LPO Role in Funding Carbon Management Projects

Working with the private sector to finance the deployment of clean energy technologies, build energy infrastructure, create jobs, and reduce emissions in communities across the United States.

February 21-22, 2023

What LPO Offers Borrowers

The unique value of working with LPO for clean energy technology project financing

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

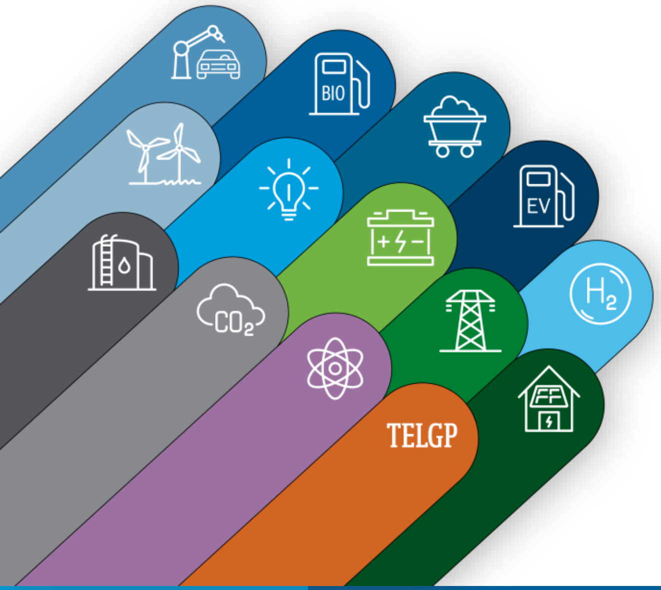
offering specialized expertise to borrowers for the lifetime of the project.

LPO Financing Programs

Project Types	Loan Program	Loan Types
Innovative Clean Energy	1703 ICE	Loan Guarantees
Advanced Transportation	ICE & ATVM	Loan Guarantees (Deployment) Direct Loans (Manufacturing)
Tribal Energy	TELGP	Direct Loans & Partial Loan Guarantees
Energy Infrastructure Reinvestment	1706 EIR	Loan Guarantees
CO_2 Transportation Infrastructure	CIFIA	Direct Loans

The Next Generation of LPO Financing

LPO is working with stakeholders across innovative clean energy and advanced transportation **sectors**



Major Technology Sectors	Technology Areas of Interest Include, but are not limited to, the following:
Advanced Vehicles & Components	• Vehicles • Components • Lightweighting • Manufacturing
Biofuels	• Advanced Biofuels • Biodiesel • Cellulosic Biofuels • Renewable Diesel • Sustainable Aviation Fuel (SAF)
Critical Materials	• Extraction • Manufacturing • Mining • Processing • Recovery • Recycling
EV Charging	• Electric Vehicle (EV) Charging Infrastructure Manufacturing & Deployment
Hydrogen	• Generation • Infrastructure • Transportation
Offshore Wind	• Offshore Wind Generation • Offshore Wind Supply Chain & Vessels
Renewable Energy	• Electrification • Geothermal • Hydrokinetics • Hydropower • Solar • Waste Conversion • Repowering Onshore Wind
Storage	• Electric Vehicle (EV) Battery Manufacturing • 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	• Grid Connected Distributed Energy Resources (DERs)
Advanced Fossil	• Carbon Feedstock Waste Conversion • Fossil Infrastructure Repurposing & Reinvestment • Hybrid Generation Hydrogen Generated From Fossil Sources • Industrial Decarbonization • Synfuel
Carbon Management	• Carbon Capture, Utilization & Storage (CCUS) • Carbon Dioxide Removal (CDR)
Advanced Nuclear	• Small Modular Reactors • Micro Reactors • Nuclear Supply Chain • Nuclear Front-End
Tribal Energy	• Energy Storage • Fossil Energy • Renewable Energy • Transmission Infrastructure • Transportation of Fuels

Emerging business models in carbon management

CURRENT AS OF JANUARY 2023

Emerging business models LPO has seen[1]

1. CCS at industrial sources (e.g., ethanol, ammonia, some refinery and petchem)
2. CO_2 pipelines and storage aggregating capture from ethanol plants
3. Power plant retrofits at high-potential sites (with assumed federal support)
4. New-build CCGT with carbon capture and storage (with assumed federal support)
5. Direct air capture plants (with assumed federal support)
6. Synfuels and green chemicals (e.g., methanol) using biogenic CO_2
7. Carbon capture and storage for pulp and paper mills (with assumed federal support)

Recent public announcements

Announced investments: Summit, CO_2 pipeline: $4.5B total[2]

- Collects CO_2 from 30 ethanol plants across five states
- 10 Mt of geological storage

SUMMIT CARBON SOLUTIONS

Announced investment: Occidental Petroleum DAC project: $0.8-1.0B[3]

- World's largest direct air capture project, in Permian basin
- Operational in 2024

OXY

Source: 1. LPO conversations with applicants and industry stakeholders. 2. Public announcements from Summit. 3. Public announcements from Occidental and Reuters.

LPO is working to accelerate scale-up

- Bringing in **billions in loan applications** across a range of innovative business models.
- Intensifying outreach to further **grow our pipeline** for emerging carbon management business models.
- Leading development of **proposals for use of Other Transactions Authority** to accelerate direct air capture deployment.
- Convening and leading **conversations with wide range of stakeholders** across the ecosystem (developers, CEOs, investors, etc.).
- **Collaborating with partners across DOE and USG** (e.g., FECM) to bring timely market information and inform deployment strategy.

The LPO Loan Transaction Process

LPO engages early with applicants and remains a partner throughout the lifetime of the loan

1 Pre-Application Consultations

Meet with LPO for no-fee, pre-application consultations, including discussions on the application process and the proposed project.

More Variable Timing

Lengths of these stages vary greatly, depending on project complexity and readiness.

Less Variable Timing

Timing for these stages is largely fixed, with targeted timelines.

2 Formal Application Submission

ICE 1703: Submit Part I application to determine technical eligibility (innovation and greenhouse gas emissions calculation). There is no review of business plan or financial structure in Part I. If invited, submit more thorough Part II application to determine project viability and ability to move into due diligence.

ATVM: Submit single application to determine basic eligibility and project viability.

TELGP: For direct loans, tribal borrower submits application directly to LPO. For loan guarantees, tribal borrower engages with a commercial lender. Lender applies for a loan guarantee on behalf of Borrower and project.

3 Due Diligence & Term Sheet Negotiation

Enter confirmatory due diligence and negotiate term sheet. Any third-party advisor costs are paid for by the applicant.

4 Credit Approval Process

Formal approval process of the term sheet, including interagency consultations.

5 Conditional Commitment

An offer by DOE of a term sheet to the borrower for a loan or loan guarantee subject to the satisfaction of certain conditions.

6 Loan Closing & Project Monitoring

Negotiate and execute loan documents using the approved term sheet. Loan closing and funding are subject to conditions precedent in the executed loan documents.

Applicant pays applicable costs and fees. After loan closing, LPO monitors the loan.

Let's Talk About Your Project

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

Call or write to schedule a no-fee, pre-application consultation: **202-287-5900** | **LPO@hq.doe.gov**

Learn more about LPO and all of its financing programs at: **Energy.gov/LPO**

Energy.gov/LPO

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