



Seven Ways the Executive Branch Can Turbocharge Green Industrial Policy

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EXECUTIVE SUMMARY

On August 16, 2022, President Biden signed the Inflation Reduction Act (IRA). The bill contains a sweeping set of green industrial policy measures that will move the US two-thirds of the way toward its Paris Agreement goals,¹ leaving the remaining third a task for the executive branch and other entities.² Luckily, the executive branch has tools at its disposal that are well-suited to this task, some of which date back to the early days of the administrative state under President Franklin D. Roosevelt and his successors. This time-tested tool kit can enable bold action by using trade, advance market commitments, and emergency declarations to create the green energy jobs of the future, all while limiting inflation. Specifically, President Biden can:

1. Launch investigations, carbon tariffs, and climate clubs under Section 232 of the Trade Expansion Act of 1962;
2. Create markets for green energy and industry using advance market commitments and equipment transfers under the Defense Production Act of 1950;
3. Use “Other Transaction Authority” to encourage private investment in green energy;
4. Use the Exchange Stabilization Fund to accelerate the production of commodities critical to the green energy transition;
5. Explore partnerships with government corporations as purchasing agents;
6. Invoke a climate emergency under the National Emergencies Act of 1976 to increase the availability of funds for green energy and industry; and
7. Invoke extraordinary contracting powers to make procurement commitments that exceed current budgetary limits.

Each of these suggestions shows how the government can use near-term tools to stabilize supply and demand imbalances without using blunt instruments like interest rate hikes that throw workers—

¹ Robinson Meyer, “Manchin and Schumer’s Astonishing Climate Deal.” *The Atlantic*, July 28, 2022. <https://www.theatlantic.com/science/archive/2022/07/manchin-schumer-inflation-reduction-climate/670981/>.

² Action by sub-federal government and private businesses are not addressed in this brief.

disproportionately workers of color who are often the “last hired, first fired”—out of work.³ Ironically, it is none other than President Donald Trump who paved the way for such measures, with his trade war, border wall, and COVID-19 vaccine development. Today, the US government has the opportunity to use a wide array of tools to treat the climate crisis like the emergency that President Biden says it is.⁴ And by accelerating industrial transformation in the next two and a half years, the administration can lock in important changes that will be economically costly to reverse.

1. LAUNCH INVESTIGATIONS, CARBON TARIFFS, AND CLIMATE CLUBS UNDER SECTION 232 OF THE TRADE EXPANSION ACT OF 1962

A key policy tool President Biden can use to act on climate change without Congress is Section 232 of the Trade Expansion Act of 1962.⁵ This statute allows the president to impose restrictions on imports based on whether the incoming product threatens to impair national security, which is defined broadly. For instance, national security is tied to broader economic well-being:

[T]he Secretary and the President shall further recognize the close relation of the economic welfare of the Nation to our national security, and shall take into consideration the impact of foreign competition on the economic welfare of individual domestic industries; and any substantial unemployment, decrease in revenues of government, loss of skills or investment, or other serious effects resulting from the displacement of any domestic products by excessive imports shall be considered, *without excluding other factors*, in determining whether such weakening of our internal economy may impair the national security.⁶

³ Christopher Rugaber, “Fed’s Rate Hikes Threaten Its Goal of Narrowing Racial Gaps.” *AP News*, March 31, 2022. <https://apnews.com/article/business-race-and-ethnicity-racial-injustice-inflation-unemployment-05f103b868e65a6349b43f8f90f6a8b2>.

⁴ Joe Biden, “Remarks by President Biden on Actions to Tackle the Climate Crisis.” The White House, July 20, 2022. <https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/07/20/remarks-by-president-biden-on-actions-to-tackle-the-climate-crisis/>.

⁵ The basic authority contained in Section 232 dates back to the Trade Act of 1934. On this genealogy, see *Transpacific Steel LLC v. United States*, 4 F.4th 1306, 1312 (Fed. Cir. 2021), cert. denied, 142 S. Ct. 1414, 212 L. Ed. 2d 403 (2022).

⁶ Emphasis added. *Trade Expansion Act of 1962*, 19 U.S.C. § 1862(d) (2022).

Trade measures invoked under Section 232 begin with the president or any US Department head calling for an investigation conducted by the Department of Commerce into whether the product's import threatens national security. Once an investigation is initiated, Commerce has 270 days to prepare a report determining how the imports do or do not threaten to impair national security and, if Commerce finds there is such a threat, providing recommendations based on those findings. In such a case, the president has 90 days from when they receive the report to decide whether they agree with the Commerce Department's findings and recommendations regarding the threat, and to determine the action they view as necessary. The president may implement the recommendations, take other actions, or decide to take no action. The president then has 15 days to implement the action and 30 days to submit a written statement to Congress explaining the action. Congress does not have to approve a Section 232 determination or action. Judicial review of both the secretary's threat finding and the president's actions are highly circumscribed.⁷

Section 232 explicitly authorizes the president to negotiate with foreign trading partners "an agreement which limits or restricts the importation into, or the exportation to, the United States of the article that threatens to impair national security."⁸ There are inbuilt guardrails to make sure these agreements actually lead to improved economic outcomes on the ground. For example, if the president determines a trade agreement with exporting countries is necessary, but negotiations fail to produce a finalized pact after 180 days, the president is authorized to take action. Likewise, if, at any time, "an agreement that has been entered into is not being carried out or is ineffective in eliminating the threat to the national security posed by imports of such article," the president is authorized to act unilaterally to address the threat.⁹ If for some reason these guardrails apply and the president decides to take no action, they must justify the determinations and associated reasons in

⁷ Rachel F. Fefer et al., "Section 232 Investigations: Overview and Issues for Congress" (Washington, DC: Congressional Research Service, May 18, 2021), <https://sgp.fas.org/crs/misc/R45249.pdf>. See also *USP Holdings, Inc. v. United States*, No. 2021-1726 (Fed. Cir. Jun. 9, 2022).

⁸ *Trade Expansion Act of 1962*, 19 U.S.C. § 1862(c)(3)(A)(i) (2022).

⁹ *Trade Expansion Act of 1962*, 19 U.S.C. § 1862(c)(3)(A)(ii) (2022).

the Federal Register.¹⁰ The combined effect of these guardrails has been described by a US appeals court as preventing “presidential choice from turning into inaction or inadequate action.”¹¹

Though not historically used for this purpose, Section 232 can be used to promote green industrial policies and reduce carbon emissions at home and abroad.¹² By returning to the statute, it's easy to see why. If the US surrenders its edge in (or capacity for) advanced solar, electric vehicles, carbon capture, or other clean industries at the same time as policy and markets are phasing out traditional emissions-intensive industries, there might be substantial unemployment, decrease in government revenue, loss of skills or investment, and other deleterious effects on economic welfare.

As a starting point, the politics and economics of the steel and aluminum industries make them ideal for a tariff or ban on carbon-intensive metal imports. The process of implementing tariffs or bans under Section 232 would begin with the Department of Commerce pulling together findings by the Pentagon and other US agencies on the threat climate change poses to national and economic security.¹³ Imports with embedded emissions above the US maximum in its domestic production facilities would be banned or charged a tariff, limiting imports of cheaper, carbon-intensive metals. President Biden could simultaneously use Section 232 to establish climate clubs with like-minded countries with similar levels of ambition.¹⁴ In essence, this is what the US and EU are proposing to establish with the Global Arrangement on Sustainable Steel and Aluminum announced in October 2021. By setting internal goals and limits for “dirty” steel, the club could use a series of carrots and

¹⁰ *Trade Expansion Act of 1962*, 19 U.S.C. § 1862(c)(3)(B) (2022).

¹¹ *Transpacific Steel LLC v. United States*.

¹² Previous uses of Section 232, did, however, include measures to reduce dependence on foreign oil. See Fefer et al, at 60.

¹³ A Pentagon report published in October 2021 found that “Increasing temperatures; changing precipitation patterns; and more frequent, intense, and unpredictable extreme weather conditions caused by climate change are exacerbating existing risks and creating new security challenges for U.S. interests.” See DOD, “Department of Defense Climate Risk Analysis” (Washington, DC: Department of Defense, Office of the Undersecretary for Policy (Strategy, Plans, and Capabilities), October 2021), <https://media.defense.gov/2021/Oct/21/2002877353/-1/-1/0/DOD-CLIMATE-RISK-ANALYSIS-FINAL.PDF>, at 2.

¹⁴ Todd N. Tucker and Timothy Meyer, “Reshaping Global Trade and Investment Law for a Green New Deal,” in *Routledge Handbook on a Green New Deal*, ed. Kyla S. Tienhaara and Joanna Robinson (Abingdon-on-Thames: Routledge, 2022), 120–37.

sticks to pressure non-member countries to decarbonize.¹⁵ Upon announcing the Global Arrangement, the administration celebrated what it saw as inflation-reducing benefits.¹⁶ Once this process demonstrates proof of concept in these two industries, the model can be replicated in other key carbon-intensive industries like cement and chemicals. In short, using Section 232 allows for effective and replicable decarbonization without the political hurdles of passing a bill through Congress.

