

The Energy Infrastructure Reinvestment Program

Emerging opportunities from the
DOE Loan Program Office's upgraded toolkit

December 2022

Revised January 2023 to reflect interest rate trends

The conclusions set forth herein are based on independent research and publicly available material. The views expressed herein do not purport to reflect or represent the views of Charles River Associates or any of the organizations with which the authors are affiliated. The authors and Charles River Associates accept no duty of care or liability of any kind whatsoever to any party, and no responsibility for damages, if any, suffered by any party as a result of decisions made, or not made, or actions taken, or not taken, based on this paper. If you have questions or require further information regarding this issue of *CRA Insights: Energy*, please contact the contributor or editor at Charles River Associates. This material may be considered advertising. Detailed information about Charles River Associates, a registered trade name of CRA International, Inc., is available at www.crai.com.

Introduction

As implementation guidance regarding the Inflation Reduction Act (IRA) continues to be released, industry participants should pay close attention to the DOE Loan Program Office (LPO) as an emerging source of federal funding to support the US energy transition. In particular, with the creation of the Energy Infrastructure Reinvestment (EIR) Program, the LPO is authorized to issue \$250 billion in low-cost debt to replace aging energy infrastructure with environmentally cleaner alternatives.¹ Through a sevenfold expansion in lending authority, the LPO may now become a viable financial partner for a new segment of applicants who satisfy EIR program requirements. Furthermore, in a period of volatile interest rates and credit market uncertainty, this program may provide a novel opportunity for utilities and merchant generators to access low-cost credit.

In this whitepaper, CRA assesses the EIR Program and identifies the scope of opportunity for potential applicants. Key findings include the following:

1. The EIR Program represents the largest expansion of the DOE LPO in its two-decade history. The program now has over \$250 billion in lending authority, and opportunities for its use will be wide-ranging and extend to new industry participants.
2. The EIR Program offers unique benefits to several stakeholders, with potential ratepayer savings on the utility side and substantial IRR increases for merchant generators.
3. The program is scheduled to end by September 2026. Those who wish to utilize the EIR Program should begin assessing opportunities in the coming months to avoid missing program deadlines.

What is the Energy Infrastructure Reinvestment Program?

At a high level, the IRA authorizes the LPO to grant up to \$250 billion in loan guarantees or refinancing to projects that either

- a. “Retool, repower, repurpose, or replace energy infrastructure that has ceased operations; or
- b. Enable operating energy infrastructure to avoid, reduce, utilize, or sequester air pollutants or anthropogenic emissions of greenhouse gases.”²

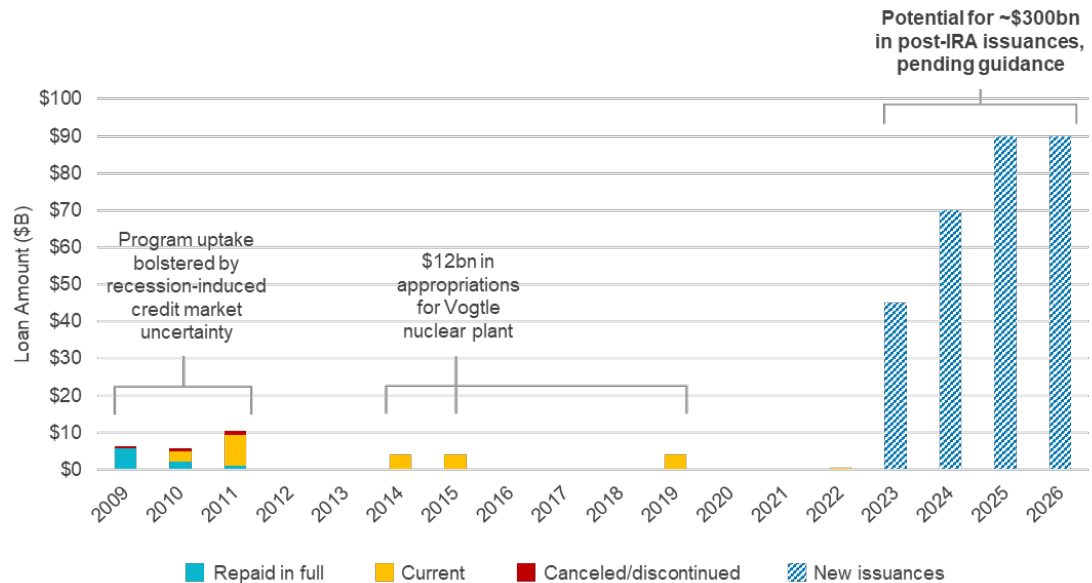
Importantly, to qualify, projects need not simultaneously satisfy both of these clauses. Guidance on the program is limited thus far, but some clarity can be gleaned from LPO blog posts and interviews, in which an expansive interpretation of the program seems to be presented. The general openness of the EIR definition will allow for creativity from applicants and opportunities to align financial, operational, and environmental objectives.

