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Repositioning USDA Section 9003 as Industrial Base Policy

A policy and market analysis of the USDA Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program

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Executive Summary

USDA's Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program—commonly called Section 9003—was created in the 2008 Farm Bill to solve a persistent financing failure that private markets do not reliably fix. Commercial-scale biorefineries and biobased manufacturing facilities can be technically credible and strategically valuable, yet still fail to secure affordable, long-tenor debt because lenders discount first-of-a-kind execution risk, feedstock logistics uncertainty, and immature or concentrated offtake markets. The result is a chronic "valley of death" in which U.S. innovation struggles to translate into operating domestic manufacturing capacity.

In the current decade, that same barrier has become an industrial competitiveness problem. Biobased manufacturing and waste-to-value systems are not niche projects; they are production platforms for materials, chemicals, fertilizers, and fuels that modern industry depends on. Section 9003 is one of the federal government's clearest tools for turning rural feedstocks and waste streams into bankable manufacturing assets that anchor jobs and strengthen supply chains. The program's value rises when it is administered explicitly as industrial base policy—with disciplined standards for bankability and execution speed that match the scale-up realities of commercial manufacturing.

Why the Program Was Created

The 2008 Farm Bill created Section 9003 at a moment when policymakers recognized that domestic bioenergy and biobased manufacturing could not scale on grants and pilots alone. Private lenders had limited appetite for early commercial biorefineries because scale-up risk, performance uncertainty, and unproven supply chains made cash flows difficult to underwrite. Even where feedstocks were abundant, projects faced a coordination problem: lenders wanted long-term offtake; offtakers wanted proven production; and sponsors needed capital to build the first commercial facilities that would prove the model.

Section 9003 was also designed to enable value-added agriculture by creating durable, local industrial demand for farm and forest outputs beyond commodity markets, and to support national energy and manufacturing objectives by financing alternatives to petroleum-based fuels and materials. Both goals relied on the same mechanism—credit enhancement—to move projects from concept to operating infrastructure.

Why the Program Matters Now

Today's policy landscape increases the strategic relevance of Section 9003. Agricultural producers face persistent margin pressure and higher financing costs, while rural regions compete to attract industrial investment that brings skilled jobs and stable tax bases. At the same time, the United States is confronting supply-chain fragility and a repeated pattern in which breakthrough technologies are invented domestically but manufactured elsewhere at scale. Biomanufacturing and waste-to-value systems sit directly at the intersection of these issues because they transform widely distributed rural feedstocks and waste streams into high-value industrial outputs.

Properly positioned, Section 9003 functions as an industrial scale-up tool that strengthens rural economies while building domestic manufacturing capacity for fertilizers, chemicals, materials, and fuels. This framing also improves project bankability: durable offtake is driven by performance and reliability advantages, not by aspirational labeling. Where products deliver superior functionality, consistent quality, or supply security, demand is more resilient across cycles—and credit is easier to underwrite.

Section 9003 Supports Industrial Base Development

Section 9003 provides federal loan guarantees for commercial-scale biorefineries and biobased product manufacturing facilities that convert eligible biomass and other qualifying renewable inputs into advanced biofuels, renewable chemicals, and biobased products. Rural Development administers the program through a two-phase process that screens projects for eligibility and preliminary feasibility before advancing them into full technical, environmental, and credit diligence.

A defining constraint is the federal participation cap: total federal participation—combining the loan guarantee and other federal sources—may not exceed eighty percent of total eligible project costs. In practice, this requires meaningful sponsor equity and often a blended capital stack that can include private debt, private equity, tax credit equity where applicable, and strategic offtake-linked financing. The purpose is not to replace private capital, but to make otherwise bankable projects financeable by aligning

long-lived rural manufacturing assets with long-tenor credit structures while bridging commercialization risk.

From an underwriting and capital formation standpoint, the key impediment to deployment is the credit profile of the obligor and the resulting contractability of revenues. Sponsors of first commercial facilities are typically non-investment-grade, lack ratings and long operating histories, and therefore cannot reliably secure investment-grade counterparties, long-tenor offtake agreements, or firm take-or-pay contracts on terms that provide sufficient revenue certainty for senior lenders. In the absence of this contracted cash flow, lenders apply higher risk premiums, require stronger coverage and reserves, shorten amortization, and reduce leverage—often to levels that make projects uneconomic despite independently validated performance. Section 9003 is intended to close this commercialization financing gap by providing federal credit enhancement that improves lender recoverability and overall risk allocation, reduces the cost of capital, and enables bankable structures to reach financial close while assets establish operating track records and transition toward repeatable, financeable nth-of-a-kind deployment.

