



Loan Programs Office



A Maturing Portfolio on the Cusp of New Growth

ANNUAL PORTFOLIO STATUS REPORT
FISCAL YEAR 2021

Despite the ongoing economic impacts of the global pandemic

in fiscal year (FY) 2021, the Department of Energy's Loan Programs Office (LPO) continued its historical record of achievement in funding, monitoring, and supporting the success of innovative, large-scale energy projects across the country.

Every active LPO borrower repaid principal in FY 2021, achieving \$912 million in principal retirement and \$533 million in interest payments to the U.S. Treasury. Cumulative principal payments now exceed \$12 billion, 39% of the \$31 billion LPO has disbursed. The portfolio remains concentrated in creditworthy assets, with 63% of exposure held by investment-grade borrowers and maintains a low aggregate loss rate of 3% of funds disbursed. Additionally, LPO has seen risk rating upgrades for the majority of its borrowers, with some borrowers resolving key outstanding issues and others concluding yet another year of successful performance.

Portfolio Funding Status (\$ Millions)

	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Total Obligated	\$23,989	\$23,451	\$27,854	\$29,322	\$29,322	\$28,522	\$28,379	\$32,081	\$32,081	\$32,081
Disbursements	\$15,412	\$18,688	\$21,706	\$24,342	\$25,467	\$25,742	\$25,742	\$27,707	\$29,620	\$31,167
Repayments/ Discounts	\$284	\$1,553	\$3,486	\$5,141	\$6,399	\$7,978	\$9,017	\$9,957	\$11,168	\$12,080
Write-offs/ Loss on Sale	\$0	\$54	\$198	\$198	\$272	\$806	\$806	\$806	\$786	\$1,018
Exposure*	\$15,197	\$17,317	\$18,321	\$19,297	\$19,092	\$17,288	\$16,310	\$17,420	\$18,109	\$18,673

* Exposure includes outstanding interest



WHO WE ARE

LPO administers the Title 17 Innovative Energy Loan Guarantee Program which finances next-generation U.S. energy infrastructure, the Advanced Technology Vehicles Manufacturing Loan Program which finances U.S. manufacturing of fuel-efficient, advanced technology vehicles and qualifying components, and the Tribal Energy Loan Guarantee Program which finances tribal ownership of energy development projects.

LPO serves as a bridge to bankability for breakthrough projects and technologies and de-risking them at early stages of commercialization so they can reach full market acceptance.

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 development, 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, LPO has helped de-risk emerging energy technologies, unlock new business models, and mobilize private spending.

WHERE WE'RE HEADED

LPO will continue to leverage its \$42 billion in available loan authority to finance technology adoption, innovation, and market scale-up:

- **\$17.7 billion for manufacturing** fuel-efficient, light-duty or ultra-efficient vehicles and qualifying components under the Advanced Technology Vehicles Manufacturing program.
- **\$22.4 billion for the Title 17** Innovative Energy Loan Guarantee Program to support advanced fossil, advanced nuclear, and renewable energy & efficient energy projects.¹
- **Up to \$2 billion for tribally-owned** energy projects through the Tribal Energy Loan Guarantee Program.
- **At the end of FY 2021**, \$2 billion in Title 17 loan authority had been conditionally committed to one project under the Advanced Fossil solicitation.

In FY 2021, LPO began implementing the requirements of the Energy Act of 2020, passed by Congress in December 2020 as part of the Consolidated Appropriations Act, 2021. Notable amendments to Title 17 programs from the Act include:

- **Requiring the credit subsidy cost to be paid** with appropriate funds, to the extent appropriated funds are available, for each Title 17 loan guarantee;
- **Allowing for annual appropriations** to be used to cover applicable administrative expenses, application fees and other costs to applicants;
- **Deferring collection of application fees from a borrower** until a project reaches financial close;
- **Broadening eligibility categories** to include projects that employ elements of commercial technologies;
- **Clarifying eligible project categories** for nuclear supply chain, carbon capture, utilization, and sequestration (CCUS), and energy storage technologies.

These and other changes have helped lead to significant growth in new loan activity, totaling 77 active applications for \$70.8 billion through February 28, 2022.

