Loan Programs Office

Accelerating Portfolio Growth

ANNUAL PORTFOLIO STATUS REPORT

FISCAL YEAR 2023

Overview

Fiscal Year (FY) 2023 marked a second consecutive year of growth for the U.S. Department of Energy (DOE) Loan Programs Office (LPO) portfolio as increased applicant interest and origination activity continued.

President Biden's Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA) greatly increased LPO's ability to finance projects in energy technology, transportation, and critical infrastructure in the United States. LPO has moved diligently and thoughtfully to implement these changes in an effective manner that fulfills the mission of the office while protecting taxpayer resources.

FY 2023 showed what this new era of opportunities for federal support for low-carbon innovation and new avenues of economic growth can look like. In FY 2023, LPO closed two deals totaling over $5 billion and made conditional commitments to seven prospective borrowers totaling nearly $14 billion.

Portfolio Funding Status ($ Millions)

	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Total Obligated*	$27,854	$29,322	$29,322	$28,522	$28,379	$32,081	$32,081	$32,081	$35,159	$38,493
Disbursements	$21,706	$24,342	$25,467	$25,742	$25,742	$27,707	$29,620	$31,167	$31,630	$33,284
Repayments / Discounts	$3,486	$5,141	$6,399	$7,978	$9,017	$9,957	$11,168	$12,080	$13,748	$14,303
Write-offs / Loss on Sale	$198	$198	$272	$806	$806	$806	$786	$1,018	$1,036	$1,034
Exposure**	$18,321	$19,297	$19,092	$17,288	$16,310	$17,420	$18,109	$18,673	$17,405	$18,209

* Total current obligation to closed loans
** Exposure includes outstanding interest

Who we are

LPO provides attractive debt financing for high-impact, large-scale energy infrastructure projects in the United States.

LPO has issued tens of billions of dollars in strategic debt financing to transform the energy and transportation economy to benefit Americans. 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.

Vision

A secure and clean energy economy that benefits all Americans.

Mission

To be the premier public financing partner that accelerates high-impact energy and manufacturing investments to advance America's economic future.

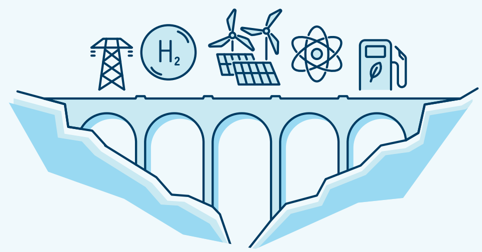
Shepherds Flat Wind Farm, courtesy of Caithness Energy LLC

Who we are *(continued)*

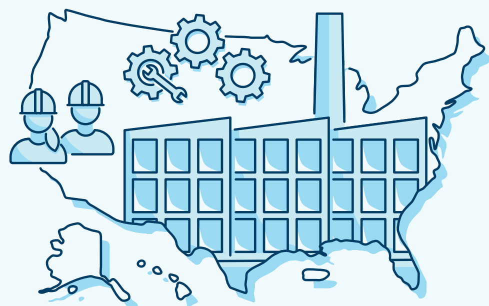
Mandate

LPO's mandate is to administer loan programs that:

1 Provide a bridge to bankability for large-scale, high-impact clean energy and supply chain projects that help energy technologies deploy at scale and advance America's energy and economic future.



2 Enable expansion of America's domestic energy manufacturing by meaningfully advancing energy and supply chain projects that support, onshore, or reshore supply chains projects; build a domestic energy workforce; and bolster American supply chain competitiveness.



3 Make the clean energy transformation affordable and achievable for workers, consumers, and communities by creating quality jobs in domestic clean energy industries, promoting energy affordability, and ensuring all energy communities stand to benefit from the clean energy transformation.

Leveraging loan authority and appropriations provided by Congress, LPO is positioned to lend tens of billions of dollars to eligible applicants across its programs.

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.