Section 9003 Strengthens U.S. Competitiveness in Biotechnology Against China

The industrial base framing is not rhetorical. When the United States fails to build manufacturing capacity around its innovations, it does not merely lose a market opportunity; it loses supply-chain control, operational know-how, workforce depth, and export leverage. Section 9003 sits at the point where financing decisions determine whether domestic production platforms exist at all. Administered with industrial discipline, the program can convert dispersed rural resources into durable manufacturing clusters rather than exporting value through raw-material shipments and offshore production.

Congress created the National Security Commission on Emerging Biotechnology in 2022 with a blunt mandate: determine whether the United States is positioned to lead the next industrial revolution — and what to do if it is not. The Commission's conclusion is stark.

Biotechnology is no longer a niche scientific field. It is becoming a general-purpose manufacturing platform — one capable of producing fuels, materials, medicines, textiles, chemicals, and industrial inputs across nearly every sector of the economy.

China has treated it as a strategic priority for two decades. The United States has not. The answer, according to the Commission, is not incremental reform. It is a reset. Its central

recommendation: dedicate a minimum of $15 billion over the next five years to unlock private capital, accelerate scale-up, and rebuild America's biotechnology industrial base

Not to subsidize science for science's sake — but to ensure that manufacturing capacity, supply chains, and innovation remain anchored here rather than migrating elsewhere.

For hard technologies, such as biotechnology, the pathway to commercialization can be expensive and time-consuming. Overly complicated regulatory processes limited pre-commercial scale infrastructure, and an uncertain market increase risk for private sector investments in biotechnology. Emerging biotechnologies are not moving efficiently from lab to market, and without targeted policy catalysts to de-risk private capital, the commercial market will not produce a biotechnology sector that addresses broad U.S. national security needs.

The Chinese government, by contrast, has adopted innovation policies that channel capital into biotechnology as a strategic industry and address key barriers that impede the transition of early-stage technologies into commercial products. While these policies are generally viewed as fair and legitimate, they operate alongside—and are reinforced by—China's long-standing predatory nonmarket practices and brute force economic tactics. Since April 2025, the Commission has continued to hear from U.S. stakeholders, especially biotechnology founders and investors, about unabated IP theft, copycat activity, and artificially low prices that allow Chinese companies to undercut their U.S. competitors. Together, these approaches allow China to exploit U.S. market failures and accelerate its progress in this critical technology sector.

China's state-designed financing architecture and commercialization strategies are widening the innovation gap, underscoring the urgency of U.S. policy intervention.[1]

Section 9003 Strengthens Farmers and Rural Small Businesses

The economic case for Section 9003 is clearest when traced through cash-flow channels that matter locally. Biobased and waste-to-value facilities create new markets for agricultural and forestry inputs, pay for residues and intermediates that otherwise carry little value, and formalize long-term contracts that stabilize rural supplier revenue. These facilities also anchor clusters of service businesses—trucking, aggregation, fabrication, maintenance, environmental services, and utilities—that compound employment effects beyond the plant fence line.

[1] https://www.biotech.senate.gov/2025_report/home/

Some technology classes strengthen producer economics not only through new revenue, but also through cost stability. Distributed fertilizer production and nutrient recovery can reduce exposure to delivered-price volatility and supply disruptions, improving farm-level resilience during commodity cycles and interest-rate swings. In those cases, Section 9003 supports rural development by strengthening both sides of the farm balance sheet: revenue opportunities and cost reliability.

In that context, Section 9003 functions as a financial bridge that complements short-term assistance by lowering the long-run cost structure farmers face. Bridge assistance packages can stabilize cash flow for a season, including the kind of multi-billion dollar relief aimed at the 2025-2026 crop cycle, but they do not change the delivered-price dynamics of fertilizer, fuel, and other inputs. Loan-guaranteed deployment of distributed ammonia, nutrient recovery, and waste-to-energy systems can widen the set of competitive suppliers in rural markets and reduce exposure to concentrated pricing power, delivering a durability dividend that persists after emergency relief sunsets.