Ironically, the past uses of Section 232 by President Trump and others have paved the way for President Biden to implement similar policies. In 2018, the Trump administration initiated Section 232 investigations into imports of steel and aluminum. The Department of Commerce found that these incoming products impaired national security, and Trump imposed 25 percent and 10 percent tariffs, respectively.¹⁷ Subsequently, Trump also announced bilateral steel trade agreements with a number of countries—including Argentina, Brazil, and South Korea—that replaced the steel and/or aluminum tariffs with quotas.¹⁸

Despite multiple threats from members of Congress to undo the tariffs or roll back the president's authority, no veto-proof coalition ever emerged,¹⁹ nor was Trump checked by the Supreme Court. In June 2018, the trade association American Institute of International Steel and two of its members filed a suit in the US Court of International Trade, claiming that Section 232 violates a (judge-made) constitutional doctrine that prohibits Congress from wholly delegating its legislative authorities to the executive branch. But, relying on the 1976 Supreme Court decision *Federal Energy Administration v.*

¹⁵ Joseph E. Stiglitz, Todd N. Tucker, and Isabel Estevez, "Fighting Climate Change Through Trade," *Foreign Affairs*, July 25, 2022, <https://www.foreignaffairs.com/united-states/fighting-climate-change-through-trade>.

¹⁶ The press release announcing GASSA reads in part: "Results in lower prices for American consumers and families by providing relief for American manufacturers who rely on readily accessible, affordable steel and aluminum to make their products." <https://www.whitehouse.gov/briefing-room/statements-releases/2021/10/31/fact-sheet-the-united-states-and-european-union-to-negotiate-worlds-first-carbon-based-sectoral-arrangement-on-steel-and-aluminum-trade/>.

¹⁷ Fefer et al., 6.

¹⁸ *Transpacific Steel LLC v. United States*.

¹⁹ Burgess Everett, "Senate GOP Leaders Won't Try to Block Trump's Tariffs," *Politico*, March 12, 2018, <https://www.politico.com/trump-tariffs-senate-republicans>.

Algonquin,²⁰ the lower courts turned the challenge away. In 2020, the Supreme Court declined to hear the case, granting presidential discretion to regulate imports based on an expansive conception of security.²¹

In short, Section 232 represents a sweet spot for climate action. It is a permissive statute, with a broad conception of national security into which climate could easily fit, and that has recently been blessed by the courts. And given the overwhelming demand among Democrats for bold climate action (and the support of some Republicans for carbon tariffs),²² Congress is unlikely to be able to summon veto-proof majorities to override Biden if he takes action under Section 232.²³

Government Purchases Are a Pillar of Industrial Policy

Large volume government purchases have been a key pillar of many successful industrial policy strategies. By de-linking investment from the volatility of the regular business cycle, these purchases accelerate innovation by ensuring there will be a market for specific newly made goods. The judicious use of government purchasing authorities has been critical to expanding production, commercializing new goods, and securing technological advancement—from the time of Alexander Hamilton, to the midcentury semiconductor industry, all the way up to the development of the COVID-19 vaccine through Operation Warp Speed.

Without consistent demand for intermediate or finished products, investment and capacity utilization fall, increasing the likelihood of shortages, bottlenecks, and inflation. The government has

²⁰ *Fed. Energy Admin. v. Algonquin SNG, Inc.*, 426 U.S. 548 (1976), finding that the detailed procedural specifications and decision points in Section 232 constituted a so-called “intelligible principle.”

²¹ *Am. Inst. for Int’l Steel, Inc. v. United States*, 806 F. App’x 982, 983–91 (Fed. Cir.), cert. denied, 141 S. Ct. 133, 207 L. Ed. 2d 1079 (2020). See also Note, “Nondelegation’s Unprincipled Foreign Affairs Exceptionalism,” *Harvard Law Review* 134 (January 11, 2021): 1132–61.

²² Abigail Mihaly, “Sen, Whitehouse Seeks Bipartisan Deal on Carbon Border Adjustment Measure,” *Inside US Trade*, July 21, 2022.

²³ For a perspective that the Roberts Court’s invocation of the “major questions doctrine” might lead to problems even for presidentialist foreign commerce powers, see Timothy Meyer and Ganesh Sitaraman, “The National Security Consequences of the Major Questions Doctrine,” *Michigan Law Review* 122 (2023), <https://papers.ssrn.com/abstract=4181908>.

a role to play in preventing these economic ills by ensuring that firms up and down the supply chains for certain critical goods can always access demand sufficient to justify new investment.

Decarbonization will require historic volumes of production, from commodities like steel and lithium to intermediate goods like batteries and semiconductors. Ensuring requisite availability of these goods requires government action that builds out and appropriately manages our industrial capacity. To meet the ambitious goals of the Inflation Reduction Act, the administration must make every effort to use its “demand-side tools.” By guaranteeing that demand will be there to validate new capacity, the government can ensure decarbonization progress in the event of a recession or other economic downturn.²⁴ While now commonly used for vaccine development, advance market commitments are only starting to be contemplated for green uses.²⁵

Several agencies can use their flexible funding authority to design unique, policy-driven, and targeted contracts. The goal in thinking through government climate investment should be to structure contracts in ways that maximize value per government dollar under authorities that can be deployed to meet flexible needs.

²⁴ In neoclassical economic terms, an advance market commitment resolves two market failures: a time inconsistency problem (whereby producers hold back from making green products because they are unsure if there will be adequate demand at a predictable and adequate price point), and a public good problem (whereby everyone benefits from less carbon intensive pollution, but there are challenges to getting everyone to pay for it). See Owen Barder, Michael Kremer, and Heidi Williams, “Advance Market Commitments: A Policy to Stimulate Investment in Vaccines for Neglected Diseases,” *The Economists’ Voice* 3, no. 3 (February 17, 2006), <https://doi.org/10.2202/1553-3832.1144>.

²⁵ Varun Sivaram et al., “To Bring Emissions-Slashing Technologies to the Market, the United States Needs Targeted Demand-Pull Innovation Policies” (New York: Columbia University SIPA Center for Global Energy Policy, 2021).

2. CREATE MARKETS FOR GREEN ENERGY AND INDUSTRY USING ADVANCE MARKET COMMITMENTS AND EQUIPMENT TRANSFERS UNDER THE DEFENSE PRODUCTION ACT OF 1950

Contrary to its name, the Defense Production Act of 1950 (DPA) holds authority that is neither limited to traditional defense priorities nor originates from 1950. This statute replicated in part earlier authorities used by President Wilson in World War I and President Roosevelt in World War II.

While the DPA sounds like it would be narrowly related to military concerns, that has long since ceased to be an accurate depiction. Since the 1970s, maximizing domestic energy production has been a mandate. After 9/11, emergency preparedness was added as an objective. And in 2009, former senator Chris Dodd (D-CT) and current Senator Sherrod Brown (D-OH) were instrumental in adding in as mandates maximizing the domestic supply of renewable energy and permitting the government to engage in direct public production of energy.²⁶ Including all of the amendments over the years, today's DPA defines "national defense" as "programs for military and **energy production or construction**, military or critical infrastructure assistance to any foreign nation, homeland security, **stockpiling**, space, **and any directly related activity**. Such terms include **emergency preparedness activities** conducted pursuant to title VI of The Robert T. Stafford Disaster Relief and Emergency Assistance Act [42 U.S.C. 5195 et seq.] and **critical infrastructure protection and restoration**."²⁷ Note that "critical infrastructure" encompasses 16 sectors, from communications to critical manufacturing, that make up a large share of the economy. In short, the breadth of these provisions means that the *Defense Production Act* could just as well be called the *Important Production Act*.

In this issue brief, we focus on one of the DPA's many sections: Section 303. This portion of the statute reads, in part:

²⁶ Sebastian Sprenger, "Bill Would Repeal Federal Energy 'Production' Ban," *Inside the Pentagon*, September 24, 2009.

²⁷ Emphasis added. Defense Production Act, 50 U.S. Code § 4552(14).

To create, maintain, protect, expand, or restore domestic industrial base capabilities essential for the national defense, the President may make provision—(A) for purchases of or commitments to purchase an industrial resource or a critical technology item, for Government use or resale.²⁸

While the US government uses the term “purchase commitment,” Section 303 is in essence a tool to make what we are calling advance market commitments. This tool is largely unrestricted. It allows the executive branch to make deals largely “without regard to the limitations of existing law . . . for such quantities, and on such terms and conditions, including advance payments, and for such periods . . . as the President deems necessary.”²⁹ The US government has used advanced market commitments to support industries such as graphite fiber, gallium arsenide, COVID-19 vaccines, and more.³⁰ While there is minimal transparency around the use of this tool, we know from historic court cases that the “getaround existing law” is broad, allowing, for instance, circumvention of state contract law.³¹

Here’s how the DPA could be used for green products and energy. The government could announce that it will buy a specified amount of solar panels or green steel, either presently or by 2030 (or some other date in the future), at a specified price, if private sector buyers can’t be found. This last feature—which could be called “buyer of last resort”—is notable because it means that the government may not end up needing to spend any money at all if there are willing buyers on private markets. The contracts for these purchases could include virtually any provision imaginable that would maximize

²⁸ Defense Production Act, 50 U.S. Code § 4533(a)(1).

²⁹ Defense Production Act, 50 U.S. Code § 4533(b).

³⁰ DOD, “Defense Production Act Title III: Advancing the Industrial Base to Defend the Nation” (Washington, DC: Department of Defense, 2011), http://www.surmet.com/pdfs/news-and-media/Title_III%202012%20Brochure.pdf. GAO, “Defense Production Act: Foreign Involvement and Materials Qualification in the Title III Program” (Washington, DC: Government Accounting Office, 1994), <https://apps.dtic.mil/sti/pdfs/AD1173362.pdf>. Jo Ann McDonald, “DoD Funds Provide Timely Stimulus for US GaAs Producers,” *III-Vs Review* 8, no. 1 (1995): 26–30. Chad P. Bown, “COVID-19 Vaccine Supply Chains and the Defense Production Act,” Working Paper (Washington, DC: Peterson Institute for International Economics, June 2022), <https://www.piie.com/sites/default/files/documents/wp22-9.pdf>.

