THIRD WAY

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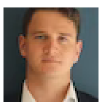
Financing the Clean Energy Revolution



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Takeaways

- The Department of Energy's (DOE) Loan Programs Office (LPO) provides debt financing to deploy clean energy and manufacturing projects across the country, creating tens of thousands of permanent, good-paying American jobs.
- LPO's loss rate of 3.2% is significantly below private sector loss rates, and the Office has received more returns through interest payments than losses throughout its history.

- Congress instituted good governance measures to ensure that LPO stays focused on effectively stewarding taxpayer resources. In response, LPO formalized its evaluation criteria to determine whether an applicant has a reasonable prospect of repayment, codified its practices to ensure that political influence does not impact project selections, and strengthened its reporting requirements on LPO project metrics.
- Congress must provide LPO with annual appropriations to cover its administrative costs so the office can continue helping the US achieve its climate goals and maintain its leadership in clean energy as China and other rivals compete for these global markets.

What is the Loan Programs Office?

LPO, America's largest financier of large-scale clean energy and low-emission vehicle manufacturing facilities, is well situated to lead the country through a fast and fair transition to a net-zero economy. Since its establishment in 2005, LPO direct loans and loan guarantees have led to over $50 billion in investments to finance clean technology projects—projects that support 37,000 permanent good-paying jobs and prevent millions of tons of carbon pollution from entering the atmosphere. [1]

LPO was created to fill in the gaps that were keeping promising industries—those with the potential to revolutionize our relationship with energy—from taking off. Prior to LPO's creation, developers of large-scale innovative clean energy and manufacturing projects lacked access to affordable private debt. In short, banks didn't want to lend money to deploy technologies that were unproven at scale and carried inherently higher risk. But the benefits of an America run on cleaner energy were indisputable. This created a need for a program with the capacity to carry out the due diligence needed to make sure projects could pay back their debt, and provide or guarantee the capital needed to bring them to market. So President Bush and the Republican-led 109th Congress passed the Energy Policy Act of 2005 (EPAct) kicking off that program, which later was adapted through bipartisan action into what it is today. [2]

LPO is the bridge to bankability spanning the 'valley of death' that usually slows economy-wide adoption of new technologies. [3] With increased lending capacity authorized through the Inflation Reduction Act (IRA), the US is better positioned to reach climate goals while creating jobs that will work to make energy in this country affordable, reliable, secure, and clean.

While other offices at DOE provide grant funding for research, development, and demonstrations (RD&D), LPO focuses on deployment, making low interest capital available to private industry to help build commercial-scale clean energy projects and auto manufacturing and supply chain facilities in the US. LPO does not pick winners and losers: If a company meets the Congressionally mandated requirements for financing, which include robust diligence of commercial readiness, technical feasibility, and financial viability, a project will receive financing. [4]

LPO-supported projects have produced real-world proof of concepts for innovative industries and built the trust needed by banks to invest in more projects. The main components of the LPO are:

- The Innovative Clean Energy Loan Guarantee Program (Title 17), which guarantees loans for novel US-based energy projects that avoid, reduce or sequester greenhouse gas emissions;

- The Advanced Technology Vehicles Manufacturing Direct Loan Program (ATVM), which provides low-interest direct loans for facilities that manufacture fuel-efficient vehicles, electric vehicles (EVs), or their qualifying components [5] ; and

- The Tribal Energy Loan Guarantee Program (TELGP), which provides both direct low-interest loans and loan guarantees to federally recognized tribes to develop renewable or conventional energy projects.

Recently, Congress created two additional LPO programs through the Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA), respectively. These are the Carbon Dioxide Transportation Infrastructure Finance and Innovation Act (CIFIA), which provides loans, loan guarantees, and grants to build out shared transport infrastructure to move captured carbon dioxide to conversion facilities and storage wells; and the Title 17 Energy Infrastructure Reinvestment (EIR) program, which guarantees loans for projects that retrofit existing energy infrastructure with emission reducing technologies or for projects that repurpose retired energy infrastructure.