¹ Additionally, Congress appropriated \$160 million to cover the credit subsidy costs associated with potential loan guarantees for Renewable Energy Projects or Efficient End-Use Projects.

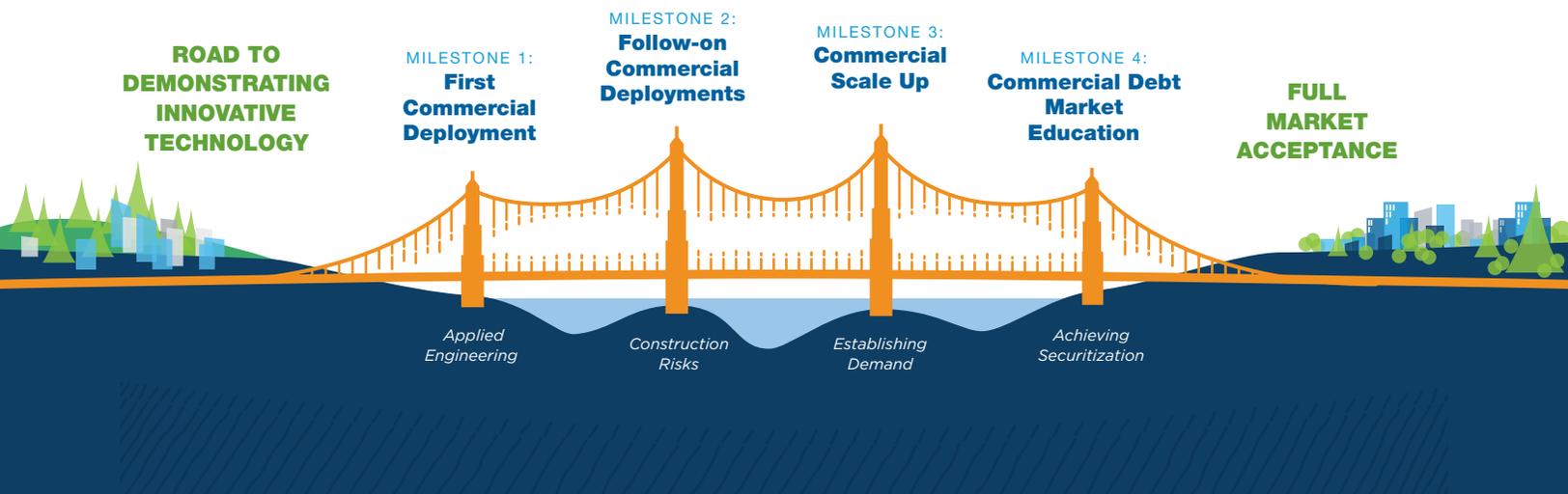
BUILDING A BRIDGE TO BANKABILITY

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

While significant capital is available for decarbonization technologies, these projects can still lack access to adequate debt capital. 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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Bridge to Bankability





BUILDING A BRIDGE TO BANKABILITY CONTINUED

LPO provides a bridge to bankability for those technologies to cross the final milestones to commercialization:

- **The first commercial-scale deployment**, to address the engineering scale-up challenges and demonstrate technology effectiveness at scale;
- **The next few commercial-scale deployments**, to demonstrate the ability to mitigate construction risks and address engineering optimization;
- **Commercial scale-up**, to progress along the learning curve, lower costs, and establish customer demand;
- **Commercial debt market education**, to overcome private debt market misunderstanding and gain commercial debt access.

The starting point of LPO's committed partnership with its borrowers is through the office's newly formed Outreach and Business Development Division, which brings together an internal team of energy experts with deep experience across the financial, technical, legal, risk, and environmental fields to help borrowers move through pre-application consultations and the application process, and through the due diligence and underwriting process led by LPO's Origination Division. After loan closing, LPO's Portfolio Management Division maintains this borrower partnership through construction, project operation and maintenance, and eventual final loan repayment. This approach is essential to achieving project milestones and overall project success while protecting taxpayer interests.