The economic case for Section 9003 is clearest when traced through the cash-flow channels that matter in rural counties. Biobased and waste-to-value facilities create incremental markets for agricultural and forestry inputs, monetize residues and intermediates that otherwise carry minimal value, and support multi-year contracting that improves revenue visibility for rural suppliers. These facilities also anchor clusters of local service businesses—trucking and aggregation, fabrication and field services, maintenance and controls, environmental compliance services, and utility interconnections—that expand regional economic activity beyond the plant fence line and strengthen the local tax base.

Equally important, these investments expand access to good-paying, year-round employment that keeps farm families in rural communities while improving household cash flow and labor stability. A modern bioindustrial facility does not simply create plant jobs; it creates a ladder of skilled positions—process operators, mechanics and electricians, instrumentation and controls technicians, lab and quality staff, safety and environmental personnel, and logistics and procurement roles—that tend to offer steadier hours and more competitive compensation than seasonal or low-wage rural employment.

That matters because off-farm income is no longer supplemental for most farm households; it is foundational. In 2023, 96% of farm households (principal operator and spouse) earned income from off-farm sources, underscoring how frequently families must secure outside work to cover living expenses and maintain their operations. By locating durable industrial employment in farm country—rather than forcing long commutes or

out-migration—9003-backed facilities help retain workforce, sustain family farms, and keep purchasing power circulating in rural communities. In an America First framework, this is workforce and community resilience: U.S. production, U.S. jobs, and U.S. supply chains built where the feedstocks originate.

Some technology classes strengthen producer economics not only through new revenue, but also through cost stability—an outcome with direct implications for credit quality at the farm level. Distributed fertilizer production, nutrient recovery, and local upgrading of waste streams can reduce exposure to delivered-price volatility and supply disruptions, improving resilience during commodity cycles and interest-rate swings. In those cases, Section 9003 supports rural development by strengthening both sides of the farm balance sheet: it expands revenue opportunities through new markets while improving cost reliability for key inputs that drive working-capital stress.

The community-wide economic upside of federally guaranteed rural manufacturing finance is measurable and persistent. A 2025 economic assessment of USDA Rural Development's Business & Industry (B&I) Guaranteed Loan Program[2] found that counties receiving guaranteed-loan investment experienced employment growth over multiple years, with the federal government's estimated cost at $438 per job created over the 2012–2022 period. The same assessment estimates that approximately 750,000 jobs were created from B&I investment during that decade-long window, indicating that disciplined credit enhancement can translate federal subsidy dollars into durable employment outcomes at scale.

Beyond headline job counts, the assessment shows the compounding fiscal and income effects that matter to rural communities. Counties that received B&I investment saw higher average earnings per worker for nine consecutive years after initial investment than similar counties that did not receive investment, and they also exhibited higher GDP per capita and higher overall GDP in the years following initial investment. At the state level, the assessment finds that a 1% increase in B&I investment is associated with a 0.55% increase in sales tax revenue in the long run—an indicator that these investments expand the tax base and strengthen public services. While Section 9003 targets a different set of project types than B&I, the underlying mechanism is the same: mobilizing private capital into rural productive assets through a federal guarantee that improves financeability and accelerates investment.

[2] USDA B&I Guaranteed Loan Program: Economic Assessment 2025, prepared for National Rural Lenders Association by Summit LLC. View the report at www.nrla-usda.com.

Technology Pathways That Deliver Industrial and Rural Value

A practical Section 9003 deployment strategy prioritizes commercial systems that upgrade biomass and waste feedstocks into products with resilient demand and strategic importance. Biobased materials can substitute for petroleum-based plastics in single-use and durable applications, converting commodity crops into higher-margin industrial inputs. Renewable chemicals and intermediates produced through fermentation or catalytic upgrading can supply domestic manufacturing with consistent quality and secure sourcing. Distributed fertilizer production can convert water, air, and electricity into ammonia at points of use, lowering farmer input costs and improving supply chain resiliency and security for rural producers. Waste-to-value platforms can turn biogas and other carbon-rich waste streams into syngas and liquid hydrocarbon intermediates, linking rural carbon streams to high-value fuel and chemical markets.

Across these pathways, the central industrial base outcome is the same: the creation of repeatable, financeable manufacturing assets near feedstock and waste resources. The rural development outcome is equally direct: new revenue for local suppliers, skilled operating jobs, and an expanded tax base that persists after construction is complete.

