animal fats, and more – are promising but still emerging. As a result, many of these projects face greater technology risk and market uncertainty, including challenges associated with reliably sourcing quality feedstocks and the price volatility of RFS credits.<sup>3</sup> These uncertainties make it much more difficult to finance commercial or even demonstration scale advanced biorefinery projects, especially when they involve a first-of-its-kind technology. These risks are even higher for aviation fuels, which aren't obligated under the RFS in the same way that ground transportation fuels are.

Loan guarantee programs, such as 9003, are one of the best tools that the US government can use to help businesses manage these risks. By guaranteeing a portion of the underlying loan amount, investors can have the confidence to make large capital investments in a project that might otherwise be considered too high-risk. Project developers can also gain access to more affordable financing terms to improve cash flows at a critical time in their development. When projects are successful, as the overwhelming majority are, the cost to the government is effectively zero, aside from program administration expenses.

The Department of Energy's Loan Programs Office (LPO) offers a glimpse of what is possible when a program like Section 9003 is properly funded. LPO is the largest loan guarantee program in the federal government, designed to finance large-scale clean energy technologies across all sectors of the economy. LPO has helped support more than \$50 billion in investments since its inception with a loss rate that significantly outperforms the private sector.<sup>4</sup> Section 9003 has the potential to echo LPO's success, but on a smaller scale focusing solely on facilitating the development of new and emerging biofuels, renewable chemicals, and biobased product technologies.

### **Ample potential, minimal resources**

Years of underfunding and neglect by policymakers have limited the 9003 program's ability to realize its full potential. Every farm bill since its inception has cut funding for this program, bringing it from a high of \$320 million over five-years in 2008 to a mere \$75 million over five-years in the 2018 farm bill. This is an inadequate sum for a program intended to support commercial scale biorefineries that typically cost hundreds of millions, if not more.

Appropriations for the 9003 program are used to cover the credit subsidy cost (CSC) of the loan guarantee, or the government's cost of extending credit.<sup>5</sup> The average CSC can range between 10-30% of the total loan amount. Therefore, robust funding is essential for this program to operate effectively. Discretionary funds authorized for this program – totaling \$1.35 billion since its inception – have never been appropriated, severely limiting its effectiveness.

## Historical Authorized Funding Levels (five-year budget authority in \$ millions)

	2008 Farm Bill	2014 Farm Bill	2018 Farm Bill
<b>Mandatory Funds</b>	320	200	75
<b>Discretionary Funds Authorized by Congress</b>	600	375	375
<b>Discretionary Funds Appropriated by Congress</b>	0	0	0

Source: Congressional Research Service. The Farm Bill Energy Title: An Overview and Funding History. 2 Oct. 2019.



### Policy Recommendations to Turbocharge the 9003 Program

**Congress should increase funding to at least \$100 million per year.** To meet current demand and cover the high costs of commercial projects, there must be considerably more investment in the 9003 program. Lenders invest hundreds of staff hours compiling applications and working through USDA’s rigorous three-phase review process. Without a large enough pot of funding available to give them a reasonable chance of having their application approved, many are discouraged from even applying. The program’s current paltry sum of \$75 million is a major deterrent for many would-be applicants.

Additionally, the 9003 program has struggled with insufficient staffing since its inception, having only a small handful of personnel with experience reviewing and underwriting complex energy projects. **Congress should provide dedicated funding to cover administrative expenses in order to expand staffing to meet projected program demand.** Having these resources pays off – not only by increasing the program’s efficiency but also by increasing its capacity to perform the necessary, timely reviews and due diligence.

Finally, the 9003 program was originally designed as a program that could extend cost-shared grants in addition to loan guarantees. These grants play a crucial role in helping innovative technologies bridge the “valley of death” and reach commercialization. However, this element of the program has historically gone unfunded and was removed in a recent farm bill. **Congress should restore funding for pilot and demonstration biofuel plant grants as a component of the larger loan program to assist in the further development of advanced biorefineries across the US.**

# Conclusion

As the largest biofuels producer and exporter in the world, the US has an obligation to give our farmers and producers the tools and resources to be competitive in emerging sectors like SAF. However, SAF is not the only industry poised to benefit from modernizing or funding this program. A wide range of biofuels, renewable chemicals, and biobased products are also eligible, all of which play an important role in moving new commodities into the value stream and creating broader opportunities for American farmers and rural communities. Support for the 9003 program can help the United States expand opportunities for these commodities across the value chain. By rallying behind the 9003 program, policymakers can uplift American farmers and rural communities, cement our position as a global leader, *and* cut carbon emissions.

## TOPICS

**TRANSPORTATION** 90

**CLEAN ENERGY FINANCE** 48

## ENDNOTES

1. Bloomberg NEF. “2022 Sustainable Aviation Fuel Outlook.” *BloombergNEF*, 31 Aug. 2022, [about.bnef.com/blog/2022-sustainable-aviation-fuel-outlook/](https://about.bnef.com/blog/2022-sustainable-aviation-fuel-outlook/).
2. J. N. Rogers, B. Stokes, J. Dunn, H. Cai, M. Wu, Z. Haq, and H. Baumes, “An Assessment of the Potential Products and Economic and Environmental Impacts Resulting from a Billion Ton Bioeconomy,” *Biofuels, Bioproducts, and Biorefining* 11, no. 1 (2017): 110–128, doi:10.1002/bbb.1728.
3. International Renewable Energy Agency. *Advanced Biofuels: What Holds Them Back?* 2019. [https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Nov/IRENA\\_Advanced-biofuels\\_2019.pdf](https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Nov/IRENA_Advanced-biofuels_2019.pdf)
4. LPO’s loan loss rate as of March 2023 was estimated at just 3.2% of total disbursements. See “Portfolio.” Loan Programs Office. <https://www.energy.gov/lpo/portfolio>. Accessed 8 Jun 2023.
5. The credit subsidy cost is defined as “the estimated long-term cost to the Government of a direct loan or loan guarantee or modification thereof, calculated on a net present value basis, excluding administrative costs and any incidental effects on governmental receipts or outlays.” See 2 U.S. Code § 661a(5).