Unlocking the path to scale

- LPO receives $7B+ applications across multiple technology verticals each month
- In order to inform effective outreach, origination and underwriting, LPO must have a perspective on viable deployment pathways for those technologies
- Furthermore, as the deployment arm of the U.S. Department of Energy, LPO has a role in shaping the Department's broader views and actions in enabling the energy transition
- **LPO has applications across 20+ technology verticals that require us to identify immediate actions USG can take to support capital formation in each of these sectors**

PORTFOLIO BY THE NUMBERS

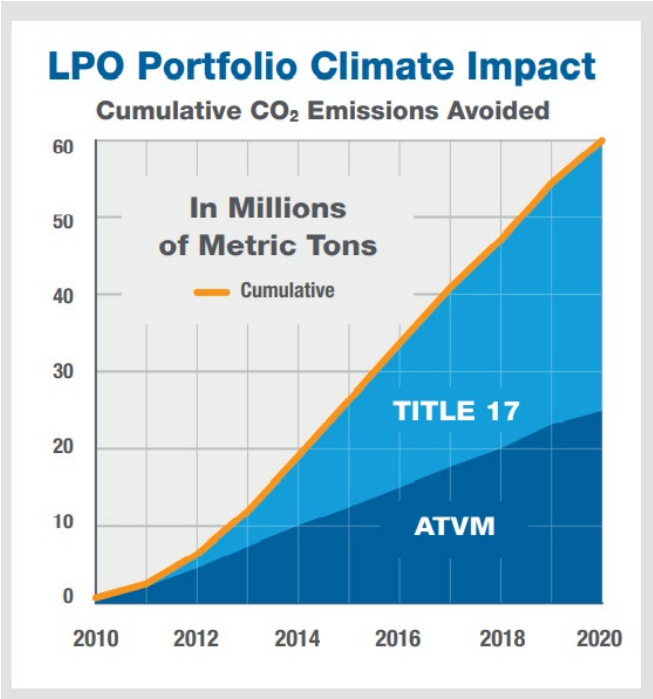
Access to Debt Capital

- **$30 Billion** Disbursed to Borrowers
- **$11 Billion** in Principal Repayment

Community Impact

- **37,000** Permanent Jobs Created
- **49,000** Homes Powered

Portfolio Loan Statistics



Every active borrower repaid principal in FY20, achieving $1.2B in principal retirement and $500M in interest payments to the U.S. Treasury. **Cumulative principal payments reached $11B**, 38% of the $30B LPO has disbursed. The **portfolio remains concentrated in creditworthy assets**, with **50% of exposure held by investment-grade borrowers** and maintains a low **aggregate loss rate of 3%** of funds disbursed.

LPO as the “Bridge to Bankability”

- LPO operates as a ‘Bridge to Bankability’ for emerging clean energy technologies
- To serve this mandate, LPO engages thousands of private sector and ecosystem stakeholders, giving unique insight into challenges to scale

LPO is supporting Capital Formation at Scale

In engaging with industry, LPO gains insight into barriers to scale, such as:

- **Chicken-and-egg challenges** (supply waiting for demand and vice versa)
- **Resolvable permitting** / regulatory issues
- **Lack of critical gov't resources or support** to enable market uptake

LPO leverages these insights into specific sectors:

- **Advanced Nuclear:** Working with electric utilities, supply chain to create focus and scale around small modular reactor deployments
- **Transmission:** Identifying interventions with from Governors, Regional Transmission Operators, and HVDC technology providers
- **Virtual Power Plants:** Data driven approach to eliminating the gap between the perceived losses from working with Justice Communities vs. the 50% lower actual loses seen in the data since 2015
- **Critical Minerals:** Mapping all major projects here in the United States so that decision makers can decide to accelerate permits
- **Offshore Wind:** Communication gaps around ideal locations for transmission (HVDC vs. Radial lines) and Jones Act compliant vessels
- **Hydrogen:** Defining "Hubs" to achieve great local collaboration, 85Q
- **BioFuels:** Buying pools for Sustainable Aviation Fuel

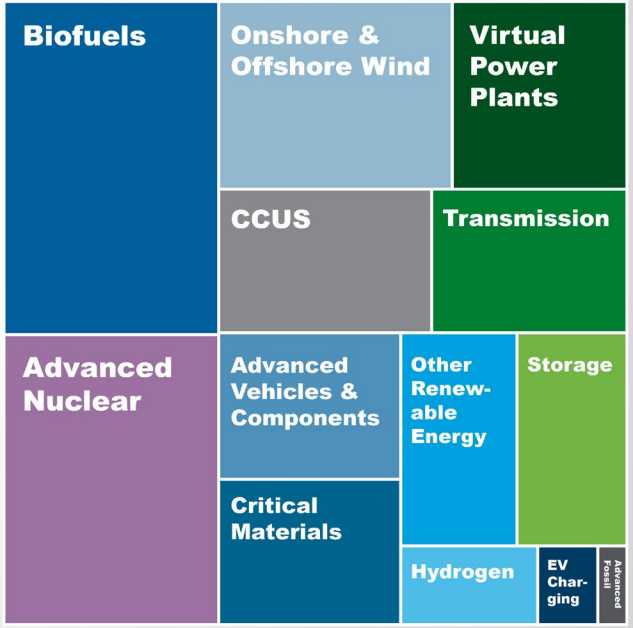
77 ACTIVE APPLICATIONS [1]

$60.0 BILLION IN LOANS REQUESTED [2]

2.3 NEW APPLICATIONS PER WEEK [3]

$60.0 BILLION

TOTAL AMOUNT OF LOANS REQUESTED GROUPED BY TECHNOLOGY AREA



Notes: * All data updated through December 31, 2021.

