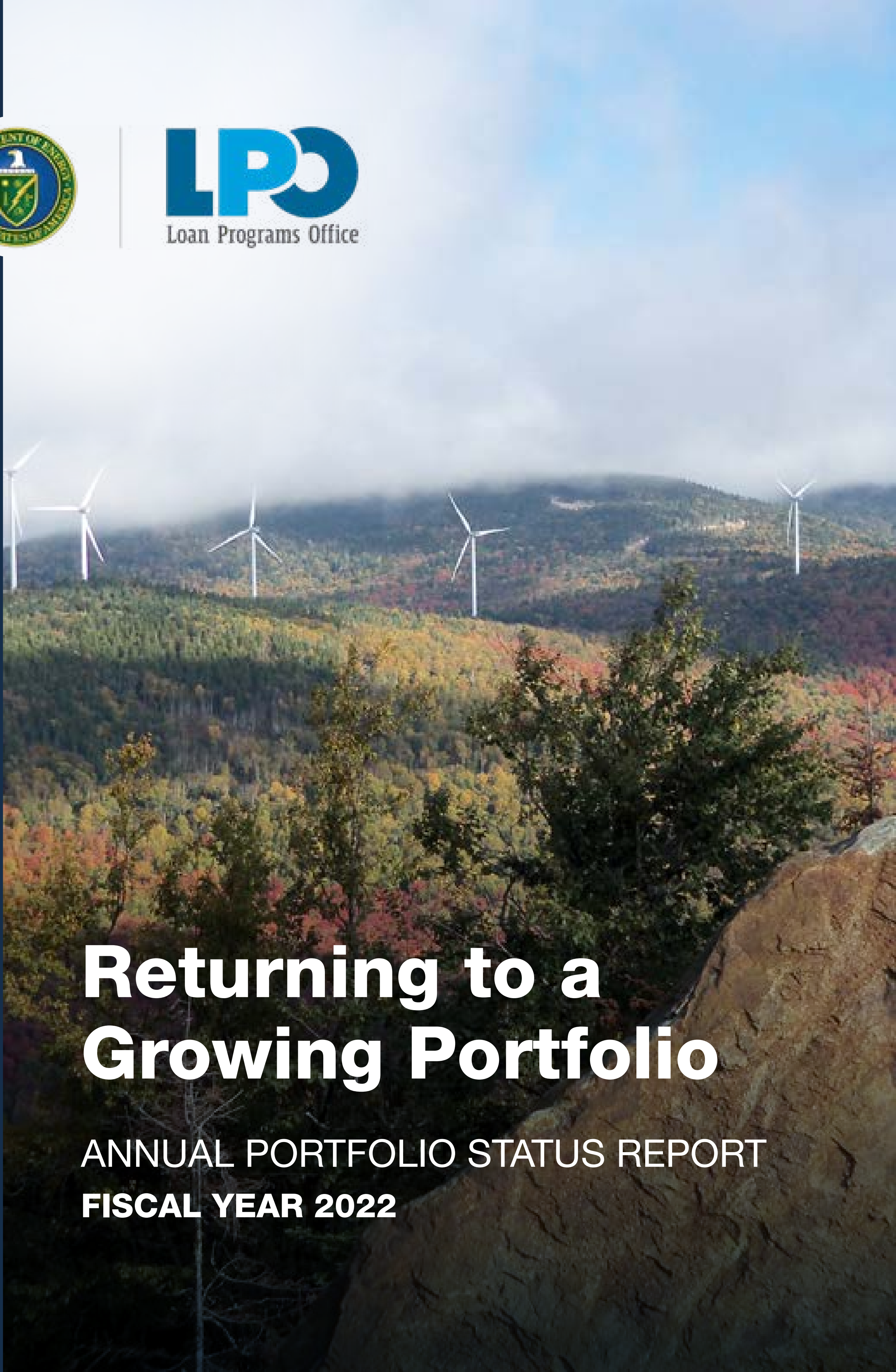
Loan Programs Office



Returning to a Growing Portfolio

ANNUAL PORTFOLIO STATUS REPORT

FISCAL YEAR 2022

In fiscal year (FY) 2022 the Department of Energy's (DOE) Loan Programs Office (LPO) reached a new success milestone for the first time in almost a decade—as the organization entered growth mode it has the prospect to rapidly expand the portfolio of closed loans.

The Bipartisan Infrastructure Law and Inflation Reduction Act (IRA) greatly increased LPO's capacity to promote critical investments in energy technology, transportation, and critical infrastructure in the Unites States; and LPO moved quickly and carefully to implement these changes in an effective manner that fulfills the mission of the office while protecting taxpayer resources. All told, FY 2022 marked the beginning of a new era of opportunities for federal support for low-carbon innovation and new avenues of economic growth.