Jumpstarting American Clean Energy Industries

Recently, LPO-supported projects have reflected a core focus on increasing the availability of the critical materials and components that are essential for manufacturing the clean energy technologies we need to reach our climate and economic goals. This is a national security imperative: currently, China owns much of the world's production and processing of critical materials including over half of the lithium processing, three-quarters of graphite processing, and 70% of cobalt processing. [6] This leaves us vulnerable to supply chain disruptions and puts our ability to lead the global transition to clean energy at risk. Building supply chains for these materials in the US, or with our allies and trading partners, is essential for reducing those risks.

In the last two years, LPO has offered and conditionally committed ATVM direct loans to five companies, all of which will help the US onshore supply chains and fortify its critical materials market:

- Syrah Vidalia Technologies LLC: a $102 million loan to expand the Syrah Vidalia Facility in Louisiana, the only vertically integrated, large-scale manufacturer of graphite-based active anode material outside of China. The project will create 150 construction jobs and 98 operation jobs.

- Ioneer Rhyolite Ridge: a $700 million loan to produce lithium at the site of one of the two known sizable lithium-boron deposits in the world. The project will create 600 construction jobs and 300 operations jobs in Nevada.

- Redwood Materials: a $2 billion loan to build a battery-grade critical materials recycling and manufacturing facility. The project will create 3,400 construction jobs and 1,600 operations jobs in Nevada.

- Ultium Cells: a $2.5 billion loan to the General Motors and LG Energy Solution joint venture to construct three lithium-ion battery cell manufacturing facilities in Ohio, Tennessee, and Michigan. Combined these facilities will support 6,000 construction jobs and 5,100 operations jobs.

- Li-Cycle US Holdings, Inc.: a $375 million loan to expand their lithium-ion sustainable pure-play battery recycling facility in Rochester, New York. The project will create 1,000 construction jobs and 270 operations jobs.

Projects like these will help bring our battery supply chain home, reducing our reliance on our adversaries for critical materials and enabling the U.S. to compete for and win more of the global market for EVs. [7]

LPO has also recently supported domestic energy production and reliability, providing a $504 million loan guarantee to the Advanced Clean Energy Storage project in Utah to help build the world's largest clean hydrogen storage facility. The project will produce clean hydrogen with excess renewable energy and store it in underground salt caverns. The hydrogen storage project will create 400 construction and 25 operations jobs and will be a long-term, low-cost seasonal energy source that will help reduce renewable energy curtailment and stabilize the grid.

Additionally, the recent conditional commitment to Monolith Inc. for a $1 billion loan guarantee would help finance the expansion of their Olive Creek facility in Hallam, Nebraska. Currently the facility converts methane into clean hydrogen and solid carbon black. The expansion will enable the facility to use their hydrogen to produce more carbon-free ammonia to fertilize crops throughout the Corn Belt, feeding America. The solid carbon black can be used to make tires and other commercial products. If finalized, the project will create 1,000 construction and 75 operations jobs.

LPO's History: Big Impact, Better Governance

Democrats and Republicans in Congress and the White House have worked for the better part of two decades to expand LPO's impact and accountability measures. President Bush and the Republican-led 109th Congress established Title 17 and TELGP with the EPAct, with a significant number of Congressional Democrats voting in favor as well. Later with Republican support, the Democratic controlled 110th Congress passed the Energy Independence and Security Act of 2007, which Bush signed into law, creating ATVM. [8] President Obama's signing of the American Recovery and Reinvestment Act (ARRA) of 2009 created Title 17's Section 1705 to accelerate the deployment of clean energy projects, leading to 28 project commitments. [9]

From LPO's over 30 financed projects, the Office boasts a default rate of 3.2% - enviable by private sector standards. [10] In total, the Office has already received $14.07 billion in repaid principal plus $4.49 billion of paid interest. [11] That's over $3 billion more than its losses.