1) Active applications are defined as completed submissions through LPO's online application portal.
2) 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.
3) Current rolling average of new active applications per week over the previous 24 weeks. Figure rounded down to the nearest 0.1 application.

Ramping up in 2022

LPO anticipates ramping up Conditional Commitments in 2022

- ATVM battery projects
- Critical materials projects
- EV manufacturing projects
- industrial decarbonization project
- offshore wind supply chain project
- hydropower plus storage project
- low carbon cement project

- Hydrogen projects
- Tribal solar projects
- transmission projects
- virtual power plants
- solar plus storage project
- EV charging projects
- energy storage project

Monolith

A Clean Hydrogen and Carbon Utilization Project

MONOLITH OLIVE CREEK (OC) PLANT
HALLAM, NEBRASKA

SUMMARY

Monolith's carbon black reactor (**CBR**) features innovative plasma arc torch technology to convert natural gas into carbon black and hydrogen. This hydrogen will be synthesized with purchased nitrogen to produce ammonia fertilizer. The carbon black will be sold to industrial customers (e.g., tire manufacturers) and the ammonia fertilizer will be sold to agricultural sector customers. Both products will be sold on a merchant basis, with volume and price subject to market forces. S&P provided a preliminary rating of the Project as B- during the construction phase and B during operations.

CLIMATE BENEFIT

The Project will achieve an 80% reduction in GHG emissions relative to the business-as-usual scenario of conventionally produced carbon black and ammonia.

BUILD BACK BETTER

75 Operations Jobs
1,000 Construction Jobs

TOTAL PROJECT INVESTMENT

$[1.80] BILLION

REQUESTED TITLE 17 LOAN GUARANTEE

UP TO **$[1.04] BILLION**

TARGETED TIMING

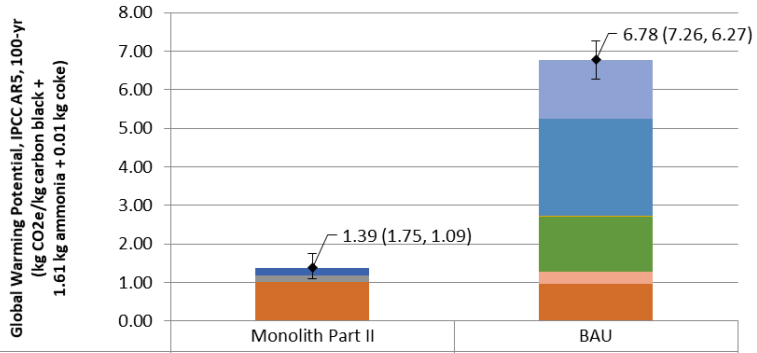
Current Status: Launching Interagency Review
Conditional Commitment Offered: Estimated December 2021
Financial Close: Estimated 2Q 2022

Company	Location of Plants	Production Method(s)	Production Capacity (tonnes per year)
Birla	Centerville, LA	Furnace	155,000
	Ulysses, KS	Furnace	60,000
Cabot	Franklin, LA	Furnace	175,000
	Ville Platte, LA	Furnace	165,000
	Pampa, TX	Furnace	27,000
Tokai	Big Spring, TX	Furnace	112,000
	Borger, TX	Furnace	177,000
	Addis, LA	Furnace	156,000
Continental	Sunray, TX	Furnace	85,000
	Ponca City, OK	Furnace	130,000
	Phenix City, AL	Furnace	85,000
Orion	Borger, TX	Furnace & Thermal	105,000
	Orange TX	Furnace	74,000
	Belpre, OH	Furnace	74,000
	Franklin, LA	Furnace	122,000

GHG Summary

- The OC Plant will use natural gas and renewable energy as inputs and will have carbon black and hydrogen (converted to ammonia) as outputs.
- Conventional carbon black, ammonia, tire, and hydrogen producers use outdated technologies that are not easily decarbonized.
- The Project will achieve an 80% reduction in GHG emissions relative to the business-as-usual scenario of conventionally produced carbon black and ammonia.

Global Warming Potential of BAU and Proposed Cases*



	Monolith Part II	BAU
Monolith Part II	0.19	0.00
Conventional Ammonia Production	0.00	1.52
Carbon Black Production	0.00	2.53
Coke Production and Upstream Diesel Fuel	0.00	0.01
Upstream Fuel Oil	0.00	1.43
Electricity - U.S. Average	0.00	0.32
Electricity - U.S. Average Solar PV	0.17	0.00
Upstream Natural Gas	1.00	0.97
Upstream Toluene, Ethylene Glycol, and Graphite	0.02	0.00
◆ Total	1.39	6.78

*TPMD analysis of GHG life-cycle emissions. Not approved for public release.