9003 Technology Examples

Corn Next (cornnext.com)

Corn Next exemplifies a biobased materials pathway oriented toward replacing petroleum-based plastics and addressing end-of-life pollution. The company has created CornNext-17 as a biodegradable material made from corn-based ingredients, with external coverage describing a cornstarch feedstock and a fermentation-based process. The rural relevance is twofold: it expands industrial demand for corn-derived inputs such as starch and creates a rationale for siting processing and compounding capacity near agricultural production and existing grain and starch logistics. When such facilities scale, they deepen local value capture by turning commodity crops into higher-margin industrial materials and supporting manufacturing employment in operations, quality control, logistics, and maintenance.

Talus Ag (talusag.com)

TalusAg represents a distributed green ammonia model designed to make local fertilizer production more reliable and, over time, cost-competitive with centralized supply chains. The company has created a modular, containerized system that produces ammonia from electricity, air, and water through electrolysis-based hydrogen production paired with nitrogen separation from air, combining the N_2 and H_2 gases in a standard Haber-Bosch ammonia synthesis module scaled to local market demand. Talus only develops projects and deploys systems where they can be cheaper than incumbents and secures long term take or pay offtake contracts for the ammonia produced. The problems being addressed include nitrogen fertilizer price volatility, transportation cost burdens for rural communities, and the systemic risk of depending on a small number of large, fossil-linked production hubs. Rural economic development benefits accrue through lower fertilizer prices, local infrastructure deployment, skilled operations and maintenance roles, and improved agricultural competitiveness when producers gain more predictable access to critical inputs.

Circularity Fuels (circularityfuels.com)

Circularity Fuels illustrates a waste-to-value pathway that turns biogas into syngas and then into sustainable aviation fuel intermediates via Fischer-Tropsch upgrading. The company has created reactors that convert the methane and carbon dioxide components of biogas into syngas, and trade coverage has highlighted demonstrations using dairy-derived biogas from manure management systems. The core problem being solved is that biogas developers and dairy operations often capture only limited value from gas production and face high capital intensity in conventional syngas conversion. If compact, electrically driven conversion systems can be deployed at lower capital cost, rural producers may gain additional revenue channels from waste streams

while supporting localized industrial activity around digestion, gas cleanup, conversion operations, and offtake logistics. The long-run upside is demand-pull from aviation and industrial fuel markets that links farm waste management to a high-value manufacturing supply chain.

Administering 9003 for Scale and Repeatability

Improving Section 9003 performance requires equal emphasis on policy clarity and execution mechanics. The program works best when it is administered as industrial scale-up policy rather than as a narrowly defined energy instrument. That means underwriting should explicitly reward durable offtake, credible operations capability, and repeatable project structures that allow second and third facilities to be financed with less friction. It also means building standardized diligence templates and reference benchmarks so that lenders and applicants face fewer bespoke requirements from cycle to cycle, reducing time-to-decision and development carrying costs.

Interagency coordination should be operational rather than aspirational, particularly for aviation fuels and other strategic manufacturing outputs whose markets depend on procurement decisions, standards, and infrastructure beyond USDA. When the Section 9003 loan guarantee platform is aligned with complementary tools such as technical assistance, demonstration support, and offtake facilitation, commercialization risks can be reduced materially before a project reaches the most expensive stages of development. Consistent communication of stage gates and deficiency checklists further reduces late-cycle attrition and allows sponsors to correct issues early.

For project owners, the path to successful financing remains a discipline of bankability. Sponsors who lock feedstock supply and logistics early, secure enforceable offtake with creditworthy counterparties, and demonstrate a realistic operations plan with warranties and performance guarantees are structurally more likely to reach financial close. Projects should be designed with replication in mind so that each successful facility establishes a template for subsequent builds that are less risky, cheaper to finance, and easier to permit. Coalitions with cooperatives, utilities, producers, and local governments remain decisive because they translate a promising technology into coordinated commitments that lenders can underwrite.

Recommendations for Section 9003 Modifications

These recommendations summarize practical, implementable improvements to Section 9003 that could be enacted in the 2026 Farm Bill. The recommendations are framed to

improve financeability, execution certainty, and repeatability—so that 9003 functions as an industrial scale-up instrument that mobilizes private capital into rural manufacturing capacity.