LPO achieved 4 new conditional commitments for over $4B in loans in FY 2022, significantly advancing its mission to empower the private sector in the clean energy transition. In FY 2022, LPO also closed its first loans in both its Title 17 and ATVM programs since 2015.

Every active LPO borrower remaining in the portfolio repaid principal in FY 2022, achieving $1.7 billion in principal retirement and $523 million in interest payments to the U.S. Treasury. Cumulative principal payments now exceed $13.7 billion, 43% of the $31.6 billion LPO has disbursed. The portfolio remains concentrated in creditworthy assets, with 70% of exposure held by investment-grade borrowers, and it maintains a low aggregate loss rate of 3% of funds disbursed.

Portfolio Funding Status ($ Millions)

	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Total Obligated	$23,451	$27,854	$29,322	$29,322	$28,522	$28,379	$32,081	$32,081	$32,081	**$35,159**
Disbursements	$18,688	$21,706	$24,342	$25,467	$25,742	$25,742	$27,707	$29,620	$31,167	**$31,630**
Repayments / Discounts	$1,553	$3,486	$5,141	$6,399	$7,978	$9,017	$9,957	$11,168	$12,080	**$13,748**
Write-offs / Loss on Sale	$54	$198	$198	$272	$806	$806	$806	$786	$1,018	**$1,036**
Exposure*	$17,317	$18,321	$19,297	$19,092	$17,288	$16,310	$17,420	$18,109	$18,673	**$17,405**

* Exposure includes outstanding interest

WHO WE ARE

LPO provides loans and loan guarantees for large-scale energy infrastructure projects in the United States.

LPO administers four programs:

- the **Title 17 Clean Energy Financing Program**, which finances next-generation U.S. energy infrastructure;
- the **Advanced Technology Vehicles Manufacturing (ATVM) Loan Program**, which finances U.S. manufacturing of fuel-efficient, advanced technology vehicles and qualifying components;
- the **Tribal Energy Financing Program**, which finances tribal ownership of energy development projects; and
- the **Carbon Dioxide Transportation Infrastructure Finance and Innovation (CIFIA) Program**, which LPO will manage in partnership with DOE's Office of Fossil Energy and Carbon Management and is designed to support large capacity, common carrier carbon dioxide transport projects.

Leveraging collective decades of financial, technical, legal, and environmental experience of its team members, LPO has closed more than $36 billion in loans and loan guarantees that help enable decarbonization technologies to become bankable so that they can be scaled via commercial debt markets. LPO addresses the financing gaps that arise when commercial lenders are unwilling to issue any or adequate debt or when a project deploys technology that has yet to demonstrate an adequate history of commercial operations.

Once LPO closes a loan or loan guarantee, projects are monitored and evaluated throughout project construction, commissioning, and operation until the loan has been repaid in full, protecting taxpayer interests. With a proven track record that includes transforming existing energy infrastructure, reviving nuclear construction, accelerating the growth of utility-scale solar and wind, and expanding the domestic manufacturing of electric vehicles (EVs), LPO has helped de-risk emerging energy technologies, unlock new business models, and mobilize private spending.

NEW LEGISLATION UNDERSCORES IMPORTANCE OF LPO'S MISSION

The IRA of 2022 makes the single largest investment in climate and energy in American history.

IRA appropriates approximately $11.7 billion in total for LPO to support issuing new loans. These amounts increase LPO's existing loan programs by approximately $100 billion in new loan authority. The IRA also adds a new loan program, the Energy Infrastructure Reinvestment (EIR) Program (section 1706), which can help repurpose energy infrastructure that has ceased operations or is still operating with a total cap on loans of $250 billion.

- For the ATVM Loan Program, IRA appropriated $3 billion to remain available through September 30, 2028, for the costs of direct loans under ATVM, estimated to provide for an additional approximately $40 billion in loan authority. New appropriations provided by IRA may be used by the Secretary to issue loans for a range of advanced technology vehicles and their components, including newly authorized uses from the Infrastructure Investment and Jobs Act (IIJA), which to date had not been funded. Expanded uses include medium- and heavy-duty vehicles, locomotives, maritime vessels including offshore wind vessels, aviation, and hyperloop.
- Under the Title 17 Clean Energy Financing Program, IRA appropriated $3.6 billion in credit subsidy to support the cost of loan guarantees and an additional $40 billion of loan authority for projects eligible for loan guarantees under section 1703 of the Energy Policy Act of 2005, to remain available through September 30, 2026. This new loan authority is open to all currently eligible Title 17 Innovative Clean Energy technology categories, including fossil energy and nuclear energy. IRA appropriations also support the expanded activities authorized by IIJA that required these new appropriations to go into effect. These expanded activities support projects involving critical minerals processing, manufacturing, and recycling, and removing the innovation requirement for State Energy Financing Institution-backed projects.

