



LPO
Loan Programs Office

Clean Energy Financing

CESA Membership Meeting 2024
June 2024

Presented by

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LPO Outreach & Business Development

June 4, 2024



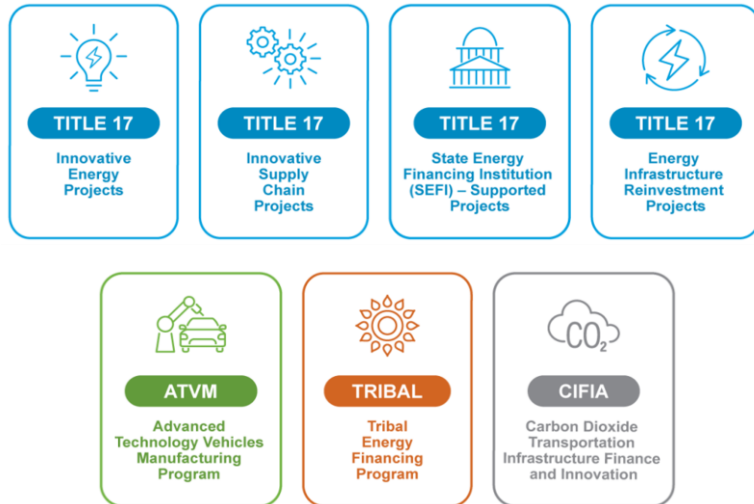
LPO
Loan Programs Office

What is the Loan Programs Office (LPO)?

LPO is...

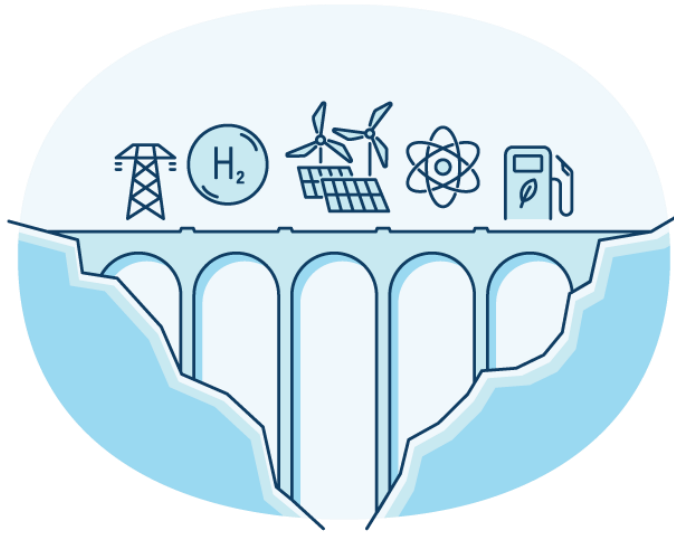
the **premier public financing partner** accelerating high-impact energy and manufacturing investments to advance America's economic future.

How do we do it?

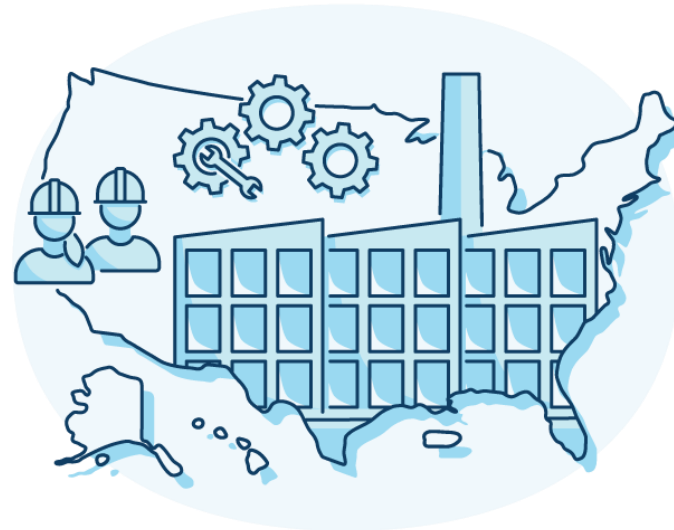


- ✓ By **providing attractive debt financing** for high-impact, large-scale (\$100M+) energy infrastructure projects in the U.S.
- ✓ With **tens of billions of dollars** in available loan and loan guarantee authority.
- ✓ Via **seven loan programs & project categories** supporting both innovative and commercial technologies.