³¹ *United States v. Latrobe Construction Company*, 246 F.2d 357 (8th Cir. 1957).

social benefits regardless of contrary state or federal law, such as explicitly favoring unions, banning stock buybacks, and more.³²

Assuming the government takes possession of these products, it could use them either for its own use (in which case Section 303 is essentially another form of procurement power); stockpile the products for later use; or redistribute at cost, a discount, or profit to private firms and households. If it provides the products at subsidized prices to frontline communities, the DPA could be counted toward the administration's Justice40 commitments, which pledge to direct 40 percent of climate spending benefits to BIPOC and other marginalized communities.³³

But advance market commitments are not all that Section 303 provides. In particular, the president is further authorized..

- (A) to procure and install additional equipment, facilities, processes or improvements to plants, factories, and other industrial facilities owned by the Federal Government;
- (B) to procure and install equipment owned by the Federal Government in plants, factories, and other industrial facilities owned by private persons;
- (C) to provide for the modification or expansion of privately owned facilities, including the modification or improvement of production processes . . . ; and
- (D) to sell or otherwise transfer equipment owned by the Federal Government and installed under this subsection to the owners of such plants, factories, or other industrial facilities.³⁴

This equipment installation authority is perhaps the least restricted part of the DPA, in which the government has plenary authority to allocate available equipment as it sees fit.³⁵ With additional

³² For more, see Lenore Palladino and Isabel Estevez, "The Need for Corporate Guardrails in US Industrial Policy," (Roosevelt Institute, August 18, 2022), <https://rooseveltinstitute.org/publications/the-need-for-corporate-guardrails-in-us-industrial-policy>.

³³ Lew Daly and Rhiana Gunn-Wright, "A New Administrative Architecture for Justice40," *Roosevelt Institute* (blog), April 18, 2022, <https://rooseveltinstitute.org/2022/04/18/a-new-administrative-architecture-for-justice40/>.

³⁴ Defense Production Act, 50 U.S. Code § 4533(e)(1).

³⁵ For further analysis on this and of the relatively unrestrained equipment authorities under Section 303, see Todd N. Tucker, "Priorities and Allocations: How the Defense Production Act Allows Government to Mobilize Industry to Ensure Popular Well-Being" (New York: Roosevelt Institute, January 2, 2022), <https://rooseveltinstitute.org/publications/priorities-and-allocations-how-the-defense-production-act-allows-government-to-mobilize-industry-to-ensure-popular-well-being/>.

appropriations support from Congress, this provision could be used to buy new cutting-edge equipment for zero carbon steel production or solar panel assembly. Even without additional funds, the government maintains equipment stockpiles and resources with the Department of Defense's Defense Logistics Agency, NASA, and elsewhere. An array of government-owned, government-operated (GOGO) and government-owned, contractor-operated (GOCO) facilities such as arsenals may have equipment that can be fruitfully repurposed for green production.³⁶ The General Services Administration (GSA)—the government's materials and real estate manager—even auctions off materials to the general public at <https://gsaauctions.gov/>. By gifting or selling this equipment to green start-ups and enterprises, the government may be able to remove or lessen capital costs from balance sheets, going some part of the way toward closing the differential cost of labor with competitors like China.³⁷

President Biden has already invoked Section 303 authorities for six green sectors, including solar panel inputs, heat pumps, building insulation, equipment to make clean energy fuels, transformers/electric grid components, and inputs to green batteries.³⁸ As of yet, we do not know what, if any, specific policy actions will follow from these invocations. A widely noted constraint on these authorities is that merely invoking the DPA does not necessarily free up funding resources. For that, Congress has to make appropriations or the executive branch must find some other source of money. Luckily, the Inflation Reduction Act appropriates \$500 million for DPA uses. This comes on top of over \$100 million secured by Rep. Cori Bush (D-MO) in the Energy and Water Development and

³⁶ William Michael Hix, "Rethinking Governance of the Army's Arsenals and Ammunition Plants" (Santa Monica, Calif.: Rand Corporation, 2003).

³⁷ Todd N. Tucker, "Everything Is Climate Now: New Directions for Industrial Policy from Biden's Supply Chain Reports" (New York: Roosevelt Institute, May 17, 2022), <https://rooseveltinstitute.org/publications/reading-bidens-supply-chain-reports/>.

³⁸ Kelley Drye & Warren LLP, "Biden Administration Invokes DPA to Advance Clean Energy Goals," JD Supra, June 15, 2022, <https://www.jdsupra.com/legalnews/biden-administration-invokes-dpa-to-8348031/>. Joe Biden, "Memorandum on Presidential Determination Pursuant to Section 303 of the Defense Production Act of 1950, as Amended." White House, March 31, 2022. <https://www.whitehouse.gov/briefing-room/presidential-actions/2022/03/31/memorandum-on-presidential-determination-pursuant-to-section-303-of-the-defense-production-act-of-1950-as-amended/>.

Related Agencies appropriations bill.³⁹ However, many green energy projects may cost substantially more than that. Steel facilities cost *billions* of dollars to construct.⁴⁰ While President Biden waived a number of DPA procedural restraints, he would not have been able to waive the requirements of the Antideficiency Act—a statute that ties most federal funding commitments to available appropriations.⁴¹ However, there appear to be a number of workarounds for this contingency, which the sections below will explore.

3. USE “OTHER TRANSACTION AUTHORITY” TO ENCOURAGE PRIVATE INVESTMENT IN GREEN ENERGY

Innovative and high-technology sectors can sometimes face difficulties in engaging with government funding when the needs of the industry run ahead of the language of the law itself. Where Federal Acquisition Regulations tend to reward the few private actors equipped to comply with them, agencies can and have used “Other Transaction Authority” (OTA) to prioritize important goals like technological development or industrial resilience. This authority offers a flexible and robust tool for encouraging private investment in green energy without additional legislation.

The history of the development and use of OTAs demonstrates their fitness for accelerating the climate transition. The first OTA was authorized for use by NASA in 1958. Congress, concerned about the Space Race and falling behind the Soviet Union, clearly understood the necessity of being able to engage in commercial transactions flexibly. As Paul Dembling, NASA’s first General Counsel, and key drafter of the 1958 Space Act wrote, “I wanted to assure that the organization met *any* contingency

³⁹ Austin Ahlman, “Rep. Cori Bush Boosts Biden’s Efforts to Fight Climate Change With Executive Authority,” *The Intercept*, June 22, 2022, <https://theintercept.com/2022/06/22/cori-bush-climate-crisis-defense-production-act/>. Nitish Pahwa, “Joe Manchin Finally Signed Off on a Climate Bill. Does Everyone Get Free Solar Panels Now?,” *Slate*, July 29, 2022, <https://slate.com/technology/2022/07/inflation-reduction-act-climate-bill-manchin-heat-pump-solar-panels-electric-cars.html>.

⁴⁰ John Downey, “Nucor Plans \$2.7B Steel Plant, Its Largest Construction Project,” *Charlotte Business Journal*, September 20, 2021, <https://www.bizjournals.com/charlotte/news/2021/09/20/nucor-plans-27b-midwest-sheet-metal-plant.html>.

⁴¹ Antideficiency Act, 31 U.S.C. §§ 1341–1342.

that might arise, and so I added the language for “other transactions.”⁴² Given the technological and commercial uncertainty inherent in the green energy transition, agencies should be prepared to use every tool at their disposal to meet contingencies. OTA is one such tool. While it has been most successfully utilized by the Defense Advanced Research Projects Agency (DARPA), it has been granted to 11 agencies (with varying restrictions).⁴³ Table 1, below, lists the agencies with OTA powers.⁴⁴

OTAs have been extended to more agencies as the tool’s efficacy was consistently demonstrated. In 1989, Congress passed the National Defense Authorization Act for Fiscal Years 1990 and 1991, which granted DARPA the flexibility to enter into agreements through other transactions.⁴⁵ In the following years, Congress expanded that authority to include prototype development, research, and making advance market commitments.⁴⁶ In 2016, the OTA was expanded even further to allow follow-on production authority, which permitted successful prototypes to enter full production without the red tape or onerous requirements that tend to benefit larger businesses with compliance budgets. This Congressional expansion was pivotal in the wake of the COVID-19 pandemic, as both the Johnson & Johnson and Pfizer vaccines were purchased using OTAs.⁴⁷

DARPA’s use of OTA for vaccine development is one example of many in the expansive use of OTAs for promotion of technological advancement. In the early 1990s, DARPA used OTA to enter into an agreement with seven jet engine manufacturers, NASA, and the United States Air Force to create a

⁴² Emphasis added. Paul Dembling, “The National Aeronautics and Space Act of 1958: Revisited,” *Journal of Space Law* 34, no. 2 (2008): 203-220.

⁴³ US Government Accountability Office, “Use of Other Transaction Agreements Limited and Mostly for Research and Development Activities,” GAO-16-209, *Government Accountability Office*, 2016, <https://www.gao.gov/assets/gao-16-209.pdf>.

⁴⁴ The [mission](#) of DARPA is to “serve as the central research and development organization of the Department of Defense with a primary responsibility to maintain U.S. technological superiority over potential adversaries.”

⁴⁵ 10 U.S. Code § 4021

⁴⁶ Elaine Halchin, “Other Transaction Authority,” (Washington, DC: Congressional Research Service, July 15, 2011), <https://acquisitioninnovation.darpa.mil/docs/GAO%20and%20Congressional%20Reports/CRS%20Report%20OTA%202011.07.15.pdf>.