NEW LEGISLATION UNDERSCORES IMPORTANCE OF LPO'S MISSION CONTINUED

- IRA created a new program under Title 17 (section 1706), the EIR Program, to guarantee loans to projects 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 gases. IRA appropriates $5 billion through September 30, 2026, to carry out EIR, with a total cap on loans of up to $250 billion.
- IRA increased the aggregate amount of loan authority under the Tribal Energy Financing Program from $2 billion to $20 billion and provided $75 million to remain available through September 30, 2028, to carry out the program. IRA also made permanent access for borrowers to apply for direct loans through the U.S. Treasury's Federal Financing Bank, as first authorized under the Consolidated Appropriations Act, 2022.

Apart from changes from IRA to LPO programs, IIJA authorized and appropriated up to $2.1 billion for the CIFIA Program to support loans, loan guarantees, grants, and administrative expenses to enable deployment of common carrier carbon dioxide (CO_2) transportation infrastructure. This appropriation would support an estimated $20 billion in CIFIA loans.

Finally, the Consolidated Appropriations Act, 2023 included an additional $15 billion in Title 17 lending authority open to all technologies, which is the largest increase in loan authority for any program in an annual Appropriations measure in fourteen fiscal year budgets, and removed previous prohibition on funds for expanded IIJA authorities.

In part because of these and other changes, LPO has seen significant growth in new loan activity, totaling 135 active applications for $124.1 billion through February 28, 2023.

BUILDING A BRIDGE TO BANKABILITY

The central challenge the United States faces in reaching its climate goals is a deployment challenge—not an invention challenge.

While significant equity capital is available for development of decarbonization technologies, deployment projects can still lack access to adequate debt capital essential to their viability. LPO fills this gap in commercial deployment by serving as a bridge to bankability for innovative and high-impact energy technologies, providing them with access to needed loans and loan guarantees when private lenders cannot or will not until a given technology has reached full market acceptance.

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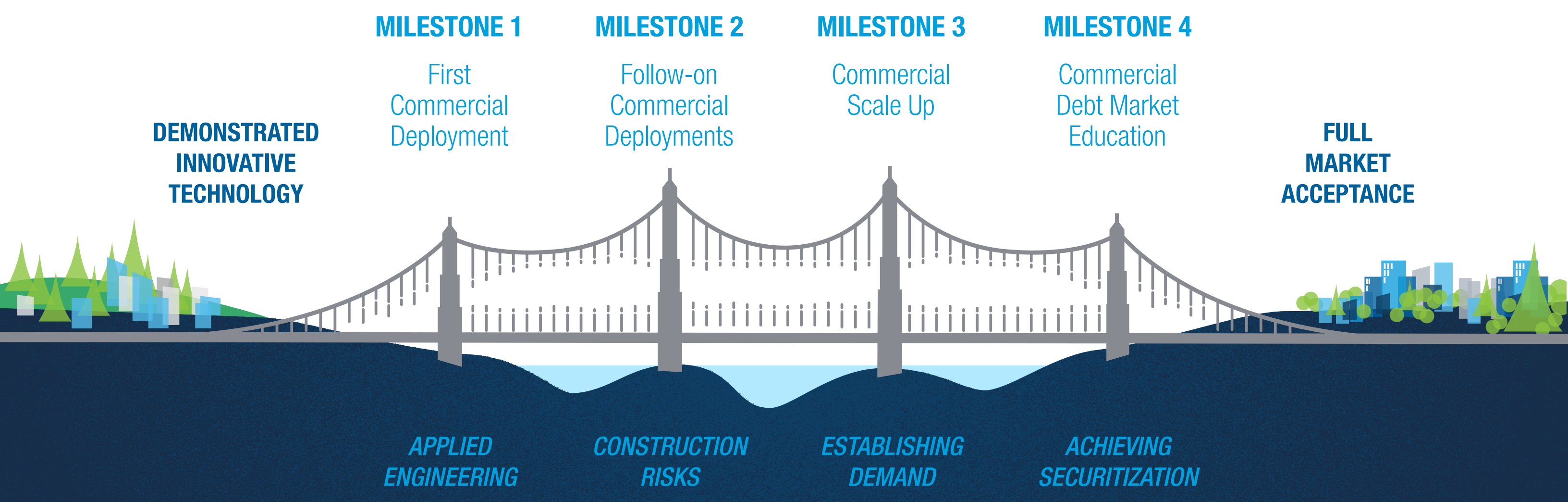