Loan programs

LPO financing programs support projects across the energy and advanced transportation sectors.

Title 17 Clean Energy Financing Program

Innovative Energy (1703)

Financing for projects that deploy New or Significantly Improved Technology.

Innovative Supply Chain (1703)

Financing for projects that employ a New or Significantly Improved Technology in the manufacturing process for a qualifying clean energy technology or for projects that manufacture a New or Significantly Improved Technology.

State Energy Financing Institution (SEFI)-Supported (1703)

Financing for projects that support deployment of qualifying clean energy technology and receive meaningful financial support or credit enhancements from an entity within a state agency or financing authority.

Energy Infrastructure Reinvestment (1706)

Financing for projects that retool, repower, repurpose, or replace energy infrastructure that has ceased operations or upgrade operating energy infrastructure to avoid, reduce, utilize, or sequester air pollutants or greenhouse gas emissions.

Advanced Technology Vehicles Manufacturing (ATVM) Loan Program

Loans to support the manufacturing of eligible vehicles and qualifying components.

Tribal Energy Financing Program

Financing to support Tribal investment in energy-related projects.

Carbon Dioxide Transportation Infrastructure Finance and Innovation (CIFIA) Program

Financing for large-capacity, common-carrier carbon dioxide (CO_2) transport projects.

Implementing program improvements

President Biden’s Investing in America Agenda, which includes historic legislation such as the BIL and IRA, has been foundational to LPO’s ability to help tackle the climate crisis, bolster domestic manufacturing competitiveness, create good-paying jobs, and save consumers money.

Title 17 Program Guidance

In May 2023, LPO released new Program Guidance for the Title 17 Clean Energy Financing Program to reflect LPO’s expanded scope and lending authority from President Biden's BIL and IRA. The new guidance updates program eligibility, application requirements, and evaluation criteria; consolidates several existing solicitations into one easy-to-read document; and incorporates new authorities established by the Infrastructure Investment and Jobs Act (IIJA) in 2021 and the IRA in 2022. Those include the Energy Infrastructure Reinvestment (EIR, Section 1706) authority and a new category of financing under the existing section 1703 program for projects supported by a State Energy Financing Institution (SEFI).

Partnering with the private sector

Achieving the Biden-Harris Administration's climate goals will require $10 trillion of investment through 2050.

LPO programs will play a critical role in accelerating younger technologies, such as VPPs and hydrogen. But most of the investments—to the tune of $100B in each of 20+ critical technology areas—will come from the private sector. LPO's job is to unlock the private sector investment through strategic financing. We're promoting better coordination with the private sector so that we can figure out how each of these 20+ technologies can cross the bridge to bankability and achieve full commercial acceptance.

In FY 2023, the Office of Technology Transitions kicked off an effort with LPO, the Office of Clean Energy Demonstrations, and the Office of Policy to publish the first six "Pathways to Commercial Liftoff" reports. These reports leverage insights from LPO's private sector applicants and the DOE enterprise to articulate what it will take for various technologies to achieve "commercial liftoff" or become self-sustaining.

As part of the broader Liftoff effort, LPO co-hosted the Deploy23 conference, which brought together over 600 decision makers, capital allocators, community leaders, and others across the clean energy supply chain to discuss barriers and opportunities to deploying clean energy technologies at scale.

- Advanced fossil
- Advanced nuclear
- Advanced vehicles
- Biofuels
- Carbon management
- Critical materials
- EV charging
- Hydrogen
- Industrial decarbonization
- Offshore wind
- Renewables
- Storage
- Transmission
- VPPs

Image courtesy of Nissan

LPO's impact

Facilitating a secure and clean energy economy that benefits all Americans

LPO debt financing is designed to be catalytic, and it is working. LPO financing helped launched the EV sector and enabled commercialization of solar and wind power generation. Millions of Americans work in clean energy jobs across these industries, and the climate benefits of EVs and renewable energy are enormous.

