



May 2025

DOE LOAN PROGRAMS

Actions Needed to Address Authority and Improve Application Reviews

GAO Highlights

Highlights of [GAO-25-106631](#), a report to congressional committees

Why GAO Did This Study

The Infrastructure Investment and Jobs Act (2021) and the Inflation Reduction Act (2022) added two new loan programs to the three in DOE's portfolio. The additions increased the office's available loan authority many times over, bringing it to over \$400 billion. Much of this authority expires in 2026 and 2028.

Congress provided in statute for GAO to review DOE's Loan Guarantee Program. GAO's scope for its report is the five loan programs administered by the office. The report examines (1) how the office has addressed the expansion of its loan programs and loan authority; and (2) the extent to which the office's application review guidance and procedures ensure consistent and accurate application reviews.

GAO analyzed DOE actions to address an increase in applications. GAO also identified the extent to which DOE was planning to use the amount of its loan authority. It also reviewed application review guidance, documentation, and training, and interviewed DOE officials.

What GAO Recommends

GAO recommends that Congress consider changing authority for the five programs by, for example, reducing authority for the Energy Infrastructure Reinvestment Program. GAO is also making four recommendations to the Secretary of Energy; DOE concurred with three of them. DOE did not concur with GAO's recommendation to review innovativeness at the time of conditional commitment. As discussed in the report, GAO maintains that such action is needed to help ensure that DOE is compliant with applicable law.

For more information, contact Frank Rusco at ruscof@gao.gov.

May 2025

DOE LOAN PROGRAMS

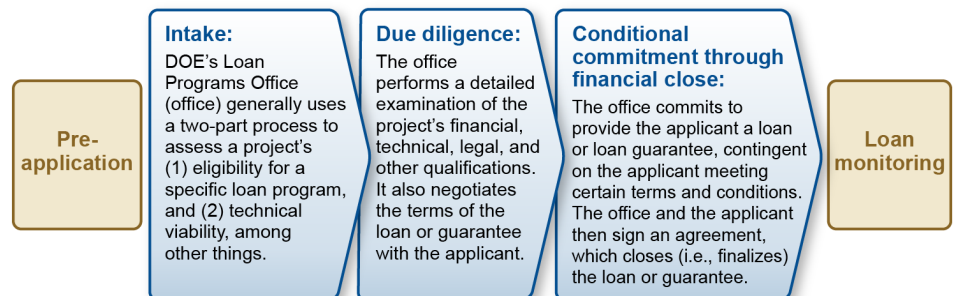
Actions Needed to Address Authority and Improve Application Reviews

What GAO Found

The Department of Energy (DOE) is to provide loans and loan guarantees for innovative and other high-impact energy-related ventures through its Loan Programs Office (office). In recent years, Congress added two new loan programs and hundreds of billions of dollars in new loan authority for the office to manage. At the same time, the number of applications for loans and guarantees increased substantially. In response, the office increased its staff from 104 in 2020 to 412 in 2024, and made organizational changes, among other actions.

The office is not on track to issue loans in the amounts Congress authorized. A key example of this is the Energy Infrastructure Reinvestment Program. Enacted in August 2022, it received \$250 billion in loan authority due to expire September 30, 2026. However, as of September 30, 2024, the office had made one loan for about \$1.4 billion. While it has a total of \$108.3 billion in outstanding submitted applications for loans and guarantees, the program almost certainly will fall short of the \$250 billion in loan authority. Further, DOE needs to thoroughly review the current applications to ensure the government's interests are protected.

Department of Energy (DOE) Loan Programs Office Loan and Loan Guarantee Application Process



Source: GAO analysis of DOE information. | GAO-25-106631

However, the office cannot ensure consistent and accurate application reviews. For example, their guidance is at times incorrect and outdated. In several instances, the guidance refers to documents that officials said are no longer used, and it is at times contradictory or unclear. As a result, staff would likely find it difficult to follow the correct practice. Further, GAO found that the office's guidance does not always follow the law. For projects that are required to be innovative, the office determines innovativeness early in the application review process and risks issuing a guarantee for a project that is no longer innovative. Without confirming innovativeness when it offers conditional commitment, the office may make loans or guarantees for projects that are not eligible.

Finally, the office does not comprehensively evaluate its application review process, including whether guidance is up to date, because officials have not considered the application review process to be high risk. Conducting a comprehensive annual review of this process could help the office identify and correct errors to better ensure it is consistently and accurately reviewing applications. Without correcting its guidance, the office cannot be assured that application reviews lead to selecting projects that further program goals.

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Abbreviations

ATVM	Advanced Technology Vehicles Manufacturing Program
CIFIA	Carbon Dioxide Transportation Infrastructure Finance and Innovation Act Program
DOE	Department of Energy
FFB	Federal Financing Bank
IIJA	Infrastructure Investment and Jobs Act
IRA	Inflation Reduction Act
LPO	Loan Programs Office
Section 1703	Title XVII Clean Energy Financing Program
Section 1706	Title XVII Energy Infrastructure Reinvestment Program
TEFP	Tribal Energy Financing Program

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May 8, 2025

The Honorable John Kennedy
Chair
The Honorable Patty Murray
Ranking Member
Subcommittee on Energy and Water Development
Committee on Appropriations
United States Senate

The Honorable Chuck Fleischmann
Chairman
The Honorable Marcy Kaptur
Ranking Member
Subcommittee on Energy and Water Development,
and Related Agencies
Committee on Appropriations
House of Representatives

The Department of Energy (DOE), through its Loan Programs Office (LPO), is responsible for implementing five federal programs to provide a “bridge to bankability” for innovative and other high-impact energy-related ventures. LPO accomplishes this by providing access to loans and loan guarantees that private lenders cannot or will not provide. To that end, since the first programs were established in 2005, LPO had made about \$43.9 billion in loans and loan guarantees through September 2024. Most of these loans were approved before 2016.¹ LPO loans and loan guarantees support projects across the energy and advanced transportation sectors. Entities defaulting on loans for projects supported by LPO could lead to financial losses for the federal government.

¹In the first 3 months of fiscal year 2025, after our cutoff date for data analysis, LPO closed an additional \$24.4 billion in loans and loan guarantees.

We issued eight reports on DOE's loan programs between 2007 and 2015 and made multiple recommendations to improve the programs.² Several recommendations focused on ensuring LPO had appropriate guidance and procedures in place to, for example, lay out roles, responsibilities, criteria, and requirements for conducting and documenting analyses and decision-making. DOE implemented most of these recommendations.

After several years in which LPO made very few loans, the 2021 Infrastructure Investment and Jobs Act (IIJA) and the 2022 Inflation Reduction Act (IRA) expanded eligibility criteria for LPO's existing programs. The acts also added new loan programs and provided over \$360 billion in new loan authority for LPO, with much of the loan authority expiring by 2028.³ These changes were accompanied by changes in regulations and policy. Industry interest in LPO's loan programs increased in 2021 and, in this context, LPO added staff and set targets for application reviews.

²GAO, *DOE Loan Programs: Current Estimated Net Costs Include \$2.2 Billion in Credit Subsidy, Plus Administrative Expenses*, [GAO-15-438](#) (Washington, D.C.: Apr. 27, 2015); GAO, *DOE Loan Programs: DOE Should Fully Develop Its Loan Monitoring Function and Evaluate Its Effectiveness*, [GAO-14-367](#) (Washington, D.C.: May 1, 2014); GAO, *Department of Energy: Status of Loan Programs*, [GAO-13-331R](#) (Washington, D.C.: Mar. 15, 2013); GAO, *DOE Loan Guarantees: Further Actions Are Needed to Improve Tracking and Review of Applications*, [GAO-12-157](#) (Washington, D.C.: Mar. 12, 2012); GAO, *Department of Energy: Advanced Technology Vehicle Loan Program Implementation Is Under Way, but Enhanced Technical Oversight and Performance Measures Are Needed*, [GAO-11-145](#) (Washington, D.C.: Feb. 28, 2011); GAO, *Department of Energy: Further Actions Are Needed to Improve DOE's Ability to Evaluate and Implement the Loan Guarantee Program*, [GAO-10-627](#) (Washington, D.C.: July 12, 2010); GAO, *Department of Energy: New Loan Guarantee Program Should Complete Activities Necessary for Effective and Accountable Program Management*, [GAO-08-750](#) (Washington, D.C.: July 7, 2008); and GAO, *The Department of Energy: Key Steps Needed to Help Ensure the Success of the New Loan Guarantee Program for Innovative Technologies by Better Managing Its Financial Risk*, [GAO-07-339R](#) (Washington, D.C.: Feb. 28, 2007).

³Infrastructure Investment and Jobs Act, Pub. L. No. 117-58, §§ 40304, 40401(a)–(c), 135 Stat. 429, 988–1000, 1034–37, 1376 (2021); “An Act To provide for reconciliation pursuant to Title II of S. Con. Res. 14,” Pub. L. No. 117-169, §§ 50141–45, 136 Stat. 1818, 2042–46 (2022) (commonly known as the Inflation Reduction Act). A January 20, 2025, executive order directs agencies to immediately pause disbursement of funds appropriated under the IRA or IIJA. It directs agencies to review such disbursements for alignment with policies specified in the order, and report and provide recommendations to the Office of Management and Budget (OMB) and the National Economic Council within 90 days of the order. The order also prohibits agencies from disbursing such funds until the Director of OMB and Assistant to the President for Economic Policy have determined that such disbursements are consistent with any review recommendations they have chosen to adopt. § 7(a) of E.O. 14154 of Jan. 20, 2025, “Unleashing American Energy,” 90 Fed. Reg. 8353 (Jan. 29, 2025). OMB guidance clarifies that this pause only applies to funds supporting programs, projects, or activities that may be implicated by the policies listed in the executive order. OMB Memorandum M-25-11.

In 2022, in response to the increase in funding, the DOE Office of the Inspector General identified four major risk areas for LPO: insufficient federal staffing; inadequate policies, procedures, and internal controls; lack of accountability and transparency; and potential conflicts of interest and undue influence.⁴

GAO has an ongoing mandate, first included in the 2007 Revised Continuing Appropriations Resolution, to review DOE's execution of its loan guarantee programs and to report its findings to the House and Senate Committees on Appropriations.⁵ This report addresses (1) how LPO has addressed the expansion of its loan programs and loan authority, and (2) the extent to which LPO's application review guidance and procedures ensure consistent and accurate application reviews.

To examine how LPO has addressed the expansion of its programs and loan authority, we analyzed LPO data on applications; reviewed relevant laws, regulations, guidance, and program documentation; and interviewed LPO officials. Specifically, we analyzed LPO data on applications submitted from January 2016 through September 2024 to describe industry interest in LPO's programs (as measured by the number of applications), the status of applications, the portfolio of projects, and the duration of application reviews. We also requested data on applications that had reached conditional commitment or financial close through December 2024 because of the significant increase in conditional commitments and financial closes during the last quarter of calendar year 2024. We took steps to assess the reliability of these data and found them to be sufficiently reliable for the purposes of reporting application review durations, milestone achievement, and financial information. To identify recent changes to LPO's programs, we reviewed the IIJA, IRA, other relevant statutes, as well as draft and final rules and program guidance. We also interviewed LPO officials on the data and recent changes to the programs.

To evaluate the extent to which LPO's application review guidance and procedures ensure consistent and accurate application reviews, we reviewed documents and interviewed LPO officials on three topics: (1)

⁴This report reviewed a body of work issued between 2007 and 2015, when DOE was actively making loans. *Special Report on Prospective Considerations for the Loan Authority Supported Under the Loan Programs Office to Improve Internal Controls and Prevent Fraud, Waste, and Abuse*, DOE-OIG-22-34, (Washington, D.C. June 7, 2022).

⁵Pub. L. No. 110-5, § 20320(c), 121 Stat. 8, 21 (2007). This mandate, as amended, is currently codified at 42 U.S.C. § 16515(c), and provides for our recurring review of DOE's execution of the Title XVII program. Because DOE is administering five loan programs, including two under Title XVII, through one Loan Programs Office, we included all programs in this review.

LPO's application review guidance, (2) LPO's application review documents, and (3) LPO's training on how to review loan and guarantee applications. To understand LPO application review guidance, we requested application review guidance for each of the five loan and loan guarantee programs. We reviewed this guidance to identify the forms, memos, and other documents that LPO and independent contractors develop during the application review process. We also interviewed LPO officials about the application review guidance. To determine the extent to which LPO's application review documents follow guidance on the process, we selected a nongeneralizable sample of 23 applications—across all five loan programs—submitted from fiscal year 2018 through August 10, 2023. We requested all available loan application documents for these applications, which resulted in 283 documents, such as forms LPO uses to determine whether a project is eligible for its programs, project reports from independent engineers, spreadsheets used to calculate risk, and memos to document decisions. We reviewed the documents provided to determine if they followed the guidance. Finally, we collected and reviewed LPO training materials and interviewed officials to better understand the extent to which LPO's training program addressed the needs of staff who conduct application reviews. See appendix I for additional details on our objectives, scope, and methodology.

We conducted this performance audit from February 2023 to May 2025 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

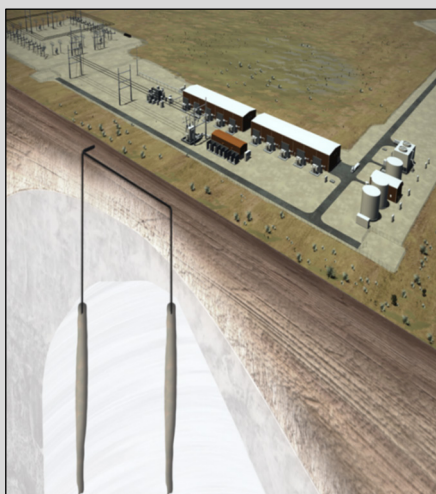
Loan and Loan Guarantee Programs

Currently, LPO administers five loan and loan guarantee programs—three that have been in place for over a decade and two that were introduced by the IIJA and IRA.⁶

⁶LPO also continues to monitor several loans from the Title XVII Renewable Energy Loan Guarantee Program (Section 1705), for which program authority expired September 30, 2011. This program was open to projects related to renewable energy systems, electricity transmission, and leading-edge biofuel projects.

Title XVII Clean Energy Financing Program (Section 1703): Example Project

In June 2022, the Loan Programs Office (LPO) announced a \$504.4 million loan guarantee to finance Advanced Clean Energy Storage, a clean hydrogen and energy storage facility in Utah for providing long-term, seasonal energy storage. The facility is designed to use an innovative process for electrolysis—splitting water into hydrogen and oxygen. The hydrogen is to be captured and stored for later use in two massive salt caverns, an innovative storage method. According to LPO, when complete, the project could help prevent 126,517 metric tons of carbon dioxide emissions annually.



Sources: GAO analysis of LPO information; ACES Delta, LLC; (Image). | GAO-25-106631

Title XVII Clean Energy Financing Program (Section 1703). The Energy Policy Act of 2005 established this program.⁷ The program is to provide loan guarantees for projects that support clean energy deployment to reduce greenhouse gas emissions or air pollution.⁸ To be eligible, a project must fit into one of three categories: (1) innovative energy projects that deploy a new or significantly improved technology that is technically proven but not widely commercialized in the U.S., (2) innovative supply chain projects that deploy 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, or (3) projects that receive meaningful financial support or credit enhancements from a state energy financing institution, which may or may not employ innovative technology.⁹ DOE’s regulations establish that, for projects to qualify as innovative, the technology should be innovative at the time LPO issues the term sheet—the document laying out the terms and conditions of the loan or guarantee—to the applicant.¹⁰ For more detailed information on this and the other programs, including current loan portfolios and number of pending applications, see appendix II.

⁷Pub. L. No. 109-58, § 1703, 119 Stat. 594, 1120–22 (2005) (codified as amended at 42 U.S.C. § 16513).

⁸LPO may make loan guarantees that cover 100 percent of loans, in which case the loan must be provided through the Treasury’s Federal Financing Bank (FFB), which serves as the lender. The FFB is a government corporation, created by Congress, under the supervision of the Secretary of the Treasury. See 12 U.S.C. §§ 2281–96. A project developer may alternatively secure funding from a nonfederal lender, with the private lender applying to DOE for a loan guarantee for up to 90 percent of the loan amount.

⁹A “state energy financing institution” is a state, tribal, or quasi-independent entity established to provide financing support or credit enhancements for eligible § 1703 projects as well as to create liquidity or reduce financial barriers to such projects. 42 U.S.C. § 16511(7). According to program guidance, a demonstration of meaningful financial support or credit enhancements will be determined by LPO on a case-by-case basis and may include providing equity or co-lending with LPO.

¹⁰See 10 C.F.R. § 609.2. 42 U.S.C. § 16513(a)(2) establishes that the determination of innovativeness should be made at the time the guarantee is issued.

Tribal Energy Financing Program (TEFP): Example Project

In September 2024, the Loan Programs Office (LPO) announced a \$72.8 million partial loan guarantee for the development of the Viejas Microgrid, a solar energy plus long-duration storage microgrid on the tribal lands of the Viejas Band of Kumeyaay Indians in California. The project seeks to provide the Viejas Band reliable, utility-scale renewable energy generation and storage infrastructure by installing new solar energy generation and long-duration energy storage systems. When the installation is complete, the Tribe should benefit from lower energy costs, according to LPO.



Sources: GAO analysis of LPO information; Viejas Enterprise Microgrid (photo). | GAO-25-106631

Tribal Energy Financing Program (TEFP). This program, established by the Energy Policy Act of 2005 and first funded by Congress in 2017, is to provide loans and loan guarantees to federally recognized Indian Tribes, including Alaska Native villages or regional and village corporations, for energy development.¹¹ It also lends and provides guarantees to tribal energy development organizations that are wholly or substantially owned by a federally recognized Tribe or an Alaska Native village.¹² TEFP is to support a broad range of projects and activities for the development of energy resources, products, and services that use commercial technology.¹³ For example, TEFP could be used to support electricity generation, transmission, or distribution facilities using renewable or conventional energy sources; energy resource extraction, refining, or processing facilities; or energy storage facilities. Eligible projects can be located on or off tribal land.¹⁴

¹¹Pub. L. No. 109-58, § 503(a), 119 Stat. 594, 764–78 (codified in relevant part as amended at 25 U.S.C. §§ 3501, 3502(c)). Current authority for DOE to provide loans, in addition to loan guarantees, was provided in the Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, 136 Stat. 4459, 4637 (2022) (codified at 25 U.S.C. § 3502 note). Congress first provided appropriations for TEFP in the Consolidated Appropriations Act of 2017. See Pub. L. No. 115-31, 131 Stat. 135, 313. For the purposes of this report, “Tribes” refers to Indian Tribes that have been federally recognized. As of January 8, 2024, there were 574 federally recognized Tribes in the contiguous U.S. and Alaska. 89 Fed. Reg. 944 (Jan. 8, 2024). Tribes use a variety of terms when referring to themselves, such as band, pueblo, and Native village.