The end of ARRA stimulus funding and the bankruptcy of Solyndra slowed LPO project approvals after 2011. [12] In the meantime, LPO renovated their internal procedures in line with guidance outlined in the 2012 Allison Report, an independent audit of LPO's portfolio requested by the Obama White House. Since the report, the Office has beefed up its interagency review, coordination, oversight, and credit underwriting capabilities to ensure the increased future protection of taxpayer resources. [13]

> *If we could just get a sense of common purpose, we can once again see the best cars in the world designed, engineered, forged right here in Chicago, right here in the Midwest, right here in the United States of America.*
> *- **Former President Barack Obama** (D), speaking to workers at the Ford Motor Company Chicago Assembly Plant following the announcement of an ATVM loan to expand the facility to make more fuel-efficient vehicles, 10 August 2010.*

Congress passed the Energy Act of 2020 which strengthened the U.S. Treasury's role in LPO's loan making process. The Trump-era law directed LPO to work with the Treasury to obtain a written analysis of the financial terms and conditions of any proposed Title 17 loan. In addition, the law allowed for the collection of certain Title 17 applicant fees to be deferred, and expanded and clarified project eligibility, jumpstarting application rates for the first time in years. [14]

In 2021, the Bipartisan Infrastructure Law (BIL) expanded ATVM project eligibility to include more transportation technologies like heavy-duty trucks, trains, ships, and aircraft. In addition, the BIL allowed project developers to apply for Title 17 loan guarantees in coordination with state energy financing institutions (SEFI), clarified previous qualifying language, and waived the innovation requirement for these types of state-supported projects. [15] Using the SEFI provisions allows LPO to offer project financing to a wider range of borrowers and deploy already commercialized clean energy technologies in small, rural, and underserved communities. The law also created the new CIFIA program, supported with $2.1 billion to finance projects that build shared carbon dioxide transportation infrastructure. [16]

Finally, the IRA included unprecedented levels of authorized loan authority and much-needed appropriations to cover borrowing costs for LPO's three main programs. [17] The largest part of those provisions went to the new EIR program under Title 17, with up to $250 billion in loan guarantee authority for the decarbonization of existing energy infrastructure, supported by $5 billion in appropriated credit subsidies. [18] Projects eligible for EIR loan guarantees are those that retool, repower, repurpose, or replace energy infrastructure that has ceased operations, or enable operating energy infrastructure to avoid, reduce, utilize, or sequester air pollutants or anthropogenic emissions of greenhouse gasses.

> *I'm pleased to see DOE support Utah's efforts to become a world leader in hydrogen. This is not only a win for Millard County and Utah, but it is also an important step toward developing new energy technologies as we utilize an 'all of the above' approach to meet our energy demands.*
> *- Remarks by **Senator Mitt Romney** (R-UT) following the announcement of a Title 17 loan guarantee for the Advanced Clean Energy Storage Project, 8 June 2022.*

For example, utilities can use EIR loan guarantees to refinance their decades-long coal plant balance sheets and use the low-cost financing to transition plants to use cleaner, renewable, and nuclear energy technologies faster. Refinancing will allow American customers to pay lower rates, while utilities grow their rate base profit with cleaner energy. [19] Additionally, retired infrastructure can be brought back to use with new purpose. Shutdown fossil-fueled power plant sites can be redeveloped into usable spaces like office buildings, restaurants, apartments, or manufacturing facilities producing products like clean steel or EV components, bringing jobs and economic activity back to places once reliant on outdated energy infrastructure. Furthermore, EIR loan guarantees can be extended to help decarbonize any infrastructure related to fossil or petrochemical production or delivery, and work to reduce emissions in many other hard to abate industries. Now LPO is focused not only on paving the way for clean energy innovations but helping improve legacy industries and provide opportunities to workers and communities that have relied on them.