⁴⁷ Stan Soloway, Jason Knudson and Vincent Wroble, “Other Transaction Authorities: After 60 Years, Hitting Their Stride or Hitting the Wall?” *IBM Center for The Business of Government*, 2021, <https://www.businessofgovernment.org/sites/default/files/Other%20Transactions%20Authorities.pdf>.

joint-funding agreement for the Integrated High-Performance Turbine Engine Technology program.⁴⁸ A major goal of the program was to advance aircraft and missile turbine engines by using ceramic matrix composite components. Today's most efficient and high-performing jet engines, such as the F-119 and F-135, have better oxidation at higher temperatures, fly longer, and weigh less because of these ceramic matrix composite components.⁴⁹ There is a vital through line connecting OTA investment in ceramic fiber research and production and today's cutting-edge jet engines.

OTA contracts can be structured to benefit the government's balance sheet, rather than simply "giving away" funding to the private sector. DARPA has used its OTA to reap significant returns on its investment and scale up innovative technology for commercial use. In the 1990s, DARPA provided funds to the Environmental Research Institute of Michigan at Ann Arbor (ERIM) to create an interferometric synthetic aperture radar for terrain elevation mapping. The radar provided necessary military capabilities for terrain and elevation data collection and analysis in any weather conditions, day or night. Unfortunately, no DOD office had sufficient operating funds to maintain full ownership of the radar.⁵⁰ Rather than abandon the project, DARPA was able to use an OTA to contract out the radar for commercial purposes. In technical terms, DARPA initiated an OTA with DARPA; ERIM; and a private company, Intermap USA, in which the company agreed to pay all operating, maintenance, and upgrade costs of the radar. Intermap paid royalties to DARPA for the radar and DARPA eventually recouped the complete cost of the radar's development through this licensing agreement.⁵¹ The radar formed the basis of Intermap's mapping technology, and as the company improved the radar, it became a leading firm in geospatial content development. By using OTA to lower operating costs on a

⁴⁸ "Origins and Evolution of Other Transactions - Part 3." *Strategic Institute- Innovation in Government Contracting*, September 12, 2018, <https://strategicinstitute.org/other-transactions/origins-evolution-transactions-part-3/>.

⁴⁹ Richard Dunn, "The Most Important Other Transaction Agreement," *Strategic Institute- Innovation in Government Contracting*, August 26, 2019, <https://strategicinstitute.org/other-transactions/important-transaction-agreement/>; "Ceramic Matrix Composites Allow GE Jet Engines to Fly Longer," *General Electric*, February 9, 2015, <https://www.ge.com/news/reports/ceramic-matrix-composites-allow-ge-jet-engines-to>.

⁵⁰ "Interferometric Synthetic Aperture Radar - Elevation," *Global Security.org*, <https://www.globalsecurity.org/intell/systems/ifsare.htm>.

⁵¹ Richard Dunn, "The Most Important Other Transaction Agreement."

crucial radar and receive payment for the investment in the radar, DARPA saved millions of dollars while helping advance the technological frontier.

NASA has also used OTA to stimulate the commercial market for innovative technologies. In 2006, NASA created the Commercial Orbital Transportation Services program with the goal of advancing private technologies for space transportation services. NASA awarded funding under its OTA through the Commercial Orbital Transportation Services program to SpaceX, which resulted in the Falcon 9 launch—“the first private rocket capable of carrying humans to space.”⁵² From 2006 to 2014, NASA obligated more than \$2.2 billion of appropriated funds under OTA to spur public-private partnerships and advance national space initiatives.⁵³

Finally, OTA can be used to overcome hurdles that are limiting private participation in federal contracts. In 2010, the Department of Energy’s Advanced Research Projects Agency-Energy (ARPA-E) entered into an OTA agreement with an oil company to research and develop new drilling technology with the goal of improving the performance of geothermal energy wells.⁵⁴ ARPA-E estimated that this technology could unlock 100,000 or more megawatts of geothermal energy by 2050. However, the company was concerned about “march-in rights” that allowed the government to take control of a patent if certain conditions were not met. In response, ARPA-E crafted an OTA that addressed the company’s concerns. While there are sound reasons why the federal government may want to “nationalize” intellectual property in certain situations,⁵⁵ OTA provides the flexibility to go in another direction if existing intellectual property restrictions are severely limiting private participation. Furthermore, ARPA-E included a clause requiring any invention developed under the agreement to be

⁵² Surya Gablin Gunasekar, “Other Transaction Authority: NASA’s Dynamic Acquisition Instrument for the Commercialization of Manned Spaceflight or Cold War Relic?” *Public Contract Law Journal* 40, no. 4 (2011): 893-908.

⁵³ “NASA’s Use of Space Act Agreements,” *NASA Office of Inspector General*, June 5, 2014. <https://oig.nasa.gov/docs/IG-14-020.pdf>.

⁵⁴ US Government Accountability Office, “Use of Other Transactions Agreements.”

⁵⁵ For some identified by the Department of Defense, see discussion in Tucker, at “Everything Is Climate Now: New Directions for Industrial Policy from Biden’s Supply Chain Reports.” New York: Roosevelt Institute, May 17, 2022. <https://rooseveltinstitute.org/publications/reading-bidens-supply-chain-reports/>.

substantially manufactured in the United States—promoting domestic manufacturing through an OTA agreement.

These examples demonstrate that OTA provides agencies the authority to engage in creative contractual structures in a manner that can overcome roadblocks to private investment and development while achieving important public policy purposes. The 11 agencies face some limitations on their OTAs; a helpful summary is available in Table 1 below.⁵⁶ Decarbonization is an all-hands-on-deck challenge, and each agency should strive to use their OTA alongside flexible appropriations to connect their missions and goals with the steps needed to advance the green energy transition.

Table 1. Agency Use of Other Transaction Authority, FY 2010-14

Agency	Types of activities		
	RD&D	Prototype	Other
Advanced Research Projects Agency – Energy (ARPA-E)	✓		
Department of Defense (DOD)	✓	✓	
Department of Energy (DOE)	✓		
Department of Health and Human Services (HHS)	✓		
Department of Homeland Security (DHS)	✓	✓	
Department of Transportation (DOT)	✓		
Domestic Nuclear Detection Office (DNDO) ^a			
Federal Aviation Administration (FAA)	✓		✓
National Aeronautics and Space Administration (NASA) ^b	✓		✓
National Institutes of Health (NIH)	✓		
Transportation Security Administration (TSA)			✓

Sources: GAO analysis of agencies' information. | GAO-16-209

^aDNDO did not enter into any other transaction agreements for fiscal years 2010 through 2014.

^bAccording to officials, NASA does not acquire RD&D services using other transaction agreements, but it does conduct collaborative RD&D activities with outside entities.

⁵⁶ US Government Accountability Office, "Use of Other Transactions Agreements."

While every agency should review their OTA in alignment with the green energy transition, DOE and ARPA-E's missions are well aligned to the goals of green industrial policy. With permanent OTA, ARPA-E is in the best position to ensure long-term, innovative, clean energy solutions.⁵⁷ The ARPA-E director has complete discretion in utilizing OTAs. Though Congress provided the DOE with ample oversight in entering into agreements through other transactions, DOE has not taken full advantage of its authority. From 2010-2014, DOE entered into 14 OTA agreements and ARPA-E had 12 OTA agreements, while NASA completed more than 13,000 OTA agreements in the same four-year span.⁵⁸ ARPA-E was appropriated \$450 million in FY 2022 and currently has \$755 million⁵⁹ unobligated that could be used to further ARPA-E's mission to "decrease our nation's dependence on foreign energy sources, reduce greenhouse gas emissions, improve energy efficiency across the board, and maintain or reestablish U.S. scientific leadership in the energy sector."⁶⁰ Department of Energy Secretary Jennifer Granholm and Dr. Jennifer Gerbi, the Acting Director of ARPA-E, should be exploring opportunities to "stretch" the appropriated and unobligated funds to enhance the United States' energy security by advancing green industrial policy to ensure resilient and long-lasting clean energy infrastructure.

Decarbonization is a far heavier lift than the Space Race. Back then, we only had to put one ship on the moon. Today's challenges require the government to engage with nearly every sector of the economy. As in 1958, when OTA was first authorized, we face a generational challenge that will require unprecedented coordination, collaboration, and dedication between the federal government and private industry. As the price of energy continues to rise, families across the country remain subject to the market risks that cause inflationary pressure and price volatility in fossil fuels. It is

⁵⁷ ARPA-E's OTA is outlined in [42 U.S. Code § 16538\(f\)](#) which states, "In carrying out this section, the Director may provide awards in the form of grants, contracts, cooperative agreements, cash prizes, and other transactions."

⁵⁸ US Government Accountability Office, "Use of Other Transactions Agreements." At least some of this interagency differential may be attributable to agency culture—NASA, having had OTA since its inception, has decades of experience, and the attendant comfort, in crafting OTAs.

⁵⁹ "Advanced Research Projects Agency-Energy," USASpending.gov, https://www.usaspending.gov/federal_account/089-0337.

⁶⁰ US Department of Energy Office of Chief Counsel for ARPA-E, "ARPA-E: Changing What's Possible," <https://www.energy.gov/gc/office-chief-counsel-arpa-e>.

time for every OTA to be scrutinized and utilized to promote economies of scale through deflationary sources of energy by accelerating investments in the green energy transition.

4. USE THE EXCHANGE STABILIZATION FUND TO ACCELERATE THE PRODUCTION OF COMMODITIES CRITICAL TO THE GREEN ENERGY TRANSITION

Commodity price volatility threatens the global economy in a myriad of ways.⁶¹ In just the past few months, currency crises have sprouted in emerging markets, driving economic pain and political instability. Often at the heart of these crises are shocks to the price of fuel and food—and tail risks remain that could exacerbate the problem.⁶² The push by nations to decarbonize and meet their Paris Accord targets will cause considerable demand pressure for commodities critical to the energy transition (copper, steel, cobalt, lithium), commodities that experience some of the same boom-bust dynamics as oil.⁶³ The demand for natural gas as an important transition energy source to minimize intermittency with renewable energy sources (and as a “better-than” replacement for coal) could place considerable pressure on fertilizer prices, and as a result, on food.