¹²Tribal energy development organizations partially owned by Tribes must have written consent of all such Tribes to apply for a loan or loan guarantee. 25 U.S.C. § 3501(12)(B).

¹³Innovative technology, as opposed to widely commercialized technology in the U.S., is permitted but not required.

¹⁴In addition to decreasing energy burden for Tribes and increasing community ownership and energy resilience, projects approved by TEFP can provide economic development opportunities for Tribes. Historically, tribal communities have experienced higher rates of unemployment and poverty than nontribal communities. Tribal economic development may help address these challenges and provide benefits to Tribes and surrounding areas.

Advanced Technology Vehicles Manufacturing Program (ATVM): Example Project

In December 2022, the Loan Programs Office (LPO) announced a \$2.5 billion direct loan to Ultium Cells, LLC, to support the construction of new lithium-ion battery cell manufacturing facilities in Michigan, Ohio, and Tennessee. These new cells can be used in a variety of vehicles, including work trucks, and are expected to expand electric vehicles' range at a lower cost. LPO estimates that, when construction is complete, these new battery cells could reduce gasoline use by 480 million gallons per year.



Sources: GAO analysis of LPO information; Ultium Cells, LLC (photo). | GAO-25-106631

Advanced Technology Vehicles Manufacturing Program (ATVM).

This program, established by the Energy Independence and Security Act of 2007, provides loans to manufacture more fuel-efficient vehicles or components.¹⁵ Several types of vehicles are eligible under the program, including light-, medium-, and heavy-duty vehicles, locomotives, maritime vessels, and aircraft. To be eligible, a project must be located in the U.S. It must also build new facilities; reequip, modernize, or expand existing facilities; or perform engineering integration related to the manufacturing of eligible components.

Carbon Dioxide Transportation Infrastructure Finance and Innovation Act Program (CIFIA).

This program was established in 2021 by the IIJA and provides loans and loan guarantees for carbon dioxide transport projects—such as pipelines, shipping, or rail—whose services are provided to public companies for a fee.¹⁶ Eligible transport projects could include those that support carbon dioxide capture, utilization, and storage by providing the transportation link between the point of capture and carbon dioxide conversion facilities where it will be used, or wells where it will be stored. The carbon dioxide for these projects must be captured from human-generated sources or the ambient air.¹⁷

¹⁵Pub. L. No. 110-140, § 136, 121 Stat. 1492, 1514–16 (codified as amended at 42 U.S.C. § 17013).

¹⁶Pub. L. No. 117-58, § 40304, 135 Stat. at 988–1000, 1376 (codified at 42 U.S.C. §§ 16371–78). Specifically, the program supports common carrier carbon dioxide transport projects, which are those which publish a publicly available tariff of just and reasonable rates, terms, and conditions of nondiscriminatory service, and hold themselves out to provide transportation services to the public for a fee. CIFIA also includes provisions for grants through DOE's Office of Fossil Energy and Carbon Management for transportation infrastructure projects that help reduce carbon dioxide emissions across the U.S.

¹⁷We are not highlighting a project example for CIFIA because no applications for this program have reached conditional commitment, the stage at which loans or guarantees are made public.

Title XVII Energy Infrastructure Reinvestment Program (Section 1706): Example Project

In September 2024, the Loan Programs Office (LPO) announced a \$1.52 billion loan guarantee for Holtec Palisades, LLC to restore and repower their nuclear energy generation facility in Covert Township, Michigan. According to LPO, when completed, the project could avoid a total of 111 million tons of carbon dioxide emissions during the planned 25 years of the facility's operations.



Sources: GAO analysis of LPO information; Holtec Palisades (photo). | GAO-25-106631

Title XVII Energy Infrastructure Reinvestment Program (Section 1706). Section 1706, established in 2022 by the IRA, provides loan guarantees for projects that (1) retool, repower, repurpose, or replace energy infrastructure that has ceased operations; or (2) enable operating energy infrastructure to avoid, reduce, utilize, or sequester air pollutants or greenhouse gas emissions.¹⁸ To be eligible for the program, a project must be energy-related, located in the U.S., and involve technically viable and commercially ready technology.

LPO's Loan Authority and Credit Subsidy Costs

The total loan authority for each program, or the amount of loans and loan guarantees LPO may issue for each of the programs, is determined in one of two ways:

- **Statutory cap on total loan authority.** Congress may authorize a maximum amount for the loans or loan guarantees that can be made. LPO may not exceed this amount unless Congress amends the legislation.
- **Appropriations for credit subsidy cost.** LPO may also be limited by congressional appropriations for credit subsidy cost. LPO estimates the amount of loan authority it can support based on the dollar amount Congress appropriates for credit subsidy cost, and if that amount is lower than any statutory cap, LPO is limited by available appropriations.

The credit subsidy cost is the expected cost to the federal government of making a loan or loan guarantee. It is equal to the net present value of estimated cash flows from the government for the project, minus estimated cash flows to the government such as repayments on the loan. It is calculated over the life of a loan and excludes administrative costs.

¹⁸Pub. L. No. 117-169, § 50144(c), 136 Stat. at 2045 (codified at 42 U.S.C. § 16517).

Federal agencies estimate subsidy costs as required under the Federal Credit Reform Act of 1990.¹⁹

Loan and Loan Guarantee Application Review Process

LPO's application review process is to ensure projects under all five programs meet program requirements and demonstrate a reasonable prospect of repayment.²⁰

Before LPO receives an application, it offers a pre-application consultation with potential applicants to any of their programs. According to LPO information, the office encourages applicants to engage in no-fee, no-commitment consultations to discuss a proposed project. According to LPO, in these consultations, LPO will work with the applicant to determine whether their proposed project may be eligible for a loan or guarantee.

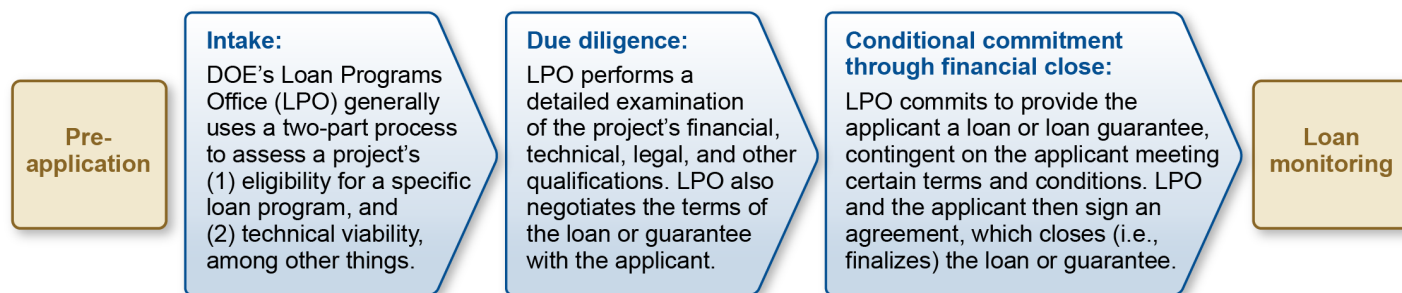
For the CIFIA program, however, potential applicants are required to submit a letter of interest that includes details related to the project, finances, and eligibility. LPO is to review the letter to determine if the project appears to meet the criteria specific to CIFIA and has a reasonable prospect of repayment, among other things. If LPO determines these criteria are met, LPO formally invites the potential applicant to submit an application.

As shown in figure 1, LPO's loan application review process includes three phases: intake, due diligence, and conditional commitment through financial close.

¹⁹The Federal Credit Reform Act of 1990 is title XIII, subtitle B, of the Omnibus Budget Reconciliation Act of 1990, Pub. L. No. 101-508, tit. XIII, subtit. B, § 13201(a), 104 Stat. 1388, 1388-609 to -615 (codified as amended at 2 U.S.C. §§ 661-661f). See also [GAO-15-438](#).

²⁰In assessing the reasonable prospect of repayment, the factors LPO is to evaluate include: (1) the strength of the contractual terms of the project; (2) a forecast of noncontractual cash flows from reputable sources; (3) the projected financial strength of the borrower and the borrower's investors and strategic partners; and other financial metrics and analyses. See 42 U.S.C. §§ 16512(d)(1)(B), 17013(d)(3)(B).

Figure 1: Loan Programs Office Process for Reviewing Loan and Loan Guarantee Applications



Source: GAO analysis of Department of Energy (DOE) information. | GAO-25-106631

Intake. During intake, LPO generally uses a two-part process to assess an applicant's eligibility for a specific loan program and the project's viability. In part I, LPO determines a project's eligibility based on requirements and relevant laws and regulations specific to the loan program. For example, for Section 1703 applications, LPO may review whether the project avoids, reduces, or sequesters air pollutants or greenhouse gases and employs new or significantly improved technologies. In part II, LPO assesses a project's viability—the extent to which a project can perform adequately—against programmatic, technical, and financial criteria to determine whether to move forward with that project. For example, for ATVM loans, it weighs criteria such as an applicant's technical readiness level, manufacturing plan, and corporate experience. According to LPO officials, all programs except ATVM complete part I before inviting an applicant to part II. In ATVM there is no separate invitation to part II. The intake stage concludes when an applicant accepts an invitation from LPO to proceed to the due diligence stage. Alternatively, LPO can reject an application, or an applicant can withdraw an application from consideration.

Due Diligence. During due diligence, LPO staff perform a more detailed examination of the project's financial, technical, legal, and other qualifications. Specifically, LPO staff are to identify technical and project management risks and mitigation strategies, conduct a technical evaluation of the application, and propose technical terms and conditions for a potential loan.

Officials told us projects undergo full credit underwriting in due diligence. According to LPO officials, it uses an internal credit rating system, modeled on those used by private rating agencies, to evaluate each project. It uses a rating of CCC+ as an adjustable threshold or “soft floor”

when determining a reasonable prospect of repayment. A rating of CCC+ currently implies about a 49 percent chance of default over 10 years, according to LPO documentation. According to LPO guidance, in most cases LPO commissions an independent engineer's report to provide an independent technical review and assessment of the application in support of the due diligence process.²¹ Specifically the independent engineer's report is to cover the project's technology maturity, financial merit, plant operation and maintenance, applicable licenses and permits, and risks and their mitigants, among other things. The information in the independent engineer's report is used to develop the inputs to the term sheet, among other things.

LPO negotiates the financial terms of the loan or loan guarantee with the applicant. Financial terms can define the loan or loan guarantee amount, interest rates, maturity, and any applicable fees. LPO also often identifies technical monitoring requirements during due diligence.

According to LPO guidance and information, when the proposed loan or loan guarantee enters the interagency review process, it is submitted for review and approval by (1) the Office of Management and Budget, which is to review LPO's estimated credit subsidy cost for each application, and (2) the Department of the Treasury, which reviews the transaction. Next, DOE's Credit Review Board is briefed on pending transactions and votes on whether to move forward.²² If the application is approved by the Credit Review Board, the Secretary of Energy decides whether to offer a conditional commitment to the applicant.

Conditional Commitment through Financial Close. Following the Secretary of Energy's approval, LPO commits to provide the applicant a loan or loan guarantee, contingent on the applicant meeting certain terms and conditions. According to LPO documentation, examples of these terms and conditions include confirming project performance targets, providing a project management plan and risk mitigation plan, and certifying that the project will proceed using the identified construction budget. LPO and the applicant then sign an agreement which closes the

²¹For TEF, independent engineer reports will be done on a case-by-case basis, according to LPO guidance. A subject matter expert report can be used instead in select projects if LPO officials agree.

²²According to its charter, DOE's Credit Review Board consists of the Deputy Secretary of Energy, the Under Secretary for Management and Performance, the Under Secretary for Science and Energy, the Chief of Staff to the Secretary of Energy, the Senior Advisor to the Secretary of Energy (for financial matters), the General Counsel, the Chief Financial Officer, the Director of the Office of Energy Policy and Systems Analysis, and any other DOE employee that the Secretary may appoint to the Board.

loan or guarantee, and the applicant is able to draw on the loan, subject to the terms and conditions of the agreement.

According to LPO, once a loan closes, LPO monitors the loan until it is paid off. This monitoring includes assessments of performance against the project's schedule and budget, according to agency documentation.

LPO Is Managing Program Expansion but Has Not Met Application Review Targets

LPO has taken steps to address the expanded number of loan programs, billions of dollars in greater loan authority, and an increased number of loan applications. Together, these changes have increased the risks of financial loss inherent in these programs. At the same time, LPO has not met its targets for the number of applications reviewed, and reviews are taking longer than in the past. LPO has identified reasons for longer review times and taken steps to address them.

LPO is Managing Programs Through a Period of Change and Increased Industry Interest

Recent legislation expanded the number of loan programs LPO administers from three to five, increased LPO's loan authority many times over, and triggered significant changes in how the existing programs operate.

The two new programs are CIFIA, established by the IIJA in November 2021, and Section 1706, established by the IRA in August 2022. To fully implement these programs, LPO needed to develop and publish program guidance for staff and potential applicants. LPO published CIFIA guidance in October 2022 and updated its Title XVII regulations to reflect Section 1706 in an interim final rule in May 2023.²³

Together, the IIJA and IRA also increased LPO's loan authority from approximately \$40 billion to over \$400 billion, with much of this new authority expiring by September 30, 2028. Specifically,

- \$290 billion of loan authority that expires September 30, 2026—\$40 billion for Section 1703, and \$250 billion for Section 1706.²⁴
- \$40 billion of ATVM loan authority and the appropriation underlying \$18 billion loan authority for TEFPP that expires September 30, 2028.²⁵

²³Department of Energy. CIFIA Program Guide: CIFIA Loans for Carbon Dioxide Transportation Infrastructure" (Washington, D.C.: Oct. 5, 2022); 88 Fed. Reg. 34419 (May 30, 2023, revised May 2, 2024).

²⁴Pub. L. No. 117-169, §§ 50141(a), 50144(b), 136 Stat. at 2042–43, 2044–45.

²⁵IRA § 50145 provided new appropriations for TEFPP, available through fiscal year 2028, and increased the loan authority limit to \$20 billion. IRA § 50142(a) appropriated \$3 billion for ATVM, which LPO estimates can provide loan guarantees for up to \$40 billion.

The remaining \$20 billion in new loan authority is for CIFIA and does not expire.²⁶

Changes enacted in the Energy Act of 2020, the IIJA, and the IRA triggered significant procedural, administrative, organizational, and staffing changes to how LPO carries out its programs.²⁷

Procedural. These changes include additional requirements or changes to application review procedures. For example, the IRA and LPO established that applicants to Section 1706 and Section 1703 are to develop a community benefits plan, which is to define how a project will engage with and affect associated communities.²⁸ According to officials, LPO also requires these plans from applicants to the other three loan guarantee programs. Project applications also must show that benefits of participation in the program will be passed on to these communities.

In addition, the IIJA and IRA expanded the eligibility or coverage of the programs. For example, the IIJA expanded the eligibility under ATVM to include medium- and heavy-duty vehicles and expanded Section 1703 to include loan guarantees for projects that receive support from state energy financing institutions.²⁹ These changes in eligibility required LPO to update its internal and external guidance and application review procedures.

Administrative. These changes include authorizing borrowers to apply for direct loans and eliminating or revising fees that applicants pay in some cases. For example, since March 2022, Congress granted LPO the authority to offer direct loans under TEF.³⁰ Previously, LPO could only offer loan guarantees under that program.³¹ In addition, in May 2022, LPO

²⁶IIJA appropriated \$2.1 billion for CIFIA, which LPO estimates can provide loan guarantees for up to \$20 billion. IIJA, 135 Stat. at 1376.

²⁷The Energy Act of 2020 is div. Z of the Consolidated Appropriations Act, 2021, Pub. L. No. 116-260, div. Z, 134 Stat. 1182 (2020).

²⁸See Pub. L. No. 117-169, § 50144(c), 136 Stat. at 2045; U.S. Department of Energy, Program Guidance for Title 17 Clean Energy Financing Program, (Washington, D.C.: May 19, 2023).

²⁹Pub. L. No. 117-58, § 40401(b)(1), (c), 135 Stat. 429, 1034–35, 1037 (2021).

³⁰Congress first temporarily authorized direct lending under TEF in the Consolidated Appropriations Act, 2022, Pub. L. No. 117-103, div. D, tit. III, 136 Stat. 49, 226 (2022). The IRA expanded DOE's statutory authority to provide guarantees for loans from an Eligible Lender, which, as defined in DOE's Title XVII regulations, includes the FFB. Pub. L. No. 117-169, § 50145(b)(1), 136 Stat. 1818, 2046 (2022); 10 C.F.R. § 609.2. Permanent authority to provide loans under TEF, in addition to loan guarantees, was provided in the Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, div. D, tit. III, 136 Stat. 4459, 4637 (2022) (codified at 25 U.S.C. § 3502 note).

³¹Energy Policy Act of 2005, Pub. L. No. 109-58, § 503(a), 119 Stat. 594, 764–78.

revised TEFP policy to eliminate several fees that applicants previously had to pay, including application and facility fees. According to LPO documentation, these fees were a significant impediment to using the program. Similarly, in 2023, LPO revised its guidance to remove application fees for the two Title XVII programs.