Strategic Framing

If Congress intends Section 9003 to operate as industrial base policy executed through rural finance, then statutory language and administrative practice should be optimized for bankability and throughput. The program's comparative advantage is federal credit enhancement: it shifts risk in a way that can bring lenders to financial close on first commercial and early nth-of-a-kind assets that otherwise fall into the commercialization financing "valley of death." The Farm Bill can strengthen this advantage by clarifying eligible uses, reducing avoidable technical-review friction, and building predictable, year-round program capacity.

Provide Predictable, Multi-year Authority and Protect Lending Capacity

A foundational reform is continuity. Sponsors, lenders, and suppliers cannot build investable pipelines around episodic authority or uncertain annual availability. The Farm Bill should support multi-year authorization and stable lending capacity so USDA can build a durable portfolio and the private market can commit capital with confidence. Where possible, Congress should align appropriation structures with the lead times and construction timelines of large-capex bioindustrial facilities, which often require multi-year development and ramp.

Congress should also avoid recurring rescissions or diversions of unobligated balances that undermine program credibility. Even when funds are eventually replaced, interruptions add execution risk, increase development carrying costs, and raise the all-in cost of capital for rural projects.

Modernize Statutory Scope to Reflect Today's Bioindustrial Market

Section 9003's statutory language should reflect modern market demand by explicitly supporting innovative deployment pathways and the full product set that drives bankable demand today—advanced biofuels alongside renewable chemicals and biobased products. Legislative drafting should make clear that the program is not limited to a narrow subset of end uses, and that qualifying projects include facilities that convert eligible feedstocks into fuel, chemical, or material outputs with demonstrable performance, reliability, and supply security benefits.

To support this modernization, the Farm Bill language can incorporate targeted edits such as inserting "or innovative" before "commercial-scale," and explicitly including "renewable chemicals, or biobased products" alongside end-user products. These clarifications reduce eligibility disputes, improve sponsor and lender confidence, and reduce policy risk in underwriting.

Create a Two-track Feasibility and Technical Diligence Framework

A recurring barrier to efficient deployment is the application of first-of-a-kind diligence expectations to projects adopting commercially available technology. The Farm Bill should establish a two-track approach that distinguishes between true "First of a Kind" (FOAK) risk and projects that use commercially available technology (including configurations commercial in one setting but newly applied to a specific feedstock or product slate).

Consistent with proposed legislative text, Congress should authorize the Secretary to waive certain commercial-viability demonstration requirements for projects adopting commercially available technology. This reduces avoidable cost and time while preserving rigorous review where genuine integration or scale-up risk exists.

Require a Technical Review Agreement to Reduce Ambiguity and Carrying Cost

To make technical feasibility determinations credible to lenders—and fair to applicants—the Farm Bill should authorize a Technical Review Agreement as a formal written instrument negotiated early in the technical review. Under this approach, USDA and the applicant agree upfront on objectives, methodologies, protocols, timelines, and acceptance criteria for an integrated demonstration unit or equivalent evidence package.

At minimum, the agreement should specify a set timeline for the demonstration campaign and final report; criteria and methods for evaluating success, including any third-party assessments; criteria and methods to prove performance using project-specific feedstock at yields and quality consistent with the project's design basis; and documentation requirements that demonstrate duration, quantity, and quality specifications. This converts technical diligence from an open-ended process into defined, lender-understandable gates—reducing discretionary ambiguity and development carrying costs.

Codify Deficiency Notices and a Cure Period to Support Stage-Gate Management

Congress should reinforce a stage-gate program management model that improves portfolio discipline while preserving a practical path to cure deficiencies. Proposed

language that requires written noncompliance notices and provides a defined corrective action period (for example, up to 90 days) is consistent with commercial lending norms and improves predictability for applicants.

This approach supports program integrity by removing non-performing applications from the pipeline while allowing credible sponsors to correct issues without restarting from zero. In underwriting terms, it clarifies when evidence is out of tolerance, what remediation is required, and when technical feasibility can be reaffirmed.

Move to Year-Round Intake and Continuous Review

The Farm Bill should direct USDA to operate Section 9003 on a year-round intake and review basis, subject to funding availability. Capital markets, equipment procurement windows, and offtake negotiations do not align to periodic federal submission cycles. Batching applications can create avoidable congestion and increase interest carry and development expense.