By engaging early and often with applicants, the LPO team maximizes transparency and manages risk with a combination of proactive monitoring, discussions of emergent issues, and action to maximize project success, which can include approving distributions or equity ownership sales.

LPO'S IMPACT: LAYING THE GROUND FLOOR OF THE CLEAN ENERGY ECONOMY

PROJECTS FINANCED BY LPO ARE HAVING A TANGIBLE IMPACT ON THE CLEAN ENERGY TRANSITION.

LPO's Title 17 Innovative Energy Loan Guarantee 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 2021, it would rank as the twelfth largest clean energy producer of the fifty states.

Throughout its history, LPO electricity generation projects have combined to generate over 84 million MWh cumulatively, which is equivalent to displacing nearly 40 million tonnes of CO₂. Meanwhile, ATVM-supported projects have cumulatively displaced 19.2 billion gallons of gasoline, or the equivalent of 25 million tonnes of CO₂.

FY21 by the Numbers

CLIMATE IMPACTS ATTRIBUTABLE TO BY LPO-SUPPORTED PROJECTS

OVER

9 MILLION MWH OF CLEAN ENERGY PRODUCED,
EQUIVALENT TO...



1 MILLION
HOMES POWERED



4 MILLION
TONS OF CO₂ DISPLACED

562,500 ADVANCED TECHNOLOGY VEHICLES PRODUCED,
EQUIVALENT TO...



8.5 MILLION
GALLONS OF GASOLINE DISPLACED



11.2 MILLION
TONS OF CO₂ DISPLACED

² Comparing FY21 portfolio performance to nationwide Mwh generation in 2020, the most recent year for which data is available. States ranked by Mwh of clean energy courtesy of the American Clean Power Association's Clean Power Annual 2020.

LPO'S IMPACT: CONTINUED



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 37,000 permanent jobs. But more importantly, sectors in which LPO invested a decade ago have become engines of job creation.

LPO closed on more than \$9 billion in loans to the solar sector from 2009 to 2011. The industry now employs more than 230,000 workers as of 2020, according to the 11th annual National Solar Jobs Census.

LPO closed on a \$5.9 billion loan to Ford in 2009. Recently, Ford announced a goal to invest \$30 billion in electrification efforts through 2025, which includes a joint venture to build three electric vehicle (EV) battery plants in Tennessee and Kentucky that are expected to create 11,000 jobs.

The Clean Jobs America report produced by Environmental Entrepreneurs (E2) found that more than 3 million Americans were working in clean energy at the end of 2020, based on analysis of Bureau of Labor Statistics information and a national survey of more than 30,000 businesses.



FY 2021 IN REVIEW

LPO closed the fiscal year on September 30, 2021, with \$18.7 billion in exposure and 24 active borrowers, supporting 17 innovative, commercial-scale clean energy and vehicle manufacturing projects.

FY 2021 marked LPO's 12th fiscal year of financing and managing loans. Since 2009, LPO has closed on over 30 projects covering a diverse array of sectors and technologies. The portfolio has seen a continued trend of private sector comfort with commercial-scale clean energy projects:

- **FY 2019 marked a significant period of activity** for the portfolio as nearly half of all borrowers saw a change in equity ownership, whether through public sale or private placement.
- **In FY 2020, another borrower had its LPO-guaranteed loan paid in full** when its ownership decided to securitize its debt obligations via public and private issuances.
- **In FY 2021, four LPO projects saw equity stakes sold**, indicating additional private sector comfort with renewable energy projects that have a long-term track record of operations, which continue to fulfill contract and debt obligations.

Portfolio Project Data

Fiscal Year Ended	9/30/2020		9/30/2021	
	Title 17	ATVM	Title 17	ATVM
Total # of Active Projects	18	1	16	1
# Projects in Construction	1	0	1	0
# Projects in Operation	17	1	15	1
# Projects Unfunded	0	0	0	0
Generation Capacity (MW)	3,963	N/A	3,963	N/A
Electricity Generated (GWh, Cum.)	74,352	N/A	84,306	N/A
CO ₂ Avoided (Mtonnes, Cum.)	35	25.1	39.2	169.9*
Production Capacity (Million vehicles/yr)	—	2.4	—	0.5
Vehicles Produced (Million, Cum.)	—	20.0	—	20.6

* Consistent with OMB reporting requirements since 2017, the CO₂ has been updated to incorporate vehicles in operation since their first year of deployment for a 10-year lifecycle. Note: Previous year data that differs from data in previously published reports is due to adjustments resulting from reconciling final numbers and error correction.

