



Bipartisan Policy Center

Forging the Future: Insights on a U.S. Industrial Strategy for Energy

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Support for a strong U.S. manufacturing sector to enhance American competitiveness is a key strategic priority for policymakers on both sides of the aisle. The passage of the bipartisan CHIPS and Science Act in 2022 underscores the urgency and renewed focus on this issue as the United States enters a new phase of industrial strategy and seeks to counter the influence of China on the global stage. At the same time, the United States has set an ambitious goal—to decarbonize its economy by mid-century—that relies heavily on the availability of manufactured goods like transformers and grid components.

This series reflects on three policy tools deployed in the recent past to attempt to address perceived shortfalls in manufacturing investment: the Defense Production Act; Sematech, an industry-government consortium; and targeted tax incentives. Many common threads run through the nation's experience with each of these tools, including crisis as an enabling (but usually temporary) condition, the invocation of a national security rationale to strengthen support, and the greater effectiveness of each tool when it was implemented as part of a package of policies rather than by itself. Through a comprehensive analysis of the successes and failures of these tools, we can begin to build the framework for a clean energy manufacturing policy moving forward. This series consists of three case studies that examine the historical context of past efforts to spur domestic manufacturing.

POLICY TOOLS HISTORICALLY USED TO KICKSTART U.S. MANUFACTURING

Defense Production Act: A broad set of authorities that allow the President to influence domestic industry to meet national defense needs.

Public-private partnership: Collaboration between the government and private sector to advance a common set of goals, with a specific focus on Sematech, an initiative that aimed to advance U.S. semiconductor manufacturing technology in the late 1980s.

Tax policy: Policy tools that support civilian domestic manufacturing that include the investment tax credit (ITC), domestic production activities deduction, and accelerated and bonus depreciation.

THE DEFENSE PRODUCTION ACT: NATIONAL SECURITY AS A POTENTIAL DRIVER OF DOMESTIC MANUFACTURING INVESTMENT

First passed by Congress in 1950, the Defense Production Act (DPA) delegates broad authorities to the executive branch to support manufacturing for national defense purposes, broadly defined. The DPA's flexibility and scope make it a compelling tool to include in the clean manufacturing policy kitbag. Although primarily used for conventional military goods, DPA was deployed successfully to accelerate the availability of protective equipment and vaccines during the COVID-19 pandemic. It failed, however, to drive production of synthetic fuels in response to the energy crisis of the 1970s. Going forward, judicious, narrowly-targeted uses of the DPA that are clearly linked to national security seem more likely to succeed than ambitious green moonshots. Targeting technologies like transformers and electric power grid components, which are integral to national security and to avoiding catastrophic infrastructure risks, might provide a durable foundation to integrate the DPA into clean manufacturing policy.

SEMATECH: A PUBLIC-PRIVATE PARTNERSHIP FOR SPURRING DOMESTIC MANUFACTURING

Sematech, a government-industry partnership that aimed to advance semiconductor manufacturing technology, helped save the U.S. chip industry in the face of competition from Japanese firms in the late 1980s. The power of Sematech's consortium model was enhanced by a particular set

of circumstances, including a sense of urgency within the semiconductor industry, support from the industry’s senior leaders, and sufficient ties to national interests to prompt a substantial federal commitment. Sematech enabled U.S. manufacturers to regain global market share by creating and sharing knowledge and by setting standards that benefited the industry as a whole; in addition, Sematech drafted roadmaps that aligned expectations and focused investment, and built relationships between suppliers and manufacturers. These impacts waned over time, setting the stage for a consensus that new intervention was needed in 2022, when Congress passed the CHIPS and Science Act. Nonetheless, lessons from Sematech may translate to similar consortia for the current U.S. auto industry and for other industries that manufacture clean energy and climate technologies.

FEDERAL TAX POLICY: TARGETED INCENTIVES FOR MANUFACTURING IN THE POST-WORLD WAR II ERA

The federal government targeted civilian domestic manufacturing in the post-World War II era with three major tax policy tools: the investment tax credit, the domestic production activities deduction, and accelerated and bonus depreciation. Each of these tools was initially deemed effective but later eliminated (accelerated and bonus depreciation are scheduled to be eliminated by 2027) as reformers seeking to simplify the tax code gained the upper hand. While mainstream economists continue to be skeptical of the effectiveness of tax incentives for manufacturing, dissent from conventional economic wisdom is rising. Protecting national security, accelerating innovation, and reducing pollution are widely accepted as justifications that could underpin incentives for clean production.

This series of case studies offers cross-cutting insights to inform new policies in support of an effective U.S. industrial strategy for clean energy technologies.