While LPO's impact extends beyond the projects it finances, the projects themselves have considerable direct benefits. LPO projects are creating quality jobs; avoiding greenhouse gas emissions; and providing safe, clean, and affordable power to Americans. Projects that have received funding from LPO since the creation of the office and through FYE 2023 have created over 46,800 permanent jobs, avoided 47 million tonnes of carbon emissions, saved 2.9 billion gallons of gasoline, and powered the equivalent of 9.8 million homes annually.

LPO by the numbers: Cumulative impacts attributable to LPO-supported projects over the life of the program through FY 2023

over **104 million** MWh of clean energy produced, equivalent to...

9.8 million homes powered

47 million metric tonnes of CO_2 displaced

21.6 million advanced technology vehicles produced, equivalent to...

2.9 billion gallons of gasoline displaced in first year of vehicle deployment

26 million metric tonnes of CO_2 displaced

over **46,800** permanent jobs created

FY 2023 in review

LPO closed on two loans, including one through the ATVM Loan Program and one through the Title 17 Clean Energy Financing Program. LPO also offered conditional commitments totaling nearly $14 billion to seven potential borrowers, compared to four in FY 2022.

As of the end of FY 2023, the LPO portfolio contained 25 active loans supporting 18 projects and had an internal exposure-weighted average credit rating of BBB-.

During FY 2023, borrowers repaid a combined **$556 million in principal** and an additional **$484 million in interest** to the Federal Financing Bank of the U.S. Treasury. Principal repayments over the portfolio's lifetime now total $14.3 billion, representing 43% of total funds disbursed. Interest payments to the U.S. Treasury total an additional $4.9 billion over the portfolio's lifetime.

Portfolio project data: Title 17

Fiscal Year Ended	9/30/21	9/30/22	9/30/23
Total Active Projects (#)	18	15	16
Projects in Construction (#)	1	2	1
Projects in Partial/Full Operation (#)	17	13	15
Generation Capacity (MW)	3,963	3,963	5,065
Electricity Generated (GWh, Cumulative)	84,306	93,722	104,993
CO_2 Avoided (Mtonnes, Cumulative)	39.2	42.5	47.1

Portfolio project data: ATVM

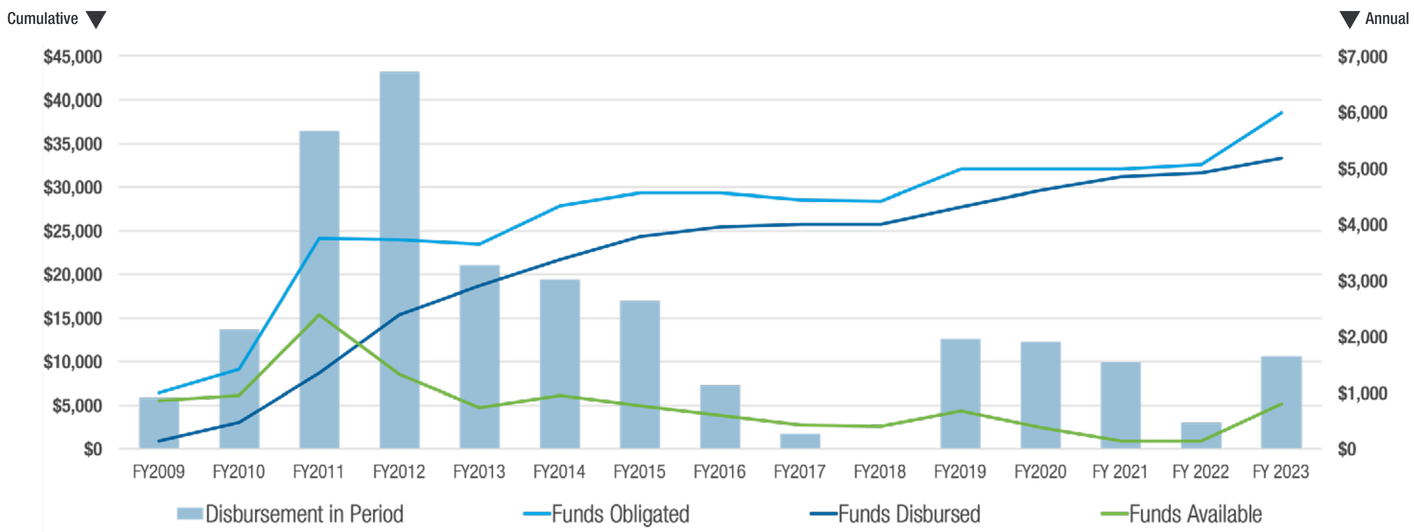
Fiscal Year Ended	9/30/21	9/30/22	9/30/23
Total Active Projects (#)	1	0	2
Projects in Construction (#)	0	0	1
Projects in Partial/Full Operation (#)	1	0	1
Production Capacity (Million Vehicles/Year)	0.5	0	0
Vehicles Produced (Million, Cumulative)	21.5	21.6	21.6
CO_2 Avoided (Mtonnes, Cumulative)	25.4	26.0	26.0