LPO Administers Loan Programs that:



Provide a bridge to bankability for emerging clean energy and decarbonization technologies on a path to commercial liftoff



Enable the expansion of domestic manufacturing and supply chains to support a cleaner and stronger energy economy



Make the clean energy transformation affordable and achievable for workers, consumers, and communities who stand to benefit from LPO support

The Next Generation of LPO Financing

LPO is working with stakeholders across all major innovative clean energy & advanced transportation sectors



Advanced Vehicles & Components

Vehicles • Components • Lightweighting
• Manufacturing • Electric Vehicle (EV)
Battery Manufacturing



Biofuels

Advanced Biofuels • Biodiesel •
Cellulosic Biofuels • Renewable
Diesel • Renewable Natural Gas
(RNG) • Sustainable Aviation
Fuel (SAF)



Critical Materials

Extraction • Manufacturing • Mining •
Processing • Recovery • Recycling



EV Charging

Deployment • Manufacturing



Hydrogen

Generation • Infrastructure •
Transportation



Offshore Wind

Offshore Wind Generation • Offshore
Wind Supply Chain & Vessels



Renewable Energy

Electrification • Geothermal •
Hydrokinetics • Hydropower •
Repowering Onshore Wind • Solar
Supply Chain • Waste Conversion



Storage

EV Bidirectional Storage • Newer
Battery Chemistries & Flow Batteries •
Compressed Air Energy Storage •
Pumped Storage Hydropower •
Thermal Energy Storage



Transmission

Grid Efficiency • Grid Reliability •
High-Voltage Direct Current (HVDC)
Systems • Offshore Wind Transmission
• Systems Sited Along Rail & Highway
Routes



Virtual Power Plants

Connected Distributed Energy
Resources (DERs)



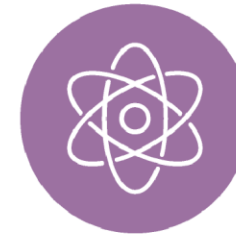
Advanced Fossil

Carbon Feedstock Waste Conversion •
Fossil Infrastructure Repurposing &
Reinvestment • Hybrid Generation •
Hydrogen Generated From Fossil
Sources • Synfuel



Carbon Management

Carbon Capture & Storage (CCS) •
Carbon Dioxide Removal (CDR) •
Direct Air Capture (DAC) • Industrial
Decarbonization • CO₂
Transportation Infrastructure



Advanced Nuclear

Advanced Nuclear Reactors •
Micro Reactors • Nuclear Fuel Cycle •
Nuclear Supply Chain •
Nuclear Upgrades & Upgrades •
Small Modular Reactors (SMRs)



Tribal Energy

Energy Development Projects •
Energy Storage • Fossil Energy •
Microgrids • Renewable Energy •
Transmission Infrastructure •
Transportation of Fuels