Organizational. These changes include re-organized responsibilities in administering the five programs. For example, in 2021, in response to statutory changes made by the Energy Act of 2020, LPO established the Outreach and Business Development Division to identify prospective program applicants. According to LPO documentation, this division is primarily responsible for completing the intake phase of the application review process. Further, the addition of CIFIA and Section 1706 in the IIJA and the IRA have added to or changed some staff responsibilities.

Staffing. These changes include increasing staff positions to address the increased workload from new authorities. The number of filled positions increased from 104 federal and contractor staff in May 2020 to 412 in October 2024, including part time staff, according to LPO documentation. However, as of October 2024, LPO continued to have a vacancy rate of 18 percent in its offices that conduct application reviews. LPO relied on contractors to complete key aspects of the application review process, particularly the intake phase.

LPO Has Not Met Its Application Review Targets

Since 2020, industry interest in DOE loan programs has increased substantially, as measured by the number of applications submitted. The average number of applications LPO received increased from approximately 10 per year in 2016 through 2020, to over 80 per year in 2021 through September 2024. The majority of applications from 2021 through September 2024, 78 percent, were submitted to the Section 1703 and ATVM programs.

Given the context of an increase in applications, LPO set internal targets for the number of applications it would review in calendar years 2022, 2023, and 2024. Specifically, they set targets for the number of applications achieving (1) conditional commitment, and (2) financial close. For example, LPO expected to review and offer conditional commitment for at least 36 applications in 2023 and to close 17 loans, according to LPO documentation and officials.³²

³²LPO officials stated that their application review goal applies to applications that either complete due diligence, enter the interagency review process, or receive a conditional commitment. While these three application review actions are distinct, for the purposes of this report we consider them to represent the same event.

As shown in table 1 below, LPO did not meet the targets it set from 2022 through 2024. In several cases, LPO fell well short of meeting its targets. LPO offered conditional commitments to nine applicants in 2023 and closed on one guarantee, falling short of its targets.

Table 1: Loan Programs Office (LPO) Application Review and Financial Close Targets and Actual Performance, Calendar Years 2022 to 2024

Year	Number of applications achieving conditional commitment ^a		Number of applications achieving financial close	
	Target	Actual	Target ^b	Actual
2022	More than 9	4	No target established	3
2023	More than 36	9	17	1
2024	More than 36	12 ^c	47	3 ^c

Source: GAO analysis of Department of Energy data and documentation. | GAO-25-106631

^aAccording to LPO officials we interviewed, the application review target is reached when a project completes due diligence and enters the interagency review process, which immediately precedes the start of the conditional commitment phase.

^bLPO officials established these goals in 2022. However, officials stated that LPO currently does not have annual targets for the number of applications achieving financial close.

^cData through September 30, 2024.

At this rate, LPO would not be on track to issue loans in the amounts Congress authorized before nearly \$350 billion of that loan authority expires in 2026 and 2028. For example, Congress authorized \$250 billion in loan authority for Section 1706 that is due to expire September 30, 2026. As of September 30, 2024, LPO had closed one loan for this program for about \$1.4 billion. While it has a total of \$108.3 billion in outstanding submitted applications for loans and guarantees, the program almost certainly will fall short of the \$250 billion in loan authority.

As of September 30, 2024, among the applications submitted in 2016 through September 2024, LPO had a queue of 205 active applications in the review process, and 22 applications on hold. It had closed 10 loans or loan guarantees, including three before 2022.³³ As shown in table 2, of these active applications, about 74 percent (152 applications) were in the intake phase, roughly 18 percent (36 applications) were in the due diligence phase, and the remaining 8 percent (17 applications) were in the conditional commitment through financial close phase. The 205 active applications had a potential loan or guarantee value of \$299.9 billion. The

³³LPO places applications “on hold” when applicants need to pursue activities that may take some time, such as obtaining additional finance or permits, or conducting environmental reviews. LPO considers these applications “active” in their reporting. For our purposes we do not treat these as active unless otherwise indicated.

17 that had reached conditional commitment had a potential loan or guarantee value of \$24.9 billion.

Table 2: Loan Programs Office Pipeline of Applications Submitted Since January 2016, by Program and Phase, as of September 30, 2024

	Title XVII Clean Energy Financing Program (Section 1703)	Tribal Energy Financing Program (TEFP)	Advanced Technology Vehicles Manufacturing Program (ATVM)	Carbon Dioxide Transportation Infrastructure Finance and Innovation Act Program (CIFIA)	Title XVII Energy Infrastructure Reinvestment Program (Section 1706)
Number (value, billions) of applications in intake	111 (\$119.0)	8 (\$4.2)	7 (\$4.3)	1 (\$0.2)	25 (\$42.2)
Number (value, billions) of applications in due diligence	17 (\$27.4)	0 (\$0)	5 (\$14.9)	0 (\$0)	14 (\$62.7)
Number (value, billions) of applications with conditional commitment	7 (\$5.0)	0 (\$0)	8 (\$17.3)	0 (\$0)	2 (\$2.6)
Total (value, billions) of loans in pipeline	135 (\$151.4)	8 (\$4.2)	20 (\$36.6)	1 (\$0.2)	41 (\$107.5)
Loan authority available (billions) ^a	\$66.9 ^b	\$19.9 ^b	\$46.0 ^c	\$20.0 ^c	\$57.6 ^c

Source: GAO analysis of Department of Energy documentation and data. | GAO-25-106631

Note: This table excludes inactive applications, which are project applications that were rejected, withdrawn, abandoned, or are otherwise on-hold. As of September 2024, Section 1703 has 101 inactive applications; TEFPP has 8 inactive applications; ATVM has 33 inactive applications; and CIFIA has 0 inactive applications; and Section 1706 has 9 inactive applications.

^aTotals may not sum due to rounding. Amount reduced to include applications that have received a conditional commitment.

^bStatutorily established loan authority remaining.

^cLPO estimate based on remaining appropriation for credit subsidy cost available as of September 30, 2024.

Since the programs began through September 2024, four programs had closed loans or loan guarantees for a total of 13 projects with a combined obligated value of \$28.1 billion (see table 3). LPO closed its first loan under Section 1706 for about \$1.4 billion in July 2024 and its first loan guarantee under TEFPP for \$100 million in August 2024. As of September 30, 2024, CIFIA, a newer program, had yet to close a loan or loan guarantee.

Table 3: Summary of Obligations for All Projects that Reached Financial Close, by Program, through September 2024

Phase	Title XVII Clean Energy Financing Program (Section 1703)	Tribal Energy Financing Program	Advanced Technology Vehicles Manufacturing Program	Carbon Dioxide Transportation Infrastructure Financing and Innovation Act Program	Title XVII Energy Infrastructure Reinvestment Program (Section 1706)
Achieved financial close	3 (\$15.39 billion) ^a	1 (\$100 million)	8 (\$11.31 billion)	0 (\$0)	1 (\$1.35 billion)

Source: GAO analysis of Department of Energy data. | GAO-25-106631

^aThe Loan Programs Office has closed on a total of 10 loans on the Vogtle nuclear power plant.

When compared to 2012, the last time we examined how long LPO took to review applications, we found that each of the three application review phases now took longer, based on our analysis of LPO data from January 2016 through September 2024.³⁴ The median time to complete each application review phase is from about 19 percent to 41 percent longer than in 2012 (see table 4.) Although we found it took longer now than in the past to review applications, there is no benchmark for how long a review should take. According to LPO officials, they do not have control over when they receive information from applicants. As a result, they have the most direct control over the work done in the due diligence phase, as compared to the intake phase when LPO relies more on receiving information from applicants.

Table 4: Median Number of Months to Complete Application Review Phases, 2006 to 2011 and 2016 to 2024

Phase	2006–2011 ^a	2016–2024 ^b	Percent increase
Complete intake phase ^c	6.1	8.7	41
Complete due diligence phase ^d	9.8	11.7	19
Complete conditional commitment through financial close phase ^e	4.2	5.4	27

Source: GAO analysis of Department of Energy data. | GAO-25-106631

Note: The number of months elapsed represents the median for the review period of those applications that proceeded to the next review stage. We believe the median is a better representation of the data for this table because it reduces the effect of some outliers that skew the data. The numbers have been rounded.

^aWe reported the median number of days each application phase took to complete in GAO, *DOE Loan Guarantees: Further Actions are Needed to Improve Tracking and Review of Applications*, [GAO-12-157](#) (Washington, D.C.: Mar. 12, 2012). We reported on applications submitted through September 2011 that responded to solicitations the Loan Programs Office issued between 2006 through 2010.

³⁴[GAO-12-157](#).

^bWe include in this review those active applications submitted from January 2016 through September 2024 that have completed at least one phase of the application review process.

^cAmong the 60 applications that completed intake, the minimum number of months elapsed was 1.2 and the maximum number of months elapsed was 30.3, which excludes one application that switched programs mid review.

^dAmong the 27 applications that completed due diligence, the minimum number of months elapsed was 5.3 and the maximum number of months elapsed was 18.8.

^eAmong the 7 applications that completed conditional commitment through financial close, the minimum number of months elapsed was 1.8 and the maximum number of months elapsed was 11.4.

However, some loans closed more quickly than in the past. In particular, from January 2016 through September 2024, seven applications achieved financial close after LPO completed a full application review process. Among these seven, the median time to complete the process was quicker than we found in 2012.³⁵ The cumulative value of these seven completed loans or loan guarantees is \$8.2 billion. According to LPO officials, the factors that led to the quicker review time for the applications that have achieved financial close included (1) better prepared applications submitted by applicants, (2) more experienced LPO staff working on those transactions, and (3) less time spent on negotiating the final terms of the loan or guarantee agreement. The application with the quickest review timeframe reached financial close in slightly more than 13 months. According to LPO officials, the shorter review time was because the applicant submitted a high-quality application to begin with and responded quickly to LPO's requests for documents and data during the due diligence process.

LPO Has Identified Reasons for Longer Review Times and Taken Steps to Address Them

According to LPO officials, there are several reasons why each phase of the loan application review process is taking longer than it did in the past. Specifically, the high volume of applications submitted, the incompleteness and quality of the applications, the complexity of the proposed projects, and the time it takes applicants to respond to questions can each influence how long it takes LPO to review an application. For example, applicants may need assistance with environmental permits or time to raise equity before applications move out of the intake phase, which would increase the amount of time spent in that phase, according to LPO officials.

³⁵This analysis is based on seven loans that completed the entire application review process and closed from January 2016 through September 2024. The minimum number of months elapsed for the seven closed loans was 13.3 months and the maximum number of months elapsed was 30. LPO closed three additional loan guarantees during this period—in 2019, for the Vogtle nuclear plant in Georgia. We did not include these loans in our calculations because LPO did not conduct the intake and due diligence processes on these three Vogtle-related applications. The applications were for additional funding. LPO had previously conducted intake and due diligence processes during the original application submissions for the borrowers involved.

LPO has taken several steps to identify and address where application reviews are taking longer than expected, according to LPO officials. For example, LPO is adding data elements to its database to help the agency establish how long specific review steps take and where delays are occurring.³⁶ With this and other information on the challenges that applicants face, LPO officials said they will be able to provide applicants with coaching and assistance to help their applications move more quickly through the review process.

In addition, LPO has also changed some aspects of its application review procedures. For example, according to LPO documentation:

- LPO staff are to delay inviting applicants to the due diligence phase until LPO believes applicants are ready to move forward, including whether the applicant has lined up equity for the project.
- The rigor of LPO's due diligence review will vary, depending on the type of project being proposed. For example, applications that have an established purchase agreement, and therefore, assured income—such as for clean electricity generated—will have a less complex review than those that do not. In contrast, innovative, technologically complex projects will receive higher levels of review—such as for the engineering or design of the project—than projects that are for technologies already in use in the U.S.
- LPO staff are to prioritize applications. First priority will be given to applications considered to be of high quality. Second priority will be projects that help LPO and DOE meet their policy goals, such as greenhouse gas emission reduction targets or the Justice40 program priorities and targets.³⁷

LPO Substantially Increased Its Completion of Application Reviews and Closed Loans in the Last 3 Months of 2024

In the last 3 months of 2024, after we completed our full analysis of LPO's loan activity, LPO issued substantially more conditional commitments and closed loans or loan guarantees. Our cutoff date for collecting and fully reviewing application data was September 30, 2024. In the 3 months following that, LPO reported that it offered conditional commitments for 13 new projects with an expected loan or loan guarantee value of \$41.2

³⁶LPO officials stated that this new database functionality was established in June 2024, but they will not examine causes for delays retroactively.

³⁷The Justice40 Initiative goal was for 40 percent of benefits from certain federal grants and programs to flow to disadvantaged communities. According to DOE documentation, all five current LPO loan guarantee programs were included in Justice40. The executive order that established the Justice40 Initiative, E.O. 14008 of January 27, 2021, *Tackling the Climate Crisis at Home and Abroad*, 86 Fed. Reg. 7619 (Feb. 1, 2021), was rescinded on January 20, 2025, by E.O. 14148, *Initial Rescissions of Harmful Executive Orders and Actions*, 90 Fed. Reg. 8237 (Jan. 28, 2025).

billion. In addition, LPO reported it closed 11 additional loans or loan guarantees with a combined value of \$24.4 billion. The loans and guarantees LPO closed in the last quarter of calendar year 2024 account for about half of the total value of all loans and guarantees that LPO has closed for these five programs. Even with this substantial increase in value of closed loans, LPO is not likely to use all of its authority or appropriations prior to expiration. We included all of these recently acted-on applications in our analysis as of September 30, 2024, at the stage they were in at that time, so our earlier analysis remains valid.

Even with this increase in activity, LPO did not meet its targets for the number of applications reaching conditional commitment or financial close for 2022 through 2024. LPO officials told us they had shortened their due diligence processing times in 2024; however, we found the loans that closed after our review still took longer to complete the due diligence review (median of 11.7 months) than in 2012. LPO officials told us they think they can now proceed at a steady-state level of reviewing loan guarantee applications in keeping with their targets. However, it remains to be seen whether LPO can maintain a steady pace of approving sound applications.

See appendix II for a complete list of the conditional commitments and closed loans and guarantees made for each program since the program began through December 31, 2024.

LPO Guidance and Procedures Cannot Ensure Consistent and Accurate Application Reviews

LPO guidance and procedures cannot ensure application reviews are implemented consistently and accurately due to several reasons. First, LPO application review guidance contains inconsistencies and is sometimes not clear, in part because it is out of date. Second, our review of application documents found some were missing, incomplete, or contained errors. Third, in one case LPO guidance does not follow the law. Fourth, LPO does not comprehensively assess its application review process to ensure consistency and accuracy, including reviewing whether guidance is up to date and application reviews are complete and accurate. Finally, LPO does not comprehensively identify application review training needs and does not assess the extent to which its application review training is effective.

Application Review Guidance Is Incorrect and Outdated

We found LPO's application review guidance was outdated and does not always match practice. Further, when we spoke to LPO officials for clarification about the application review guidance, they sometimes provided us with inconsistent or incorrect information about the review process. We also found three application review templates that contained errors. Together, these inconsistencies and errors made it difficult to

determine the correct application review procedures. Staff responsible for reviewing applications will likely face similar challenges when trying to adhere to the review procedures.

LPO's application review guidance is not always correct. We found 11 instances in which LPO's application review guidance refers to templates or documents that LPO officials told us do not exist or are not in use. For example, the conditional commitment guidance document for LPO's Origination Division calls for the use of two templates LPO officials told us do not exist: a credit paper template and a project risk register template.³⁸ According to agency officials, when LPO developed the guidance, they thought a credit paper template would maximize processing efficiencies. However, they found a template would not be capable of capturing the nuances of LPO's different loan programs and do not use one. Similarly, TEFPP guidance calls for the drafting of a technical viability memo by the evaluating engineer to document the results of LPO's technical viability evaluation.³⁹ However, officials we interviewed told us they do not create these memos. In addition, the Intake procedure document for CIFIA refers to several forms that officials told us are not used by LPO.⁴⁰ Officials told us these forms may have been included as an oversight when the agency used the procedure for Title XVII as a model to develop the CIFIA procedure. The officials also said that they were developing a plan to correct the guidance.

In three of the 11 instances, guidance continued to refer to documents that were used in the past but are no longer used. LPO guidance calls for the development of three related documents: a list of technical monitoring requirements in a table, a technical monitoring requirements table approval form, and a technical monitoring plan approval form.⁴¹ We received the technical monitoring requirements table and the technical monitoring requirements table approval for some, but not all, of the applications we reviewed. According to officials, LPO now rolls the technical monitoring requirements table into another document and is taking steps to retire the two forms.

Guidance documents were at times contradictory or unclear. In one example, ATVM guidance states that part I and part II reviews are to be

³⁸LP10 P 413.3B, "Origination Division Conditional Commitment Procedure" (Feb. 14, 2020).

³⁹TPMD P 413.14E, "TEFGP Part I and Part II Review Procedure" (July 27, 2023).

⁴⁰LP20 P 413.4A, "Outreach and Business Development Division CIFIA Intake Procedure" (July 28, 2023).

⁴¹TPMD P 413.26G, "Technical Monitoring Requirements and Plan Procedure" (May 18, 2023).

performed at the same time.⁴² The same guidance also states that staff are to proceed to part II only after part I has been completed.⁴³ In another example, the requirements for developing a list of technical monitoring requirements are described differently in different guidance documents. One guidance document states that the list must include a title, intended purpose, and triggering date or event.⁴⁴ However, another guidance document does not list these three as required items. Instead, it calls for a responsible party, required completion date, and metrics.⁴⁵ Both call for a description and completion criteria. Staff may approach the list of requirements differently depending on which document they reference.

Officials sometimes gave inconsistent and incorrect information about application review procedures. In some cases, when we asked LPO officials to clarify application review procedures, their statements contradicted written procedure, practice, or other statements from LPO officials. Specifically, LPO officials told us at one time that a Part I Review Form is required only for CIFIA and not for the other four loan programs. This conflicted with other communications, guidance documents, and documentation we received. For example, the form is listed in guidance documents for the other programs. Further, officials later told us that a Part I Review Form is not required for CIFIA, directly contradicting the earlier statement that it is required for CIFIA.