LPO'S IMPACT

LAYING THE GROUND FLOOR OF THE CLEAN ENERGY ECONOMY

LPO's Title 17 Clean Energy Financing Program requires that projects avoid, reduce, utilize, or sequester greenhouse gas or air pollutant emissions, while eligible vehicles under the ATVM Program must demonstrate improved fuel economy. If LPO's portfolio of active projects were concentrated in a single state by the energy they generated in 2022, it would rank as the twelfth largest clean energy producer of the fifty states.[1]

Projects financed by LPO are having a tangible impact on the clean energy transition.

Throughout its history, LPO energy projects have generated nearly 94 million MWh of electricity cumulatively, including roughly 9.5 million MWh generated in FY 2022. LPO's innovative technology projects have also contributed to the avoidance of almost 43 million tonnes of CO_2 cumulatively, including roughly 4 million tonnes in FY 2022.

FY 2022 by the Numbers
Climate impacts attributable to LPO-supported projects

over **9.5 million** MWh clean energy produced, equivalent to…

900,000 homes powered

3.8 million tons of CO_2 displaced

62,450 advanced technology vehicles produced, equivalent to...

2.1 million gallons of gasoline displaced

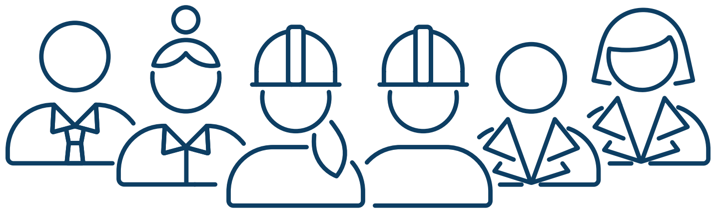
18,800 tons of CO_2 displaced

[1] Comparing FY 2022 portfolio performance to nationwide Mwh generation in 2021, the most recent year for which data are available. States ranked by Mwh of clean energy courtesy of the American Clean Power Association's Clean Power Annual 2021.