203

ACTIVE APPLICATIONS¹

\$262.2

BILLION IN LOANS REQUESTED²

1.8

NEW APPLICATIONS PER WEEK³

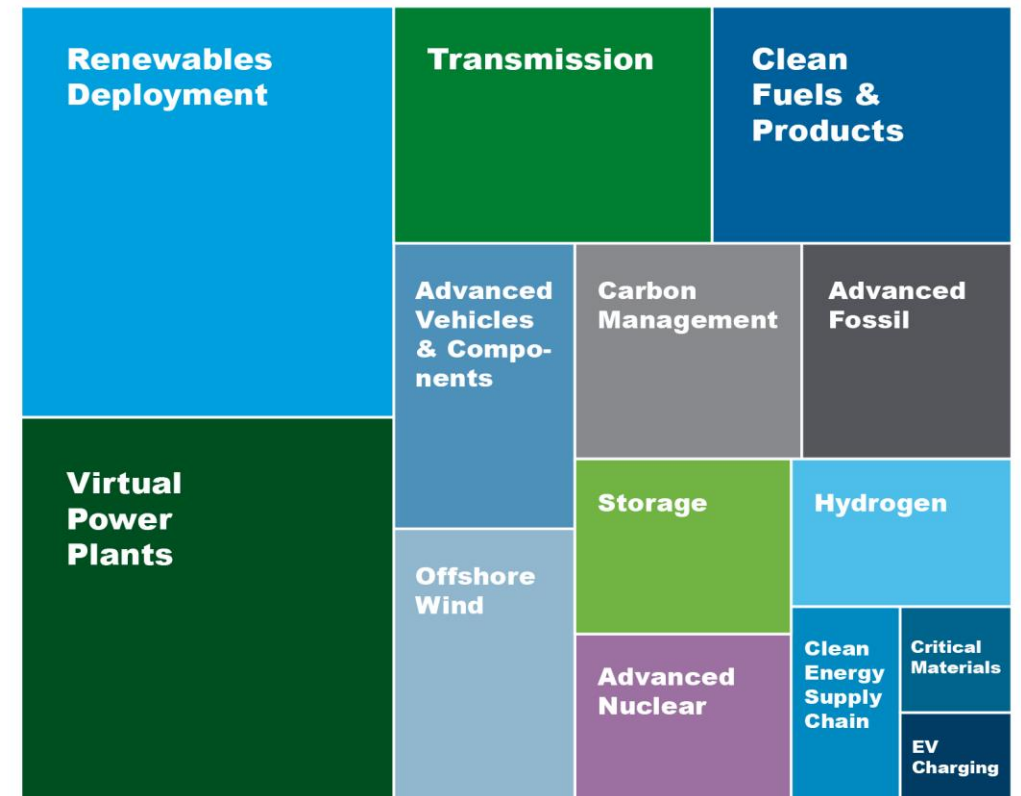
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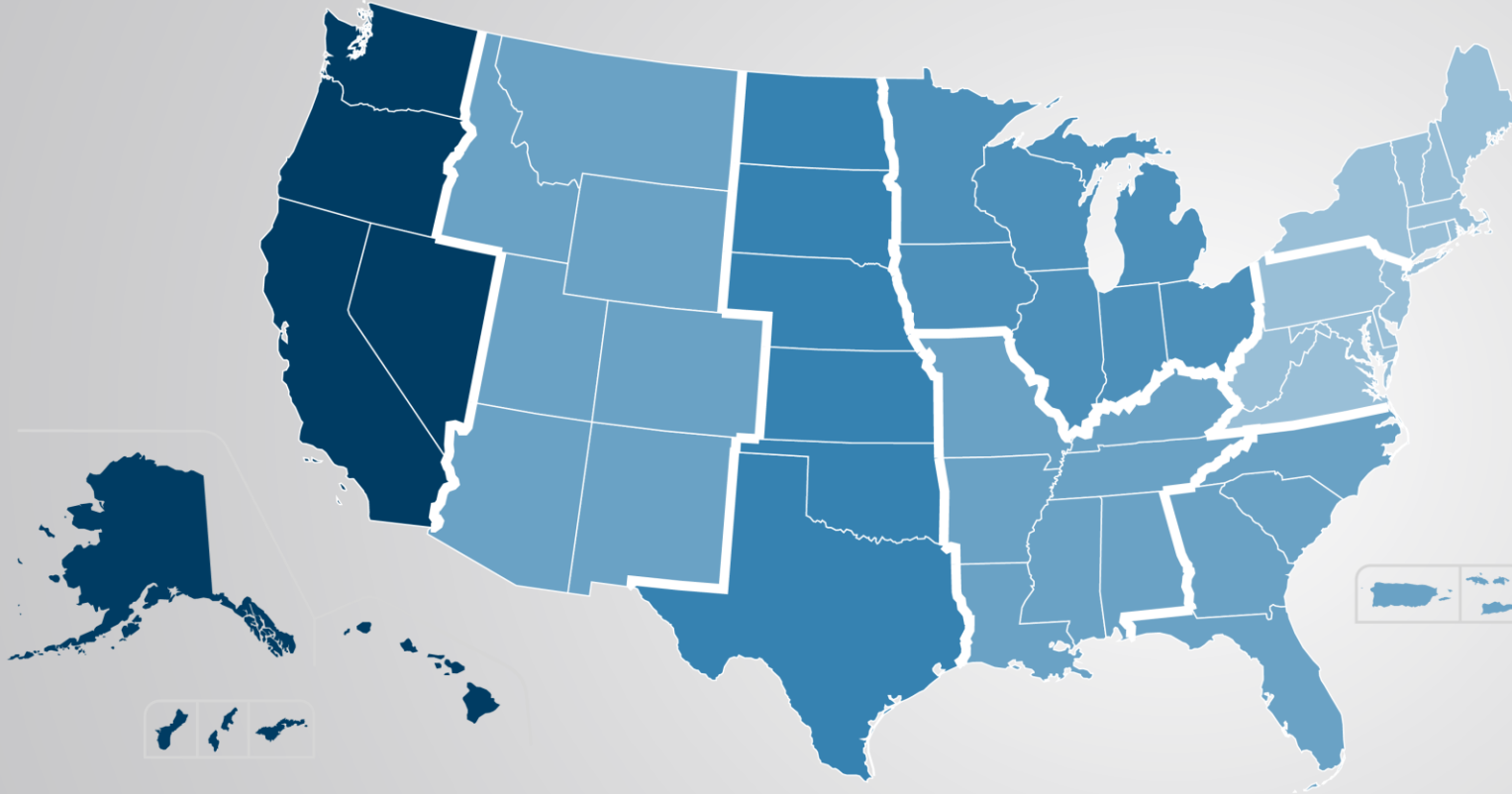
All data updated through March 31, 2024. For more details and a list of technology areas of interest within each LPO tech sector, see: [Energy.gov/LPO/MAAR](https://www.energy.gov/LPO/MAAR)

- Active applications include applications that have been submitted by the project sponsor(s) through LPO's online application portal and are in different stages of active review and engagement by LPO and the applicant.
- Individual requested loan amounts are estimated and potential, subject to change, and not necessarily representative of final financing terms. **Requested loan amounts in current active applications do not affect available LPO loan authority.** Figure rounded down to the nearest \$0.1 billion.
- Current rolling average of new active applications per week over the previous 24 weeks. Figure rounded down to the nearest 0.1 application per week.

