Bipartisan Policy Center

The Defense Production Act: National Security as a Potential Driver of Domestic Manufacturing Investment

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Prepared for the Bipartisan Policy Center

INTRODUCTION

Through the Defense Production Act (DPA), Congress has delegated broad authorities to the executive branch under certain circumstances to prioritize deliveries of products to the government from existing facilities (Title I) and to fund the construction or expansion of plants to make products in short supply (Title III).[a]

The DPA's flexibility and scope make it a compelling tool to include in the clean manufacturing policy kitbag. But its history includes cautionary tales as well, in which programs fell far short of their goals. In some cases, targeted technologies were not necessarily perceived to be vital to national defense, in others, they were not commercially proven. Experience thus suggests that judicious, narrowly-targeted uses of the DPA that are clearly linked to national defense and advance relatively established technologies are more likely to succeed than ambitious green "moonshots."

a Title VII of the DPA also exempts firms that plan defense-related production together from antitrust liability.

ABOUT THE DEFENSE PRODUCTION ACT

The DPA was initially passed in 1950 to support the U.S. military during the Korean War, building on the experiences of the mobilizations for World Wars I and II. It has been reauthorized many times and is currently in force through 2025.[17] The DPA seeks to ensure that domestic industry can meet national defense requirements.[18] "National defense" is broadly defined within the Act, and energy security was explicitly added to this definition in the wake of the oil crises of the 1970s.

The Trump and Biden administrations used DPA authorities extensively during the COVID-19 pandemic, most notably to fund vaccine production. The Biden administration has authorized DPA support for the production of strategic and critical minerals and a group of clean energy technologies. It is currently implementing a program to support heat pump manufacturing under the Inflation Reduction Act.

DPA BASICS

One aim of the DPA is to overcome the potential reluctance of a private industry to utilize or invest in production capabilities that are needed to support short-term national defense needs. It does so using a stick-and-carrot approach, ordering factories to move government orders to the front of their production queues while also paying them for the costs of doing so.

These powers are extraordinary in a society committed in ordinary times to private property and free enterprise. The DPA delegates them to the executive branch, so that the federal government can respond quickly and flexibly to urgent and unpredictable emergency conditions. Yet Congress retains important checks, notably through its power of the purse. Title III funding is limited to $50 million per project unless Congress authorizes more, and the total unobligated DPA funding that can be carried over from year to year is limited to $750 million. The president may waive these limits but must abide by the overall funding appropriated by Congress.[1]

The Department of Defense has long used the DPA in routine operations, including to support R&D and facilitate innovation. A comprehensive history of the Act provides this example: "The Reagan administration specifically used the provisions of the DPA to fund technologies such as machine intelligence, composite materials, integrated optics, fiber optics, and microelectronics. These technologies were then used to improve military capabilities, such as designing composite rotor blades for Army helicopters and developing a metal matrix armor for the M1A2 and the M-2 Bradley Fighting Vehicle."[2]

In addition to DOD, several other departments, including the Departments of Energy and Health and Human Services, are delegated authority under the DPA. These agencies may contract for prioritized production under Title I. They may also provide grants, loans, and loan guarantees to producers, and make advance purchase commitments under Title III.[3]

USING THE DPA FOR ENERGY TECHNOLOGIES

The DPA was first invoked in the energy industry during peacetime to respond to restrictions on petroleum exports imposed by Arab nations in the 1970s. In 1973, for instance, the Nixon administration used Title I to prioritize deliveries of domestic petroleum to the U.S. military. The following year, DPA authority was used for the first time to advance a civilian project, the Trans-Alaska Pipeline. This pipeline opened Alaska's North Slope to large-scale petroleum production, strengthening domestic supply. It has remained open since 1977, carrying up to 2 million barrels of oil per day.[4]

The Energy Security Act of 1980 formalized the DPA's focus on energy. Congress allocated $3 billion in DPA funds (approximately $10.5 billion in today's dollars) to support the Synthetic Fuels Corporation, the Carter administration's signature response to the second oil crisis. The SFC's stated goal was to displace a large portion of imported petroleum with domestic resources like shale oil. As a means to this end, it sought to advance coal gasification technology.[5]