Notes:

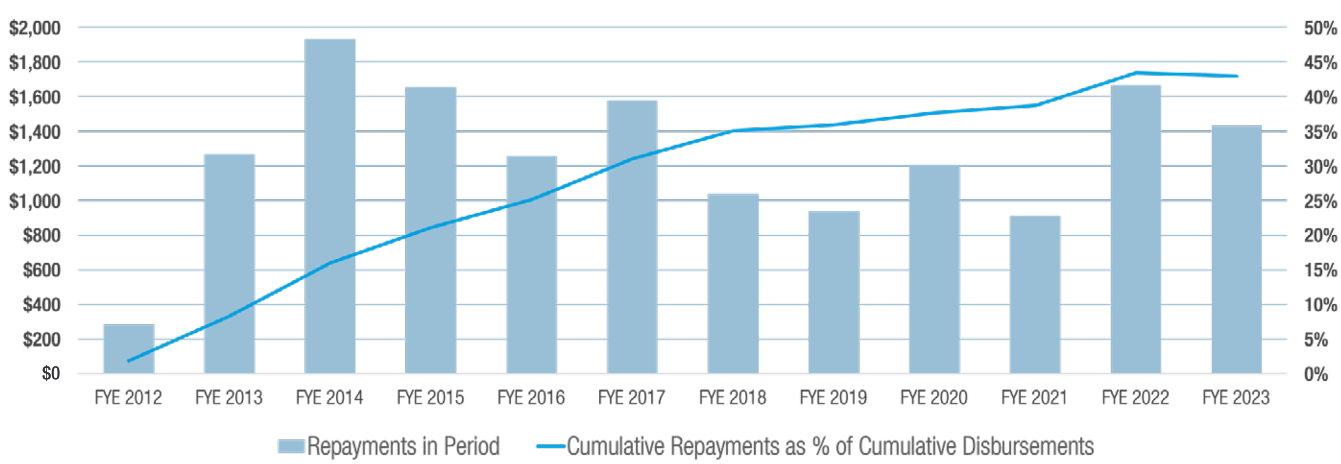
1. Electricity generated data for active projects in LPO portfolio are being actively monitored and collected; however, for projects that have left the program (Alamosa, Blue Mountain, Kahuku, Genesis, Tonopah, and Granite), a process is in place to collect the data based on the publicly reported information, but the reporting cycle differs from LPO's actively monitored projects in the portfolio and is trued up annually. The decline in Annual Vehicle Production Capacity is due to Ford exiting the portfolio.
2. Previous year data that differs from data in previously published reports is due to adjustments resulting from reconciling final numbers and error correction.