\$262.2 BILLION

CURRENT AMOUNT OF LOANS REQUESTED BROKEN DOWN BY PROJECT TECHNOLOGY SECTORS





203 ACTIVE APPLICATIONS ¹ WITH
245 PROPOSED PROJECT LOCATIONS
ACROSS ALL REGIONS OF THE U.S. ²

WEST	AK, CA, HI, NV, OR, WA (AS, GU, MP)	55
PLAINS	KS, ND, NE, OK, SD, TX	38
MIDWEST	IA, IL, IN, MI, MN, OH, WI	29
SOUTH	AL, AR, KY, LA, MO, MS, TN	27
SOUTHEAST	FL, GA, NC, SC (PR, VI)	26
MOUNTAIN	AZ, CO, ID, MT, NM, UT, WY	25
MID-ATLANTIC	DE, MD, NJ, PA, VA, WV (DC)	23
NORTHEAST	CT, MA, ME, NH, NY, RI, VT	22

Notes

All data updated through March 31, 2024. For more details and a list of technology areas of interest within each LPO tech sector, see: [Energy.gov/LPO/MAAR](https://www.energy.gov/lpo/maar)

- 1) Active applications include applications that have been submitted by the project sponsor(s) through LPO's online application portal and are in different stages of active review and engagement by LPO and the applicant.
- 2) Regions depicted are for representation purposes only and are not meant to denote LPO consideration of regional variation in project evaluation.

What LPO Offers Borrowers

LPO loans and loan guarantees are differentiated in the clean energy debt capital marketplace in **three primary ways:**



Access to Patient Capital

that private lenders cannot or will not provide.



Flexible Financing

customized for the specific needs of individual borrowers.

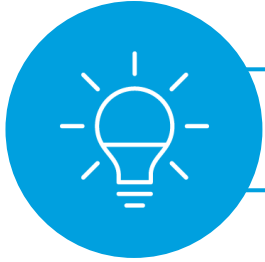


Committed DOE Partnership

offering specialized expertise to borrowers for the lifetime of the project.

LPO Financing Programs

Programs Relevant to Energy Storage Highlighted Below



Title 17 Clean Energy (Title 17)

Financing for:

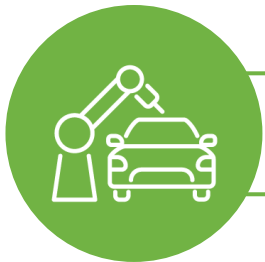
- Innovative Energy & Innovative Supply Chain (1703)
- State Energy Financing Institution (SEFI)-Supported (1703)
- Energy Infrastructure Reinvestment (EIR, 1706)



Tribal Energy (TELGP)

Financing for:

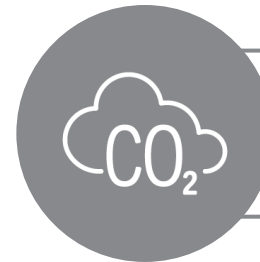
- Tribal energy development projects



Advanced Transportation (ATVM)

Financing for:

- Manufacturing of advanced technology vehicles, several modes of ATVs, components, and innovative EV charging infrastructure



CO₂ Transportation Infrastructure (CIFIA)

Financing for:

- Large-capacity, common carrier CO₂ transportation projects



How LPO Can Support Energy Storage Projects

LPO can finance projects across technologies and the energy storage value chain that meet eligibility & programmatic requirements

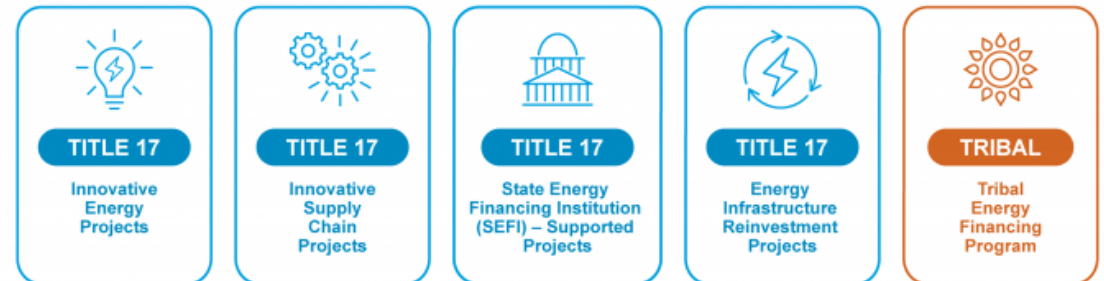
Projects may include, but are not limited to:

- **Manufacturing:** Projects that manufacture energy storage systems for a variety of residential, commercial, and utility scale clean energy storage end uses.
- **Deployment:** Projects that deploy residential, commercial, and utility scale energy storage systems for a variety of clean energy and clean transportation end uses.