What's Ahead: LPO 2.0

The recent improvements to LPO have garnered a lot of attention from private industry. December 2022 closed out with 125 active applicants, a nearly 90% increase from just over a year prior. [20] Every state in the Union has a potential project waiting to be approved. [21] As of the end of 2022, applications for a total $119 billion in potential loans were in the pipeline for an array of clean energy and manufacturing projects.

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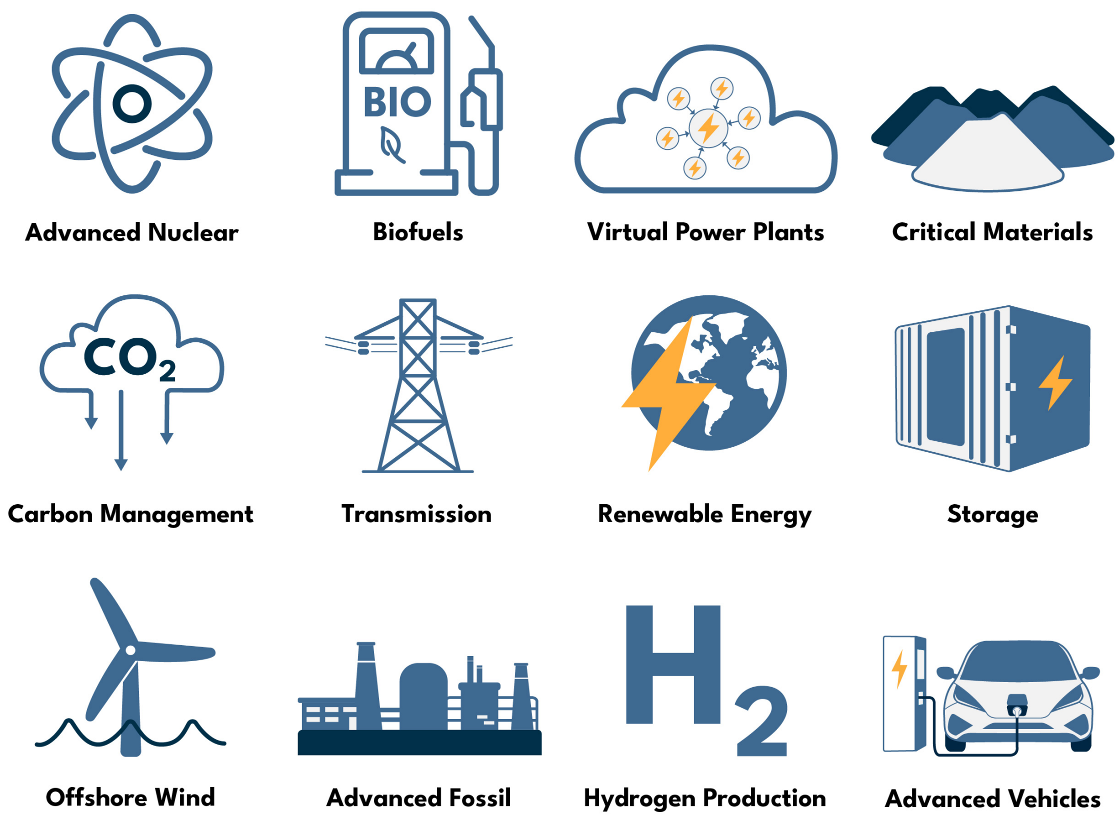
Clean Energy and Manufacturing Projects in LPO's Application Pipeline



Source: Loan Programs Office.
See also: Shah, Jigar. "Looking Back at One Year of Application Trends for LPO Financing Programs." Loan Programs Office, 3 Jan 2023. https://www.energy.gov/lpo/articles/looking-back-one-year-application-trends-lpo-financing-programs. Accessed 6 April 2023.