In another case, in a written response to our questions, LPO officials provided conflicting information about the correct review procedure. LPO's written response first stated that a federal project engineer is assigned to perform part I and II reviews for applications to all programs except ATVM, because ATVM does not have part I and II reviews. Later in the same document, LPO's written response states that ATVM has part I and part II reviews that are completed by a federal project engineer. LPO officials told us that we may have received conflicting or inaccurate information from new staff, or because of recent changes to the application process as LPO's programs have expanded.

Some application review templates have errors. We found errors in three application review spreadsheet templates. The Title XVII Part II Financial Score Form is a spreadsheet with formulas that automatically average scores entered by LPO staff. In one instance, we found an error

⁴²TPMD P 413.13F, "ATVM Part I and Part II Review Procedure" (July 26, 2023).

⁴³TPMD P 413.13F (July 26, 2023).

⁴⁴TPMD P 413.26G (May 18, 2023).

⁴⁵TPMD P 413.5J, "TPMD Technical Due Diligence Through Conditional Commitment Procedure" (Mar. 16, 2023).

in the formula, so that when staff recorded “not applicable” as an entry, the spreadsheet automatically returned a score of zero instead of removing the entry from the calculation. According to the form, a score of zero signifies a project is “materially deficient” in a category, which is not the same as “not applicable.” As a result of this error, one project received a score of 2.2 out of a possible 5 points for the project sponsor’s financial and managerial capability. When the not applicable entry is appropriately factored into the calculation the score is 2.75. The same project received a score of 2.14 instead of 2.5 for the creditworthiness and financial viability of the project because of this error.

We also found one spreadsheet had overlapping rating scales, so that the same score could fit into two credit rating categories, while another had scales that did not include all possible scores, so it was not clear where some scores fit. The ATVM Internal Risk Rating and Recovery Matrix form calculates a preliminary credit rating, and the scale places scores from 1.6 through 2.6 at a “CCC” rating and scores from 2.6 through 3.6 at a “B” rating, which indicates less risk. One project in our sample had a score of 2.6, which could be a “CCC” or a “B” rating under this scale. The same issue of overlapping scores occurs elsewhere in the ATVM Internal Risk Rating and Recovery Matrix form. Additionally, the Section 1703 Internal Risk and Recovery Rate Matrix form has scales that do not include every score. As a result, in one instance, a score of 7.1 was between two categories.

LPO is updating its guidance, but errors remain. LPO officials we interviewed told us they began updating their application review guidance to reflect recent changes in December 2022 and completed the update in October 2024. However, the update did not address all the errors we found during our review. Some of the examples noted above were from guidance updated or written during the most recent update period. Accordingly, it is unknown when guidance will be accurate, complete, and consistent.

Guidance errors and inconsistencies make it difficult to consistently and accurately review applications. Specifically, contradictory and unclear guidance that does not match LPO application review practices will make it more difficult for staff—particularly new staff—to consistently and accurately follow procedures. Further, when we tried to clarify the guidance with LPO staff, we sometimes received inconsistent or incorrect information. If staff receive inconsistent or incorrect information, it could also make it difficult for them to consistently and accurately follow procedure. Additionally, template errors that lead to incorrect measures of creditworthiness result in LPO using inaccurate information for application

reviews, while overlapping preliminary credit rating scales make it unclear which preliminary credit rating is accurate.

Application Review Documents Were Incomplete, Missing, and Contained Errors

In our examination of 283 application review documents from our nongeneralizable sample of 23 loan or loan guarantee applications, we found examples of incomplete documents, missing documents, documents for which it was unclear if they had been signed by the proper official, and documents that contained technical errors. Without consistently completing and reviewing application review documents, LPO may not be able to ensure consistency and accuracy in its reviews. For more information on how we selected documents to review, see appendix I.

Incomplete documents. Of the 283 application review documents we examined, 23 were incomplete. We found a variety of ways in which the documents were incomplete, including fields in forms that were not fully or clearly completed and documents that contained unaddressed comments or tracked changes by LPO staff that made it unclear whether a document had been finalized.

Of the 23 incomplete documents, we found 21 had a field or fields that were not fully or clearly filled out. However, LPO officials told us they considered 17 of the 21 to be complete. For example, we found fields to describe how scores were determined were left blank in three Part II Financial Score Forms. According to LPO, this document determines the project's creditworthiness and financial viability and the applicant's financial and managerial capabilities. LPO officials told us they considered these forms complete. However, in contrast, documents of this type for other applications we reviewed were completely filled out with explanations of why a rating was selected. By not completely filling out this document, the reasoning for these determinations is unclear.

In another example, a check box on a form used to document the reviewer's determination of whether a project was eligible for the program to which it applied was not checked. However, LPO officials noted that the narrative on the form stated the project is eligible. In another instance, a form did not have a reviewer name and date listed, which LPO officials told us was considered a clerical error.

Finally, we found four documents that were incomplete because they had unaddressed comments or tracked changes, two of which also had fields that were not fully or clearly filled out. Among these four, one was a review document that contained multiple tracked changes made by a different person after the reviewer signed off on the document, making it

unclear whether the reviewer of the document saw or approved of the edits. The tracked changes included changing or adding new information to the document, and a change to the reviewer date. LPO told us that they considered this document complete. In two other cases, documents contained unaddressed comments. In the last case, briefing slides used by the LPO to brief the Credit Review Board included changes throughout.

Missing documents. In addition to the 283 documents we reviewed, we could not find two documents that should have been completed. Both of these were part of the same Section 1706 application. Both documents were from the intake phase of the application review process and were intended to document LPO's determination that a project was technically eligible for the Section 1706 program. According to LPO officials, the documents were not created because of "heavily detailed technical requirements" and "the fact that LPO wanted this loan application to proceed." Therefore, the eligibility review was incorporated into the part II review, which is typically used to evaluate the viability of a project. The part II review for this project discusses eligibility, but without the standard eligibility review it is not clear whether the same analysis was done for this project as for other projects. Additionally, LPO's explanation of why it deviated from the standard application procedure suggests selected projects could be fast-tracked to avoid certain requirements.

Unclear signatures. We found 15 documents out of the 283 we reviewed for which it was unclear if the correct official signed the document. These documents were either missing a signature or it was not clear to us whether they had been signed by the correct official. For example, one internal memo used to document concurrence among key officials—including the Secretary of Energy—on moving an applicant to the next phase of the review process was missing signatures from two senior LPO officials and the Secretary of Energy or the Secretary's authorized designee. In another of these memos, we also found that the Secretary of Energy or their designee did not sign the document as called for in LPO's guidance.⁴⁶ In another example, a form used to document the applicant's technical viability during the intake phase was missing a signature by a senior LPO official. Without signatures, it was not clear to us whether the correct officials had reviewed and approved these documents and decisions.

Additionally, we could not determine whether the correct LPO officials signed the director concurrence for applications at the due diligence

⁴⁶LP10 P 413.3B (Feb. 14, 2020).

phase of the application process in eight out of nine cases.⁴⁷ According to LPO officials, director concurrence is used to document sign-off on a package of documentation needed to approve due diligence. According to LPO officials, the concurrence is to be signed by the following seven LPO officials: Deputy Director, Chief Investment Officer, Chief Operating Officer, Director of the Risk Management Division, Director of the Origination Division, Director of the Technical and Environmental Division, and Chief Counsel. Other designees may only sign when one of these officials is unavailable and a memo of delegation of authority is in place. In our review, we found that five of the nine concurrences we reviewed only had six signatures.

Further, none of the concurrences identified the title of the official, so we were unable to determine whether the required officials had concurred on the decision in instances when the person who signed was no longer working at LPO or changed positions. LPO officials told us that there is no check in the application review process to ensure that all relevant directors concurred. It is possible the correct officials signed, but we could not verify the names we saw were the correct officials at the time of the signatures.

Technical errors. We also found technical errors in 10 application review documents, including chemistry and mathematical errors. LPO or the independent engineers that provide an independent technical review and assessment of projects did not always follow standard naming or chemical formula conventions, resulting in incorrect information in the reviews of some applications.⁴⁸ For example, we found two examples of incorrect chemical formulas in LPO presentations to the DOE Credit Review Board. We also found incorrect chemical names in a technical viability review form in that they did not follow the accepted naming convention.

In addition, nine of the 23 applications we reviewed included an independent engineer's report as one of the application review documents, and of these nine independent reports, five had chemistry-related errors. Specifically, we found examples of incorrect chemical formulas and incorrect chemical symbols. For example, one report incorrectly used the symbol Ma for manganese, instead of Mn. Similarly, another report incorrectly used the symbol FL instead of F for fluorine in

⁴⁷Although we reviewed documents from 23 applications, only nine were far enough along in the process to reach the director concurrence for due diligence step.

⁴⁸In reviewing application review documents for chemistry-related errors, we relied on the nomenclature convention set forth by the International Union of Pure and Applied Chemistry.

the chemical formula for hydrofluoric acid. According to LPO, officials expect independent engineers to provide LPO with high quality, error-free reports that require limited review by LPO. The LPO division directors review the reports only for errors deemed substantive; however, LPO officials told us that, with the increase in application submissions, staff have less time to critically review each report to identify substantive issues for management review. Such errors may raise questions about the quality and thoroughness of other aspects of these independent engineer's reports.

We also found mathematical errors in our analysis of LPO application review documents. Specifically, we found two instances in which LPO staff miscalculated scores on technical viability forms. These scores rate the application against criteria in areas such as technical merit and environmental benefits. In one case, the document lists an overall score of 476, instead of the correct 449. Although both are considered passing scores, similar miscalculations have the potential to produce incorrect determinations on whether an applicant meets certain criteria related to the project's technical viability.

LPO reviews application review documents, but errors remain. LPO officials told us they generally use a "doer and reviewer" approach to application review documents. Officials said various steps are assigned to one staff person to complete, and then reviewed and approved by someone in a supervisory position. To ensure staff are trained on current procedures, officials said LPO pairs new hires with experienced staff. If there is deviation in how policies and procedures are followed, LPO has regular staff meetings to discuss policies and procedures. Nevertheless, we found errors, including on documents that had a supervisory signature.

Application review documents that are incomplete or contain errors make it difficult to ensure consistent and accurate reviews. LPO officials noted that they judge a document as substantially complete based in part on the importance of the missing information and can follow up to ask for information later in the process. However, if forms are not filled in completely and with similar information, it could be difficult for staff to consistently find and use information across applications. Reviewers also may not be able to understand the reasoning behind decisions or internal scores and ratings that feed into the decision on whether to offer a loan or guarantee if explanations are not clear. Finally, technical or mathematical errors that are not caught and corrected may make it difficult to consistently and accurately evaluate applications. As a result,

LPO decisions about the merits of an application may be based on erroneous or incomplete information.

**The Section 1703
Application Review
Guidance Does Not
Require DOE To Confirm
Innovativeness at the Time
of Commitment**

As previously discussed, to be statutorily eligible for a loan or loan guarantee under the Section 1703 program, a project must use new or significantly improved technologies compared to technologies in general commercial use in the U.S.⁴⁹ DOE's regulations implementing this requirement call for eligible projects to be deemed innovative at the time LPO offers the term sheet that details the final terms of the loan or guarantee to be agreed upon by LPO and the applicant.⁵⁰

However, according to LPO guidance and officials, LPO determines whether a project is innovative during the intake phase of the application process in the part I review. LPO officials said they determine whether an application is innovative during the intake phase so that applicants will know whether they qualify for the program before moving forward. This is earlier than at the time the term sheet is issued. For the two 1703 projects we reviewed, at least 11 months elapsed between LPO's part I review, when it makes its innovativeness determinations, and when the term sheet was issued, according to agency data.

There is no provision in LPO's application review guidance for project eligibility to be reevaluated to address any changes in the project or the commercial technologies between the time LPO determines the technologies' innovativeness and the time LPO offers the final terms of the loan or guarantee to the applicant. For one Section 1703 project we reviewed, we found the project's proposed technology changed significantly between the part I review and the time the project reached financial close. In particular, the applicant did not implement several software functions or features that experts at the National Renewable Energy Laboratory deemed innovative in the project's technology, potentially affecting whether the project would still be deemed innovative without those features. According to officials, the final software technology was not reviewed to determine if it was innovative at the time the term sheet was issued or the loan guarantee was issued. LPO officials stated that they do not re-assess the technologies unless an

⁴⁹42 U.S.C. § 16513(a)(2). DOE regulations define this general commercial use as the commercial technology being in use in three or more U.S. commercial operations for the same purpose as the proposed project and used at each facility for at least 5 years. 10 C.F.R. § 609.2.

⁵⁰Specifically, DOE regulations require eligible projects to deploy technologies which are not in general use in the commercial marketplace in the United States at the time the term sheet is offered by DOE. Further—unless the technology is new as characterized in the regulations—it must be significantly improved as compared to commercial technologies in use in the U.S. at the time the term sheet is issued. 10 C.F.R. § 609.2.

applicant notifies LPO of a change in the technology. Without reassessing project applications for innovativeness when the term sheet is issued, LPO risks guaranteeing loans for projects that no longer meet eligibility requirements.

**LPO Does Not
Comprehensively Assess
Its Application Review
Process to Ensure
Consistency and Accuracy**

We found that LPO does not conduct a comprehensive review of its application process, including a review of guidance and application review documents. This contrasts with LPO's portfolio management division, which conducts a comprehensive review of its loan monitoring process at least annually.⁵¹ The annual portfolio management division review includes a continuous improvement loop wherein LPO evaluates any deficiencies identified, determines appropriate corrective actions on a timely basis to remedy the deficiency, and evaluates the effectiveness of previously implemented remedies. LPO documentation shows that through this process the Portfolio Management Division has regularly identified and corrected issues in the loan monitoring process. Officials told us they have not conducted similar reviews of the application review process because they did not until recently consider this a high-risk area.

We have identified problems with LPO's guidance and procedures and recommended updates to reflect current application review practices. However, problems persist, and an annual, comprehensive review of LPO's entire application process with a continuous improvement loop could help ensure LPO addresses its deficiencies in guidance and application document review. By doing it annually in a transparent manner, LPO could also help ensure consistency in implementing guidance updates.

**LPO Does Not
Comprehensively Identify
Its Training Needs or
Assess the Effectiveness
of Its Training Program
Regarding Application
Reviews**

LPO officials told us they take steps to provide training, identify training topics, and evaluate training that staff receive regarding following established policy for application reviews.

- **Provide training.** LPO uses a variety of approaches to provide training to federal and contractor staff—such as new-hire orientations, brown bags, role-specific trainings provided by external experts, informal mentor-mentee relationships for new staff, and in all-hands staff meetings, according to LPO officials and documentation. For example, following a recent consultant's review of how LPO can prioritize quality applications to move through the application review

⁵¹As a part of this review LPO ensures portfolio management actions comply with approved policies and procedures, including for completeness and accuracy. Appropriate LPO officials use the findings of this review—which are rated as high-, medium-, or low-risk—to identify policy updates and training needs, according to LPO documents and officials. In addition, officials track identified deficiencies to evaluate whether these deficiencies have been addressed.

process, LPO management made several significant changes to guidance and procedures for application reviews and conveyed these changes to staff during an all-hands meeting in January 2024. In addition, LPO provided role-specific training for application review team leads.

- **Identify training topics.** LPO uses several mechanisms—such as a working group, staff requests, and input from senior management—to identify topics for training staff on application review procedures, according to officials. For example, LPO has established mechanisms where staff can request training or identify their training needs. Specifically, staff may request a brownbag training, fill in a weekly training needs survey, or develop an individual development plan that identifies specific training needs to conduct application reviews. However, as of May 2024, 74 percent of staff had not started an Individual Development Plan, 11 percent were preparing one, and nearly 9 percent had an approved plan, according to LPO documentation.
- **Evaluate training.** LPO evaluation of training focuses on knowledge checks and participant satisfaction surveys, often conducted at the conclusion of a training event, according to LPO officials and documentation. According to LPO officials, LPO offers feedback surveys, quizzes, or assessments at the end of many of their trainings to evaluate the training or staff development activities.

However, as the application review shortcomings presented above demonstrate, LPO's efforts have not comprehensively identified training needs or evaluated the extent to which staff training has been put into practice to effectively reduce errors in application reviews. While LPO officials told us that they take steps to hire knowledgeable and experienced staff, they acknowledged existing staff may not understand the details of LPO's new programs or recent changes to existing programs. In addition, we found that the significant number of new staff will likely need training on current procedures to follow in their application reviews.

We previously reported that agencies need to identify the most important training needs and resources that can address those needs.⁵² In addition, agencies need credible information on how training programs affect organizational performance and goal attainment, such as efficient and consistent review of applications leading to closed loans. Without a comprehensive understanding of staff's application review training needs

⁵²GAO, *Human Capital: A Guide for Assessing Strategic Training and Development Efforts in the Federal Government*, [GAO-04-546G](#) (Washington, D.C.: March 2004).

or the outcomes of such training provided, LPO does not know if their training provides new and existing staff with the skills and knowledge to follow recently updated procedures accurately.

Conclusions

Providing billions of dollars in loans and loan guarantees to innovative and other high-impact energy-related ventures that private lenders will not make involves the risk of financial loss. In the last several years, the addition of two new loan programs and significantly higher loan authority and funding have challenged LPO in balancing increased financial risk with endeavoring to approve loans and guarantees on the scale Congress envisioned. In response, LPO published new rules, reviewed and revised existing guidance, issued new guidance, added hundreds of staff positions, and provided training.

Although LPO substantially increased the number of loans it closed in the last 3 months of 2024, it is not on track to use the full extent of the loan authority Congress provided. At the same time, shortcomings with LPO's guidance, documentation, and training for reviewing loan applications raise questions about the extent to which LPO is reviewing applications accurately and effectively, including being consistent with law. These weaknesses suggest a measured approval pace is warranted until the agency implements needed improvements.

Without addressing needed improvements in loan application reviews, LPO risks making billions of dollars in loans and guarantees for ineligible projects. Use of an annual review mechanism such as that implemented by LPO's Portfolio Management Division could help jump start LPO's needed corrective actions. Thus, LPO could better ensure application reviews lead to selecting projects that further program goals.