DEVELOPING A U.S. INDUSTRIAL STRATEGY FOR ENERGY: INSIGHTS FROM BPC'S POLICY REVIEW

1. Energy security is national security, and U.S. industrial strategy should reflect this.
2. Efforts to advance domestic manufacturing are more likely to be successful when policy tools are integrated into a package.
3. Successful public-private partnerships depend on complementary goals, flexibility, and trust.
4. Tax policies can encourage short-term investment in manufacturing, but their durability and long-term impact are uncertain.
5. Some clean energy technologies are too early in the commercial process for manufacturing policy interventions.

1. Energy security is national security, and U.S. industrial strategy should reflect this.

Several prior instances when federal policy was used to incentivize domestic production for civilian purposes were closely tied to issues of national security. For example, the DPA was used in response to the 1973 Arab oil embargo to build the Trans-Alaska Pipeline and Sematech was supported by the Defense Advanced Research Projects Agency (DARPA) to address Defense Department concerns around sourcing semiconductor components for military applications. Given the importance of a reliable, resilient electricity grid to our nation's energy security and the massive negative impacts of power system disruptions, certain technologies and commodities may be prime candidates for targeted federal intervention. Examples include transformers and other vital grid components as well as critical minerals for clean energy manufacturing. Using defense authorities to ensure that key domestic supply chains are robust and resilient is an appropriate strategy in today's volatile world.

2. Efforts to support domestic manufacturing are more likely to be successful when several policy tools are combined in a package.

Individual policy actions are likely to be limited in their effectiveness to spur domestic manufacturing due to the complexity of the economic environment. Packages that combine multiple policy tools are likely to do better. For example, in the case of Sematech, trade policy created economic space and antitrust policy provided legal permission for the consortium approach to be effective. Sematech needed a few years to establish its credibility, create key relationships, hire a workforce, build facilities, and carry out complex technical operations. Without complementary policies, Sematech would have been far less successful at reestablishing a leading U.S. role in the semiconductor supply chain. Similarly, the DPA was just one of several tools used to accelerate COVID-19

vaccine production as part of Operation Warp Speed. In the context of clean manufacturing, coordinating technology policies with trade, tax, workforce, and other interventions will raise the odds of success.

3. Successful public-private partnerships to advance domestic manufacturing depend on complementary goals, flexibility, and trust.

Public-private partnerships can take many forms depending on their goals. The partners may have different goals, but they must be complementary. In the case of Sematech, Japanese competition threatened the viability of U.S. semiconductor production, imperiling the industry's domestic viability and by extension, national security. The importance of these goals was validated by commitments made to Sematech by industry CEOs, the President, and Congress. These complementary goals did not determine the consortium's strategic responses, which emerged out of extensive consultation informed by up-to-date market intelligence. The consultative process built on pre-existing relationships, strengthened these relationships, and created new ones. This web of relationships created trust that, in turn, gave Sematech the autonomy to adjust its strategy as circumstances warranted. This example suggests that successful large-scale public-private partnerships to advance clean manufacturing will rest on complementary goals that have been validated by the highest authorities and embedded in a network of well-informed industry and government experts.

4. Tax policies can encourage short-term investment in manufacturing, but their durability and long-term impact are uncertain.

Recent industrial history shows that tax policy has not generally provided durable signals that drive the growth of manufacturing investment over the long term. While economists continue to debate whether tax policies can be effective in principle, in practice, politics tend to intervene as Congress has periodically eliminated provisions designed to incentivize manufacturing in favor of lowering the overall corporate tax rate. To avoid this fate, future efforts to provide permanent tax incentives for clean manufacturing should rest on a robust consensus among experts as well as strong bipartisan support. Temporary tax changes have been shown to be effective in pulling investment forward, so that it occurs sooner than it would have absent the change. This tactic is particularly useful during recessions and could reduce cumulative emissions on the margin, but it is not an adequate substitute for a durable signal supported by a firm political alignment.

5. Some clean energy technologies are too early in the commercial process for manufacturing policy interventions.

Manufacturing innovation is a complex and risky process. Past efforts to use the DPA to accelerate innovation or kickstart a new industry, such as synthetic fuels and bio-fuels, were largely unsuccessful. The COVID-19 vaccines are a partial exception, but their development occurred during a widely-felt crisis and rested on a solid basis of both established industry practice and exceptional new science. Unlike vaccines in the pharmaceutical sector, there is no silver bullet energy technology that, if it existed, would solve our emissions challenges. The DPA may play a constructive role in accelerating the adoption of deployment-ready clean energy technologies and options for decarbonizing manufacturing processes, especially if it is used in conjunction with other policy tools. But policymakers must guard against applying manufacturing policy tools to technologies that have a commercialization problem, not a manufacturing problem. Forcing immature technologies into the marketplace is not only likely to fail, it could undermine more pragmatic applications of federal authorities and resources.