A continuous, first-ready/first-reviewed operating model would reduce queue risk, shorten time-to-decision, and improve the ability of sponsors to hold pricing and contracting positions. These changes directly reduce the all-in cost of capital and increase the probability of reaching financial close.

Strengthen the Pipeline with Demonstration-Scale Validation tied to 9003 Commercialization

Congress should consider explicitly linking pilot and demonstration support to Section 9003's commercialization mandate. Demonstration-scale validation can retire integration and operability risk before full commercial deployment, increasing the proportion of projects that enter 9003 review with bankable evidence and improving USDA's throughput.

This structure is particularly relevant for emerging SAF and waste-to-value pathways where engineering integration, feedstock variability, and product quality assurance must be proven at steady state. The goal is not to subsidize R&D, but to reduce FOAK risk into lender-grade evidence that supports long-tenor debt.

Update Scoring and Eligibility Criteria to Prioritize Financeability and Durable Rural Outcomes

Statutory direction should encourage USDA to modernize scoring criteria so the program selects projects most likely to reach financial close and deliver durable rural economic benefits. Scoring should emphasize contracted revenues with creditworthy

counterparties, credible feedstock contracting models that share value with producers and rural suppliers, repeatable designs that progress from FOAK to nth-of-a-kind deployment, and governance/controls that reduce execution risk.

In parallel, Congress may direct USDA to update eligible feedstock definitions to reflect modern waste-to-value and bioindustrial pathways where appropriate, ensuring the program can support projects that convert otherwise problematic waste streams into valuable industrial outputs.

Align 9003 with Market Pull for Biofuels, including SAF, without Increasing Policy Risk

Where Congress intends Section 9003 to support biofuel expansion, statutory language should clearly recognize eligible SAF-related pathways and the intermediate products that enable them. Clear definitions reduce eligibility and policy-risk uncertainty in underwriting and support stronger offtake positions.

The Farm Bill can also encourage interagency coordination (where relevant) so that USDA's credit tools reinforce market-development efforts rather than operating in isolation. The practical objective is to improve demand certainty and contractability—the conditions that materially improve bankability for large-capex facilities.

Bottom Line

These reforms are designed to make Section 9003 a higher-throughput, lower-friction credit enhancement platform that private lenders can underwrite with confidence. By clarifying statutory scope, reducing avoidable technical-review ambiguity, strengthening pipeline evidence, and providing predictable capacity, Congress can increase the number of projects that reach financial close and accelerate repeatable deployment of rural bioindustrial facilities that strengthen domestic manufacturing and rural economies.

Conclusion

Section 9003 should be treated plainly for what it is: industrial base policy executed through rural finance. It exists to correct a predictable market failure: the inability of conventional project finance to carry first-of-a-kind and early commercial bioindustrial assets across the scale-up threshold-and to convert American feedstocks, waste streams, and innovation into operating domestic manufacturing capacity.

That framing is not rhetorical. Manufacturing capacity is the strategic asset that determines supply-chain control, workforce depth, and export leverage. As biomanufacturing and waste-to-value systems become general-purpose production

platforms, the United States faces competitive pressure from state-directed capital and commercialization strategies abroad, including from China. Section 9003 sits at the decision point where financing either anchors production in rural America or allows it to migrate offshore, leaving domestic producers dependent on foreign-controlled inputs and fragile logistics. Properly deployed, Section 9003 helps build U.S.-based capacity in fertilizers, chemicals, materials, and fuels, including pathways that support aviation and logistics energy resilience.

The rural economic logic is equally direct. Section 9003-backed facilities create durable demand for agricultural and forestry inputs, monetize residues and intermediates, and support multi-year contracting that improves cash-flow visibility for rural suppliers. They also expand local capacity in critical inputs such as fertilizer and energy, reducing exposure to delivered-price volatility and concentrated pricing power. In parallel, these projects anchor skilled, year-round employment and service-business clusters that keep earnings, tax base growth, and operational capability in rural counties.

The stakes are higher now than when 9003 was created. The United States can continue to lead in discovery while conceding production capacity, workforce expertise, and supply-chain control to foreign competitors, or it can build the physical manufacturing platform that turns innovation into durable economic power. Biobased materials, renewable chemicals, waste-to-value systems, and low-carbon fuels are enabling inputs for modern industry—packaging and polymers, solvents and intermediates, fertilizer and farm inputs, and aviation and logistics fuels. If the U.S. does not build this platform at home, it will buy it from others, and rural America will remain a supplier of low-margin raw materials rather than a site of high-value manufacturing.