Matter for Congressional Consideration

Congress should consider making changes to the authority for LPO's five loan programs or reducing appropriations to reflect what LPO is likely to use before the authority expires. (Matter 1)

Recommendations for Executive Action

We are making the following four recommendations to LPO:

The Secretary of Energy should ensure that the Director of LPO directs staff to undertake an annual comprehensive review to identify and correct errors in application review guidance. (Recommendation 1)

The Secretary of Energy should ensure that the Director of LPO directs staff to undertake an annual comprehensive review to assess the

completeness and accuracy of its application review documentation, including evaluating any deficiencies in the documents, determining appropriate corrective actions, and evaluating the effectiveness of implemented remedies. (Recommendation 2)

The Secretary of Energy should ensure that the Director of LPO directs staff to undertake an annual comprehensive review to identify application review training needs and to evaluate the extent to which training addressed deficiencies. (Recommendation 3)

The Secretary of Energy should ensure that the Director of LPO updates application review guidance for Section 1703 loans to include an evaluation of whether a project qualifies as innovative at the time the term sheet is issued. (Recommendation 4)

Agency Comments and Our Evaluation

We provided a draft of this report to DOE for its review and comment. In response, DOE provided written comments, which are reprinted in appendix III. In its response, DOE concurred with our first three recommendations on conducting annual comprehensive reviews of (1) LPO's application review guidance, (2) application review documentation, and (3) training needs. DOE also described steps it will take to implement these recommendations.

DOE did not concur with our fourth recommendation on updating LPO's application review guidance for Section 1703 loans to include an evaluation of whether a project qualifies as innovative at the time a term sheet is issued. This recommendation would ensure LPO is following DOE regulations that implement the law by calling for eligible projects to be deemed innovative at the time LPO offers the term sheet to an applicant.

In its written comments, DOE stated several reasons for disagreeing with the recommendation. Specifically:

- DOE claimed that LPO's process already ensures a project is innovative at the appropriate phases of the application review process, making the recommendation unnecessary. DOE also stated that we did not account for steps of the LPO underwriting process, including a review of the innovative technology prior to offering an applicant a term sheet and prior to the financial close of a loan guarantee.
- DOE stated that an additional evaluation would cause delays and potentially create an unnecessary burden for applicants.

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- DOE stated that it disagreed with our statement in the report that, for one project, “the final software technology was not reviewed to determine if it was innovative at the time the term sheet was issued or the loan guarantee was issued.”

However, we continue to believe our recommendation is necessary to ensure that approved Section 1703 projects comply with the law. Specifically:

- We found LPO’s process did not ensure a project is innovative at the time a term sheet is issued, as required by DOE regulations implementing the law. According to LPO, the determination of whether a project is innovative happens during its part I review, which occurs early in the application review process, before LPO conducts full due diligence and several months before a term sheet is issued.

We reviewed LPO’s application review process from beginning (intake) to end (financial close) and found no provision in LPO’s application review guidance for a project to be reevaluated to ensure it remains innovative at the time the term sheet is offered. We also reported that LPO officials told us the office does not reassess the technology for innovativeness after part I unless an applicant notifies LPO of a change in the project’s technology.

- We do not believe our recommendation will result in unnecessary delays or burdens. DOE’s regulations require such a determination to implement the law. Further, DOE’s letter states that it ensures consistency with the regulations by reviewing the innovative technology prior to offering a term sheet to an applicant. If LPO does review projects to ensure they are innovative prior to offering a term sheet to the applicant, then our recommendation would merely formalize this step in LPO’s guidance and application review documentation. Accordingly, we do not believe this would result in delays or create an unnecessary burden on applicants
- Regarding our report statement that, for one project, “the final software technology was not reviewed to determine if it was innovative at the time the term sheet was issued or the loan guarantee was issued,” we note that this is based on our analysis of documentation provided by LPO and statements from LPO officials.

We found the technology that qualified as innovative for one of the Section 1703 projects we reviewed changed significantly in the months between its part I review and when the project reached financial close. This could potentially affect whether the project would still be deemed innovative. According to LPO officials, they did not review the software technology to determine whether it was innovative at the time a term sheet was issued or the loan guarantee was issued. We also requested any documentation of an analysis of whether the final software elements were innovative, and LPO did not provide any such analysis.

Without updating its application review guidance for Section 1703 loans to include an evaluation of whether a project qualifies as innovative at the time a term sheet is issued, LPO cannot ensure it is following DOE regulations that implement the law.

DOE did not provide technical comments.

We are sending copies of this report to the appropriate congressional committees, the Secretary of Energy, and other interested parties. In addition, the report will be available at no charge on the GAO website at <https://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-3841 or ruscof@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix IV.

//SIGNED//

Frank Rusco
Director, Natural Resources and Environment

Appendix I: Objectives, Scope, and Methodology

Our objectives were to examine (1) how the Department of Energy's (DOE) Loan Programs Office (LPO) addressed the expansion of its loan programs and loan authority and (2) the extent to which LPO's application review guidance and procedures ensure consistent and accurate application reviews.

Analysis of How LPO Addressed the Expansion of Its Loan Programs and Loan Authority

To determine how LPO has addressed the expansion of its loan programs and loan authority, we examined: (1) recent changes to LPO's programs, (2) industry interest in the programs, (3) available loan authority, (4) whether LPO is meeting its application review goals, (5) status of applications and the portfolio of projects, (6) duration of application reviews, and (7) staffing changes and vacancy rates.

As specified below, where appropriate, we examined data from LPO's Quicksilver database, which is LPO's database of record for managing application workflows, documentation, and data, among other things. Specifically, we assessed the reliability of these data by (1) reviewing Quicksilver documentation, (2) reviewing the data the system produced to identify potential errors or outliers, and (3) interviewing agency officials knowledgeable about Quicksilver data to address data issues we identified. We determined that the data were sufficiently reliable for reporting application review durations, milestone achievement, and financial information.

Recent changes to LPO programs. To identify changes to LPO's five programs since 2016, we reviewed relevant laws, draft and final program regulations and guidance, and other program documents. Specifically, we reviewed the 2021 Infrastructure Investment and Jobs Act (IIJA) and the 2022 Inflation Reduction Act (IRA) for changes to existing programs and the creation of new programs.¹ In addition, we reviewed LPO's guidance specific to all five programs, including the Carbon Dioxide Transportation Infrastructure Finance and Innovation Act program (CIFIA) guidance issued in October 2022.² We also reviewed regulations and rulemakings, such as DOE's interim final rule on the scope and amount of loan funding

¹"An Act To provide for reconciliation pursuant to Title II of S. Con. Res. 14," Pub. L. No. 117-169, §§ 50141–45, 136 Stat. 1818, 2042–46 (2022) (commonly known as the Inflation Reduction Act); Infrastructure Investment and Jobs Act, Pub. L. No. 117-58, §§ 40304, 40401(a)–(c), 135 Stat. 429, 988–1000, 1034–37, 1376 (2021).

²U.S. Department of Energy, CIFIA Program Guide: CIFIA Loans for Carbon Dioxide Transportation Infrastructure" (Washington, D.C.: Oct. 5, 2022, rev'd May 2, 2024).

for clean energy projects published in May 2023.³ We also interviewed LPO officials.

Industry interest in LPO programs. To identify if industry interest increased in LPO's existing programs, we examined Quicksilver loan application data submitted from January 2016 through March 2024. We examined these data to determine when new application submissions increased and used the volume of applications submitted to represent the level of industry interest.

Available loan authority. To identify available loan authority, we reviewed relevant legislation, such as the IRA and IIJA; reviewed LPO documentation on expended loan authority and how they calculate available loan authority; and interviewed LPO management officials. In addition, we analyzed Quicksilver data from January 2016 through September 2024 to identify the amount of loan authority used for loans that have reached financial close and the amount requested for applications still in the review process.

Meeting application review goals. To determine if LPO was meeting its application review goals, we reviewed agency documentation and interviewed LPO management to determine the office's goals for application review from 2022 through 2024. In addition, we reviewed relevant Quicksilver application data from January 2022 through September 2024 to compare goals to achievements.

Status of applications and the LPO portfolio of projects. To describe the status of applications for each program—such as number of applications in each phase of the application review process—we analyzed Quicksilver data LPO provided for applications submitted from January 1, 2016, through September 30, 2024; organized applications by current application phase and program; and summarized the data. Similarly, to describe LPO's project portfolio of loans closed from January 1, 2016, through September 30, 2024, we analyzed Quicksilver data LPO provided—such as obligated amount, closing date, and project technology—organized it by program, and summarized the data. We also requested data on applications that had reached conditional commitment or financial close in the last 3 months of calendar year 2024. Although we collected these data after our cutoff for full data analysis, we present

³Department of Energy, "Loan Guarantees for Clean Energy Projects—Interim final rule," 88 Fed. Reg. 34419 (May 30, 2023).

these data because of the substantial increase in applications reaching these milestones.

Duration of application reviews. To examine the median duration of the time it took applications to complete review phases, we analyzed the Quicksilver application data from January 2016 through September 2024 to determine which active applications had completed one or more phases—such as intake or due diligence. We then calculated the duration, in months, that it took each project to complete each phase, and then determined the median time to complete those phases to reduce the effect of outliers on the reported figures. We then contrasted the median duration to what we reported in 2012.⁴

Staffing counts and vacancy rates. To describe staffing changes and vacancies we compiled staffing data from LPO documentation from 2014 through October 2024. We calculated the total number of staff, staff by specific division or office, type of position (e.g., federal versus contractor), and whether the position was filled or vacant. We calculated trends in LPO's workforce during this timeframe and interviewed LPO management about these trends.

Evaluation of the Extent to Which LPO's Application Guidance and Procedures Ensure Consistent and Accurate Application Reviews

To address the second objective, we reviewed documents and interviewed LPO officials on three topics: (1) LPO's application review guidance, (2) LPO's application review documents, and (3) LPO's training on how to review loan and guarantee applications.

Application review guidance. To understand LPO application review process guidance, we requested application review guidance documents for each of the five loan and loan guarantee programs. We reviewed this guidance to identify the forms, memos, and other documents that LPO and independent contractors develop during the application review process. We also interviewed LPO officials about the application review guidance. During our review, we identified instances in which the guidance was not clear or differed from information about the application process or documents provided by LPO officials. We did not comprehensively review the application guidance to identify all instances where it was not clear or did not match the process officials told us staff followed. However, we noted instances of unclear or conflicting guidance, and interviewed officials about these instances.

⁴GAO, *DOE Loan Guarantees: Further Actions Are Needed to Improve Tracking and Review of Applications*, [GAO-12-157](#) (Washington, D.C.: Mar. 12, 2012).

We also reviewed the law and regulations that direct the application review process.

Application review documents. To determine the extent to which LPO's application review documents—documents created by LPO staff and contractors as part of the application review process—follow guidance on the process, we identified a nongeneralizable sample of 23 applications across LPO's five loan programs, using the process described below. The documents include forms LPO uses to determine whether a project is eligible for its programs, project reports from independent engineers, spreadsheets used to calculate risk, and memos to document decisions. We compared these documents to LPO's application review guidance to determine if the documents followed the guidance. We also interviewed LPO officials about these documents.

To select application review documents to review, we reviewed application guidance for each of the five loan programs. We used the guidance to independently identify instances in which it called for LPO or a contractor working on LPO's behalf to develop a document in the application process—such as a form, memo, letter, analysis, or agreement—to determine a project's eligibility, viability, risk level, or otherwise move an application forward. We made a list of the application documents we identified for each of the five programs, which we shared with LPO. LPO then reviewed our list, provided suggested edits, such as re-arranging the order of the documents, and provided us with examples of the documents.

To select a nongeneralizable sample of loan applications from each of the five loan programs, we requested a list of all applications for any of LPO's five programs from fiscal year 2018 through August 10, 2023. We used this timeframe so that we could capture applications from both before and after the increase in applications after 2020 and changes from the IRA and IIJA. We sorted the list of loan applications by program, then by those that had completed the application process, and then by those that had proceeded the farthest along in the loan application process, and finally by those that had been in the process the longest. We selected the top loans for each program—those that had completed the application process or were closest to completing the application process. For those with multiple loans at the same phase of the process, we selected the applications that had been in that status the longest. We excluded any applications that had been withdrawn from consideration at the time of our selection.

Our process resulted in the selection of 23 applications to review. We selected five applications each for Title XVII Clean Energy Financing program (out of 106 applications that were active or had achieved financial close), Tribal Energy Financing Program (out of 10 that were active or had achieved financial close), and the Title XVII Energy Infrastructure Reinvestment program (out of five applications that were active or had achieved financial close). In the case of CIFIA, we selected only one application because there was only one application submitted as of August 2023. In the case of the Advanced Technology Vehicles Manufacturing program, we selected seven applications (out of 30 applications that were active or had achieved financial close) to ensure variation among the industry or technology of the applications we reviewed.

We then requested all available application review documents for each of the 23 selected applications. We reviewed them to identify whether any were missing and whether those we received were complete and signed by the appropriate officials, if a signature was called for in the guidance or in the document itself. The team also noted the date of each document and other items of note, such as whether a mathematical calculation was not correct. To conduct the review, one analyst reviewed the documents to identify missing, incomplete, and improperly signed documents, as well as the date and items of note, then a second analyst independently reviewed the documents. If there was disagreement between the reviewers, they discussed to reach consensus. The team then provided LPO a list of the documents it had identified as missing, incomplete, or improperly signed, and gave the agency an opportunity to provide an updated or correct document. In cases when the team received new documents, it followed the same process of review with two independent reviewers reaching consensus. The number of documents we included in our final review was 283. We received more than this number of documents, but in cases where LPO provided an updated version of a document, we reviewed the updated version and did not count the older version in our review.

Staff training for application reviews. To determine the extent to which LPO's staff training program addresses the needs of staff who conduct application reviews, we collected and reviewed LPO's training materials and interviewed LPO officials. Specifically, the training materials we reviewed included new staff orientation documents, examples of training materials used in all-hands or brown bag training sessions, and survey responses from LPO staff on the trainings' effectiveness. To further understand these training sessions, we interviewed LPO officials to discuss the frequency of trainings and how LPO officials identify training

needs for staff conducting application reviews, among other things. We reviewed and used GAO's training and staff development assessment guidance to compare LPO training and staff development practices to those established in the guide.⁵

We conducted this performance audit from February 2023 to May 2025 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

⁵GAO, *Human Capital: A Guide for Assessing Strategic Training and Development Efforts in the Federal Government*, [GAO-04-546G](#) (Washington, D.C.: March 2004).

Appendix II: Program Summaries

Title XVII Clean Energy Financing Program (Section 1703)

Supports one or more of (1) the deployment of innovative and high-impact clean energy technologies; (2) production facilities that manufacture products with eligible technologies; or (3) augmenting state-administered clean energy financing programs that align with federal energy priorities.

Key project eligibility criteria include the following:

- 1. Involves an energy-related project located in the U.S. that achieves significant and credible greenhouse gas or air pollution avoidance, reduction, utilization, or sequestration
- 2. Involves technically viable and commercially ready technology
- 3. Demonstrates a reasonable prospect of loan repayment
- 4. Specific Section 1703 project categories are:
 - a. Innovative Energy projects will deploy a new or significantly improved technology.
 - b. Innovative Supply Chain projects will deploy a new or significantly improved technology in manufacturing or the manufacture of a new or significantly improved technology.
 - c. State Energy Finance Infrastructure projects will receive meaningful financial or credit support from a state energy financing institution.¹

Sector(s) covered: Eligible sectors include renewable energy; advanced fossil energy technologies; advanced nuclear; efficient electrical generation, transmission, and distribution; pollution control equipment; energy storage technologies; oil refineries; and critical minerals supply.

Loan services offered: Loans are limited to 80 percent of eligible project costs.² Loans can be made either directly through the Federal Financing Bank (FFB) or through a non-federal lender with an LPO guarantee of up to 90 percent of the loan amount.³ Interest rates on federally issued loans are at U.S. Treasury rates, plus 0.375 percent, and a risk-based charge, up to an additional 1.625 percent. For loans made by non-federal lenders, interest rates are at market rates plus a risk-based charge, up to an additional 1.625 percent.⁴

Table 5: Timeline of Title XVII Clean Energy Financing Program (Section 1703) Establishment, Appropriations, Authorities, and Significant Statutory and Regulatory Changes

Year (Act, if appropriate)	Appropriations for credit subsidy cost (in billions)	Statutory cap on loan authority (in billions)	Recent significant changes and notes
August 2005 (Energy Policy Act of 2005) ^a	\$0	\$0	Broad authority established for innovative projects
February 2007 (Revised Continuing Appropriations Resolution, 2007) ^b		\$4	
March 2009 (Omnibus Appropriations Act, 2009) ^c	-	\$47	\$18.5 billion is earmarked for nuclear power projects

¹A “state energy financing institution” is a state, tribal, or quasi-independent entity established to provide financing support or credit enhancements for eligible § 1703 projects as well as to create liquidity or reduce financial barriers to such projects. 42 U.S.C. § 16511(7).

²Title 17 regulations define eligible project costs as those costs, including escalation and contingencies, that are expended or accrued by a Borrower and are necessary, reasonable, customary, and directly related to the design, engineering, financing, construction, startup, commissioning, and shakedown of an eligible project. 10 C.F.R. §§ 609.2, 609.10(a).

³LPO may make loan guarantees that cover 100 percent of the loan value, in which case the loan must be provided through the Treasury’s FFB, which serves as the lender. The FFB is a government corporation, created by Congress, under the supervision of the Secretary of the Treasury. See 12 U.S.C. §§ 2281–96. These loan guarantees are considered “direct loans.”

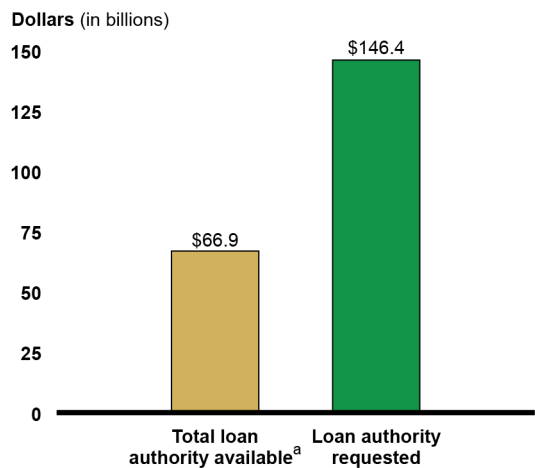
⁴By statute, the obligation’s interest rate shall not exceed a level that the Secretary of Energy determines appropriate, taking into account the prevailing rate of interest in the private sector for similar loans and risks. 42 U.S.C. § 16512(e).