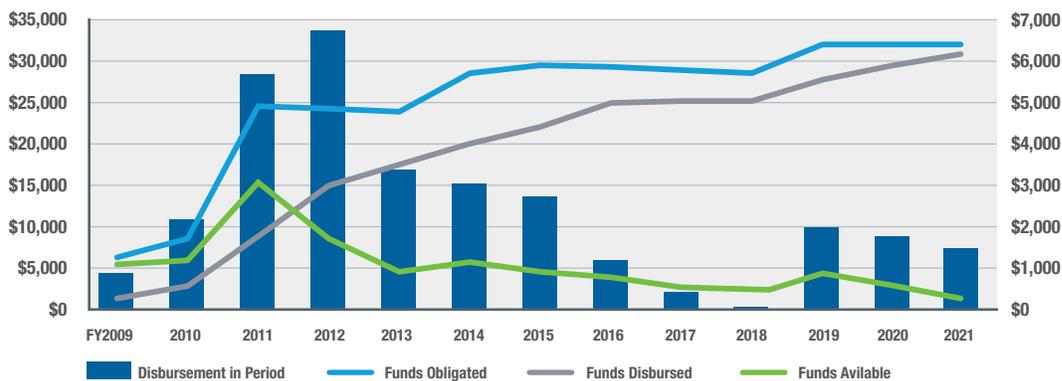
FY 2021 **IN REVIEW,** CONTINUED

Despite the continued economic challenges posed by the ongoing COVID-19 pandemic, FY 2021 marked a significant milestone as the portfolio achieved an internal investment-grade rating of ‘BBB-’ over the course of eight months during the year.

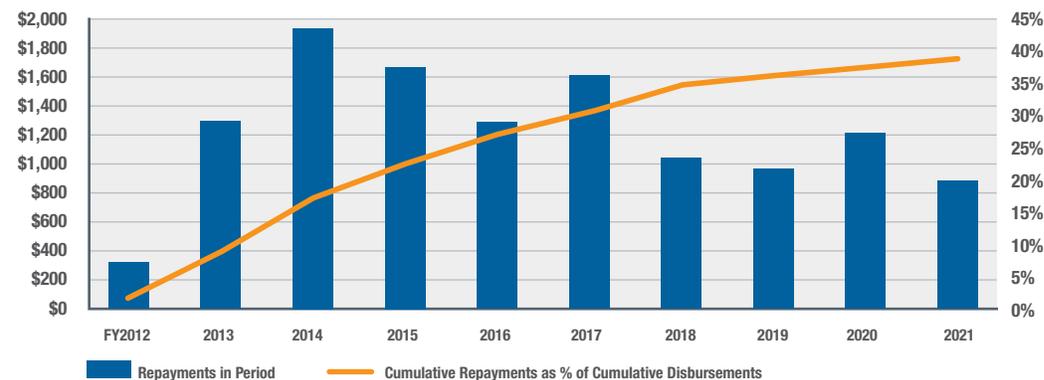
While rating updates processed at year-end returned the portfolio rating to ‘BB+,’ the portfolio is likely to again achieve an investment-grade rating in FY 2022, based on current amortization schedules.

During the year, every active LPO borrower made repayments on time and as scheduled, with principal payments totaling \$912 million and interest payments totaling \$533 million. The portfolio also disbursed \$1.5 billion in support of ongoing project construction efforts. LPO’s total actual and expected loss of \$1.0 billion cumulatively represents 3% of funds disbursed.