Thanks to bipartisan action in Congress and across multiple Administrations, LPO now has the tools it needs to do what it was intended to do: create American jobs, deploy American technologies, and unlock private sector resources to continue growing new domestic markets and opportunities. Moreover, under the Justice40 Initiative, LPO programs will help make sure the benefits of a country powered and built with clean infrastructure are seen by disadvantaged and underserved communities dealing with years of unremediated pollution. [22]

To fully capitalize on this opportunity and unlock the strength of our domestic clean energy and manufacturing industries, **Congress needs to finish the job by providing annual appropriations for LPO to cover these programs' administrative expenses.** This will ensure LPO can continue reviewing applications, negotiating loan terms, approving more projects, and doing its due diligence to ensure good stewardship of taxpayer dollars. Additionally, the IRA set a short deadline for how long the Office's expanded loan authorities can remain available, and **Congress should consider extending some of these authorities so LPO has the time it needs to get all of the money out the door while protecting taxpayers' interests.** [23]

LPO is arguably more important now than it has ever been. International competition is rising, climate threats are increasing, and the American demand for clean power and transportation is only growing larger. By formalizing applicant evaluation criteria for the reasonable prospect of repayment required prior to closing, codifying their practices to ensure that political influence doesn't impact project selection, and strengthening reporting requirements on LPO project metrics, LPO is clearly adhering to the new statutory requirements and stands ready to help us meet these challenges.

TOPICS

CLEAN ENERGY FINANCE 48

ENDNOTES

1. “Portfolio.” Loan Programs Office. https://www.energy.gov/lpo/portfolio. Accessed 25 April 2023.

2. “History.” Loan Programs Office. https://www.energy.gov/lpo/history. Accessed 16 Feb 2023.

3. “Valley of Death.” ScienceDirect. https://www.sciencedirect.com/topics/engineering/valley-of-death. Accessed 16 Feb 2023.

4. “Application Process”. Loan Programs Office. DOE. https://www.energy.gov/lpo/application-process. Accessed 16 Feb 2023.

5. While ATVM originally focused only on fuel-efficient and electric light-duty vehicles and their components, the Bipartisan Infrastructure Law expanded the list of eligible vehicles to include medium- and heavy-duty vehicles, locomotives, maritime vessels including offshore wind vessels, aircraft, and hyperloop technologies.

6. “Global Supply Chains of EV Batteries.” International Energy Agency, July 2022. Page 27. https://iea.blob.core.windows.net/assets/4eb8c252-76b1-4710-8f5e-867e751c8dda/GlobalSupplyChainsofEVBatteries.pdf. Accessed 27 Oct 2022.

7. Laska, Alexander and Ellen Hughes-Cromwick, “Electric Vehicles: Policies to Help America Lead.” Third Way, 2 Nov 2022. https://www.thirdway.org/memo/electric-vehicles-policies-to-help-america-lead. Accessed 16 Feb 2023.

8. The Energy Independence and Security Act of 2007 created the ATVM program, but it wasn’t until the FY 2009 Continuing Resolution that the program was funded with $7.5 billion in subsidy appropriations to support an original maximum $25 billion in ATVM direct loans. The IRA later removed the $25 billion loan cap and appropriated $3 billion to remain available through September 30, 2028 to cover credit subsidy costs for an estimated $40 billion in maximum loan authority.

9. Title 17’s initial Section 1703 provides loan guarantee authority for projects that mitigate emissions while using significantly innovative technologies. The ARRA later provided temporary provisions under Title 17 creating Section 1705. Section 1705 also provided loan guarantees but lacked the ‘innovative’ requirement for clean energy projects and accelerated the deployment of many conventional energy projects. See: “Inflation Reduction Act of 2022 (IRA): Department of Energy Loan Guarantee Programs.” Congressional Research Service, 5 August 2022. https://crsreports.congress.gov/product/pdf/IN/IN11984. Accessed 13 April 2023.