LPO IMPACT CONTINUED

45,194

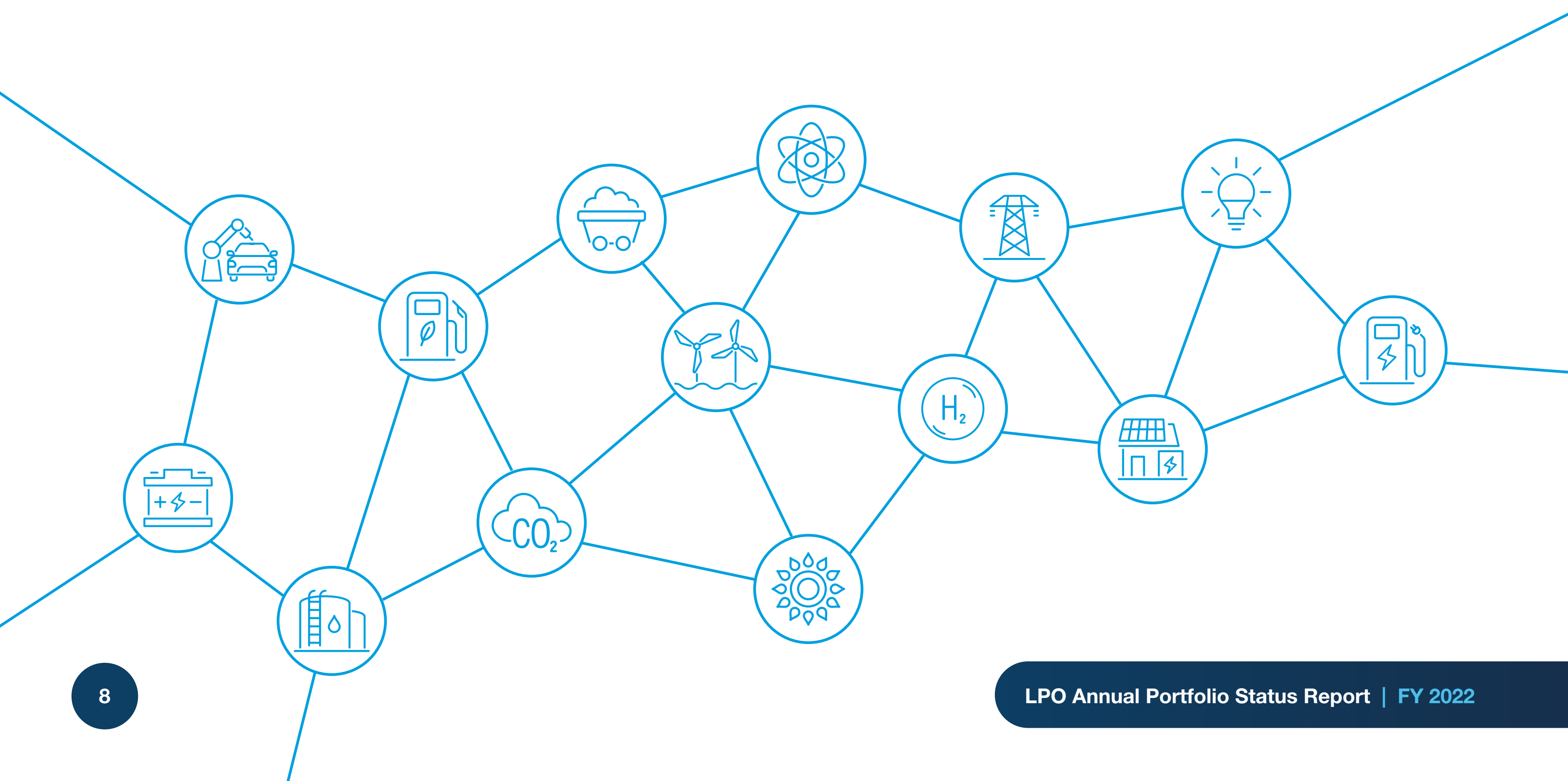
permanent jobs created



Meanwhile, ATVM-supported projects have cumulatively displaced 19.2 billion gallons of gasoline, or the equivalent of 26 million tonnes of CO_2. More specifically, through the use of LPO-funded automobiles, the equivalent of roughly 250 million gallons of gasoline is saved per year compared to traditional vehicles. LPO automotive manufacturing projects have also produced roughly 22 million fuel-efficient vehicles and their components cumulatively.

In addition to catalyzing access to debt capital and reducing emissions, projects financed by LPO have been creating jobs. In total, these projects have created 45,194 permanent jobs. But more importantly, sectors in which LPO invested a decade ago have become engines of job creation.

The [Clean Jobs America 2022 report] produced by Environmental Entrepreneurs (E2) found that more than 3 million Americans were working in clean energy at the end of 2021, according to an E2 analysis of U.S. DOE jobs data.



FY 2022 IN REVIEW

LPO's portfolio is expected to grow rapidly during and after FY 2023, driven by LPO's strengthened mandate and capacity to increase financing activities at a rate not seen since FY 2011. Some of this groundwork has been laid in FY 2022 with conditional commitments totaling $4 billion announced during the year as well as two new loan closings.

FY 2022 marked LPO's 13th year of active portfolio management, consisting of both direct loans and loan guarantees.

LPO is intent on protecting taxpayer funds and maximizing borrower repayment. During FY 2022, borrowers repaid a combined $1.7 billion in principal and an additional $523 million in interest. Additionally, 24 borrowers made principal payments on or ahead of schedule in FY 2022. Principal repayments over the portfolio's lifetime now total $13.7 billion, representing 43% of total funds disbursed. Interest payments to the U.S. Treasury total an additional $4.3 billion.

Portfolio Project Data

Fiscal Year Ended	9/30/2020		9/30/2021		9/30/2022	
Program	Title 17	ATVM	Title 17	ATVM	Title 17	ATVM
Total Active Projects (#)	18	1	18	1	15	0
Projects in Construction (#)	1	0	1	0	2	0
Projects in Operation (#)	17	1	17	1	13	0
Projects Unfunded (#)	0	0	0	0	0	0
Generation Capacity (MW)	3,963	N/A	3,963	N/A	3,963	N/A
Electricity Generated (GWh, Cumulative)	74,352	N/A	84,306	N/A	93,722	N/A
CO_2 Avoided (Mtonnes, Cumulative)	35.0	25.0	39.2	25.4	42.5	26.0
Production Capacity (Million Vehicles/Year)	N/A	1.5	N/A	0.5	N/A	0.06
Vehicles Produced (Million, Cumulative)	N/A	20.0	N/A	20.6	N/A	21.6

Table Notes:

- Electricity generated data for active projects in LPO portfolio are being actively monitored and collected; however, for projects that have left the program (i.e., Alamosa, Blue Mountain, Kahuku, Genesis, Tonopah, Granite), a process is in place to collect the data based on the publicly reported information, but the reporting cycle differs from LPO's actively monitored projects in the portfolio and is trued up annually.
- The decline in Production Capacity (Million Vehicles/Year) is driven by Ford's ramp-down production schedule with DOE as it exited the portfolio.
- ATVM CO_2 avoided only includes data for the first year of vehicle deployment.
- Previous year data that differs from data in previously published reports is due to adjustments resulting from reconciling final numbers and error correction.