¹ H.R. 5376, “Inflation Reduction Act,” 117th Congress (2021–2022).

² Official definitions can be found in section 1706 of 42 U.S.C. 16516. Inclusion is made to allow for the remediation of environmental damage associated with energy infrastructure under this program.

The program is authorized to run through September 30, 2026, indicating that applicants should begin preparing in the near term if they wish to qualify. Although 2026 is the deadline for loan awards, the actual disbursement of the loan can happen until 2031 allowing new projects enough lead time for development and financial closing. Additionally, because LPO leadership is based on executive appointment, a change of administration in 2025 could result in the program diminishing in strategy or scope, further narrowing the application window.³

Figure 1: DOE LPO historical and forecasted loan issuances (\$ in billions)



Source: DOE LPO Portfolio Website⁴; H.R.5376, 117th Congress (2021–2022); CRA Analysis

Comparing the DOE LPO and the Corporate Bond Market

Given recent activity by the Federal Reserve Bank, leveraged projects are becoming increasingly uncertain across the energy industry as interest rates fluctuate.⁵ Financial managers overseeing existing fossil assets may consider the EIR Program as a potential hedge against rising rates, supporting new projects even as commercial banking options diminish. While guidance is pending on how spreads for the EIR Program will be calculated, past LPO programs have used the following structure to calculate a project’s interest rate:⁶

³ LPO leadership can set financial criteria for assessing applications. It is unclear how future changes in leadership may affect the program’s uptake.
⁴ Loan issuances estimated from LPO portfolio [website](#). CRA forecasts a lag in early program uptake, though future final issuances are subject to change.
⁵ An [official press release](#) on November 2, 2022, documented recent changes announced by the Federal Open Market Committee.
⁶ Information on historical LPO credit spreads can be found using the following link: <https://www.energy.gov/lpo/downloads/credit-based-interest-rate-spread-title-xvii>.

Projected DOE LPO EIR Program Interest Rate =

- Applicable US Treasury rate for tenor of the loan
- + 37.5 bps (FFB liquidity spread)
- + Applicable credit-based interest spread⁷

Using recent credit-spread and treasury-yield data from the Federal Reserve, CRA identified that LPO rates will come in significantly lower than those of traditional corporate bond markets. This is particularly relevant for the merchant generator segment, which is typically characterized as high yield and may face increased debt costs as credit markets tighten. While utilities may see only a moderate reduction in financing costs, unique LPO financing structures may still make the program attractive for certain projects.