Technology areas of interest include, but are not limited to:

- Compressed air energy storage
- Hydrogen production and storage
- Pumped storage hydropower
- Newer battery chemistries and flow batteries
- Thermal energy storage
- Electric vehicle bidirectional storage

How LPO can help

















TITLE 17
Innovative Energy
Projects
(1703)

Innovative Energy Projects (1703)

Innovative Energy projects deploy qualifying New or Significantly Improved Technology that is technically proven but not widely commercialized in the United States.

1703 Projects Require at Least One Eligible Technology

 <p>Renewable energy systems</p>	 <p>Advanced fossil energy technology</p>	<p>APPLIES TO:</p> <ul style="list-style-type: none"> ✓ Innovative Energy Projects ✓ Innovative Supply Chain Projects ✓ State Energy Financing Institution (SEFI) Projects 	 <p>Hydrogen fuel cell technology</p>	 <p>Advanced nuclear energy</p>
 <p>Carbon capture and sequestration technology</p>	 <p>Efficient electrical generation, transmission, and distribution</p>		 <p>Efficient end-use energy technologies</p>	 <p>Production facilities for the manufacture of fuel-efficient vehicles or vehicle parts</p>
 <p>Pollution control equipment</p>	 <p>Oil refineries</p>		 <p>Energy storage technologies</p>	<p>UPDATED:</p>  <p>Industrial decarbonization technologies</p>

Title 17 Program Eligibility

All Projects Must:

1. Be located in the United States, territories, or possessions.
2. Be an energy-related project.
3. Achieve significant and credible GHG or air pollution reductions.
4. Have a reasonable prospect of repayment.
5. Involve technically viable and commercially ready technology.
6. Include a Community Benefits Plan.
7. Not benefit from prohibited federal support.

Category-Specific Requirements:

Projects must also meet additional requirements specific to their category:



Innovative Energy (1703)



Innovative Supply Chain (1703)



State Energy Financing Institutions (1703)



Energy Infrastructure Reinvestment (1706)



TITLE 17

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

State Energy Financing Institution (SEFI) Projects (1703)

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

SEFI projects are not required to employ innovative technology.

SEFI Opportunity – What is a SEFI?

“State Energy Financing Institution,” or “SEFI,” is an LPO designation for a State-level entity that provides grants or other financial support to energy-related projects.

Potential SEFIs with Examples of Approved SEFIs



State Energy Offices

Ex. Pennsylvania Energy Development Authority



Housing Finance Agencies

Ex. Washington State Housing Finance Commission



Green Banks

Ex. Connecticut Green Bank



Economic Development Authorities

Ex. Alaska Industrial Development and Export Authority



Energy Funds/Lending Centers

Ex. Maryland Clean Energy Center



Other State Agencies

Ex. Ohio Air Quality Development Authority

What State-level agencies or Quasi-public State entities fund energy-related projects in your state?



RFIs and RFPs Can Help States Find or Spark Projects

- California: [Announcement: Request for Proposals – Virtual Power Plant Development for Community Benefit \(ca.gov\)](#)
- California: [Factory Built Housing Pre-Development Program: DRAFT GUIDELINES \(ca.gov\)](#)
- Maryland: [MCEC Seeks Public Private Investment Partnerships to Leverage Federal Loans for Clean Energy in Maryland](#)
- Massachusetts: [Massachusetts has a new request for information \(RFI\) seeking project interest](#)
- Michigan: [Michigan seeks input on bold steps to advance clean energy economy by tapping into billions in federal funding, helping businesses invest, and meeting the state’s climate goals](#)
- Minnesota: [Request for Proposals \(RFP\) / Minnesota Department of Commerce - Business \(mn.gov\)](#)
- New Jersey: [Bidding Opportunities - NJEDA](#)
- New York: [State Energy Financing Fund - NYSERDA](#)
- New York: [Open Solicitations - NY Green Bank](#)
- ***New RFIs Recently Issued by Arizona and DC with other States soon to follow***



Please note that by sharing State RFIs or RFPs, LPO is not endorsing, sponsoring, or otherwise evaluating the sufficiency of the financing support that may be offered by such organizations for purposes of eligibility for LPO financing under Title 17.

SEFI Toolkit

Scan the QR Code to
access LPO's SEFI
Toolkit and
Partnership Portal



Alaska Industrial Development and Export Authority (AIDEA) ^{ca}	Alaska
California Infrastructure and Economic Development Bank ^{ca}	California
California Strategic Growth Council ^{ca}	California
Connecticut Green Bank	Connecticut
Illinois Finance Authority ^{ca}	Illinois
Maryland Clean Energy Center (MCEC) ^{ca}	Maryland
Maryland Department of Housing and Community Development ^{ca}	Maryland
MassDevelopment ^{ca}	Massachusetts
Minnesota Climate Innovation Finance Authority ^{ca}	Minnesota
New Jersey Economic Development Authority ^{ca}	New Jersey
New York State Energy Research and Development Authority (NYSERDA) ^{ca}	New York
Ohio Air Quality Development Authority (OAQDA) ^{ca}	Ohio
Pennsylvania Energy Development Authority (PEDA) ^{ca}	Pennsylvania
Washington State Housing Finance Commission ^{ca}	Washington



SEFI Opportunity – How SEFIs Can Support Projects

Option 1: SEFI Provides Qualifying Grants/Funding Awards to LPO Applicants

Enables individual large projects to qualify for LPO financing under the SEFI project category. Does not create capital pool for smaller projects.