FY 2022 IN REVIEW CONTINUED

Repayments during FY 2022 ranked second highest in the portfolio's history, after only FY 2014, which saw $1.9 billion in total repayment. FY 2022 repayments were chiefly driven by the payoff of Ford, LPO's first loan ever closed, and the most recent to repay in full.

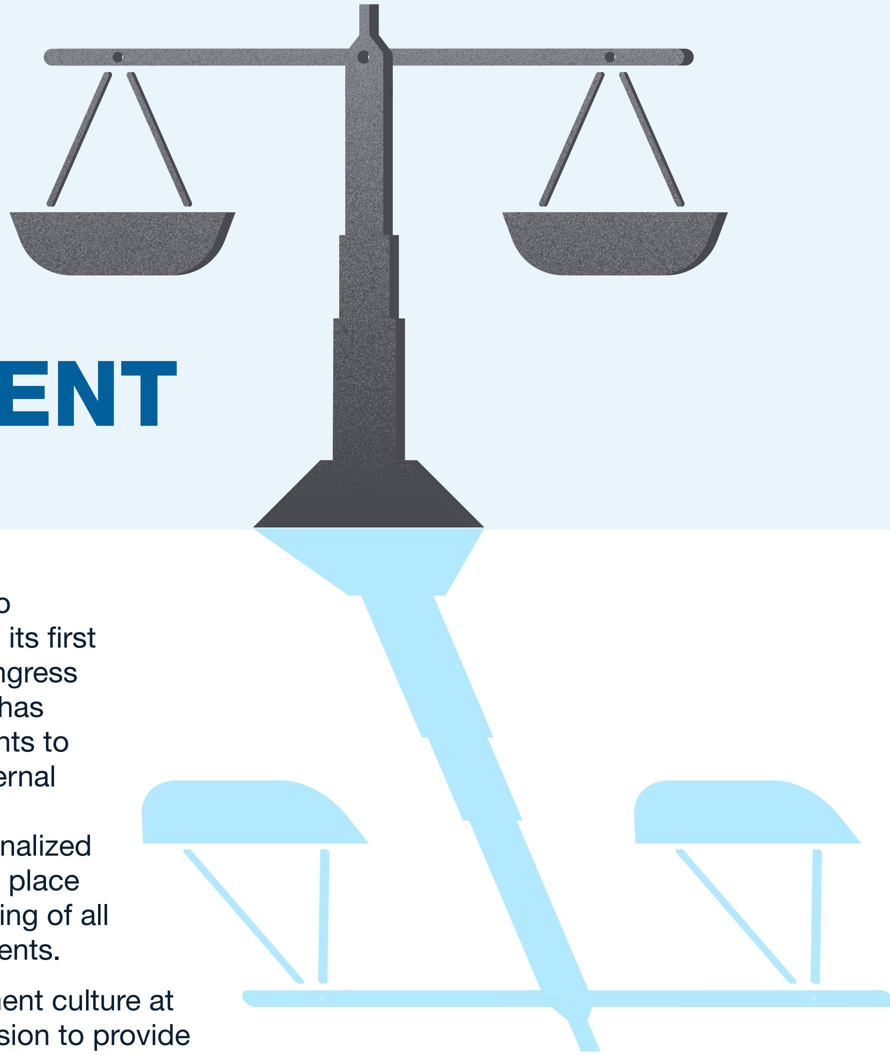
As of the end of FY 2022, the LPO portfolio had an internal exposure-weighted average risk rating of 'BBB-', improved by one-notch from 'BB+' from the end of FY 2021. This is the first time in the LPO portfolio's history that the overall weighted portfolio rating has reached investment-grade by the end of the fiscal year.[2]

The portfolio's significant investment-grade rating milestone was driven by continued strong performance from highly rated borrowers. During the year, the portfolio had three sub-investment grade loans exit, which helped to improve the overall portfolio credit quality as well. As of the end of FY 2022, 70% of exposure is now held by borrowers with investment-grade ratings (BBB- or higher).