Year (Act, if appropriate)	Appropriations for credit subsidy cost (in billions)	Statutory cap on loan authority (in billions)	Recent significant changes and notes
April 2011 (Department of Defense and Full-year Continuing Appropriations Act, 2011) ^d	\$170 million	\$1.2 Rescinded \$18.2 billion of prior loan authority	
January 2017 Final Rule ^e	-	-	Streamlined application process and increased transparency
November 2021 (Infrastructure Investment and Jobs Act) ^f	-	-	Authorized additional technology sectors such as storage and critical minerals processing and manufacturing; added financing option for state energy finance institutions
August 2022 (Inflation Reduction Act) ^g	\$3.6	\$40	Authority available through fiscal year 2026
December 2022 (Consolidated Appropriations Act, 2023) ^h	Rescinded \$150 million	\$15	

Source: GAO analysis of cited laws and Department of Energy documentation. | GAO-25-106631

^aPub. L. No. 109-58, tit. XVII, §§ 1701–04, 119 Stat. 604, 1117–22.
^bPub. L. No. 110-5, § 20320(a), 121 Stat. 8, 21.
^cPub. L. No. 111-8, 123 Stat. 524, 619.
^dPub. L. No. 112-10, § 1425, 125 Stat. 38, 126–28.
^e81 Fed. Reg. 90699 (Dec. 15, 2016) (effective Jan. 17, 2017).
^fPub. L. No. 117-58, § 40401(a)(2)(A), 135 Stat. 429, 1033–34 (2021).
^gPub. L. No. 117-169, § 50141(a), (b), 136 Stat. 1818, 2042–43 (2022).
^hPub. L. No. 117-238, 136 Stat. 4459, 4636 (2022).

Figure 2: Total Estimated Title XVII Clean Energy Financing Program (Section 1703) Loan Authority Available and Requested by Applicants as of September 2024



Source: GAO analysis of Department of Energy (DOE) data. | GAO-25-106631

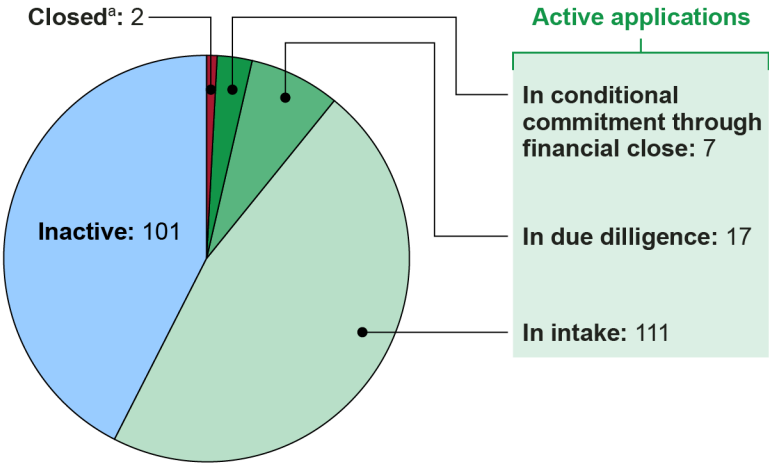
Note: Total loan authority available reflects amounts LPO has obligated for conditional commitments and closed loans. Loan authority requested reflects applications in intake and due diligence. It does not include applications LPO considers inactive. Data are as of September 30, 2024, and do not reflect substantial activity on this program in last quarter of calendar year 2024.

^aDOE estimated loan authority available, based on statutory limitations and applications achieving financial close.

Table 6: Summary of Title XVII Clean Energy Financing Program (Section 1703) Active and Inactive Loan Applications Submitted from January 2016 through September 2024, by Current Review Phase, as of September 2024

Phase	Total number of applications	Average loan requested (millions)	Total loan requested (millions)	Average time since application submitted (months)
Intake	111	\$1,073	\$119,049	18.6

Figure 3: Total Closed, Active, and Inactive Title XVII Clean Energy Financing program (Section 1703) Applications, by Milestone Achieved, from January 2016 through September 2024



Source: GAO analysis of Department of Energy data. | GAO-25-106631

^aIn 2019 the Loan Programs Office approved three adjustments to previously approved loans for Vogtle. We did not include these adjustments in this figure because they did not complete the full loan application review process.

Phase	Total number of applications	Average loan requested (millions)	Total loan requested (millions)	Average time since application submitted (months)
Due diligence	17	\$1,609	\$27,354	28.9
Conditional commitment to financial close	7	\$714	\$4,995	35.3
Completed financial close ^a	2	\$1,907	\$3,813	19.8
Inactive ^b	101	-	-	-

Source: GAO analysis of Department of Energy data. | GAO-25-106631

^aIn 2019 the Loan Programs Office approved three adjustments to previously approved loans for Vogtle. We did not include these adjustments in this table because they did not complete the full loan application review process. In total, these adjustments resulted in additional loan guarantees of over \$6,375 million.

^bInactive refers to project applications that were rejected, withdrawn, abandoned, or are otherwise on-hold.

Table 7: Title XVII Clean Energy Financing Program (Section 1703) Loan Applications in Conditional Commitment, as of September 2024

Project name	Sector	Project location(s)	Loan guarantee/ loan amount requested (millions)
Project Redeemer	Renewable energy systems	Georgia	\$1,412
IRG Erie Plastics Recycling Plant	Advanced resource development	Pennsylvania	\$183
Project Bioforge 2	Efficient end-user energy technologies	Texas	\$228
Viridi Hydrogen Project Company	Renewable energy systems	New York	\$1,658
Eos Energy Z3 Battery Manufacturing Project	Renewable energy systems	Pennsylvania	\$399
LongPath Active Emissions Overwatch System	Advanced fossil energy technology	Several oil-producing states	\$164
Monolith Olive Creek Project	Efficiency improvement	Nebraska	\$953
Total	-	-	\$4,995^a

Source: GAO analysis of Department of Energy data. | GAO-25-106631

^aTotal may not add due to rounding.

After our cutoff date for collecting application data (September 30, 2024), LPO offered conditional commitments for five Section 1703 projects totaling \$7,543 million. These projects and their locations are Expanding EV Access for All (California); Project IceBrick (California); Gevo Net Zero 1, LLC (South Dakota); Sunwealth Project Polo (Massachusetts); and Grain Belt Express Phase 1 (Kansas).

Table 8: Details of All Title XVII Clean Energy Financing Program (Section 1703) Closed Loans Since Program Began, as of December 2024

Project name	Sector	Project location(s)	Closing date	Obligated amount (millions)
Vogtle ^a	Nuclear generation	Georgia	2014 to 2019	\$11,578 (in total)
Advanced Clean Energy Storage Phase 1	Energy storage	Utah	June 2022	\$480
Hestia	Virtual power plant	Nationwide and Puerto Rico	September 2023	\$3,333
LongPath Technologies, Inc.	Biofuels	Colorado	October 2024	\$162
Eos Energy Enterprises, Inc.	Energy Storage/Reliable Delivery	Pennsylvania	November 2024	\$277
Hanwha Q Cells Georgia, Inc.	Solar Manufacturing	South Dakota	December 2024	\$1,450
Total	-	-	-	\$17,281^b

Source: GAO analysis of Department of Energy (DOE) data. | GAO-25-106631

^aThe Vogtle project is for the construction of nuclear energy production facilities jointly owned by four entities, three of which have signed one or more loan guarantees with DOE's Loan Program Office. For our reporting purposes and following DOE's practice, we have combined the loan guarantee data to reflect a single project.

^bTotal may not add due to rounding.

Tribal Energy Financing Program (TEFP)

Supports federally recognized Indian Tribes or tribal energy development organizations that develop energy resources, products or services using commercial technology

Key project eligibility criteria include the following:

1. Applicant is a federally recognized Indian Tribe or entity, including Alaska Native village, regional or village corporation, or a tribal energy development organization owned wholly or partially by a federally recognized Tribe or Alaska Native Village¹
2. Can be located on or off tribal land
3. Can include a broad range of energy projects and activities that serve as loan collateral
4. Demonstrates a reasonable prospect of loan repayment

Sector(s) covered: Projects can use renewable or conventional energy sources that include electricity generation transmission or distribution; energy storage; energy transportation facilities (e.g., pipelines); district heating and cooling facilities; cogeneration facilities; or planned portfolios of distributed energy (such as solar), among others.

Loan services offered: Loans are limited to up to 80 percent of eligible project costs.² Loans can be made either directly through the FFB or through a non-federal lender with an LPO guarantee generally up to 80 percent of loan value.³ Interest rates on federally issued loans are at U.S. Treasury rates, plus 0.375 percent, and a risk-based charge. For loans made by non-federal lenders, interest rates are at market rates plus a risk-based charge. For both lender types, LPO may assign the risk-based charge as may be determined by the specific project details.

Table 9: Timeline of Tribal Energy Financing Program Establishment, Appropriations, Authorities, and Significant Statutory and Regulatory Changes

Year (Act, if appropriate)	Appropriations for credit subsidy cost (in billions)	Statutory cap on loan authority (in billions)	Recent significant changes and notes
2005 (Energy Policy Act of 2005) ^a	-	\$2	Tribal Energy Loan Guarantee Program established
March 2022 (Consolidated Appropriations Act, 2022) ^b	-	-	Temporarily authorized direct lending
May 2022	-	-	Loan Program Office (LPO) released a revised solicitation eliminating some application fees
August 2022 (Inflation Reduction Act) ^c	\$75 million ^d	\$20	Established the direct lending authority (i.e., allowed DOE to establish the Tribal Energy Loan Program) and added a tax credit for eligible projects
December 2022 (Consolidated Appropriations Act, 2023) ^e	-	-	Permanently authorized direct lending

Source: GAO analysis of cited laws and Department of Energy documentation. | GAO-25-106631

^aPub. L. No. 109-58, § 503(a), 119 Stat. at 764–78.

^bPub. L. No. 117-103, div. D, tit. III, 136 Stat. 9, 226.

^cPub. L. No. 117-169, § 50145, 136 Stat. at 2045–46.

^dAppropriated funds provided for credit subsidy and to administer the program.

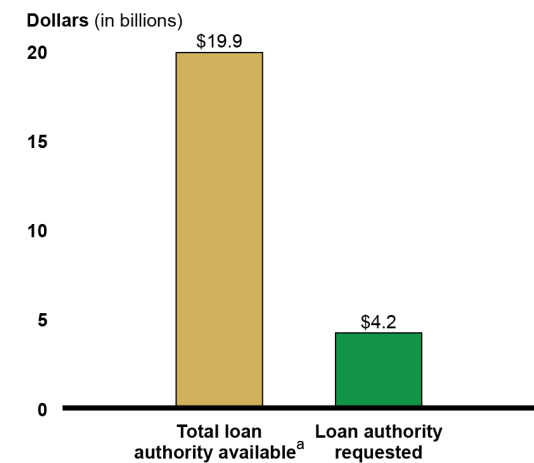
^ePub. L. No. 117-328, div. D, tit. III, 136 Stat. 4459, 4637 (2022).

¹Tribal energy development organizations partially owned by Tribes must have written consent of all such Tribes to apply for a loan or loan guarantee. 25 U.S.C. § 3501(12)(B).

²TEFP solicitation defines eligible project costs as those costs, including escalation and contingencies, that are expended or accrued by a Borrower and are necessary, reasonable, customary, and directly related to the design, engineering, financing, construction, startup, commissioning, and shakedown of an eligible project.

³On a case-by-case basis LPO will consider up to a 90 percent guarantee.

Figure 4: Total Estimated Tribal Energy Financing Program Loan Authority Available and Requested by Applicants as of September 2024

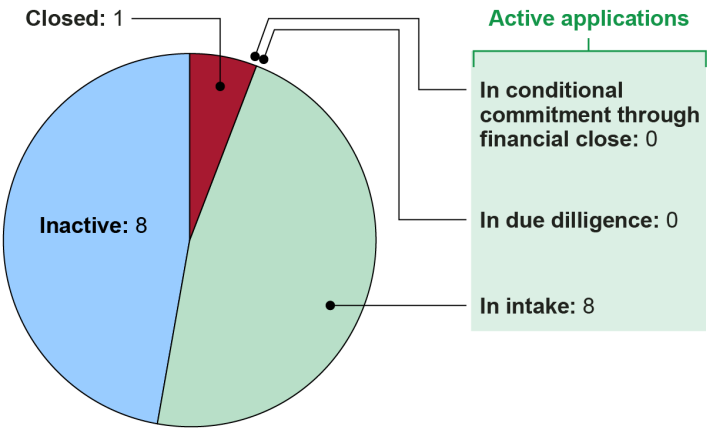


Source: GAO analysis of Department of Energy (DOE) data. | GAO-25-106631

Note: Total loan authority available reflects amounts LPO has obligated for conditional commitments and closed loans. Loan authority requested reflects applications in intake and due diligence. It does not include applications LPO considers inactive. Data are as of September 30, 2024.

^aDOE estimated loan authority available, based on statutory limitations and applications achieving financial close.

Figure 5: Total Closed, Active, and Inactive Tribal Energy Financing Program Loan Applications, by Milestone Achieved, from January 2016 through September 2024



Source: GAO analysis of Department of Energy data. | GAO-25-106631

Table 10: Summary of Tribal Energy Financing Program Active and Inactive Loan Applications Submitted from January 2016 through September 2024, by Current Application Review Phase, as of September 2024

Phase	Total number of applications	Average loan requested (millions)	Total loan requested (millions)	Average time since application submitted (months)
Intake	8	\$529	\$4,233	17.4
Due diligence	0	-	-	-
Conditional commitment through financial close	0	-	-	-
Completed financial close	1	\$100	\$100	21.5
Inactive ^a	8	-	-	-

Source: GAO analysis of Department of Energy data. | GAO-25-106631

^aInactive refers to project applications that were rejected, withdrawn, abandoned, or are otherwise on-hold.

Table 11: Tribal Energy Financing Program Loan Applications in Conditional Commitment, as of September 2024

Project name	Sector	Project Location(s)	Loan guarantee/ loan amount requested (millions)
No applications are in the conditional commitment phase	-	-	-
Total	-	-	-

Source: GAO analysis of Department of Energy data. | GAO-25-106631

Table 12: Details of All Tribal Energy Financing Program Closed Loans Since Program Began, as of December 2024

Project name	Sector	Project Location(s)	Closing date	Obligated amount (millions)
Viejas Enterprises Microgrid Program	Solar	California	August 2024	\$100
Total	n/a			\$100

Source: GAO analysis of Department of Energy data. | GAO-25-106631

Advanced Technology Vehicles Manufacturing Program (ATVM)

Supports manufacturers of fuel-efficient vehicles and eligible vehicle components in the United States. Potential vehicles include light-, medium-, and heavy-duty vehicles, locomotives, maritime vessels, and aircraft, and their components.

Key project eligibility criteria include the following:

- 1. Will be a U.S.-based manufacturer of eligible fuel-efficient vehicles or components
- 2. Will build new facilities, expand or reequip existing facilities or provide engineering to integrate improvements in manufacturing of eligible fuel-efficient vehicles or components
- 3. Demonstrates a reasonable prospect of loan repayment

Sector(s) covered: Manufacturers of advanced technology vehicles that achieve defined fuel economy targets or manufacturers of components or materials that support eligible vehicles’ fuel economy performance, such as electrified powertrains or vehicles’ use of composites to reduce weight.

Loan services offered: Loans are limited to up to 80 percent of eligible project costs.¹ Loans will be made through the FFB equal to the prevailing U.S. Treasury rate as of the date the loan is made.

Table 13: Timeline of Advanced Technology Vehicles Manufacturing Program (ATVM) Establishment, Appropriations, Authorities, and Significant Statutory and Regulatory Changes

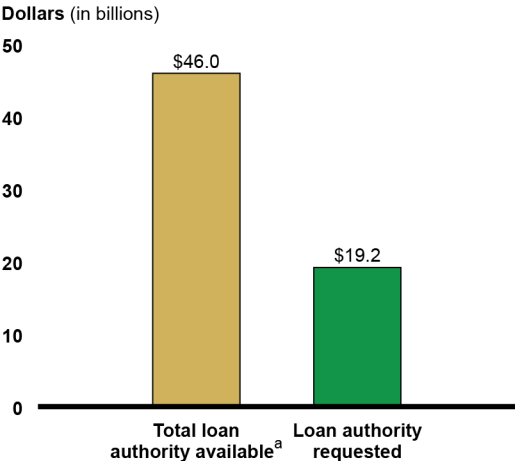
Year (Act, if appropriate)	Appropriations for credit subsidy cost (in billions)	Statutory cap on loan authority (in billions)	Recent significant changes and notes
2007 (Energy Independence and Security Act of 2007) ^a	-	\$25	ATVM is established for light-duty vehicles and their components
2009 (Consolidated Security, Disaster Assistance, and Continuing Appropriations Act, 2009) ^b	\$7.51	\$25	
November 2021 (Infrastructure Investment and Jobs Act) ^c	-	-	Added medium- and heavy-duty trucks, locomotives, and other vehicle types as eligible vehicles
August 2022 (Inflation Reduction Act) ^d	\$3	-	Cap removed on loan authority; \$3 billion appropriation for credit subsidy cost available through fiscal year 2028
April 2024 (Direct Final Rule) ^e	-	-	Published final rule to incorporate recent changes to the program

Source: GAO analysis of cited laws and Department of Energy documentation. | GAO-25-106631

^aPub. L. No. 110-140, tit. I, § 136, 121 Stat. 1492, 1514–16.
^bPub. L. No. 110-329, § 129(a), 122 Stat. 3574, 3578 (2008).
^cPub. L. No. 117-58, § 40401(b), 135 Stat. at 1034–37.
^dPub. L. No. 117-169, § 50142, 136 Stat. at 2044.
^e89 Fed. Reg. 33196 (Apr. 29, 2024).