FY 2023 in review *(continued)*

LPO disbursement history ($ Millions)



LPO repayment history ($ Millions)



A risk management culture

LPO understands and manages portfolio credit risk.

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

Before issuing a loan, LPO evaluates the possibility that projects might not be repaid or recovered in full, as well as the possibility that they default. LPO partners with energy industry entrepreneurs and founders who face traditional barriers to obtaining commercial financing, including uncertainty around:

- construction and schedule,
- operations and maintenance,
- supply chain and feedstock,
- offtake, and
- counterparty credit risk.

LPO's organizational structure is fundamentally designed to take on and manage risk. It has its own Risk Management Division and a cadre of dedicated staff that embed with deal teams during due diligence and help validate risk ratings.

LPO measures its performance not by whether all loans outperform expectations or whether some underperform, but rather whether LPO sees losses in the portfolio at or under reasonable budgeted estimates for the risk we are taking to advance innovative or high-impact technologies and supply chain projects in the United States.

LPO leverages deep federal, contractor, and third-party adviser expertise across LPO, DOE, and its national laboratories—key technical, financial, project management, and legal expertise not often available to early adopters of new energy technologies in the commercial sector.

LPO also evaluates portfolio risk in aggregate across LPO projects, based on various project characteristics, concentrations of types of projects, and other factors across the portfolio. The result is a thorough understanding of the risk LPO takes on as a program to ensure it is meeting its mission while stewarding taxpayer resources responsibly.