SEFI does not need to provide information about the projects.

SEFI is only responsible for providing awarded funds.

SEFI exposure is limited to the amount of the award, with no additional requirements.

Option 2: SEFI Agency/Entity Borrows Directly or Bundles Projects into SPV; SPV Applies Directly to LPO

Creates a capital pool for smaller projects that couldn't apply to LPO on their own. (Note: an SPV is not a requirement.)

Requires significant detail about bundled projects, including a portfolio rating.

Requires the SEFI not only to contribute "meaningful support" but also ensure that the SPV will receive "significant equity" (IFR 609.5(b)(5)) from non-LPO sources.

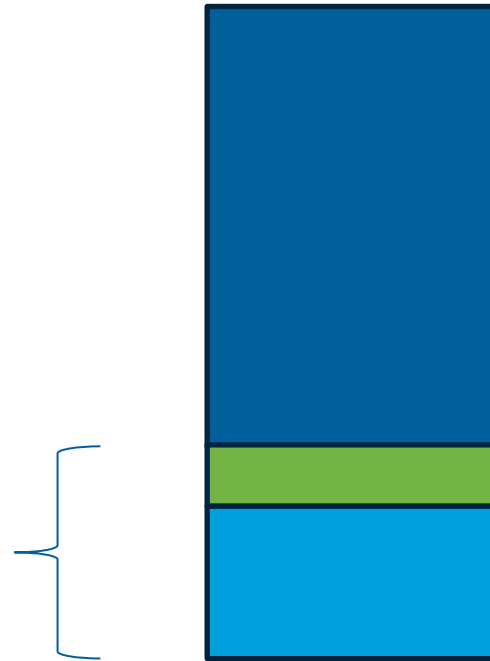
Means the SEFI would take on risk and have compliance requirements and liabilities, application costs, and upfront fees.



Capital Stack Visual: State Agency/SEFI As Grantmaker or Investor

*For larger projects
that apply to LPO...*

At least 20% of
project cost



LPO loan (maximum 80% of total project cost – but typically 50 – 70%)

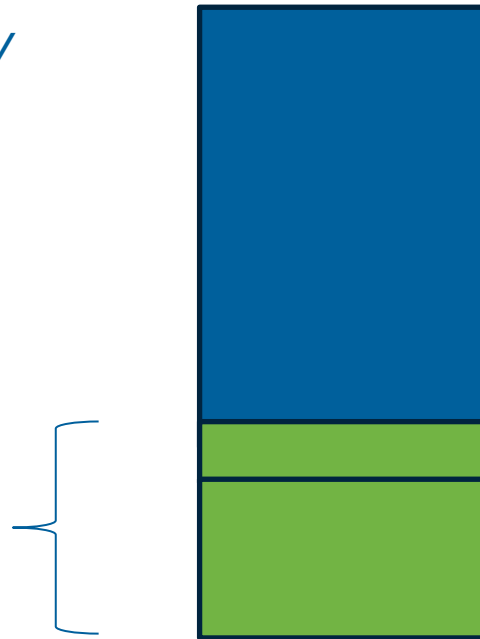
SEFI meaningful support investment to qualify under Title 17 with no technology innovation requirement

Sponsor and private equity investment, mezzanine subordinated debt, or philanthropic grants

Capital Stack Visual: SEFI As Borrower

Purpose is lending to projects that are too small to apply directly to LPO

At least 20% of project cost



LPO loan (maximum 80% of total project cost, but typically 50 – 70%)

SEFI meaningful support investment to qualify under Title 17 with no technology innovation requirement

Equity capital organized by SEFI, could include philanthropic and inkind contributions; SEFI/SPV is project sponsor and borrower

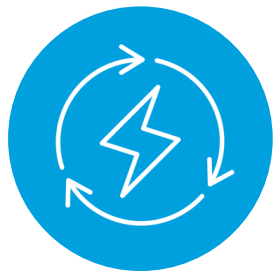


TITLE 17
Energy
Infrastructure
Reinvestment (EIR)
Projects (1706)

Energy Infrastructure Reinvestment (EIR) Projects (1706)

EIR projects retool, repower, repurpose, or replace energy infrastructure that has ceased operations or enable operating energy infrastructure to reduce air pollutants or emissions of greenhouse gases.

EIR projects are not required to employ innovative technology.



Energy Infrastructure Reinvestment

1706

Financing to leverage existing U.S. energy infrastructure for the clean energy future

Project Eligibility

In addition to meeting the common Title 17 eligibility requirements, EIR projects must:

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 anthropogenic emissions of greenhouse gases.