¹Eligible project costs include those costs that are reasonably related to reequipping, expanding, or establishing a manufacturing facility in the U.S. to produce qualifying advanced technology vehicles or qualifying components; and costs of engineering integration performed in the U.S, among others. 10 C.F.R. § 611.102(a).

Figure 6: Total Estimated Advanced Technology Vehicles Manufacturing Program (ATVM) Loan Authority Available and Requested by Applicants as of September 2024

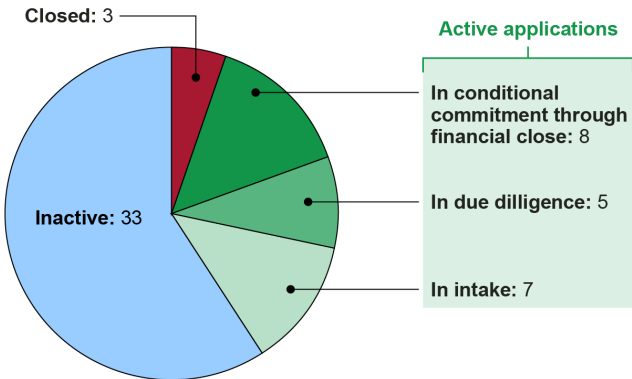


Source: GAO analysis of Department of Energy (DOE) data. | GAO-25-106631

Note: Total loan authority available reflects amounts LPO has obligated for conditional commitments and closed loans. Loan authority requested reflects applications in intake and due diligence. It does not include applications LPO considers inactive. Data are as of September 30, 2024, and do not reflect substantial activity on this program in last quarter of calendar year 2024.

^aDOE estimated loan authority available, based on appropriated credit subsidy.

Figure 7: Total Closed, Active, and Inactive Advanced Technology Vehicles Manufacturing Program (ATVM) Loan Applications, by Milestone Achieved, from January 2016 through September 2024



Source: GAO analysis of Department of Energy data. | GAO-25-106631

Table 14: Summary of Advanced Technology Vehicles Manufacturing Program (ATVM) Active and Inactive Loan Applications Submitted from January 2016 through September 2024, by Current Review Phase, as of September 2024

Phase	Total number of applications	Average loan requested (millions)	Total loan requested (millions)	Average time since application submitted (months)
Intake	7	\$616	\$4,314	13.7
Due diligence	5	\$2,986	\$14,928	19.6
Conditional commitment to financial close	8	\$2,167	\$17,337	33.2
Completed financial close	3	\$969	\$2,907	19.9
Inactive ^a	33	-	-	-

Source: GAO analysis of Department of Energy data. | GAO-25-106631

^aInactive refers to project applications that were rejected, withdrawn, abandoned, or are otherwise on-hold.

Table 15: Advanced Technology Vehicles Manufacturing Program (ATVM) Loan Applications in Conditional Commitment, as of September 2024

Project name	Sector	Project location(s)	Loan amount requested (millions)
ENTEK Lithium Separators	Component manufacturing	Oregon	\$1,308
Thacker Pass Project	Component manufacturing	Nevada	\$2,260
SK Siltron	Component manufacturing	Michigan	\$544
Blue Oval SK	Component manufacturing	Kentucky, Tennessee	\$9,200
LI-Cycle Project Forward	Component manufacturing	New York	\$475
Redwood Materials: Copper Foil and Cathode Active Material	Component manufacturing	Nevada	\$2,000
Kore Power – Project Jos	Component manufacturing	Arizona	\$850
Rhyolite Ridge Lithium-Boron Project	Component manufacturing	Nevada	\$700
Total	-	-	\$17,337 ^a

Source: GAO analysis of Department of Energy data. | GAO-25-106631

^aTotal may not add due to rounding.

After our cutoff date for collecting application data (September 30, 2024), LPO offered conditional commitments for four ATVM projects totaling \$14,191 million. These projects and their locations are Aspen Aerogels Pyrothin (Georgia); StarPlus Energy LLC (Indiana); Project Horizon Rivian (Georgia); and Project Kathari (Tennessee).

Table 16: Details of All Advanced Technology Vehicles Manufacturing Program (ATVM) Closed Loans Since Program Began, as of December 2024

Project name	Sector	Project location(s)	Closing date	Obligated amount (millions)
Ford Motor Company	Integrated advanced technologies	Michigan	September 2009	\$5,907
Nissan North America, Inc.	Electric vehicles	Tennessee	January 2010	\$1,448
Tesla Motors, Inc.	Electric vehicles	California	January 2010	\$465
Fisker Automotive, Inc. ^a	Electric vehicles	Delaware	April 2010	\$529
The Vehicle Production Group, LLC ^a	Alternative fuel Vehicles	Michigan	March 2011	\$50
Ultium Cells LLC	Integrated advanced technologies	Michigan, Ohio, Tennessee	November 2022	\$2,500
Syrah Technologies LLC	Integrated advanced technologies	Louisiana	December 2022	\$98
Cellink Corporation	Components	California	April 2024	\$309
Lithium Nevada Corp.	Components	Nevada	October 2024	\$1,970
SK Siltron CSS, LLC	Components	Michigan	November 2024	\$482
BlueOval SK, LLC	Components	Kentucky and Tennessee	December 2024	\$9,633
LI Cycle US Holdings, INC	Components	New York	November 2024	\$445
ENTEK Lithium Separators LLC	Components	Indiana	November 2024	\$1,200
StarPlus Energy, LLC	Components	Indiana	December 2024	\$6,852
Total	-	-	-	\$31,888

Source: GAO analysis of Department of Energy data. | GAO-25-106631

^aThese two project owners defaulted on their loans, with DOE writing off approximately \$166 million in total for the two projects.

Carbon Dioxide Transportation Infrastructure Finance and Innovation Act Program (CIFIA)

Offers loans, guarantees or grants for large-capacity carbon dioxide transportation projects—such as pipelines, rail, and shipping—whose services are provided to public companies for a fee.

Key project eligibility criteria include the following:

- 1. Is a carbon dioxide transportation infrastructure project that transports human-produced carbon dioxide or carbon dioxide from ambient air for storage or use, prioritizing large capacity projects
- 2. Is a common carrier, meaning it publishes a publicly available tariff of just and reasonable rates, terms, and conditions of nondiscriminatory service, and holds itself out to provide transportation services to the public for a fee
- 3. Is located in the U.S. and has a total anticipated project cost of equal to or greater than \$100 million
- 4. Demonstrates a reasonable prospect of loan repayment

Sector(s) covered: Carbon dioxide transportation infrastructure including carbon capture, utilization, and storage technologies, and direct air capture. In addition, CIFIA-financed projects can support other, separately funded activities, including demonstration scale carbon capture projects, development of carbon storage infrastructure, and projects that produce hydrogen with fossil fuels when managing the carbon dioxide produced.

Loan services offered: Loans are limited to up to 80 percent of eligible project costs.¹ Loans can be made either directly through the Federal Investments and Borrowings Branch or through a nonfederal lender with an LPO guarantee.² Interest rates on federally issued loans are at the U.S. Treasury rate, plus 0.375 percent. In partnership with DOE’s Office of Fossil Energy and Carbon Management, CIFIA can also award grants to projects.

Table 17: Timeline of Carbon Dioxide Transportation Infrastructure Finance and Innovation Act Program (CIFIA) Establishment, Appropriations, Authorities, and Significant Statutory and Regulatory Changes

Year (Act, if appropriate)	Appropriations for credit subsidy cost (in billions)	Statutory cap on loan authority (in billions)	Recent significant changes and notes
November 2021 (Infrastructure Investment and Jobs Act) ^a	\$2.1	\$20 ^b	Program established; Appropriated funds for credit subsidy cost, grants and program administration
October 2022 ^c			Loan Programs Office (LPO) publishes CIFIA program guidance

Source: GAO analysis of cited laws and Department of Energy documentation. | GAO-25-106631

^aPub. L. No. 117-58, § 40304, 135 Stat. at 988–1000; *see also id.*, 135 Stat at 1376.

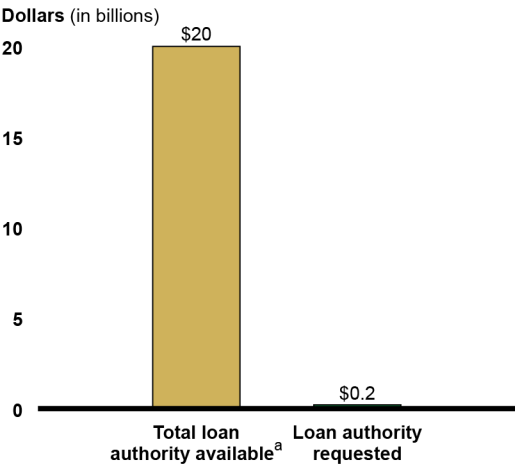
^bThe total loan authority under CIFIA will depend on program administration costs, whether funds are used for grants made in partnership with DOE’s Office of Fossil Energy and Carbon Management, and the credit subsidy rate. For illustrative purposes, LPO estimates a credit subsidy rate between 5 percent and 10 percent could yield between \$21 billion and \$42 billion in loan authority.

^cDepartment of Energy, Office of Fossil Energy and Carbon Management, Loan Programs Office, CIFIA Program Guide: CIFIA Loans for Carbon Dioxide Transportation Infrastructure, Washington, D.C.: October 5, 2022, revised May 2, 2024.

¹Eligible project costs include development activities such as planning, feasibility analysis, revenue, forecasting, and environmental review; construction, reconstruction, replacement, and acquisition of real property; capitalized interest; and legal and technical consultants.

²The Federal Investments and Borrowings Branch is within the U.S. Department of the Treasury’s Bureau of the Fiscal Service.

Figure 8: Total Estimated Carbon Dioxide Transportation Infrastructure Finance and Innovation Act Program (CIFIA) Loan Authority Available and Requested by Applicants as of September 2024

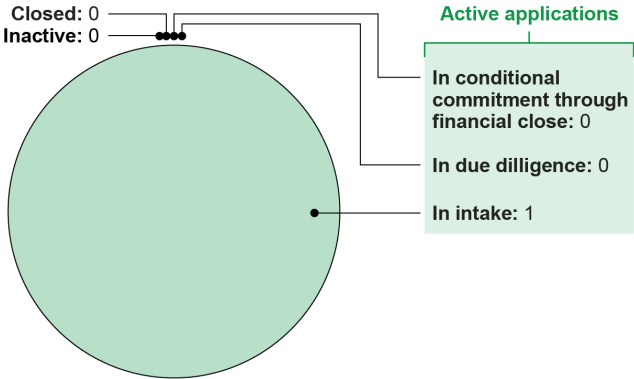


Source: GAO analysis of Department of Energy (DOE) data. | GAO-25-106631

Note: Total loan authority available reflects amounts LPO has obligated for conditional commitments and closed loans. Loan authority requested reflects applications in intake and due diligence. It does not include applications LPO considers inactive. Data are as of September 30, 2024. According to Loan Programs Office officials, there have been five grant applications under CIFIA, which do not affect loan authority available and are not included in this figure.

^aDOE estimated loan authority available, based on appropriation for credit subsidy cost.

Figure 9: Total Closed, Active, and Inactive Carbon Dioxide Transportation Infrastructure Finance and Innovation Act Program (CIFIA) Loan Applications, by Milestone Achieved, from January 2016 through September 2024



Source: GAO analysis of Department of Energy data. | GAO-25-106631

Note: According to Loan Programs Office officials, there have been five grant applications under this program, which are not included in this figure.

Table 18: Summary of Carbon Dioxide Transportation Infrastructure Finance and Innovation Act Program (CIFIA) Active and Inactive Loan Applications Submitted from January 2016 through September 2024, by Current Review Phase, as of September 2024

Phase	Total number of applications	Average loan requested (millions)	Total loan requested (millions)	Average time since application submitted (months)
Intake	1	\$230	\$230	14.4
Due diligence	0	-	-	-
Conditional commitment to financial close	0	-	-	-
Completed financial close	0	-	-	-
Inactive ^a	0	-	-	-

Source: GAO analysis of Department of Energy data. | GAO-25-106631

Note: According to Loan Programs Office officials, there have been five grant applications under this program, which are not included in this table.

^aInactive refers to project applications that were rejected, withdrawn, abandoned, or are otherwise on-hold.

Table 19: Carbon Dioxide Transportation Infrastructure Finance and Innovation Act Program (CIFIA) Loan Applications in Conditional Commitment, as of September 2024

Project name	Sector	Project location(s)	Loan guarantee/ loan amount requested (millions)
No Loans have reached this phase	-	-	\$0
Total	-	-	\$0

Source: GAO analysis of Department of Energy data. | GAO-25-106631

Table 20: Details of All Carbon Dioxide Transportation Infrastructure Finance and Innovation Act Program (CIFIA) Closed Loans Since Program Began, as of December 2024

Project name	Sector	Project Location(s)	Closing date	Obligated amount (millions)
No Loans have reached this milestone	-	-		\$0
Total	-			\$0

Source: GAO analysis of Department of Energy data. | GAO-25-106631

Title XVII Energy Infrastructure Reinvestment Program (Section 1706)
Provides financing for projects that reinvest in existing U.S. energy infrastructure

Key project eligibility criteria include the following:

- 1. Is an energy-related project located in the U.S. that retools, repowers, repurposes, or replaces energy infrastructure that has ceased operations; or enables operating energy infrastructure to avoid, reduce, utilize, or sequester air pollutants or human-created greenhouse gas emissions
- 2. Involves technically viable and commercially ready technology
- 3. Details how the project will engage with, share financial benefits with, and affect associated communities
- 4. Demonstrates a reasonable prospect of loan repayment

Sector(s) covered: Section 1706 defines “energy infrastructure” to include a facility and associated equipment used for either the generation or transmission of electricity or the production, processing, and delivery of fossil fuels, fuels derived from petroleum, or petrochemical feedstocks. Thus, it can support a wide range of projects, including building new clean energy facilities at existing energy production sites; replacing electric grid components to expand capacity; replacing retired power plants with renewable energy production; repowering idle nuclear or wind facilities; repurposing retired infrastructure by making clean energy upgrades; and performing environmental remediation at abandoned energy production sites.

Loan services offered: Loans are limited to 80 percent of eligible project costs.¹ Loans can be made either directly through the FFB or through a non-federal lender with a LPO guarantee of up to 90 percent of the loan amount. Interest rates on federally issued loans are at the U.S. Treasury rate, plus 0.375 percent. Non-federal loans are made at market rates. According to LPO documentation, LPO currently does not apply a risk-based charge on guarantees through this program.

Table 21: Timeline of Title XVII Energy Infrastructure Reinvestment Program (Section 1706) Establishment, Appropriations, Authorities, and Significant Statutory and Regulatory Changes

Year (Act, if appropriate)	Appropriations for credit subsidy cost (in billions)	Statutory cap on loan authority (in billions)	Recent significant changes and notes
August 2022 (Inflation Reduction Act) ^a	\$5	\$250	Section 1706 program is established
May 2023 ^b	-	-	LPO published an interim final rule incorporating changes to Title XVII, including the addition of Section 1706
June 2023	-	-	Loan Programs Office (LPO) eliminated application fees and altered the structure of facility fees

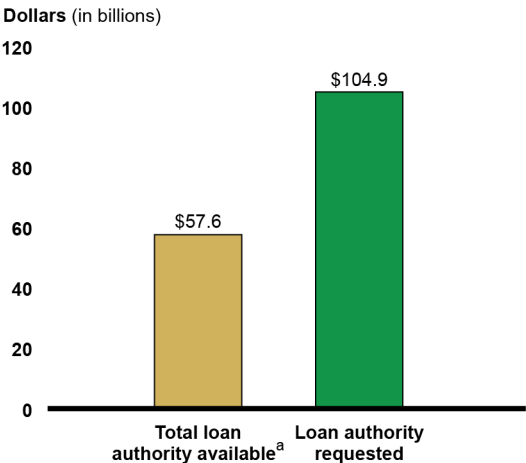
Source: GAO analysis of cited laws and Department of Energy documentation. | GAO-25-106631

^aPub. L. No. 117-169, § 50144(a), (b), 136 Stat. at 2044–45.

^bDOE/LPO, “Loan Guarantees for Clean Energy Projects—Interim final rule,” 88 Fed. Reg. 34419 (May 30, 2023).

¹Title 17 regulations define eligible project costs as those costs, including escalation and contingencies, that are expended or accrued by a Borrower and are necessary, reasonable, customary, and directly related to the design, engineering, financing, construction, startup, commissioning, and shakedown of an eligible project. 10 C.F.R. §§ 609.2, 609.10(a).

Figure 10: Total Estimated Title XVII Energy Infrastructure Reinvestment Program (Section 1706) Loan Authority Available and Requested by Applicants as of September 2024

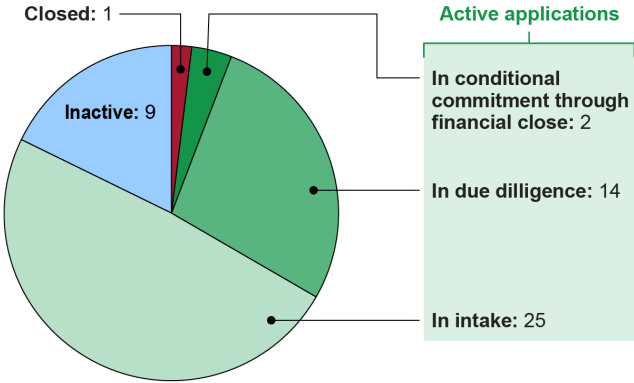


Source: GAO analysis of Department of Energy (DOE) data. | GAO-25-106631

Note: Total loan authority available reflects amounts LPO has obligated for conditional commitments and closed loans. Loan authority requested reflects applications in intake and due diligence. It does not include applications LPO considers inactive. Data are as of September 30, 2024, and do not reflect substantial activity on this program in last quarter of calendar year 2024.

^aDOE estimated loan authority available based on appropriation for credit subsidy cost available. The Inflation Reduction Act, Pub. L. No. 117-169, § 50144(b), 136 Stat. 1818, 2045 (2022), established a cap on loan authority available of \$250 billion.