That is why the core promise of 9003 matters: it is a mechanism to convert rural resources into bankable industrial assets. Properly deployed, it creates long-term demand for agricultural and waste feedstocks, anchors skilled operating jobs, strengthens regional supply chains, and expands the tax base in communities that have spent decades watching capital consolidation flow outward. The modeled ten-year impacts of sustained 9003 deployment at scale are meaningful precisely because they are cumulative and structural, compounding across facilities, supplier networks, and workforce development to create a repeatable manufacturing ecosystem rather than isolated one-off wins.

The call to action is straightforward. Congress should fully fund and protect Section 9003 as a national manufacturing priority, provide predictable multi-year authority, and ensure USDA has the staffing and technical resources to execute without bottlenecks. USDA should administer 9003 with the urgency and clarity that industrial scale-up requires, using standardized underwriting pathways for first-of-a-kind risk, transparent stage gates,

faster time-to-decision, and rigorous emphasis on bankable offtake, feedstock contracting, and operations readiness. If Congress and USDA treat 9003 as industrial base policy—fully funded, professionally administered, and aligned with measurable outcomes—rural America can become a primary location where the next generation of U.S. manufacturing is built. Section 9003 was created to prevent the alternative; now it must be funded and run like the strategic instrument it is.

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Company Overview

QuantaVision is an innovation-commercialization and capital-strategy advisory for founder-led companies building hard technology — renewable fuels, renewable chemicals, biobased products, advanced materials, and value-added agriculture.

Since 1994, the firm has helped founders move technology out of the lab and into operating, financed facilities. That work has supported more than $4 billion in capital formation across the bioeconomy and adjacent sectors, and it has been done the hard way — alongside companies crossing the gap between a proven technology and a built plant that most advisors never cross with them.

QuantaVision has worked inside the USDA Section 9003 program since its creation in the 2008 Farm Bill, completing applications every year across a wide range of renewable fuels, renewable chemicals, and bioproduct projects. The firm pairs that program-level fluency with the broader discipline a first commercial facility actually requires: feedstock and offtake structuring, capital-stack design across federal, private, and strategic sources, commercialization strategy, and the government-relations work that keeps a project moving.

The practice is built around depth, not volume. Cynthia Thyfault leads every engagement personally, and the firm holds a focused portfolio of active clients at any time. Founders engage through five service lines — the Capital Terrain Map, a free self-assessment; the Strategic Diagnostic Sprint; Board Advisory & Fractional Executive support; Project Financing & Capital Strategy; and Funding & Compliance Documents — each one a step on the same path from stalled to financed.

The mission has not changed since the beginning: turn American innovation, rural feedstocks, and waste streams into domestic manufacturing that gets built here.

About the Author

Cynthia Thyfault grew up on a working farm in central Kansas. The truths instilled there — resilience, faith, and a respect for the natural world — still shape how she works and why she does it. She understands that farming is one of the hardest, most honest forms of work there is, and that the rural communities this paper is written for deserve a real shot at the industrial future being built from their feedstocks.

For more than 30 years, Cynthia has worked at the intersection of technology commercialization, capital strategy, government relations, and innovation management — guiding founder-led companies through the stretch most never cross alone: the gap between a proven technology and a financed, operating facility. She has advised on more than $4 billion in capital formation across renewable fuels, renewable chemicals, biobased products, advanced materials, life sciences, and value-added agriculture.

She has worked inside the USDA Section 9003 program since it was written into the 2008 Farm Bill, and is one of its most active practitioners — completing applications year after year and walking developers through the full path from concept to financial close. That direct, current experience is the foundation of this paper's recommendations.

Cynthia is a frequent contributor to business and trade publications and a sought-after speaker at national and international conferences. Biofuels Digest has recognized her among its Top 100 People in the Bioeconomy and, more recently, its Top 500 People Globally in the Bioeconomy. From 2011 to 2015 she spoke on sustainable aviation fuel financing at air shows and conferences around the world as part of the CAAFI delegation. She holds a bachelor's degree in business, with an emphasis in international business and marketing, from West Texas A&M University.

Founders who work with her describe the same thing: she asks the hard questions in a soft way, and she does not give up — on a company, or on the people counting on it.