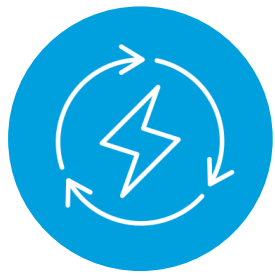
What is “Energy Infrastructure”?

A facility, and associated equipment, used for:

- The generation or transmission of electric energy;
- OR**
- The production, processing, and delivery of fossil fuels, fuels derived from petroleum, or petrochemical feedstocks.

Notes

- EIR projects **DO NOT** have an innovation requirement.
- Conditional commitments must be issued by **September 30, 2026**.
- **Environmental remediation costs and refinancing outstanding indebtedness directly relevant to the energy infrastructure** can be eligible for EIR financing as part of a larger reinvestment plan.



Energy Infrastructure Reinvestment

1706

Financing to leverage existing U.S. energy infrastructure for the clean energy future

Example Projects

Power plant (or associated infrastructure) retooled, repowered, repurposed or replaced with:

- Renewable energy (and storage)
- Distributed energy (e.g., VPPs)
- Transmission interconnection to off-site clean energy
- New manufacturing facilities for clean energy products or services
- Nuclear generation



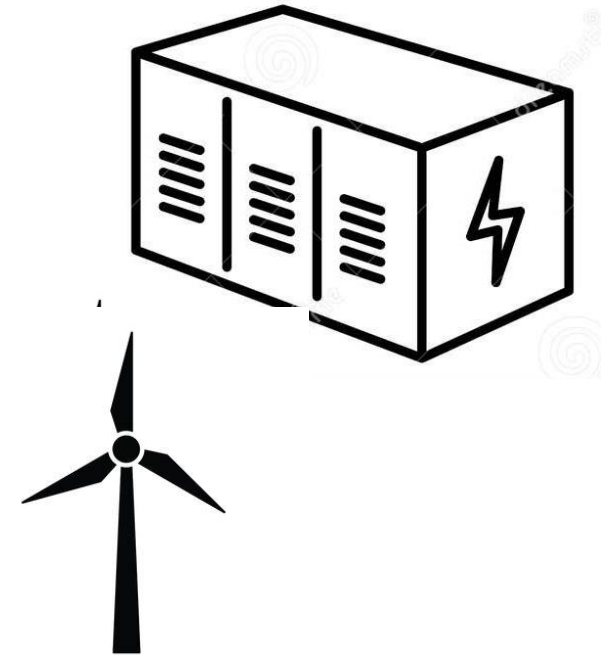
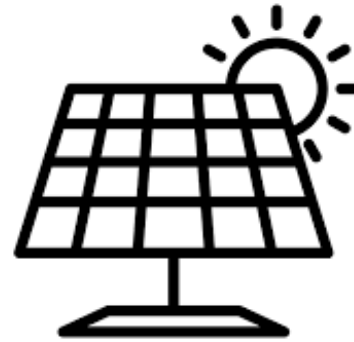
- Reconductoring transmission lines and upgrading voltage
- Installing emissions control technologies, including carbon capture and sequestration (CCS)
- Repurposing oil and gas pipelines (e.g., for H₂, CO₂)
- Upgrading refineries for biofuels or hydrogen
- Upgrading or uprating existing generation facilities (with emissions control technologies for projects involving fossil generation)



IOU Example: Fossil to Renewable Portfolio

Project Description:

- IRP identifies 2,400 MW of new renewables and storage will replace **1,400 MW of announced coal retirements**
- **Identified near-term investments:** 2 projects, combined ~500 MW solar and ~200 MW storage
- **Planned additional investments:** ~1,000 MW solar, ~200 MW storage, and ~500 MW wind
- Rebuild or refurbish existing hydro generation (approx. 100 MW existing capacity)



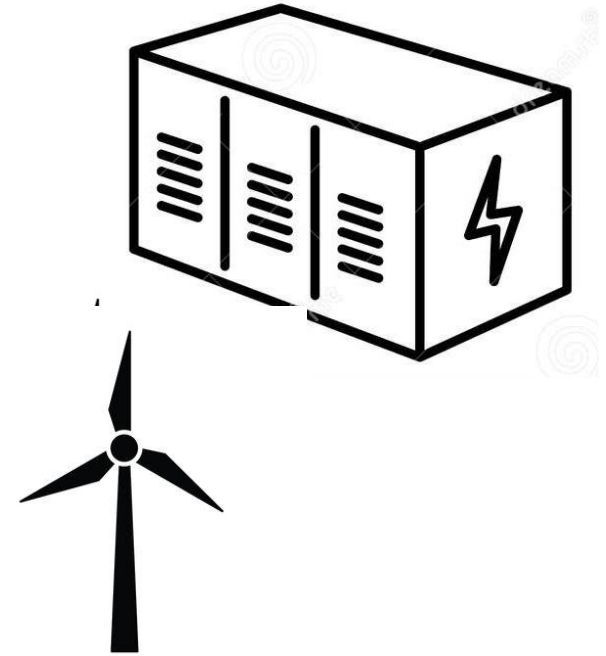
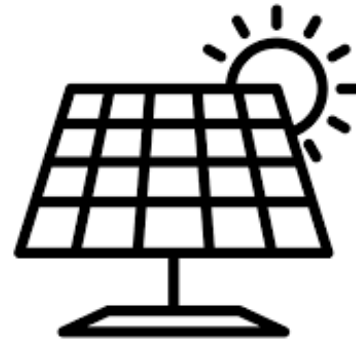
EIR Qualification