10. A 2016 study found that from 2006 to 2011, over 80% of U.S. venture-backed clean energy companies failed. See: Gaddy, Benjamin et all, “Venture Capital and Cleantech: The Wrong Model for Clean Energy Innovation.” MIT Energy Initiative, July 2016. Page 17. https://energy.mit.edu/wp-content/uploads/2016/07/MITEI-WP-2016-06.pdf. Accessed 16 Feb 2023.

11. “Portfolio.” Loan Programs Office. https://www.energy.gov/lpo/portfolio. Accessed 25 April 2023.

12. After 2011, project approvals stagnated for a few reasons. The sunset of ARRA provisions ceased funding eligibility for a swath of large scale tried and tested renewable energy projects. In addition, while many more projects succeeded, the 2011 bankruptcy of Solyndra brought the program under political scrutiny. Going from issuing 29 direct loans and loan guarantees between 2009-2011, LPO only issued three loan guarantees from 2012 to the beginning of 2022. All of which have gone to the construction of the Vogtle next generation nuclear reactors in Georgia.

13. "Getting to Know LPO: Managing Risk, Monitoring a Growing Portfolio, and Protecting Taxpayers." Loan Programs Office, 3 Nov 2022. https://www.energy.gov/lpo/articles/getting-know-lpo-managing-risk-monitoring-growing-portfolio-and-protecting-taxpayers. Accessed 16 Feb 2023.

14. "Getting to Know LPO: Energy Act of 2020, BIL Implementation." Loan Programs Office, 10 Nov 2022. https://www.energy.gov/lpo/articles/getting-know-lpo-energy-act-2020-bil-implementation. Accessed 16 Feb 2023.

15. Shah, Jigar, "LPO Offers New Opportunities for Projects Funded by State Energy Financing Institutions." Loan Programs Office, 8 Dec 2022. https://www.energy.gov/lpo/articles/lpo-offers-new-opportunities-projects-funded-state-energy-financing-institutions. Accessed 16 Feb 2023.

16. "Carbon Dioxide Transportation Infrastructure." Loan Programs Office. https://www.energy.gov/lpo/carbon-dioxide-transportation-infrastructure. Accessed 16 Feb 2023.

17. "Inflation Reduction Act of 2022." Loan Programs Office. https://www.energy.gov/lpo/inflation-reduction-act-2022. Accessed 16 Feb 2023.

18. Shah, Jigar. "#DeployDeployDeploy: 2. The Energy Infrastructure Reinvestment (EIR) Program." Loan Programs Office, 15 Sep 2022. https://www.energy.gov/lpo/articles/deploydeploydeploy-2-energy-infrastructure-reinvestment-eir-program. Accessed 16 Feb 2023.

19. Fong, Christian et al, "The Most Important Clean Energy Policy You've Never Heard About." RMI, 13 Sep 2022. https://rmi.org/important-clean-energy-policy-youve-never-heard-about/. Accessed 16 Feb 2023.

20. Shah, Jigar, "Looking Back at One Year of Application Trends for LPO Financing Programs." Loan Programs Office, 3 Jan 2023. https://www.energy.gov/lpo/articles/looking-back-one-year-application-trends-lpo-financing-programs. Accessed 16 Feb 2023.

21. "Monthly Application Activity Report." Loan Programs Office. https://www.energy.gov/lpo/monthly-application-activity-report. Accessed 16 Feb 2023.

22. "Justice40." The White House. https://www.whitehouse.gov/environmentaljustice/justice40/. Accessed 16 Feb 2023.

23. New Title 17 Section 1703 (the original program started by the EPAct) and EIR (Section 1706 created under Title 17 by the IRA) loan guarantee authority and appropriations will be available through FY 2026. New ATVM subsidy cost appropriations will be available through FY 2028. New TELGP loan guarantee authority and appropriations will be available through FY 2028.