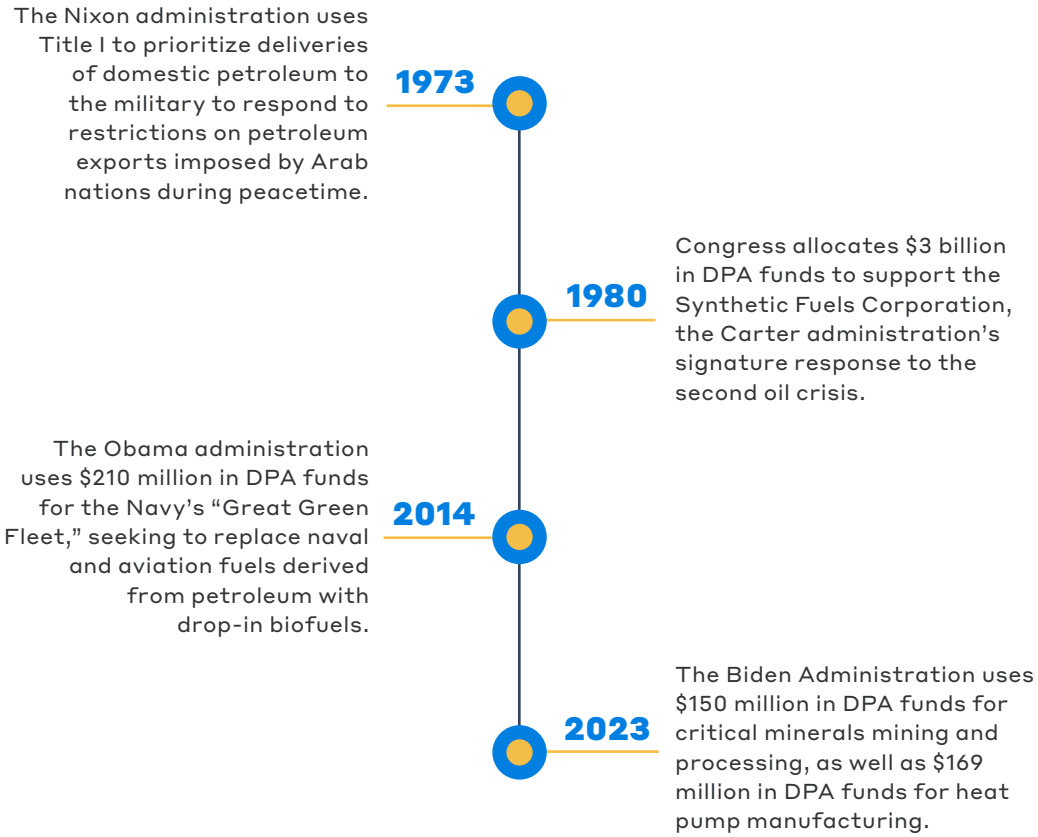
The SFC used DPA loan and price guarantees to support five projects. The largest of these was terminated after less than a year, and the second-largest suffered from performance problems that kept it at half capacity. (An even larger default befell a synfuels loan guarantee made by DOE under a non-DPA authority.) While the SFC fell far short of its goals, scholars Greg Nemet and Laura Anadon conclude that it did accelerate technological innovation and diffusion, including innovation that led to the construction of the first integrated gasification combined cycle (IGCC) power plant.[6]

Thirty years later, the Obama administration's attempt to use the DPA in a similar vein met a similarly disappointing fate. The Navy's "Great Green Fleet" initiative, pursued over Republican objections, was formalized in a memorandum of understanding between DOD, DOE, and the Department of Agriculture in 2011. Motivated by energy security and climate concerns, it sought to replace naval and aviation fuels derived from petroleum with drop-in biofuels. Substantial innovation would be required to make these alternatives cost-competitive with conventional fuels.

In 2014, DOE and DOD used about $210 million in DPA funds for three awards to build biofuels production capacity totaling over 100 million gallons per year. USDA funding was provided through the Commodity

Credit Corporation. As of 2022, one of the awardees had not yet begun construction, another had not completed construction, and the third had not started commercial production. Analyst John Alic concludes that this program would have been insufficient to drive biofuels innovation even if the plants had been built. While laboratory results may indicate that biofuels have the potential to become cost-competitive, the well-known challenges of scaling up fuel production frequently trip up even the most sophisticated companies. A more systematic and sustained program, using a more diverse set of tools, might have yielded better results.[7]

Prior uses of the Defense Production Act in the energy sector



THE DPA DURING THE COVID-19 PANDEMIC

The DPA played a supersized role in America's response to the COVID-19 pandemic. After appropriating between $50 and $70 million per fiscal year from 2014 to 2020, Congress put $1 billion into the DPA Fund in the 2020 CARES Act, and another $10 billion in the 2021 American Rescue Plan. Title I was invoked to prioritize deliveries of personal protective equipment and medical and testing supplies; in addition, the 3M Company was ordered to import respirators from China. Under Title III, DOD invested $3.1 billion to expand capacity in these industries.[8]