Thankfully, there exist tools to simultaneously mitigate these foreign exchange dynamics while in the short term boosting the production of commodities needed for the climate transition. The Secretary of the United States Treasury has considerable authority under 31 U.S.C. 5302 to use the Exchange Stabilization Fund (ESF). The statute provides authority for the Secretary to deal in

⁶¹ UNCTAD Secretariat, “Excessive Commodity Price Volatility: Macroeconomic effects on growth and policy options,” *United Nations Conference on Trade and Development*, April 30, 2012, https://unctad.org/system/files/official-document/gds_mdpb_G20_001_en.pdf.

⁶² “Goldman Sees Strong Case for Higher Oil Prices Despite negative Shocks,” *Reuters*, August 8, 2022, <https://www.reuters.com/markets/commodities/goldman-sees-strong-case-higher-oil-prices-despite-negative-shocks-2022-08-08/>.

⁶³ DOE Office of Energy Efficiency & Renewable Energy, “FOTW #1228, March 7, 2022: Cobalt is the Most Expensive Material Used in Lithium-ion Battery Cathodes,” DOE press release, March 7, 2022, <https://www.energy.gov/eere/vehicles/articles/fotw-1228-march-7-2022-cobalt-most-expensive-material-used-lithium-ion>.

transactions that are “[c]onsistent with the obligations of the Government in the International Monetary Fund on orderly exchange arrangements and a stable system of exchange rates.”⁶⁴ Previous administrations have invoked the authority of the ESF to address currency crises with loan packages to foreign countries, and more recently, to create stabilization facilities like the Temporary Money Market Fund Guarantee Program (during the 2008 financial crisis) and to fund broad-based facilities of the Federal Reserve at the onset of the COVID-19 pandemic. In the ESF, the Secretary of Treasury holds a discretionary and versatile tool kit to address challenges and crises in the global economy.⁶⁵ The confluence of several crises provides ample justification for Secretary Yellen to invoke the ESF: the Russian invasion of Ukraine and the attendant impact on fuel and food prices, the volatile economic recovery from COVID-19, and the pressure that decarbonization investments over the next two years will have on commodity prices.

Given the broad authority of the ESF and the ways it has been used in the past, now is the time to take advantage of this tool to stabilize the global economy by increasing commodity production. With this unique policy intervention at its disposal, the Department of Treasury can increase the production of critical commodities through the creation of a Supply Insurance and Acceleration Program (SIAP).⁶⁶ SIAP would provide forms of price insurance for commodity producers that would send a credible signal to the markets and increase investment and production.

In the absence of an ESF intervention to stabilize commodity price volatility, unilateral reliance on the Fed to effectively offset domestic and worldwide supply shocks will increase the risk of a global recession, while throwing workers—disproportionately those of color—out of work. The Fed’s capacity to impact inflation and employment derives from its ability to tighten financial conditions and

⁶⁴ 31 U.S. Code § 5302.

⁶⁵ Arnab Datta, Skanda Amarnath and Alex Williams, “Discretion Is The Point: The Misunderstood Legal Bounds of the ESF,” *Employ America*, June 16, 2022, <https://www.employamerica.org/content/files/2022/06/Discretion-is-the-Point-The-Misunderstood-Legal-Bounds-of-the-ESF-1.pdf>.

⁶⁶ Arnab Datta, Skanda Amarnath and Alex Williams, “The ‘Break Glass’ Moment: Secretary Yellen Should Use the ESF to Insure and Accelerate Commodity Production,” *Employ America*, June 16, 2022, <https://www.employamerica.org/content/files/2022/06/The-Break-Glass-Moment-1.pdf>.

lower asset prices.⁶⁷ But without an assist from other agencies, the Fed's tightening will reduce employment and stifle investment at a time when the global economy needs investment in non-discretionary commodities more than ever. Tighter interest rate policy can intervene on inflation through the demand side, but this will come with unpleasant supply-side effects including limiting capital expenditures, increasing intermediation costs, and weakening inventory replenishment. At a time when supply-side responsiveness is critical, the Exchange Stabilization Fund is well-suited to mitigate some of these emergency collateral consequences.

A Supply Insurance and Acceleration Program (SIAP), designed to offer purchase guarantees and financing to facilitate the production of key commodities, could help reduce fears of commodity-linked exchange rate crises and demonstrate to market participants and private actors that their localized supply needs will be met, and that investment deficiencies in key commodities will be filled. With a mix of tools at its discretion, including the sale of put options (price insurance) and loan guarantee fees, the Exchange Stabilization Fund can overcome virtually any private hurdle rate (the rate of return that firms require to justify investing in a given project) while providing much-needed certainty in this historically uncertain time. The International Energy Agency notes that the current mineral supply coupled with the lack of strategic investment could further delay the energy transition or make it more expensive.⁶⁸ The creation of SIAP can advance green industrial policy by overcoming the investment risks in clean energy minerals amid economic uncertainty and lead the United States on a solid path through the energy transition. Support stemming from this program could be directly tied to firms' commitments to expanding their capital plans, providing a credible signal to market participants that support would result in a net increase in investment and production. As such, Secretary Yellen should announce the creation of a program with this explicit task.

⁶⁷ Skanda Amarnath and Alex Williams, "What Are You Expecting? How the Fed Slows Down Inflation Through the Labor Market," *Employ America*, February 16, 2022, <https://www.employamerica.org/content/files/2022/06/What-Are-You-Expecting-.pdf>.

⁶⁸ International Energy Agency, "The Role of Critical Minerals in Clean Energy Transitions," *International Energy Agency*, 2021, <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions>.

5. EXPLORE PARTNERSHIPS WITH GOVERNMENT CORPORATIONS AS PURCHASING AGENTS FOR THE ENERGY TRANSITION

Where policy goals involve direct coordination with private markets, government corporations⁶⁹ offer another avenue for policy design. Unbound by many of the laws that restrict agency actions, these entities can engage in creative ways to achieve their missions. Many of the factors that limit the ability of agencies to use funding flexibly—including legal considerations like limitations on transaction types and eligible entities, or cultural considerations like risk aversion for fear of violating the Antideficiency Act (ADA)—do not necessarily inhibit the action of government corporations. This bias *toward* action is perhaps best exemplified by the Roosevelt-era Reconstruction Finance Corporation, which used debt financing, loans, equity investments, and acquisition authorities to help the country both recover from the Great Depression and mobilize industrial production for World War II.⁷⁰ Where the presence of ADA risk can lead to risk-aversion, the absence of ADA risk could encourage creative action necessary to fulfill the goals of a government corporation. Funding activity from non-ADA-bound entities can be a powerful complement to policy- and vision-setting activities under the Defense Production Act and other authorities in this brief, especially where dedicated appropriations are lacking.

To be sure, government corporations are still limited to actions consistent with their legal authority and obligations. And the ADA is a critical guardrail against fraud, corruption, and abuse of taxpayer funds, as well as an important implementation of the constitutional requirement that Congress, not the executive branch, holds the power of the purse.⁷¹

⁶⁹ Government corporations do not have a clear statutory definition. In this issue brief, we use the definition provided by the Congressional Research Service, which defines a government corporation as an agency “established by Congress to provide a market-oriented public service and to produce revenues that meet or approximate its expenditures.” See Kevin Kosar, “Federal Government Corporations: An Overview,” (Washington, DC: Congressional Research Service, June 8, 2011), <https://sgp.fas.org/crs/misc/RL30365.pdf>.

⁷⁰ Jesse H. Jones and Edward Angly, *Fifty Billion Dollars: My Thirteen Years with the RFC*, New York: The Macmillan Company, 1951.

⁷¹ The relevant portion of the law states that: “(a) (1) Except as specified in this subchapter or any other provision of law, an officer or employee of the United States Government or of the District of Columbia government may

Nonetheless, due to their independent structure and their ability (and need) to access funding outside the typical appropriations cycle, many government corporations are fully or partially exempted from the ADA, including:⁷²

- The Government National Mortgage Association (Ginnie Mae) states that its own power to contract with an issuer for a mortgage is not limited by state, local, or federal law;
- The National Railroad Passenger Corporation (AmTrak) is specifically exempted from the ADA (it is entirely exempt from Title 31 of the US Code);
- The Credit Commodity Corporation is subject to the ADA for appropriated funds, but is exempt for funds generated with its borrowing authority; and
- The Tennessee Valley Authority is subject to the ADA for appropriated funds, but is exempt for funds generated from its electricity production program and bond issuances.

The White House should work with general counsels across government corporations to identify fruitful investments and purchases that both meet the requirements of the organization while furthering the administration's green industrial policy objectives.

One such example is the Tennessee Valley Authority (TVA). Since its creation, the TVA has been able to carry out its mission of providing affordable energy, economic development, and agricultural development throughout the Tennessee Valley, while issuing power bonds to sustain its operations.

TVA has been successful in using its debt financing tools and rate-setting authority to become

not—(A) make or authorize an expenditure or obligation exceeding an amount available in an appropriation or fund for the expenditure or obligation; (B) involve either government in a contract or obligation for the payment of money before an appropriation is made unless authorized by law; (C) make or authorize an expenditure or obligation of funds required to be sequestered under section 252 of the Balanced Budget and Emergency Deficit Control Act of 1985; or (D) involve either government in a contract or obligation for the payment of money required to be sequestered under section 252 of the Balanced Budget and Emergency Deficit Control Act of 1985." 31 U.S. Code § 1341.