Table 1: Utility and IPP sector representative bond yields compared with EIR⁸ (January 2023)

		Spread (bps)	Effective Yield (%)			
			3 mo	10Y	20Y	30Y
	Treasury Bonds	-	4.69	3.53	3.81	3.66
	EIR Program	37.5 – 100*	~5.38	~4.22	~4.50	~4.35
Corporate Debt Rating	A	109	5.78	4.62	4.90	4.75
	BBB	163	6.32	5.16	5.44	5.29
	BB	278	7.47	6.31	6.59	6.44
	B	458	9.27	8.11	8.39	8.42

Source: CRA analysis based on Federal Reserve Bank of St. Louis data⁹ (*EIR spread represents CRA estimate)

Interpreting DOE LPO subsidy costs

Historical LPO credit spreads are a useful guide to assessing the value of an EIR Program loan. However, it is worth noting that the program is designed to finance projects with a

⁷ Information on historical “applicable credit-based interest spreads” is available on the LPO website, though further guidance is needed. DOE LPO leadership stated, in a since-deleted Tweet in early October, that the applicable credit-based spread could be reduced to zero for EIR projects. Whether LPO spreads will trend lower or higher than in previous years is unclear.

⁸ Credit spreads and yields representative of federal reserve bank data estimated from January 2023 monthly average.

⁹ An investment-grade bond rating of A to BBB is assumed consistent with the average credit rating of a publicly traded investor-owned utility. For the IPP segment, two bond proxies are selected: a high-yield bond for the Term Loan B market (BB to B rated) representing thermal assets with material merchant exposure and a low-investment to non-investment rating (BBB- to BB) representing the contracted renewables (IPP-contracted) segment. Projects that would qualify under the EIR Program would likely fall on the lower half of this spectrum, as they may involve the acquisition of thermal assets before replacement.

unique risk tolerance. The EIR Program does not require applicants to use an innovative energy technology, as was the requirement in past LPO programs, which will reduce the general risk of the projected EIR Program portfolio. Therefore, the EIR Program was appropriated \$5 billion for subsidy costs, which represent the estimated cost to the government of extending or guaranteeing credit for the EIR Program's \$250 billion loan guarantees.

In comparison, the LPO's Innovative Clean Energy program was appropriated \$3.6 billion in subsidy costs to cover just \$40 billion in loan guarantees. In other words, the EIR Program is projected to cost the federal government \$1 for every \$50 of loans issued, whereas the Innovative Clean Energy program costs \$1 for every \$11 in loans issued. This indicates that the LPO's EIR portfolio strategy will need to make safer investments a priority, suggesting that electric utilities and investment-grade projects will be looked upon favorably in the loan application process. Novel credit-based spreads may be introduced to allow higher-risk projects to play a greater role in the program.¹⁰

Opportunities for electric utilities

Electric utilities are some of the strongest candidates for the EIR Program because they own a wide variety of assets, many of which will need to be retired and replaced in the near term. The EIR Program could allow utilities to replace existing assets with low-cost debt, finance environmental remediation efforts, and decarbonize or retrofit existing fossil assets.

While not every retirement-age asset will be a prime candidate and each utility's generation portfolio is unique, an assessment of potential EIR use cases could lead to ratepayer savings and allow utilities to maintain a balanced capital structure without incurring higher lending costs. Notably, the utility must pass on financial benefits to customers or associated communities, which can likely be achieved through proven ratepayer savings, although other approaches may be considered.¹¹

Ultimately, the broad scope of the program allows for flexibility in determining how debt can be incorporated into an energy infrastructure reinvestment strategy. Creative applications and use cases could lead to major ratepayer savings and shore up utility exposure to debt markets.

CRA conducted high-level analysis of a potential DOE LPO application strategy and found that use of the program could reduce ratepayer costs and simultaneously increase utility