Sector Spotlight

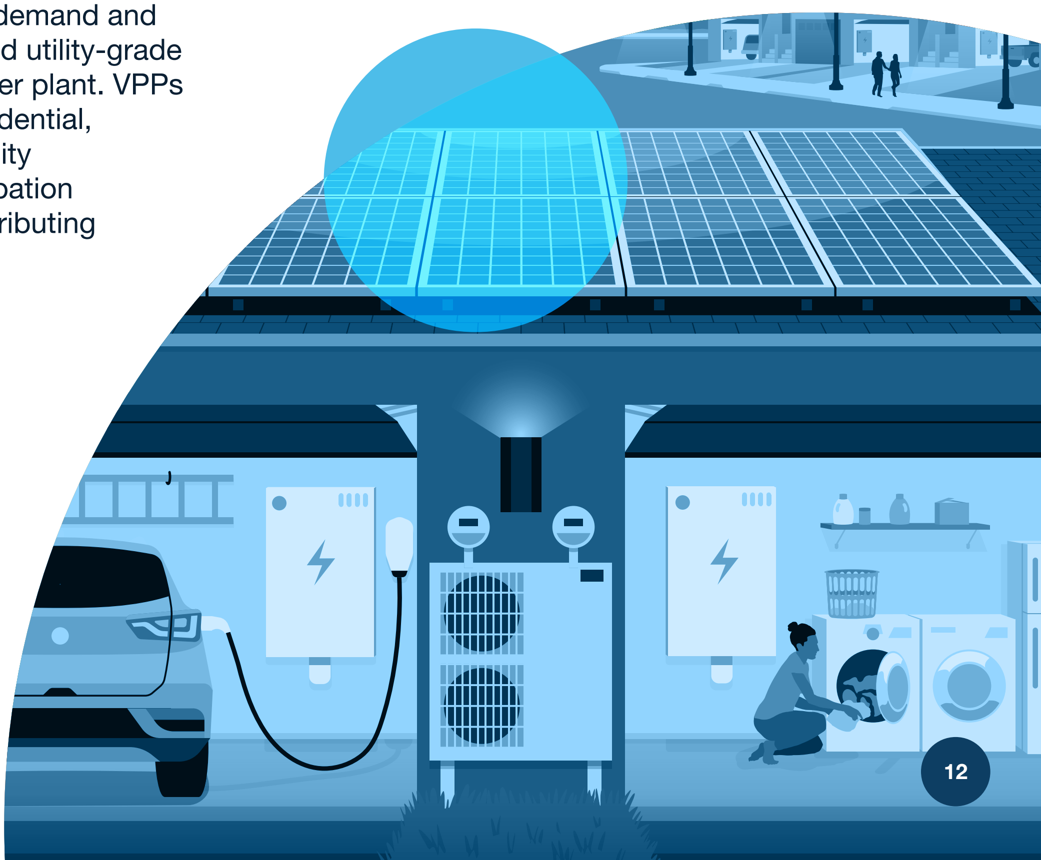
Virtual power plants

LPO is working to support deployment of virtual power plants (VPPs) in the United States to make the U.S. grid more flexible, affordable, clean, and resilient as the economy electrifies.

VPPs are aggregations of distributed energy resources (DERs) such as rooftop solar with behind-the-meter batteries, EVs and chargers, electric water heaters, smart buildings and their controls, and flexible commercial and industrial loads that can balance electricity demand and supply and provide utility-scale and utility-grade grid services like a traditional power plant. VPPs enroll DER owners—including residential, commercial, and industrial electricity consumers—in a variety of participation models that offer rewards for contributing to efficient grid operations.

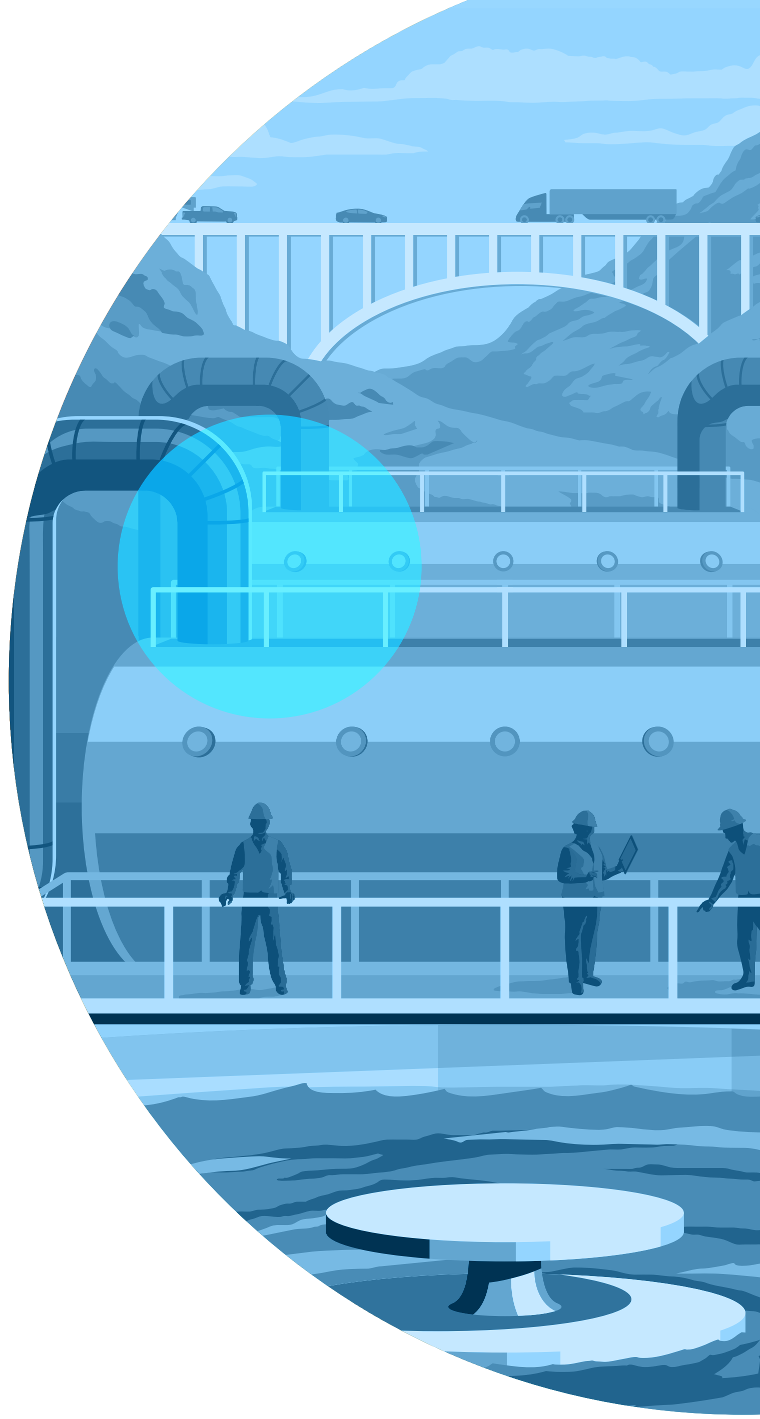
VPPs are at an inflection point due to market and technical factors, including increased adoption of DERs, improvements in device software and VPP platforms, and advancements in grid integration software. VPPs will be a key near-term solution to existing energy challenges, including rising costs, interconnection backlogs, peak demand increases, and distribution system congestion.