⁷² US Government Accountability Office, "Government Corporations: Profiles of Existing Government Corporations." GAO-96-14, *Government Accountability Office*, December 1995, <https://www.gao.gov/products/ggd-96-14>.

entirely self-financing (and has not received congressional appropriations since the late 1950s). Just last year, investment firm Lazard extolled the benefits that the TVA continues to provide, stating

TVA has been able to carry out its broader mission with respect to energy, environment and economic development under the public power model . . . TVA's structural advantages (e.g., tax-advantaged debt, lack of a required equity return, etc.) allow TVA to charge lower rates than it would as an investor-owned utility. Additionally, TVA is positioned to serve and protect the communities and natural resources of the Tennessee Valley in ways that private enterprises may not be equipped or incentivized to do.⁷³

TVA's enacting legislation permitted it to raise up to \$30 billion in private debt, and as of September 2021, it has issued \$20 billion in power bonds with AAA ratings from Fitch.⁷⁴ TVA has been able to reduce its outstanding debt from the \$26 billion total in September 2016, providing the organization with further financing leverage.⁷⁵

As a government corporation, the use of funds raised through TVA's bond issuances would not be subject to the strict requirements of the ADA. That opens the possibility that TVA could issue bonds to help finance its operations, including its market-risk hedging activities and its expanded use of renewable energy. The TVA also enjoys the flexibility to use a wide range of contract types, including forwards, futures, and options. It has previously used these contracts to minimize its risk to market and price uncertainty—and for purchasing everything from commodities to energy from third parties. The administration should work with the TVA to explore whether its authorities and funding could be used toward dual-purpose acquisition, fulfilling the TVA's mission but also encouraging production to further decarbonize.

⁷³ Lazard, "Lazard Report to the Tennessee Valley Authority," (Washington, DC: Lazard, February 8, 2021), [https://s25.q4cdn.com/191816265/files/doc_downloads/lazard-report-information/TVA-Strategic-Assessment_vF\[4\].pdf](https://s25.q4cdn.com/191816265/files/doc_downloads/lazard-report-information/TVA-Strategic-Assessment_vF[4].pdf).

⁷⁴ "Fitch Affirms Tennessee Valley Authority's IDR, Global Power Bonds and Lease Financings," *FitchRatings*, April 23, 2021, <https://www.fitchratings.com/research/us-public-finance/fitch-affirms-tennessee-valley-authority-idr-global-power-bonds-lease-financings-23-04-2021#:~:text=TVA%27s%20debt%20profile%20is%20neutral,not%20to%20exceed%20%2430%20billion>.

⁷⁵ "Shedding Light on Tennessee Valley Authority Debt," *Government Accountability Office*, March 18, 2017, <https://www.gao.gov/blog/2017/05/18/shedding-light-on-tennessee-valley-authority-debt>.

One possible action is reinstating the trading of commodity derivatives under the TVA's Financial Trading Program.⁷⁶ Under the Financial Trading Program, the TVA used its authority to engage in hedging contracts to protect itself from the market volatility of energy commodities. Through the Financial Trading Program, TVA used a variety of contractual structures to hedge price risk, including options and forward or futures contracts. Although the program was suspended in 2014, TVA still hedges natural gas derivatives and should reinstate its power and authority to manage market risk more broadly, especially as it invests in cleaner energy sources.⁷⁷ The use of these options would achieve the TVA's goal of hedging against market risk, and could also provide critical guaranteed demand to producers such that they can justify investments in net production. The reinstatement of commodity contract derivatives, coupled with the TVA's Federal Acquisition Regulation flexibility and debt financing authority, would give TVA the benefit of stable, locked-in prices, while encouraging capital expenditures critical to the energy transition from private partners.

6. INVOKE A CLIMATE EMERGENCY UNDER THE NATIONAL EMERGENCIES ACT OF 1976 TO INCREASE THE AVAILABILITY OF FUNDS FOR GREEN ENERGY AND INDUSTRY

With the summer of 2022 breaking records for hottest recorded temperature in cities across the country,⁷⁸ and heat-related deaths on the rise,⁷⁹ it is no wonder that President Biden is reportedly

⁷⁶ US Securities and Exchange Commission, "Tennessee Valley Authority Form 10-Q For the quarterly period ended June 30, 2021," <https://d18rn0p25nwr6d.cloudfront.net/CIK-0001376986/a75daa5a-d86d-47dd-abf3-37fe78f8e5c4.html>.

⁷⁷ Ethan Howland, "TVA board nominees support exploring clean energy options as federal utility plans coal retirements." *Utility Dive*, April 8, 2022, <https://www.utilitydive.com/news/tva-nominees-clean-renewable-energy-coal/621811/>.

⁷⁸ Jack Healy et al., "When the Heat Can't Be Beat," *New York Times* (Jul. 28, 2022), www.nytimes.com/2022/07/28/us/heat-records-summer-climate.html.

⁷⁹ Sharon Udasin, "Extreme Heat Linked to Rise in US Death Rates: Study," *The Hill* (May 19, 2022), <https://thehill.com/policy/equilibrium-sustainability/3494369-extreme-heat-linked-to-rise-in-us-death-rates-study/>.

considering declaring climate change to be a national emergency.⁸⁰ He should do so: Declaring a formal national emergency would unlock new budget flexibility and regulatory authorities to respond to the climate crisis. But even without declaring a new national emergency, President Biden can use statutory powers to enter into extraordinary contracts for government procurement and lending, stretching appropriated dollars as far as possible. While presidential emergency powers have been abused in the past, Congress delegated the president special authority to confront unusual and demanding circumstances for a reason—and there is no greater threat than climate change.

According to the Brennan Center, there are at least 136 distinct statutory provisions conferring special powers on the president in the context of a national emergency.⁸¹ Presidents have declared 76 different national emergencies since 1979, over half of which are still in effect.⁸² President Biden has himself already declared seven national emergencies, from expanding the War on Drugs to prohibiting Russian-affiliated vessels from entering US ports. While such declarations unlock special statutory authorities, the term “national emergency” is not itself defined by statute. The National Emergencies Act was passed to attempt to circumscribe presidential powers, giving Congress a legislative veto over presidential emergency declarations, but the Supreme Court ruled in *INS v. Chadha* that such legislative vetoes are unconstitutional.⁸³ As a result, the determination of what constitutes a “national emergency” is effectively a matter of presidential discretion.⁸⁴

⁸⁰ Coral Davenport et al., “Biden Announces Plans to Deal With Climate ‘Emergency,’” *New York Times* (June 20, 2022), <https://www.nytimes.com/2022/07/20/us/politics/biden-climate-emergency.html>.

⁸¹ Brennan Center for Justice, “A Guide to Emergency Powers and Their Use” (2019), https://www.brennancenter.org/sites/default/files/2019-10/AGuideToEmergencyPowersAndTheirUse_2.13.19.pdf. 123 of these powers are applicable in a national emergency declared by the President; the remainder only go into effect when the emergency is declared by Congress.

⁸² Brennan Center for Justice, “Declared National Emergencies Under the National Emergencies Act” (2019), <https://www.brennancenter.org/our-work/research-reports/declared-national-emergencies-under-national-emergencies-act>.

⁸³ The National Emergencies Act of 1976, 50 U.S.C. §§ 1601-1651 (2018); *Immigration and Naturalization Service v. Chadha*, 462 U.S. 919 (1983). *Chadha* dealt with a legislative veto enacted by the Immigration and Nationality Act, but it also had the effect of invalidating this section of the NEA.

⁸⁴ Under the NEA, national emergencies automatically terminate one year after they are declared, but the President can extend the emergency indefinitely simply by publishing a statement (and notifying Congress) to that effect. 50 U.S.C. § 1622(d). Congress is supposed to consider a joint resolution within six months of the declaration of an emergency deliberating whether the emergency should be terminated. 50 U.S.C. § 1622(b). But

As Emory law professor Mark Nevitt has detailed, the threat posed by climate change easily fits the bill for a national emergency declaration.⁸⁵ While the Supreme Court has been chipping away at the powers of the administrative state, it has never ruled that a national emergency declaration was unlawful. And even as the Court has made moves toward fashioning a “nondelegation doctrine” that would limit federal agencies’ ability to use statutory powers to react to changing circumstances, it has carved out emergency powers and national security as areas where Congress may delegate sweeping powers to the president.⁸⁶ Because “judicial review of emergency actions is weak,” declaring a national climate emergency may help insulate efforts to address climate change from a hostile judiciary.⁸⁷

One such power activated by declaring a national emergency is that of authorizing and diverting money to new military construction projects “necessary to support such use of the armed forces.”⁸⁸ During the last administration, President Trump manufactured a national emergency at the Mexican border to justify diverting funds for the construction of a southern border wall.⁸⁹ Trump’s actions were successfully challenged in court.⁹⁰ But while that decision was correct in light of the facts of that

because of *INS v. Chadha*, such a resolution would have to pass by two-thirds margins to overcome a Presidential veto. Moreover, Congress has rarely even considered such resolutions as contemplated by the statute, even before the decision in *Chadha*. See Mark P. Nevitt, “Is Climate Change a National Emergency?,” *U.C. Davis L. Rev.* 55 no. 2 (2011): 620 (2021), https://lawreview.law.ucdavis.edu/issues/55/2/articles/files/55-2_Nevitt.pdf.

⁸⁵ See Nevitt, *ibid*; see also Daniel A. Farber, “Exceptional Circumstances: Immigration, Imports, the Coronavirus, and Climate Change as Emergencies,” *Hastings L. J.* 71 no. 5 (2020): 1169, https://repository.uchastings.edu/cgi/viewcontent.cgi?article=3906&context=hastings_law_journal.