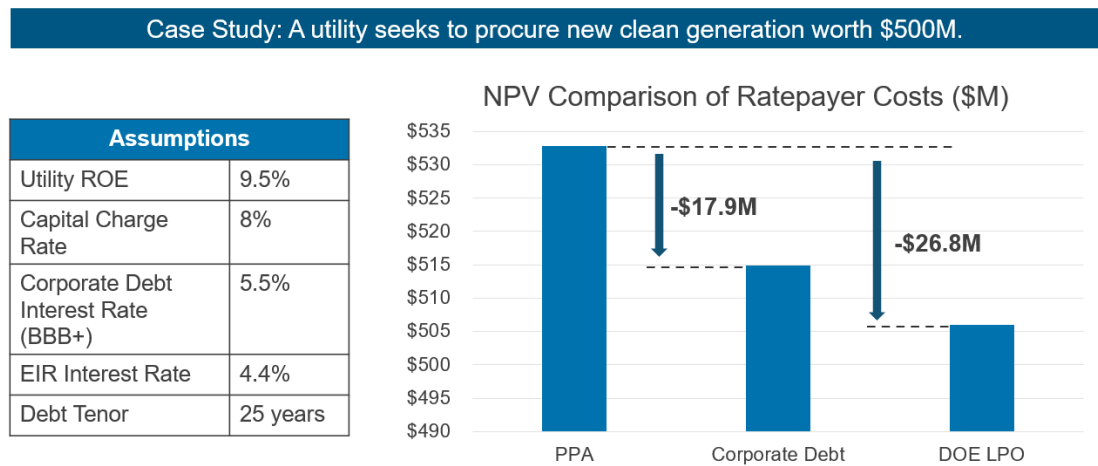
¹⁰ As explained in the previous section, the LPO can use credit-based spreads to appropriately price riskier investments. However, as much of the value of a project comes from the comparatively lower LPO interest rate, additional credit spreads imposed by the LPO may reduce the likelihood that the program will be used for higher-risk projects.

¹¹ The IRA states that "associated communities" may also receive the pass-through of financial benefits (Section 1706(d)(3), IRA amendment to Title XVII of the Energy Policy Act of 2005). If an applicant chooses, it could defer a portion of ratepayer savings specifically for communities near the retired generation asset. This could include targeted rate reductions for customers in the vicinity of the plant. While no specific guidelines are mentioned, it is likely that applicants that have made preparations to support these communities will be viewed more favorably by program administrators.

returns to equity. To make this determination, ratepayer impacts were assessed for a capital investment of \$500M in new generation assets using three separate financing methods. In the first scenario, we model the costs for a utility to procure a new asset through a PPA / third-party developer. In the second scenario, the utility builds and operates the asset through a mix of equity and debt financed from corporate debt markets.¹² Finally, the procurement of generation assets was modeled using the DOE LPO program, assuming a 4.4% fixed interest rate.

When bringing the results together, we identify that ratepayers could save more than \$26 million when a utility makes a \$500 million investment supported by the Section 1706 program. While LPO savings against the corporate debt market were relatively small (less than \$10M), value could be increased via the refinancing of existing assets, although program guidance has not yet confirmed the eligibility of this use of funds. This exercise reflects financing trends as of January 2023, though it is possible for loans to close beyond 2026, indicating that the relative economics of the program will shift in the coming years. As a general rule of thumb, if utility bond spreads exceed 100 bps the LPO is likely to provide at least some material financial benefit to ratepayers.

Figure 2: Scenario analysis for utility generation procurements with LPO funding



Challenges and uncertainties for electric utilities

While retirement-age utility assets may represent promising candidates, we note that several challenges and considerations affect program feasibility:

- Projects will likely need to be identified in the next two years to ensure that loan guarantees can be secured before the September 2026 program end date.

¹² Current rates for January 2023 sit at around 5.5%, though actual project outcomes subject to change. A 50-50 debt-equity split was assumed for the “Corporate Debt” scenario.

- Coordination will be necessary to ensure that a project approved for an LPO loan is also authorized by state regulators. It is likely that projects with proven ratepayer savings can be streamlined, but communication between the LPO and regulators will be important.
- For the case study, CRA assumes that replacement projects are financed with 50% utility equity, though higher equity ratios may be justifiable when using LPO funds due to overall ratepayer savings.

As mentioned earlier, the EIR Program requires electric utilities to pass on financial savings to customers or communities affected by the asset retirement. This creates uncertainties because the methodology for assessing “financial savings” is unclear; further guidance is needed. CRA assumes that applicants that can prove ratepayer savings using an LPO would qualify, but applicants may also want to consider bigger-picture benefits of their projects, such as emissions reductions and job creation.