LPO Disbursement History (\$MM)



LPO Repayment History (\$MM)



PORTFOLIO SPOTLIGHT

GRANITE RELIABLE

Loan Repayment Trend Continues

Wind generation is the fourth-largest sector in the portfolio and borrowers in the sector made substantial principal payments and retired a combined \$140 million in exposure, continuing a portfolio trend of steady repayment by LPO borrowers. These payments included a prepayment in full by Granite Reliable, a wind energy project in Coos County, New Hampshire.

Granite had been a high-performing project that regularly exceeded projected generation targets despite its location in cold, mountainous terrain. The prepayment was precipitated by the project's former sponsor, Brookfield Renewables, selling a portfolio of its projects to NextEra Energy Partners, further demonstrating the growing private sector comfort with renewable energy projects.

SECTOR SPOTLIGHT

10 Years After the American Recovery and Reinvestment Act

Prior to the September 30, 2011 sunset date of the American Recovery and Reinvestment Act of 2009 (ARRA) Section 1705 program, LPO guaranteed \$16.1 billion in loans to 25 ARRA projects. These projects supported more than 10,000 jobs and have the capacity to power more than 1 million average American homes annually. Through Fiscal Year 2021, they have cumulatively avoided 39.2 million tons of CO₂ emissions. And several of the projects that LPO financed have served as springboards to market acceptance for technology sectors that are readily financed by commercial lenders today, such as utility-scale photovoltaic (PV) solar and wind.

A decade ago, LPO provided loan guarantees for the first five utility-scale PV solar projects in the United States larger than 100 megawatts. The United States now has more than 71,000 megawatts of utility-scale PV projects installed while prices are now competitive with all other forms of electricity generation.ⁱ

LPO also guaranteed a loan to Shepherds Flat, one of the largest wind farms in the world. At a time when only one large wind deal had been done in the bond market, LPO's partial guarantee helped boost the project's credit rating and attract new investors in multiple markets. The deal was awarded as the 2011 Renewable Energy Deal of the Year by Environmental Finance for its innovative financing. Since 2011, utility-scale wind projects have been able to attract commercial lenders and continue to grow as one of the largest sources of new electricity in the United States. The U.S. Energy Information Agency expects 10 percent of utility-scale electricity generation in 2021 to come from wind turbines.ⁱⁱ

A decade ago, LPO financed projects through the Section 1705 program in order to demonstrate successful commercial operation and bankability to commercial lenders, who could then finance future projects. Utility-scale PV solar and wind projects with LPO loan guarantees were able to do that and have become a significant part of the U.S. energy mix, helping to move the nation forward toward a future with more clean energy.

Since LPO made its first investments in utility-scale wind and solar in 2010, more than \$1 trillion in global investments have subsequently flowed into renewable energy. Commercial lenders know that LPO loan recipients have been rigorously vetted and earned LPO's seal of confidence when they've secured a loan, and they've had access to the guidance, vision, and expertise of DOE's best-in-class scientists, engineers, and experts along the way.

ⁱ Solar Industry Research Data | SEIA

ⁱⁱ The United States installed more wind turbine capacity in 2020 than in any other year - Today in Energy - U.S. Energy Information Administration (EIA)

The biggest proof point of LPO's effective due diligence and project management practices is the fact that where LPO goes, the private debt market follows.

FY 2021 Key Accomplishments

- **Borrowers repaid** collective \$912 million in principal, plus an additional \$533 million in interest.
- **Granite Reliable repaid the balance** of its \$169 million loan 10 years ahead of schedule.
- **In FY 2021, four LPO projects saw equity stakes sold**, indicating additional private sector comfort with renewable energy projects that have a long-term track record of operations, which continue to fulfill contract and debt obligations.
- **FY 2021 marked a significant milestone** as the portfolio achieved an internal investment-grade rating of 'BBB-' over the course of eight months during the year.

LPO Portfolio Performance Summary as of End of FY 2021

Loan & Loan Guarantees Issued	\$35.69 billion
Conditional Commitments	\$2.00 billion
Amount Disbursed	\$31.17 billion
Principal Repaid	\$12.08 billion
Interest Paid*	\$3.80 billion
Actual and Estimated Losses	\$1.02 billion
Losses as % of Total Disbursement	3.3 %

* Calculated without respect to Treasury's borrowing cost.



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