In FY 2023, LPO closed its first loan guarantee for a VPP with a partial loan guarantee of $3.3 billion to **Sunnova's Project Hestia** to expand access to rooftop solar, battery storage, and VPP-ready software.



Sector Spotlight

Critical materials



There is enormous opportunity for advancements throughout the critical materials supply chain to improve processes and technologies, increase output, onshore and reshore supply chain projects, and create good jobs and stronger communities.

LPO is working to support an environmentally and socially responsible domestic supply chain for critical materials by providing access to debt capital for qualifying projects across the supply chain, from materials processing to component manufacturing.

The technologies powering the clean energy transition are critical materials intensive. Strengthening the country's critical materials supply chain is a top priority for the Biden-Harris Administration as it works to increase America's energy independence and maintain stable supply chains in the shift to a clean energy economy.

The **Syrah Vidalia project** in Louisiana marked LPO's first loan in the critical materials space. The loan was announced in FY 2022, and in FY 2023 LPO has begun funding the construction of the graphite processing facility.

Additionally, in FY 2023, LPO offered three conditional commitments related to critical materials:

- A conditional commitment to **Ioneer Rhyolite Ridge LLC** for a loan up to $700 million to help finance lithium carbonate processing in Nevada to support the domestic EV battery supply chain.
- A conditional commitment to **Li-Cycle US Holdings, Inc.** for a $375 million loan to finance battery recycling projects.
- A conditional commitment to **Redwood Materials** for a $2 billion loan to strengthen the U.S. critical materials supply chain.

Sector Spotlight

EV and component manufacturing

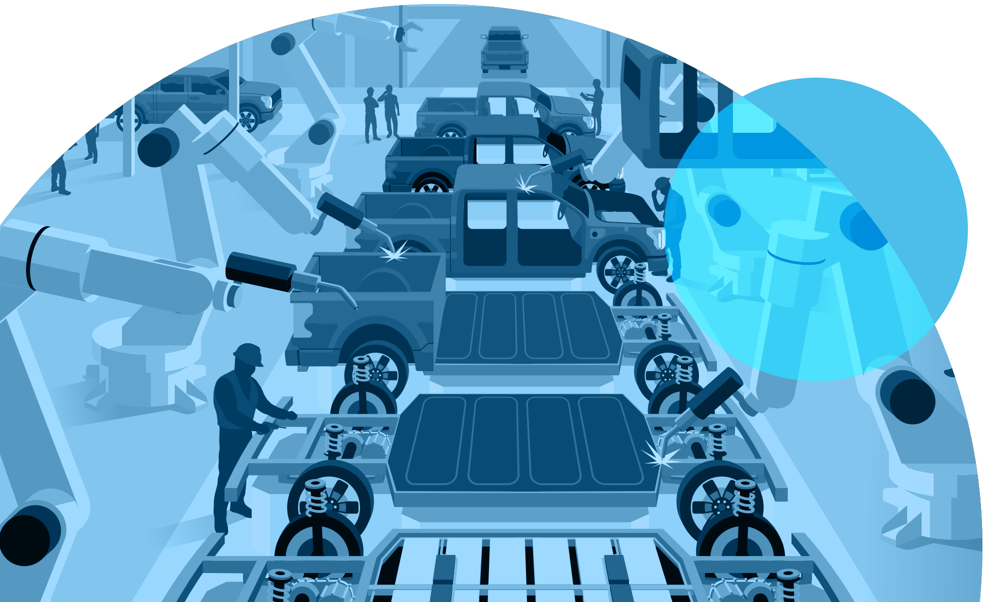
Reducing transportation sector emissions is a critical component of the Biden-Harris Administration's efforts to combat the climate crisis and reach a net-zero economy by 2050.