The Trump administration instituted Operation Warp Speed (OWS), which dramatically accelerated vaccine development, approval, and mass distribution. OWS is the outstanding example of successful DPA use in a non-military setting. According to Arielle D'Souza of the Institute of Progress: "Between December 2020 and May 2021, it's estimated that OWS saved the lives of 140,000 Americans….between 2020 and 2021, COVID-19 resulted in a $26 billion loss a day. By contrast, OWS cost around $13 billion, or around 12 hours worth of COVID-19 daily costs."[9]

The Department of Health and Human Services, along with DOD, implemented OWS. DPA's Title I, along with other HHS authorities, allowed the government to make generous commitments to purchase certain vaccines even before they had been tested, much less approved. These commitments induced manufacturers to invest in R&D and clinical trials. Title III enabled government support to build production capacity for vaccines and their key inputs in parallel with clinical trials. Millions of doses of the successful candidate vaccines were thus ready to be distributed immediately upon regulatory approval.[10]

The pandemic's human and economic toll provided powerful motivation for those working on OWS and encouraged many who might have objected to OWS under other circumstances to support the program. Given the benefits cited above, the apparent waste of money on failed vaccine candidates and dysfunctional facilities did not provoke outrage. Indeed, OWS has been lauded for its portfolio approach to vaccine innovation, which assumes some failures and accepts them as the price of success.[11]

THE DPA TODAY

In March 2022, President Joe Biden issued a memorandum ordering DOD to use the DPA to "create, maintain, protect, expand, or restore" domestic production of strategic and critical materials, such as nickel and cobalt used in energy storage systems. Production of these materials is highly concentrated in a few countries and thus vulnerable to disruption. In

June 2022, the president determined that production facilities for several clean energy technologies—solar photovoltaic (PV) cells and modules, transformers and electric power grid components, heat pumps, insulation, and electrolyzers, fuel cells, and platinum group metals—should be eligible for DPA funding as well, and he waived the DPA's expenditure limits.[12]

Two months later, the Inflation Reduction Act provided $250 million in DPA funding for a DOE program to support heat pump manufacturing. The heat pump program is being managed by DOE's Office of Manufacturing and Energy Supply Chains. Full applications for this funding were due on August 1, 2023. MESC anticipates making between 6 and 20 awards of between $10 and $50 million with the awardee providing matching funds. The president's fiscal year 2024 budget proposes $75 million in additional DPA funding for eligible technologies.[13]

THE DPA LOOKING FORWARD

Todd Tucker and his colleagues at the Roosevelt Institute have called for a more muscular assertion of the DPA in support of the Biden administration's industrial strategy.[14] This brief review of the statute's history suggests a more cautious approach when invoking DPA authority outside the traditional defense procurement context. Operation Warp Speed's success rested in part on the unique situation to which it responded. While not a military crisis, the pandemic was widely-understood to be a national emergency. The Synthetic Fuels Corporation was initiated during an energy crisis, but the moment passed far before its projects were built. The Great Green Fleet was an unrealistic, unsuccessful peacetime experiment. Connection to a widely perceived crisis not only weakens objections to the DPA's use, it also strengthens follow-through. National leaders and the public alike really wanted vaccines, but cared far less about synthetic and biofuels, making it easier for the latter projects to languish.

> "TARGETING TECHNOLOGIES THAT ARE MOST INTEGRAL TO NATIONAL SECURITY MIGHT PROVIDE A MORE DURABLE FOUNDATION TO INTEGRATE THE DPA INTO CLEAN MANUFACTURING POLICY."

As Joseph Majkut and Jane Nakano at the Center for Strategic and International Studies suggest, among the technologies that the White House targeted in 2022, transformers and electric power grid components are most integral to national security and to the avoidance of a catastrophic

infrastructure risk. Targeting these technologies might provide a more durable foundation to integrate the DPA into clean manufacturing policy than the heat pump program.[15] Other technologies on the White House list, such as solar PV and fuel cells, might be justified in the same vein as components of microgrids that reduce significant security risks at military bases and other key federal facilities. The U.S. Army *Climate Strategy*, for instance, calls for microgrids to be installed on every base by 2035.[16] Applying this filter could ultimately help the DPA become a tool that is routinely used in federal procurement of energy technologies, much as it is for some defense goods.

Endnotes

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