LPO Disbursement History ($MM)

LPO Repayment History ($MM)

[2] Note the rating reached 'BBB-' for the first time in January 2021, but was lowered again to 'BB+' due to rating movements before year-end.



A RISK MANAGEMENT CULTURE

LPO takes seriously its responsibility to protect taxpayer resources. Ever since its first loan programs were authorized by Congress in the Energy Policy Act of 2005, LPO has been evolving and making improvements to the office that have increased both internal and interagency oversight, clarified its management responsibilities, institutionalized risk management practices, and put in place portfolio-wide safeguards and monitoring of all LPO projects, among other enhancements.

Establishing a proactive risk management culture at LPO has been necessary given its mission to provide a bridge to bankability for innovative technologies and other projects essential to our energy future that are unable to access commercial debt markets.

LPO has made substantial progress since that time. Achievements include:

- Establishing a robust and consistent process for deep due diligence of applications in review.
- Improving internal and external coordination of the processes involved in the oversight of LPO programs.
- Proactively monitoring and managing transactions after loan closing through a dynamic portfolio management process.
- Creating a leadership and organizational structure, including a Risk Management Division and Portfolio Management Division, staffed with professionals with deep experience in underwriting and monitoring complex transactions and for whom responsible stewardship of taxpayer money is a top priority.

As a result of these actions, LPO maintains a loan portfolio concentrated in creditworthy assets. Through FY 2022, LPO's realized and expected losses of just over $1 billion represent only 3% of funds disbursed to date, which compares favorably to loss rates of major commercial lending institutions.

A RISK MANAGEMENT CULTURE CONTINUED

A combination of the robustness of LPO's underwriting and oversight capabilities, and the conservative approach LPO has taken to selecting and modeling projects and approving financing, has amounted to a healthy, effective portfolio. Given that LPO is designed to support projects that have unique risks that commercial debt markets are either unable or unwilling to address, it should be no surprise if a small number of projects result in losses. However, LPO's proactive risk and portfolio management approach has been designed to minimize such losses and maximize recovery in the event of a default.

Other Good Governance Reforms

Consistent with the intent of the Energy Act of 2020, LPO has implemented a number of reforms. The Act directed LPO to work with the U.S. Department of Treasury (Treasury) to obtain a written analysis of the financial terms and conditions of any proposed Title 17 loan. As a result, LPO executed an updated Memorandum of Understanding with Treasury memorializing this process. Since 2020, this analysis has been provided for both Title 17 conditional commitments—the Advanced Clean Energy Storage (ACES) project in Utah and the Monolith project in Nebraska.

While IIJA expanded the role of existing loan programs that LPO administers and authorized the new CIFIA Program, the legislation also clarified and codified certain loan evaluation processes. For example, IIJA put into statute the evaluation elements for the reasonable prospect of repayment as a condition of loan approval. This is fully consistent with LPO's continued practice of assuring that each project proposed to be financed can repay the loan even after LPO weighs the risks inherent in the mandate to finance first-of-a-kind manufacturing and energy technologies, as well as other risks associated with the project. IIJA also aligns statute with LPO's current practice of ensuring political influence does not impact project selection.

Photo ©2022 Georgia Power Company

SECTOR SPOTLIGHT

ADVANCED NUCLEAR

Between February 2014 and March 2019, LPO issued loans for nearly $12 billion to the owners of Plant Vogtle (Georgia Power Company, Oglethorpe Power Corporation, and three subsidiaries of Municipal Electric Authority of Georgia) to support the construction of Vogtle Units 3 and 4—the only new reactor units to enter construction, and near completion, in over 30 years.

Nuclear generation is the largest sector in LPO's portfolio at this time based on exposure.

The financial health and ongoing support of its credit-worthy borrowers remains favorable to the prospects of DOE loan repayment. Also, with more than 9,000 construction jobs at peak and 800 permanent jobs once the units begin operating, Vogtle is currently the largest jobs-producing construction project in the state of Georgia.

"The United States has been recognized as the leader in advanced nuclear reactor technologies and expertise around the world. (...) With projects like the Vogtle nuclear plant, the United States is once again being looked to as an exporter of nuclear technology and leader in achieving our energy, climate, and jobs goals."

Jigar Shah, LPO Director

During FY 2022, DOE resumed regular visits to the Vogtle project site following sustained COVID pandemic disruptions. In March 2022, the Nuclear Regulatory Commission (NRC) inspected the project, and the special inspection team exited the site with no findings. In August, the NRC ruled that the project has been constructed in accordance with its license and regulations, paving the way for fuel load and startup testing to begin.