Through its ATVM and Title 17 financing programs, LPO financing is growing the domestic EV manufacturing industry and helping innovative advanced transportation solutions reach commercial scale. LPO financing—including loans to **Tesla** and **Nissan** in 2010—helped catalyze the country's EV market. Fourteen years later, LPO continues to finance high-impact EV and component manufacturing projects that are creating quality jobs, strengthening U.S. supply chains, and helping the nation achieve its climate targets.

In FY 2023, LPO closed and began funding the **Ultium Cells project**, which will manufacture lithium-ion battery cells in Ohio, Michigan, and Tennessee to support expanded EV deployment.

Additionally, in FY 2023, LPO offered three conditional commitments related to EV and component manufacturing:

- A conditional commitment to **BlueOval SK, LLC (BOSK)** for a loan up to $9.2 billion to manufacture battery cells in Kentucky and Tennessee to support expanded EV deployment.
- A conditional commitment to **CellLink Corporation** for a loan up to $362 million (including capitalized interest) for a manufacturing facility to improve and onshore production of vehicle wiring.
- A conditional commitment to **KORE Power, Inc.** for an $850 million loan to increase the nation's energy storage system and EV battery cell production capacity.



Project Spotlight

Vogtle

During summer 2023, LPO-financed nuclear power plant Vogtle Unit 3 started commercial operations, providing zero carbon electricity to 500,000 homes in Georgia.

Vogtle Unit 4, which LPO also financed, is expected to come online in the third quarter of 2024. Vogtle Unit 3 marks the commissioning of the first new reactor in the United States in over 30 years.

More than 10,000 people in rural Georgia were trained for union jobs to support these first-of-a-kind deployments. As the United States experiences load growth for the first time in more than 20 years, it will need nuclear power to play an important role. Vogtle provided important lessons that will make the construction process smoother next time and is proving that America can still build big things.

Image ©2017 Georgia Power Company

FY 2023: Key accomplishments

- Financial close of the loan to the first LPO-financed lithium-ion battery project
- Financial close of loan guarantee to the first LPO-financed VPP project
- Commissioning of Vogtle reactor Unit 3, the first new reactor built in the United States in over 30 years
- LPO borrowers repaid $556 million principal and paid $484 million in interest to the U.S. Treasury. Cumulative principal payments now total $14.3 billion, 43% of the total funds disbursed, and interest payments total $4.9 billion
- Operating wind, solar PV, and geothermal projects continued their historical pace of strong performance

LPO portfolio performance summary as of end of FY 2023

Loan & Loan Guarantees Issued	**$42.1 billion**
Conditional Commitments	**$14.64 billion**
Amount Disbursed	**$33.28 billion**
Principal Repaid	**$14.3 billion**
Interest Paid*	**$4.87 billion**
Actual and Estimated Losses	**$1.03 billion**
Actual Losses as % of Total Disbursement	**3.1%**

* Calculated without respect to Treasury's borrowing cost.

LPO Loan Programs Office

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