

Making the Future: **Re-Energizing** Clean and Competitive Manufacturing

July 2026 | David M. Hart and Claire C. Cody



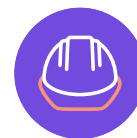
The United States led the world in energy and manufacturing innovation for over a century, but that competitive edge is eroding.

Reclaiming leadership will require sustained, sharpened federal support for clean and competitive manufacturing—one of the priority technology pillars identified in Clean Tomorrow’s Re-Energizing America roadmap. Yet the federal tools meant to drive manufacturing innovation are fragmented, underfunded where scale matters most, and, in several cases, being rapidly pulled back.

The stakes are high. Manufacturing is roughly 10 percent of the U.S. economy, but this figure does not fully account for the significant impact that manufacturing has in the United States. It supplies the weapons and equipment on which national security and every other critical sector depend. Each manufacturing job supports about 1.6 jobs elsewhere. The sector also anchors the energy system—consuming about a quarter of U.S. energy and generating some 20 percent of greenhouse gas emissions—making its performance central to security, economic opportunity, decarbonization, and affordability alike.

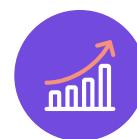
Key indicators of the sector’s health, though, are flashing red. The U.S. manufacturing trade deficit has climbed above \$1 trillion a year, much of it in advanced-technology products. Shortages, high prices, and excessive dependence on China plague markets for key manufactured goods, like components needed to build out the power grid. Decarbonization and efficiency are lagging.

Product, process, and digital innovation offer a path back to leadership, as firms like Niron Magnetics (rare-earth-free magnets) and Via Separations (low-energy industrial membranes) demonstrate. But R&D spending and patenting have stagnated, manufacturing startups are scarce, and small and medium manufacturers—over 98 percent of the industry—lag in adopting new technologies. Market and system failures leave the public benefits of innovation unrewarded, while heavily subsidized foreign competitors, such as China, distort global markets.



1.6X

Every manufacturing job supports approximately 1.6 additional jobs across the U.S. economy.



\$1T

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The United States' strength lies in its capacity for innovation and entrepreneurship, which federal policy can help unlock. The federal government already has a broad toolkit to support manufacturing innovation—including tax incentives, R&D funding, demonstration and scale-up financing, technical assistance, and procurement—but it applies these tools inconsistently. The U.S. Department of Energy (DOE)'s two core manufacturing offices, the Advanced Materials and Manufacturing Technologies Office (AMMTO) and the Industrial Technologies Office (ITO), saw their budgets fall by about 14 percent in fiscal year (FY) 2026, with deeper cuts proposed for FY 2027, while support for demonstration and scale-up has been sharply curtailed.



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To close the gap, this report recommends that Congress and the Administration:

1



Sustain and expand federal incentives for private-sector investment in manufacturing innovation—including simplifying and expanding the R&D tax credit, reinstating and uncapping the 48C advanced energy project tax credit, and doubling AMMTO and ITO appropriations over the next four years.

2



Strengthen industry-government partnerships through manufacturing testbeds, pilot lines, and consortia—including a new joint DOE/Department of Defense (DOD) pilot-line network.

3



Bridge the capital gap for scaling innovative production—directing DOE to provide loans to innovative manufacturers, reauthorizing the Industrial Demonstrations Program, and establishing an interagency Procurement for Innovation Task Force.

4



Help small and medium manufacturers narrow the productivity gap—by coordinating Manufacturing USA, NIST MEP, and DOE technical-assistance programs and expanding the State Manufacturing Leadership Program.

5



Foster regional industrial clusters—by better leveraging DOE's regional assets and fully funding the Manufacturing USA network.

These recommendations would reinvigorate the industrial backbone of the U.S. economy, chart the path for a cleaner and more competitive manufacturing sector, and ensure that the next generation of technologies is designed and made in America.