Opportunities for merchant generators

Compared to utilities, merchant generators or IPPs are exposed to significantly higher credit spreads, which have gradually risen since the beginning of 2021.¹³ Additionally, financiers are becoming less willing to service fossil assets due to increasing ESG risk, which may further increase financing costs. However, the introduction of low-cost EIR Program loans could allow generators to retire poorly performing fossil assets and replace them with renewables or storage.

Assessing the economic impact of an EIR loan on merchant generators is relatively straightforward, as the primary assumptions involve capital structure and cost of debt. We look at a simple example of an IPP that has the choice to run a plant at breakeven or retire it early and replace it with an environmentally cleaner asset. As can be expected, the significantly lower cost of debt provided by the DOE LPO could result in increased levered IRR, which may allow previously un-financeable projects to be greenlighted.

In scenario 1, a business-as-usual case, we look at an IPP that will need access to corporate debt markets. We assume a debt cost of 8.5%, which roughly corresponds to current rates on bonds rated BB or BB-. In any real scenario, diligence should be performed to determine the true spread and allow for sensitivity against the risk-free rate. The debt–equity split was assumed to be 25–75, which ensures that the project can meet a minimum DSCR of 1.25. In general, the IPP segment has trended toward de-leveraged project structures, so this assumption will likely reflect real industry scenarios.

¹³ Federal Reserve Bank of St. Louis data shows credit spreads on B-rating bonds have fluctuated by more than 3 percentage points in the past 18 months; the comparable figure for A-rating bonds is less than 0.8 percentage points.

In scenario 2, the IPP uses a DOE LPO loan, which reduces the cost of debt to approximately 4.7% (see Table 2), and the debt–equity split shifts to 50–50. Projected revenues show that use of the program can transform project economics.

Table 3: Scenario analysis for merchant generator asset replacement case study

Scenario	Description	Uses EIR?	Debt–Equity Split	Cost of Debt	Leveraged IRR
1	IPP continues to run plant at breakeven. Replacement asset financed through corporate bond market (BB/BB-).	No	25–75	8.5%	5.6%
2	IPP retires fossil asset. Replacement asset financed partially through DOE LPO loan.	Yes	50–50	4.7%	12.8%

In general, the LPO could allow for increased leverage and provide a stronger business case for IPPs to co-locate renewables on existing fossil plant sites. Given the EIR Program’s measurable improvement on leveraged IRR, qualifying IPPs may have new opportunities to retire plants with low financial performance early and replace them with new assets that would not be otherwise financeable.

Conclusions and future work

Historically, the LPO was structured to finance innovative energy technologies at commercial scale. The Energy Infrastructure Reinvestment Program seems to change this narrative, as the LPO is now authorized to finance projects intended to replace retiring assets, even if they rely on proven technologies such as wind or solar.

Given the broad language of the program definition, unique opportunities exist for industry participants to find creative financing solutions that can hedge against current economic headwinds. While CRA assessed a narrow scope of projects in this *Insights* piece (new electric generation assets), a wide array of potential projects could emerge from the EIR Program. Qualifying use cases could include, among other things, gas distribution companies looking to replace stranded assets with hydrogen infrastructure and transmission operators seeking to upgrade aging lines.

Future work and analysis may identify several other promising project structures, and forthcoming DOE LPO guidance may further clarify program criteria to help streamline the application process. Despite this uncertainty, utilities and asset managers can begin identifying opportunities within their portfolios as early as today.

About CRA's Energy Practice

Charles River Associates is a leading global consulting firm that offers strategic, economic, and financial expertise to major corporations and other businesses around the world. CRA's Energy Practice provides services to a wide range of industry clients, including utilities, ISOs, RTOs, large customers, and investors. The Energy Practice has offices in Boston, London, Munich, New York City, Toronto, and Washington, DC. Learn more at www.crai.com/energy.

Contacts

Ryan Iyer

Analyst
Washington, DC
+1-202-662-3970
riyer@crai.com

Anant Kumar

Principal
Washington, DC
+1-202-662-3958
anantkumar@crai.com