Figure 11: Total Closed, Active, and Inactive Title XVII Energy Infrastructure Reinvestment Program (Section 1706) Loan Applications, by Milestone Achieved, from January 2016 through September 2024



Source: GAO analysis of Department of Energy data. | GAO-25-106631

Table 22: Summary of Title XVII Energy Infrastructure Reinvestment Program (Section 1706) Active and Inactive Loan Applications Submitted from January 2016 through September 2024, by Current Review Phase, as of September 2024

Phase	Total number of applications	Average loan requested (millions)	Total loan requested (millions)	Average time since application submitted (months)
Intake	25	\$1,686	\$42,153	7.6
Due diligence	14	\$4,480	\$62,724	13.1
Conditional commitment to financial close	2	\$1,307	\$2,613	54.5 ^b
Completed financial close	1	\$1,351	\$1,351	19.3
Inactive ^a	9	-	-	-

Source: GAO analysis of Department of Energy data. | GAO-25-106631

^aInactive refers to project applications that were rejected, withdrawn, abandoned, or are otherwise on-hold.

^bWabash Gasification plant was originally submitted to a different program in 2018. It was moved to Section 1706 in November 2023.

Table 23: Title XVII Energy Infrastructure Reinvestment Program (Section 1706) Loan Applications in Conditional Commitment, as of September 2024

Project name	Sector	Project Location(s)	Loan guarantee/ loan amount requested (millions)
Project Marahu	Solar	Puerto Rico	\$909
Wabash Gasification and Carbon Capture	Manufacturing, power production, carbon dioxide sequestration	Indiana	\$1,704
Total	-	-	\$2,613

Source: GAO analysis of Department of Energy data. | GAO-25-106631

After our cutoff date for collecting application data (September 30, 2024), LPO offered conditional commitments for four Section 1706 projects totaling \$19,499 million. These projects and their locations are Montana Renewables Refinery (Montana); Convergent Puerto Rico Tranche 1 250MW (Puerto Rico); Wisconsin Electric Power Company 1706 Loan (Wisconsin); and PG&E Project Polaris (California).

Table 24: Details of All Title XVII Energy Infrastructure Reinvestment Program (Section 1706) Closed Loans Since Program began, as of December 2024

Project name	Sector	Project Location(s)	Closing date	Obligated amount (millions)
Holtec Palisades, LLC	Nuclear	Michigan	August 2024	\$1,351
Clean Flexible Energy, LLC	Solar Generation	Puerto Rico	October 2024	\$861
EVGo Services, LLC	Energy Storage/Reliable Delivery	Across the U.S.	December 2024	\$1,054
Total				\$3,267

Source: GAO analysis of Department of Energy data. | GAO-25-106631

Appendix III: Comments from the Department of Energy



Department of Energy

Washington, DC 20585

April 18, 2025

Mr. Frank Rusco
Director
Natural Resources and Environment
U.S. Government Accountability Office
441 G Street N.W.
Washington, DC 20548

Dear Mr. Rusco,

The Department of Energy (DOE or Department) appreciates the opportunity to comment on the Government Accountability Office's (GAO) draft report titled, "DOE Loan Programs: Actions Needed to Address Loan Authority and Improve Application Reviews" (*GAO-25-106631*).

This latest GAO review of the DOE Loan Programs Office (LPO) was carried out over approximately two years, from March 2023 until February 2025. LPO appreciates GAO's diligence and thoroughness during this review, conducted during a time of significant growth and activity for LPO. Both the Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act of 2022 (IRA) expanded the scope of the loan programs administered by LPO, creating new categories of eligible projects. The IRA also increased the loan and loan guarantee authority administered by LPO to approximately \$430 billion, over ten times the prior lending authority. GAO's review encompassed the steps that LPO took to implement these new authorities and to ensure that it had the appropriate resources, policies, and procedures to appropriately manage these authorities. LPO's actions to implement the new authorities included completing appropriate rulemaking, publishing guidance and application materials, conducting a comprehensive review of application and underwriting processes, increasing its federal staff, and bringing on additional contractor support.

DOE took action to implement the new authority. Between January 2024 and January 2025, LPO closed 21 loans totaling approximately \$55 billion and issued 25 conditional commitments totaling approximately \$43 billion. In total, DOE obligated \$108 billion for loan activities between January 2021 and January 2025. Following loan advances made in January 2025, LPO has disbursed \$46 billion, with a loss rate of 2.24% since its inception.

The draft report contained a total of four (4) recommendations to DOE; DOE concurs with three (3) of GAO's recommendations. The Department has provided below corrective action plans for the GAO recommendations.

GAO should direct any questions to John Sholhead for *GAO-25-106631*, Director LPO-Management Operations Divisions, 202-586-1651; john.sholhead@hq.doe.gov

Enclosure

Management Response

**GAO Draft Report: DOE Loan Programs: Actions Needed to Address Loan Authority and
Improve Application Reviews (GAO-25-106631)**

Sincerely,



Siegfried Genatowski
Director, Loan Programs Office

Enclosure

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Management Response

GAO Draft Report: DOE Loan Programs: Actions Needed to Address Loan Authority and Improve Application Reviews (GAO-25-106631)

GAO Recommendation 1: The Secretary of Energy should ensure that Director of LPO directs staff to undertake an annual comprehensive review to identify and correct errors in application review guidance.

DOE Response: Concur

Application review guidance has evolved in response to changes in LPO program authorities and improvements in quality application/project checklists. Although LPO had already initiated a comprehensive review, we will have subsequent reviews at the beginning of each fiscal year. LPO will ensure that the application review guidance goes through a recurring annual comprehensive review process where issues, errors, and process updates can be identified and addressed promptly. LPO will institute an annual comprehensive assessment of the application review guidance to ensure and confirm it is accurate and complete, and to update the guidance to address any issues, errors, or align with updated processes/procedures/templates.

Estimated Completion Date: LPO leadership will ensure that these corrective actions are initiated immediately and implemented annually at the beginning of the fiscal year—beginning October 31, 2025.

GAO Recommendation 2: The Secretary of Energy should ensure that the Director of LPO directs staff to undertake an annual comprehensive review to assess the completeness and accuracy of its application review documentation, including evaluating any deficiencies in the documents, determining appropriate corrective actions, and evaluating the effectiveness of implemented remedies.

DOE Response: Concur

Although LPO has robust application review documentation, several documents have been found to have errors or incomplete information. LPO had already initiated a comprehensive review at the beginning of 4th quarter of FY24 and will have subsequent reviews at the beginning of each fiscal year. The LPO Divisions responsible for application review will conduct an annual comprehensive assessment of application review documentation to (a) identify, evaluate, and document any deficiencies in documents, (b) determine corrective action by identifying document or process improvements to address deficiencies and prevent incidence of errors and incomplete document information, and (c) perform an evaluation to confirm the effectiveness of the implemented document updates. The applicable LPO Division Directors will be required to provide their sign-off as evidence that the annual comprehensive assessment is successfully completed.

Estimated Completion Date: LPO leadership will ensure that these corrective actions are initiated immediately and implemented annually at the beginning of the fiscal year— beginning October 31, 2025.

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GAO Recommendation 3:

The Secretary of Energy should ensure that the Director of LPO directs staff to undertake an annual comprehensive review to identify application review training needs and to evaluate the extent to which training addressed deficiencies.

DOE Response: Concur

New or revised processes and procedures and newly hired federal and contractor team members create a continuous need for training on correct application review procedures. To this end, LPO will ensure that its current approach to ad hoc training needs assessment for application reviews is evaluated and improved through an annual comprehensive review of staff training needs, including:

- a. Assigning a Review Team in the LPO training working group as a dedicated team focused on integrating existing processes and process updates in identify training needs throughout the year, and to help in the development of orientation materials for new staff.
- b. Incorporate into federal performance plans in applicable LPO Divisions language that states that employees will stay current on policies and procedures relating to their job function.
- c. Upon completion of the annual comprehensive reviews of application review guidance and documentation, LPO will conduct a refresher for both new and existing staff to review the application review process and any new updates to the process.

LPO supervisors will assess and evaluate the training needs of the staff. In addition, LPO supervisors will assess the extent to which training has addressed deficiencies and will provide results of this assessment to LPO leadership. LPO leadership will ensure the following:

- a. The corrective actions are initiated immediately and implemented annually in December or as soon as practicable, following the completion of the annual comprehensive reviews of application review guidance and documentation, and
- b. Necessary corrective actions arising from these reviews result in training that reflects accurate and complete processes, procedures, and documents.

Estimated Completion Date: The first annual review will be completed in December 2025.

GAO Recommendation 4:

The Director of LPO should update application review guidance for Section 1703 loans to include an evaluation of whether a project qualifies as innovative at the time the term sheet is issued.

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DOE Response: Non-Concur

No specific changes to LPO's review guidance are needed because LPO's current process already ensures an appropriate review of whether a project constitutes innovative technology during the appropriate phases of the loan review process.

GAO's recommendation does not account for steps of the LPO underwriting process following the application review phase, which includes measures to ensure consistency with the applicable statute and regulations, including a review of the innovative technology prior to offering a term sheet to an applicant and prior to the financial close of a loan guarantee. This proposed change to application review guidance is not needed for DOE to ensure that it complies with the authorizing statute and associated regulations and would only serve to create unnecessary burdens and delays in LPO's processing of loan applications. Additional evaluation procedures will result in delays for applicants and potentially additional work and/or actions by our applicants, which would be an unnecessary burden. As explained further below, LPO conducts an evaluation of whether a technology meets DOE's eligibility requirements as part of the application review process; LPO continues to discuss and track eligibility through the interagency review process, the offering of a term sheet and conditional commitment, and the financial closing of a transaction.

The GAO Draft Report discusses the innovation determination associated with section 1703 of Title XVII of the Energy Policy Act of 2005, as amended. Section 1703(a) provides that:

"The Secretary may make guarantees under this section only for projects that-
(1) avoid, reduce, utilize, or sequester air pollutants or anthropogenic emissions of greenhouse gases; and
(2) employ new or significantly improved technologies as compared to commercial technologies in service in the United States at the time the guarantee is issued, including projects that employ elements of commercial technologies in combination with new or significantly improved technologies."

The term "new or significantly improved technology" is not defined in the statute.

In its review of DOE's implementation of section 1703(a)(2), GAO also appropriately refers to the governing regulations. DOE promulgated regulations governing the Title 17 Clean Energy Finance Program that further describe the program's technology requirements, defining "Commercial Technology" and "New or Significantly Improved Technology". See 10 CFR 609.2. DOE first issued these regulations in 2007 pursuant to a notice and public comment rulemaking where DOE received extensive public comment regarding its implementation of the requirements of section 1703(a) and has addressed the requirements of 1703(a) in subsequent

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GAO Draft Report: DOE Loan Programs: Actions Needed to Address Loan Authority and
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rulemakings as well.¹ The current definitions of “Commercial Technology” and “New or Significantly Improved Technology” are as follows:

Commercial Technology means a technology in general use in the commercial marketplace in the United States at the time the Term Sheet is offered by DOE. A technology is in general use if it is being used in three or more facilities that are in commercial operation in the United States for the same general purpose as the proposed project and has been used in each such facility for a period of at least five years. The five-year period for each facility shall start on the in-service date of the facility employing that particular technology or, in the case of a retrofit of a facility to employ a particular technology, the date the facility resumes commercial operation following completion and testing of the retrofit. For purposes of this section, facilities considered to be in commercial operation for five years include projects that have been the recipients of a loan guarantee from DOE under this part whether or not commercial operations have commenced.

New or Significantly Improved Technology means

(1) A technology, or a defined suite of technologies, concerned with the production, storage, consumption, or transportation of energy, including of associated critical minerals and other components or other eligible energy-related project categories under section 1703(b) of Title XVII, and that is not a Commercial Technology, and that either:

(i) Has only recently been developed, discovered, or learned; or

(ii) Involves or constitutes one or more meaningful and important improvements in productivity or value, in comparison to Commercial Technologies in use in the United States at the time the Term Sheet is issued.

(2) If regional variation significantly affects the deployment of a technology, such technology may still be considered “New or Significantly Improved Technology” if no more than 6 projects employ the same or similar technology as another project, provided no more than 2 projects that use the same or a similar technology are located in the same region of the United States.

As seen by the above definitions, DOE’s requirements for “innovation” address a number of factors and hold applicants for loan guarantees to a high standard for eligibility. These definitions also show that DOE must use its judgement and discretion in determining whether these requirements are satisfied². As discussed in its 2007 rulemaking, “it is not possible to specify in advance precisely what should be considered “new” or what would constitute a “significant improvement” in a particular technology³. DOE elaborates on these requirements in its Title 17 Clean Energy Financing Program Guidance ([program-guidance-title-17-clean-energy-program](#)). DOE has implemented the requirements of section 1703(a) and 10 CFR 609 in its evaluation of over 500 Innovative Clean Energy Project applications since 2007. In doing so,

¹ See e.g. 72 FR 27471 and 72 FR 60116.

² See DOE’s 2007 Title 17 Notice of Proposed Rulemaking at 72 FR 27471 for DOE’s public discussion of this topic

³ Id.

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it relies on the professional expertise of the Department's and the National Laboratories' scientists and engineers, as well as independent engineers engaged for their objective viewpoint and subject matter expertise.

The GAO Draft Report includes certain statements and a recommendation regarding DOE's implementation of the requirements of section 1703(a)(2). The GAO Draft Report correctly states that DOE's process requires a determination regarding an application's satisfaction of 1703(a)(2) at the Part I application intake review. LPO's Technical and Environmental Division conducts a comprehensive review of the technology proposed by an applicant in connection with the proposed project to determine whether such technology meets the standards set forth in the 10 CFR 609 definition of New or Improved Technology. See page 40 of the Title 17 Clean Energy Financing Program Guidance for a description of DOE's Part I application requirements.

The GAO Draft Report also states that "there is no provision in LPO's application review guidance for project eligibility to be reevaluated to address any changes in the project or the commercial technologies between the time LPO determines the technologies' innovativeness and the time LPO offers the final terms of the loan or guarantee to the applicant." GAO is correct that there is no provision of LPO's application review guidance expressly requiring a reevaluation of a technology that was already determined to meet DOE's eligibility requirements as part of the application review process⁴. Such a requirement is not needed for DOE to ensure that it complies with the authorizing statute and associated regulations and would only serve to create unnecessary burdens and delays in LPO's processing of loan applications.

GAO's focus is on the application review phase of the DOE underwriting process – it does not discuss the due diligence, conditional commitment, or financial close phases of the process, each of which include a review of the innovative technology. Subsequent to the Part I eligibility determination, LPO's technical staff continue to investigate and evaluate the innovative technology that is the subject of the loan application through Conditional Commitment. Additionally, for each innovative project under 1703 guidance, LPO engages an Independent Engineer (IE) who is tasked with analyzing the innovative aspects of the technology, and specifically how it will be integrated in the project, to identify and reduce any technical risk associated with the implementation. The results of this analysis, and the corresponding potential risks, are highlighted in the Independent Engineer Report, which is then reviewed by the LPO Deal Team during underwriting and creation of the loan terms.

The GAO Draft Report does not discuss the evaluation that LPO, the Credit Review Board (CRB), the Office of Management and Budget (OMB), and the U.S. Department of Treasury

⁴ As noted by GAO, the application review process includes a Part I eligibility determination stage that assesses the requirements of section 1703(a) and 10 CFR 609. Once an applicant has received an eligibility determination, it may be invited to submit a Part II application. In the Part II application review, DOE evaluates a broader set of factors, including financial viability and whether a project is highly qualified and suitable for a Title 17 loan guarantee. Upon a satisfactory review of a Part II application, DOE may invite an applicant to the due diligence phase of the loan process.

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(UST) conduct immediately prior to the offering of a term sheet and conditional commitment to an applicant. LPO prepares a credit paper evaluating each project and loan or loan guarantee prior to submitting it to the CRB, interagency parties (OMB and UST), and the Secretary of Energy for review and approval of a conditional commitment. The credit paper reflects the findings of the due diligence process, including the Independent Engineer Report, and the input of the deal team, which includes one or more members of the Technical and Environmental Division. Each credit paper includes a section on project eligibility under section 1703(a)(2) as well as an evaluation of the innovative technology expected to be deployed in the proposed project, building on the initial determination made in the Part I application review process. This credit paper is a critical part of the underwriting package that DOE officials review and consider when determining whether to offer a term sheet to an applicant.

LPO continues to track project eligibility through financial closing of a transaction. Pursuant to the LPO Credit Policy, prior to approving the financial close of a transaction, LPO again evaluates any changes to the terms of the financing or the "Eligible Project".⁵ In submitting a loan guarantee for a section 1703 project to the Secretary for approval of financial closing, LPO again confirms that the Project is eligible for the loan guarantee, including that it employs new or significantly improved technologies.

Finally, the governing regulations provide additional opportunities for LPO to ensure that a project that may remain in the due diligence phase for an extended period continues to meet the eligibility criteria. 10 CFR 609.6(b) provides that "DOE shall terminate its negotiations of a Term Sheet if it has not offered a Term Sheet in respect of an Eligible Project within two years after the date of the written notification set forth in [§ 609.5\(d\)](#),⁶ unless extended in writing by DOE."

With respect to the specific project that the GAO Draft Report discusses, LPO disagrees with the statement "the final software technology was not reviewed to determine if it was innovative at the time the term sheet was issued or loan guarantee was issued" and believes that there must have been a misunderstanding in the discussion between GAO and LPO officials on this subject.

⁵ See Page 13 of the LPO Credit Policy.

⁶ This provision refers to the invitation to due diligence.

Appendix IV: GAO Contact and Staff Acknowledgements

GAO Contact

Frank Rusco, (202) 512-3841 or ruscof@gao.gov

Staff

Acknowledgements

In addition to the contact named above, Karla Springer (Assistant Director), Marietta Mayfield Revesz (Analyst-in-Charge), Dominique Belanger, Matthew Bond, Marcia Carlsen, Chad Clady, John Delicath, William Gerard, Cindy Gilbert, and Dan C. Royer made key contributions to this report.

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