⁸⁶ See Mark P. Nevitt, “Delegating Climate Authorities,” *Yale J. Reg.* 39 (2022): 803-806, <https://www.yalejreg.com/wp-content/uploads/09.-Nevitt-Article-Final.-777-813.pdf>; see also “Note: Nondelegation’s Unprincipled Foreign Affairs Exceptionalism,” *Harv. L. Rev.* 134 (2021), <https://harvardlawreview.org/2021/01/nondelegations-unprincipled-foreign-affairs-exceptionalism/>.

⁸⁷ See Farber, “Exceptional Circumstances,” 1174.

⁸⁸ 50 U.S.C. § 2808(a).

⁸⁹ Congressional Research Service, “An Update on Military Funding for the Border Wall” (May 21, 2021), <https://crsreports.congress.gov/product/pdf/IN/IN11675>. President Trump also used authority to reprogram appropriations under § 8005 of the 2019 defense appropriations statute—an authority which has remained in subsequent appropriations legislation. See Department of Defense Appropriations Act of 2019, Pub. L. No. 115-245, § 8005, 132 Stat. 2981(2018): 2999.

⁹⁰ *Sierra Club v. Trump*, 977 F.3d. 853 (9th Cir. 2020). The Ninth Circuit ruled that Trump’s actions violated the statute because the border wall was neither necessary to support the use of the armed forces nor actually “military construction”—the land on which the wall was built was merely administratively transferred to Fort

case, it is no longer precedential law: The Supreme Court vacated the decision in light of President Biden's decision to cancel the border wall construction contracts.⁹¹

President Biden would have a much stronger legal case for authorizing projects that *actually* prepare the military to function in light of the climate emergency. For example, he could direct the Army Corps of Engineers to ensure that bases are prepared for extended electrical grid outages by constructing on-base sources of renewable power, or fortifying surrounding electrical infrastructure.⁹² The military could conceivably have a direct role in addressing shortages of critical minerals needed for bolstering battery storage capacity. And while we do not know of any authorities that would allow the Department of Energy to reprogram resources in a national emergency, agency lawyers should scour the US Code for statutory authority to make new funding available.

Even without reprogramming budgetary resources, President Biden can invoke emergency powers to use accounting rules that stretch existing appropriations further. For example, when an agency makes a transaction under Title III of the Defense Production Act (see discussion above), there must be enough appropriated money in the DPA Fund to absorb the maximum possible liability on the US government if its counterparty fails to perform.⁹³ But from 1951 until 1974, DPA agencies could make commitments up to their "probable ultimate net cost," accounting for the fact that the government can generally resell materials it procures under DPA authority to recover many of its costs.⁹⁴ Agencies using this accounting rule were able to stretch their working capital further than they can under the

Bliss. In contrast, the 5th Circuit heard a challenge to the border wall construction but declined to intervene on the grounds that the challenging parties did not have standing. *El Paso County v. Trump*, 982 F.3d 332 (5th Cir. 2020). 50 U.S.C. § 2808(c) prohibits the use of such authority for construction projects in excess of \$50 million (or \$100 million if exclusively on domestic bases), but while the border wall construction exceeded that sum, this provision was not a subject of litigation. Accordingly, it is unclear how the provision would apply to climate-related emergency military construction.

⁹¹ *Biden v. Sierra Club*, 142 S.Ct. 56 (2021). See generally Edward A. Fitzgerald, *Sierra Club v. Trump: California v. Trump: Border Wall Funding Knocked Down*, *Ariz. J. Env'tl. L. & Pol'y* 12 (2022): 179.

⁹² See Nevitt, "Is Climate Change a National Emergency?," 637.

⁹³ 50 U.S.C. § 4534(g).

⁹⁴ Alfred Long Scanlan, "Defense Production Act Extended and Amended," *Notre Dame L. Rev.* 27 (1952): 207, <https://scholarship.law.nd.edu/cgi/viewcontent.cgi?article=3737&context=ndlr>.

current rules.⁹⁵ As discussed in the next section, the president has the authority to unilaterally change these accounting rules—and all other federal laws relating to the terms of government contracts—for contracts that facilitate national defense (broadly defined). Doing so could give the administration billions of dollars in additional leverage to address the climate crisis.

Declaring a National Climate Emergency Would Unlock Expanded Regulatory Powers to Address the Climate Crisis

In addition to greater budgetary flexibility, declaring a national emergency would also give the executive branch new regulatory powers to address the climate crisis. The president has broad authorities under the International Emergency Economic Powers Act (IEEPA) to impose sanctions or prohibit imports to deal with “any unusual and extraordinary threat” with foreign sources during a national emergency.⁹⁶ This authority could be used to limit foreign companies engaging in deforestation from accessing US capital markets, or to freeze foreign assets as a bargaining chip to secure climate commitments.⁹⁷ Likewise, the TSA Administrator has wide authority to “coordinate domestic transportation” during a national emergency, which could be used to impose fuel economy standards for aviation.⁹⁸ While the TSA emergency authority has been little-used, the IEEPA has been

⁹⁵ In October 1951, for example, the Defense Production Administration borrowed \$260 million from the US Treasury (\$221 million in working capital plus \$39 million in “probable ultimate net cost”) to fund \$2 billion in pool orders for machine tools, leveraging its borrowing nearly eightfold. See Joint Committee on Defense Production, *Defense Production Act Progress Report No. 13: Machine Tools*, 82nd Congress (Jan. 3, 1952): 77. Today, DPA agencies can spend funds that flow into the DPA Fund as a result of equipment resale, but cannot make commitments in anticipation of such future funds. Accordingly, DPA agencies cannot leverage appropriations to the DPA Fund in the same way. While a detailed accounting of the DPA Fund is not readily available, DoD received \$239 million in Congressional appropriations to the DPA Fund in Fiscal Years 2020 and 2021, and reports making \$233 million in Title III commitments in those two years. Department of Defense, “Assessments & Investments Defense Production Act (DPA) Title III,” <https://www.businessdefense.gov/ai/dpat3/index.html>; Consolidated Appropriations Act, 2020, Pub L. 116-93, 116th Congress (2019); Consolidated Appropriations Act, 2021, Pub. L. 116–260, 116th Congress (2020). In the 1980s, the House Wednesday Group, a Republican study group, proposed restoring probable ultimate net cost accounting rules—and DPA agencies’ ability to borrow from the Treasury—for this reason. See *The Defense Program and the Economy: Hearing Before the Subcommittee on Economic Goals and Intergovernmental Policy of the Joint Economic Committee*, (Oct. 13, 1981): 120, 131.

⁹⁶ 50 U.S.C. § 1701 *et seq.*

⁹⁷ Compare Nevitt, “Is Climate Change a National Emergency?,” 629.

⁹⁸ 49 U.S.C. § 114(g)(1)(A).

invoked dozens of times to block transactions and freeze assets of both state and non-state actors⁹⁹—and courts have repeatedly upheld actions taken under the IEEPA against judicial challenge.¹⁰⁰

These emergency regulatory powers extend to uses of the Defense Production Act, including the potential Title III actions described above. In a national emergency, the statutory requirements that loans guaranteed by DPA agencies be secured and pay reasonable interest are waived.¹⁰¹ Under normal circumstances, DPA expenditures that could cause a significant shortfall in the domestic industrial base can only be made 30 days after Congress is notified; this requirement, too, is waived during a national emergency.¹⁰² The DPA is a core tool at the president’s disposal to implement green industrial policy. Invoking a national emergency would bolster its power even further.

7. INVOKE EXTRAORDINARY CONTRACTING POWERS TO MAKE PROCUREMENT COMMITMENTS THAT EXCEED CURRENT BUDGETARY LIMITS

The president has substantial powers to confront national security threats by waiving ordinary procurement and budgetary procedures. As the Pentagon has declared, climate change poses just such a threat to national security.¹⁰³ President Biden should invoke his statutory authority to change federal contracting rules, enabling the government to make advanced market commitments to purchase critical resources in excess of current-year appropriations. These commitments can be structured as low-risk, interest-free loans that enable industrial capacity-building without requiring new Congressional appropriations. And by spurring private investment in new production for

⁹⁹ See generally Congressional Research Service, “The International Emergency Economic Powers Act: Origins, Evolution, and Use” (2020), <https://sgp.fas.org/crs/natsec/R45618.pdf>.

¹⁰⁰ *Id.* p. 33-42; *Dames & Moore v. Regan*, 453 U.S. 654 (1981).

¹⁰¹ 50 U.S.C. § 4531(a)(2).

¹⁰² 50 U.S.C. § 4531(d)(1)(B)(i).

¹⁰³ See US Department of Defense, “Department of Defense Climate Risk Analysis” (Oct. 2021), <https://media.defense.gov/2021/Oct/21/2002877353/-1/-1/0/DOD-CLIMATE-RISK-ANALYSIS-FINAL.PDF>.

supply-throttled resources today, advanced market commitments will bring down inflation and reduce procurement costs to US taxpayers in the future.¹⁰⁴

Under Public Law 85-804, a 1958 statute, the president has the power in a national emergency to authorize extraordinary terms in government contracts. Specifically, the president may authorize any defense-related department:

[T]o enter into contracts . . . and to make advance payments thereon, *without regard to other provisions of law* relating to the making, performance, amendment, or modification of contracts, *whenever he deems that such action would facilitate the national defense*.¹⁰⁵

Over the ensuing decades, presidents authorized more than a dozen agencies—including the Departments of Commerce, Energy, and Treasury—to exercise such special procurement authority.¹⁰⁶ Ordinarily, because of the Antideficiency Act, federal agencies cannot enter into contracts promising to pay money in the future unless such funds have already been appropriated.¹⁰⁷ But invoking the 1958 statute could allow the president to direct agencies to enter into such contracts, using letters of credit or authorizing direct advanced payments to contractors in anticipation of future repayment.¹⁰⁸

While the initial Executive Order implementing Pub. L. 85-804 prohibited agencies from entering into contracts exceeding current budgetary authorities, the president can issue a superseding Executive

¹⁰⁴ On how encouraging investment in industrial capacity-building can put downward pressure on inflation, see Alex Williams, “The Physical Capacity Shortage View of Inflation,” *Employ America* (May 9, 2022), <https://www.employamerica.org/researchreports/the-physical-capacity-shortage-view-of-inflation/>. and “Letter from Economists to Congressional Leadership” (Aug. 2, 2022), <https://s3.documentcloud.org/documents/22124998/letter-from-economists-to-congressional-leadership.pdf>.