1706 a(1): The project will retool, repower, repurpose or replace retiring fossil energy infrastructure.

IPP Example: Fossil to Renewable

Project Description:

- Developer seeks to **repurpose an 800 MW** retired or low utilization fossil plant with **1200 mw of renewables + storage**
- Reuse transmission point of interconnection to gain access to the grid.
- **Community Benefits** include job retention and environmental remediation of the retired fossil facility.



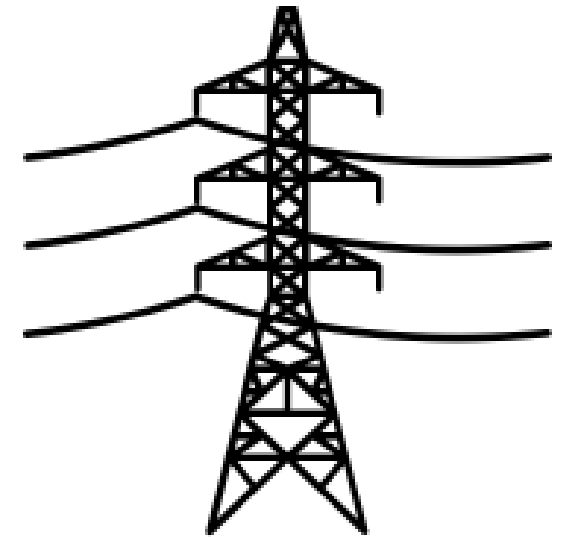
EIR Qualification

1706 a(1): The project will retool, repower, repurpose or replace retiring fossil energy infrastructure.

Example: Transmission Upgrades

Project Description:

- Multi-billion proposal for **transmission reconductoring** and grid modernization across multiple RTOs.
- Investments could improve capacity by 50%, while avoiding / limiting challenges associated with construction of new transmission.
- Projects will **enable interconnection of new clean generation**, and address safety and reliability risks associated with aging infrastructure.



EIR Qualification

1706 a(2): The project will enable operating Energy Infrastructure to avoid and reduce GHG emissions.



Title 17 Lending Overview

General Terms & Considerations

- The amount of the LPO-guaranteed obligation **cannot exceed 80%** of eligible project costs (as defined by statute and regulations and determined by LPO). Typically 50 – 70% coverage.
- LPO generally encourages applicants to consider greater than **\$100M** loan requests due to costs and processing time.
- The tenor of the guaranteed obligation cannot exceed the lesser of (a) 30 years and (b) 90% of the projected useful life of the assets.
- LPO cannot be **subordinated** to any other financing.
- With limited exceptions, the project generally cannot benefit (directly or indirectly) from other Federally appropriated funds.

Lender/Guarantee Options

- **Direct loan from U.S. Treasury's Federal Financing Bank** (FFB) backed by 100% “full faith and credit” DOE guarantee. Note: Applicants **do not** apply directly to FFB; Title 17 loan applications are managed through LPO.
- DOE partial guarantee (up to 90%) of commercial debt from Eligible Lenders.

Interest Rates and Fees

Interest Rate

- Base cost of capital for FFB loans: **Treasury + 3/8ths (0.375%)**
 - Fixed at the time of each draw according to the Treasury rate for the applicable tenor as of that date
- **Credit-based interest rate spread** or risk-based charge for some programs.

Fees & Costs

- No application fees
- Facility fee (due at or before financial close)
 - 0.6% on first \$2 billion of commitment; 0.1% for portion exceeding \$2 billion
- Maintenance fee annually post-closing
- **Applicant pays for both its own and DOE's external advisors as incurred (most costs can later be covered by LPO loan)**



Let's Talk About Your Project

Contact LPO to see what financing options may be available for your project

Questions?

We are here to work with you! We meet regularly with potential applicants and provide feedback on their concepts.

Reach out to us with SEFI questions at SEFI@hq.doe.gov



Download the full Title 17 Guidance document at: [Energy.gov/LPO/Clean-Energy](https://www.energy.gov/LPO/Clean-Energy)

Learn more about LPO and all of its financing programs at: [Energy.gov/LPO](https://www.energy.gov/LPO)