In October 2022, Unit 3 completed nuclear fuel load; and in March 2023, it reached criticality—two major milestones on its path to entering operations. Once all four units are operating, Plant Vogtle will be the largest clean energy generator in the United States.

SECTOR SPOTLIGHT

CLEAN HYDROGEN

In June 2022, DOE closed a $504.4 million loan (including capitalized interest authorization) to finance ACES. This marked the first loan guarantee for a new clean energy technology borrower from LPO since 2015. The loan will help finance construction of the largest clean hydrogen storage facility in the world, capable of providing long-term low-cost, seasonal energy storage and furthering grid stability. The project is also expected to create up to 400 construction and 25 operations jobs, advancing President Biden's climate and clean energy deployment goal of net zero emissions by 2050.

The facility in Delta, Utah, will combine 220 megawatts of alkaline electrolysis with two massive 4.5 million barrel salt caverns to store clean hydrogen. ACES will capture excess renewable energy when it is most abundant, store it as hydrogen, then deploy it as fuel for the Intermountain Power Agency's IPP Renewed Project—a hydrogen-capable gas turbine combined cycle power plant that intends to incrementally be fueled by 100% clean hydrogen by 2045.

CRITICAL MATERIALS SUPPLY CHAIN

In July 2022, LPO announced closing of a $102.1 million loan (including capitalized interest authorization) to Syrah Technologies LLC for the expansion of its Syrah Vidalia Facility in Louisiana—a processing facility that produces graphite-based active anode material, a critical material used in lithium-ion batteries for EVs and other clean energy technologies. This marks the first loan from LPO's ATVM Loan Program since 2011 and the first ATVM loan exclusively for a supply chain manufacturing project.

The project is expected to create approximately 150 construction jobs and 98 highly skilled operations jobs. This investment demonstrates DOE's commitment to building a strong domestic supply chain for zero-emission transportation solutions and supports the Biden Administration's commitment to growing the U.S. workforce to support domestic battery manufacturing for EVs.

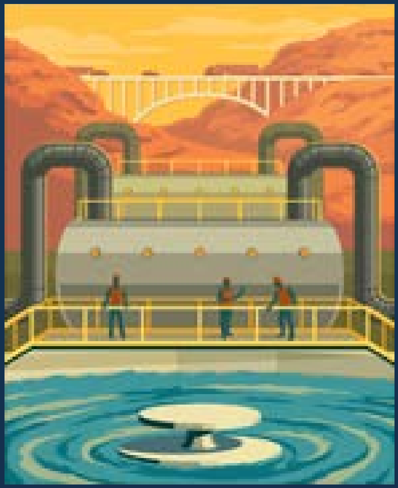


Photo courtesy of Ford Motor Company

PROJECT SPOTLIGHT

FORD

In September 2009, LPO issued a $5.9 billion loan to the Ford Motor Company to upgrade 13 facilities in Illinois, Kentucky, Michigan, Missouri, New York, and Ohio. The resulting state-of-the-art assembly and manufacturing plants have the enhanced flexibility of producing multiple-platform, fuel-efficient advanced technology vehicles in response to changing market demands and fuel efficiency standards.

During FY 2022, Ford repaid its $5.9 billion loan in full. This was LPO's first loan ever to close, at a time when it was facing public default, and to progress through its entire amortization.

BLUE MOUNTAIN

In September 2010, LPO issued a $98.5 million partial loan guarantee under the Financial Institution Partnership Program to finance Blue Mountain, a geothermal power plant that harnesses renewable energy by tapping into an underground geothermal reservoir in northern Nevada.

During FY 2022, the Blue Mountain loan became the 7th loan in LPO history to fully prepay its loan in advance of the maturity date.

FY 2022 BY THE NUMBERS

Key Accomplishments

- Borrowers repaid a combined $1.7 billion in principal and an additional $523 million in interest.
- As of FYE 2022, the portfolio's internal exposure-weighted risk rating stands at 'BBB-', establishing a new high-water mark in portfolio history.
- Closing of ACES project, LPO's first green hydrogen asset and first new project in nearly a decade.
- Ford repaid in full, the first loan to reach full term.
- Blue Mountain prepaid in full—7th loan in LPO history to do so.

LPO Portfolio Performance Summary as of End of FY 2022

Loan & Loan Guarantees Issued	$36.3 billion
Conditional Commitments	$3.6 billion
Amount Disbursed	$31.6 billion
Principal Repaid	$13.7 billion
Interest Paid*	$4.3 billion
Actual and Estimated Losses	$1.0 billion
Losses as % of Total Disbursement	3%

* Calculated without respect to Treasury's borrowing cost.

LPO Loan Programs Office

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