¹⁰⁵ 50 U.S.C. § 1431, Pub. L. 85-804 (1958) (emphasis added). In addition to the procedural requirements discussed below, there are six enumerated statutory limits on the use of such extraordinary contracting powers. For example, a cabinet agency may not rely on Pub. L. 85-804 to negotiate contracts outside of advertising competing bidding procedures when such procedures are required by law, nor rely on it to formalize informal commitments unless normal procurement procedures are impractical. See 50 U.S.C. § 1432.

¹⁰⁶ Tracy Bateman et al., *Federal Procedure, Lawyers Edition*, 15th edition (Lawyers Cooperative Publishing: Jul. 2022), § 39.684; see also E.O. 10789 § 21 (1958).

¹⁰⁷ 13 U.S.C. § 1341 *et seq.*

¹⁰⁸ See Bateman et al., *Federal Procedure, Lawyers Edition*, §§ 39.701, 39.704.

Order that gives agencies such power in order to facilitate national defense.¹⁰⁹ Agencies already have this power under certain circumstances. In 1971, President Nixon modified the initial Executive Order to allow agencies to enter into contracts that indemnified contractors—promising to pay for any court judgments against the contractor related to their contract performance—even if the resulting liability on the US government might otherwise violate the Antideficiency Act.¹¹⁰ Use of this indemnification power has been widespread over the last 50 years, relieving contractors from potential liabilities associated with environmental cleanup, treating infectious diseases, and risks related to the NASA space shuttle program.¹¹¹

Invoking Pub. L. 85-804 in this manner would not usurp Congress’s constitutional power of the purse. For any potential obligations exceeding \$25 million, the statute requires that Congress be notified and be in legislative session for at least 60 continuous days before the contract can take effect.¹¹² This provision effectively gives Congress a veto over the use of any funds for a purpose it disapproves of (albeit one that could also require a presidential veto override). All such actions must be a matter of public record,¹¹³ and there are safeguards in place to ensure that the authority is not used for the unjust enrichment of federal contractors.¹¹⁴ Federal regulations also require that when an agency makes advanced payments on contracts, the agency must be adequately secured and do so only when the contractor doesn’t have sufficient cash to perform the contract work.¹¹⁵

¹⁰⁹ E.O. 10,789 (1958). *See also* Fed. Acquisition Reg. § 50.102-3(b)(3).

¹¹⁰ E.O. 11,610 (1971).

¹¹¹ Patrick E. Tolan Jr., “Environmental Liability Under Public Law 85—804: Keeping the Ordinary Out of Extraordinary Contractual Relief,” *Public Contract Law Journal* 32, No. 2 (Winter 2003), https://www.jstor.org/stable/25754520#metadata_info_tab_contents; Donald J. Trump, “Memorandum on Authorizing the Exercise of Authority under Public Law 85-804,” <https://trumpwhitehouse.archives.gov/presidential-actions/memorandum-authorizing-exercise-authority-public-law-85-804/>.

¹¹² 50 U.S.C. § 1431. The implementing regulations raise this threshold to \$35 million for non-indemnification commitments. Fed. Acquisition Reg. § 50.102-3(b)(4).

¹¹³ 50 U.S.C. § 1433(a).

¹¹⁴ *See e.g.*, 50 U.S.C. § 1432(b) (prohibiting contracts that violate laws relating to profit limitations).

¹¹⁵ Fed. Acquisition Reg. § 32.402(c) (requiring adequate security for advanced contract payments).

While widening a statutory exception to the Antideficiency Act might seem like a radical step, contracts made under this authority need not obligate Congress to authorize future appropriations. Advanced payments can be structured as secured interest-free loans that will ultimately be paid back in full by the contractor—allowing the government to leverage procurement appropriations into a “working capital fund” that finances procurement capacity-building. The government could also use appropriated funds to sell put options on key procurement inputs—the right to sell such commodities to the government at a predetermined time and price—to incentivize investment in production. If the ultimate price of these inputs is above the contract price, the government will have achieved its goal of spurring greater private investment while also making money on the transaction.

In contrast, past invocations of Pub. L. 85-804 have effectively put Congress on the hook for new spending. In the 1970s, for example, the US Navy requested design changes on shipbuilding procurement contracts that inflated project costs by more than \$2 billion above appropriated funds. The Navy successfully kept these costs off its balance sheet until the shipbuilders had exhausted nearly all their liquid cash resources, at which point the Navy proposed to grant special contractual relief under Pub. L. 85-804 to settle the contractors’ claims.¹¹⁶ Staring down a potential asset fire sale by key defense contractors, Congress had little choice but to appropriate additional money to pay for the settlement.¹¹⁷

President Biden has not yet formally declared climate change to be a national emergency. But there is already a sufficient legal basis for expanding the scope of Pub L. 85-804 to enable advanced market commitments. The statute is specifically exempted from the procedural requirements of the National Emergencies Act.¹¹⁸ President Truman’s initial wartime invocation of a national emergency serves as

¹¹⁶ US Government Accountability Office, “The Secretary of the Navy’s Proposal to Use Public Law 85-804 To Modify the LHA and DD-963 Slip Construction Contracts with Ingalls Shipbuilding Division of Litton Systems, Inc.” (1978), <https://www.gao.gov/products/107245>. The design changes were one, but not the only, source of cost overruns. The US Navy and the shipbuilders both claimed that the other party was responsible for the cost overruns, which was a subject of extensive litigation.

¹¹⁷ Herbert L. Fenster and Christian Volz, *The Antideficiency Act: Constitutional Control Gone Astray*, 11 Public Contract L. J. 155, 228 (1979), <https://www.jstor.org/stable/pdf/25753930.pdf>.

¹¹⁸ 50 U.S.C. § 1651(a)(4).

the basis for current uses of Pub. L. 85-804.¹¹⁹ In past invocations, presidents have simply made reference to the fact that a “relevant state of national emergency exists,” without future elaboration.¹²⁰ President Biden can and should do the same.

CONCLUSION

The Inflation Reduction Act will help achieve around 70 percent of the United States’ Paris Climate obligations, leaving 30 percent on the table for action by the executive branch, sub-federal governments, and businesses. And while the administration has rightly received credit for its bold invocation of the Defense Production Act, to date, we have not seen a public plan for deploying it.

This issue brief has explored seven ways that the executive branch can deploy the DPA and move beyond it. Table 2 below summarizes the various options both with and without additional appropriations.

While some of these authorities are novel and untested, the scale of the climate challenge means that all possible options should remain on the table. This is especially true if the process can help accelerate economic conversion that could be locked in and made expensive to reverse (even if a future government was willing to allow businesses to return to carbon-intensive production methods).¹²¹

¹¹⁹ Kevin P. Mullen, “Extraordinary Contractual Relief Under Public Law 85-804,” Briefing Papers No. 02-13 (Fed. Pub'ns: Dec. 2002). President Bush’s declaration of a national emergency after the September 11, 2001 terrorist attacks has also served as the basis for invoking Pub. L. 85-804.

¹²⁰ Barack Obama, “Memorandum of November 13, 2014—Authorizing the Exercise of Authority Under Public Law 85—804,” 79 Fed. Reg. 68757 (2014); *see also* Brennan Center for Justice, “Presidential Power: Public Law 85-804 (50 U.S.C. §§ 1431-35),” <https://www.brennancenter.org/sites/default/files/analysis/50%20USC%201431-1435.pdf>.

¹²¹ We know from experiences with the auto sector that, once on a capital expenditure path that incorporates the cost of complying with regulations, businesses often value predictability over the least onerous treatment. See Coral Davenport, “Defying Trump, 5 Automakers Lock In a Deal on Greenhouse Gas Pollution,” *The New York Times*, August 17, 2020, sec. Climate, <https://www.nytimes.com/2020/08/17/climate/california-automakers-pollution.html>.

Table 2. Pathways to Meeting Paris Climate Goals, Post-IRA

	With new appropriations	Without new appropriations
Under DPA	The \$500 million under the Inflation Reduction Act + Energy and Water Development and Related Agencies appropriations secured by Rep. Cori Bush (D-MO)	Use extraordinary contracting rules to make Title III commitments up to their probable ultimate net cost (rather than maximum liability)
Outside of DPA	<p>\$8.7 billion in the Inflation Reduction Act to guarantee up to \$310 billion in loans to clean energy projects</p> <p>New appropriations to create a specific commodity finance wing at the Treasury to use the ESF to accelerate production of clean energy commodities</p> <p>New appropriations for various DOE offices (Energy Efficiency and Renewable Energy, Clean Energy Demonstrations, Electricity, etc.) so Secretary can creatively use OTA to invest in clean energy industries</p>	<p>Invoke a national emergency to reprogram military construction money</p> <p>Use procurement appropriations as a rotating “working capital fund,” providing advanced payments to build contractor capacity</p> <p>Use ARPA-E’s \$450 million in flexible appropriations to enter into OTA agreement that advances clean energy technologies</p> <p>Explore partnerships with government corporation as purchasing agents</p>