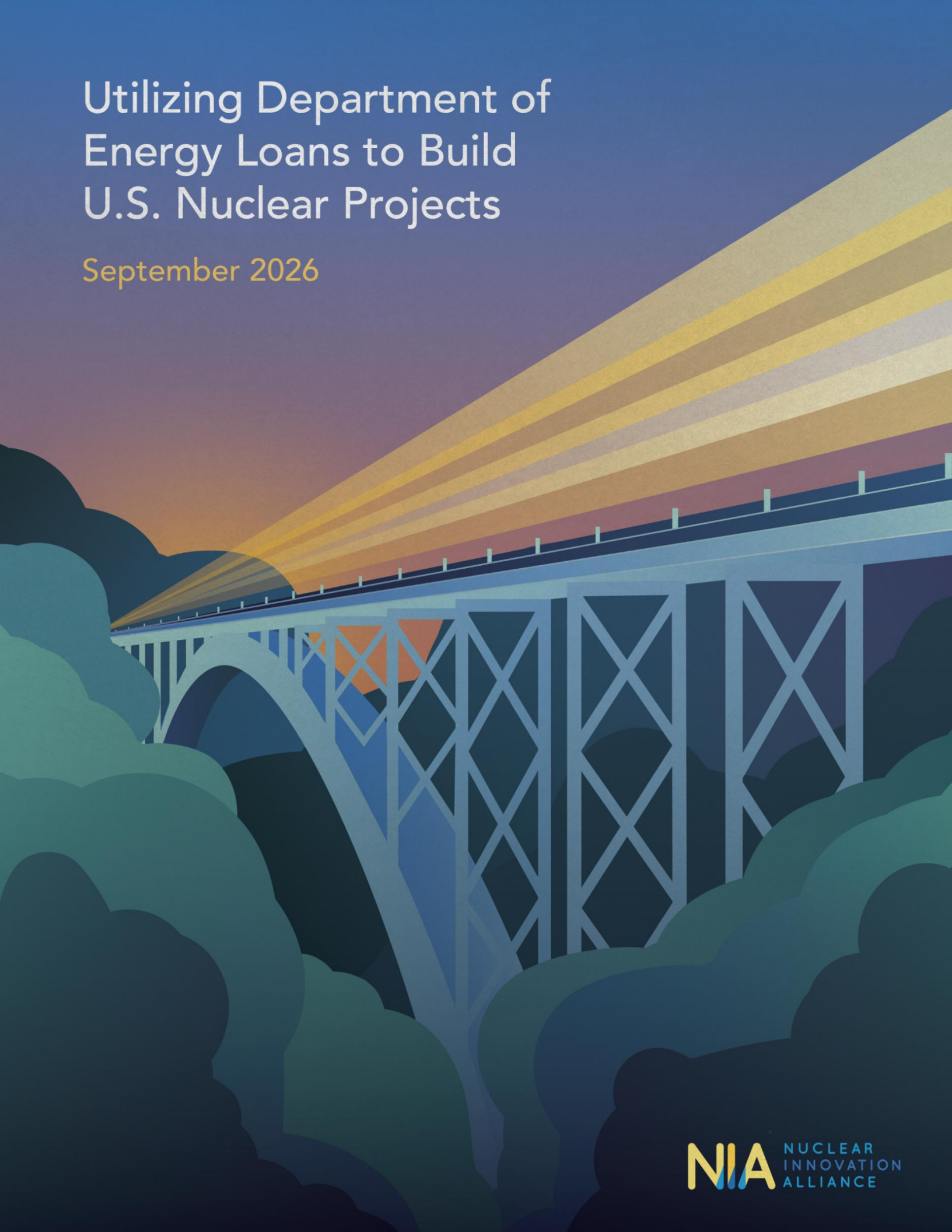


Utilizing Department of Energy Loans to Build U.S. Nuclear Projects

September 2026



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September 2026

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Executive Summary

The U.S. Department of Energy's Office of Energy Dominance Finance (EDF) is a lending program that provides loans and loan guarantees to eligible energy projects across a wide range of technologies and use cases. EDF has generally provided financing for first-of-a-kind and early mover projects to aid in the early commercialization of new technology. These loans ultimately benefit electric ratepayers and industry and align with the public interest in commercializing technologies for energy security and environmental protection.

EDF has been instrumental in the commercial deployment of nuclear technology in the United States—specifically, loans to the first completely new U.S. reactors in decades, the AP1000 reactors at the Vogtle Nuclear Power Plant, as well as the first-of-its-kind restart at the Holtec Palisades project in Michigan. These projects now serve as important milestones for the U.S. nuclear energy sector.

EDF appears to be shifting its emphasis away from technology commercialization and toward infrastructure deployment. While NIA agrees that the near-term goal of meeting growing energy demand is critical, it is equally important in parallel to lay the foundation for long-term U.S. energy security and competitiveness. To realize EDF's potential for commercializing nuclear technology, it is important that EDF continue to evaluate and approve loan guarantees for first-of-a-kind (FOAK) and early mover technologies and have the resources to do so. This report makes four recommendations to better deliver on that mission and further unlock the U.S. nuclear industry.

- Congress should ensure that EDF has adequate loan authority to address both affordability and innovation, and EDF should use the Title 1703 program to its full potential, since it covers innovative energy and supply chain projects, potentially with greater financial risk than the projects that would be covered by Title 1706, making it the natural vehicle for FOAK and early-mover reactors and manufacturing.
- Congress should provide adequate credit subsidy across both 1703 and 1706 programs so that EDF can finance projects across the diverse technologies, markets and project structures that scaled deployment requires.
- EDF should increase the transparency and efficiency of its application process. In particular, it would benefit applicants and make the process more efficient if applicants could receive an early indication of the size of the credit subsidy attributable to their project and an indication of the key aspects of their project requiring the credit subsidy (i.e., the key risks EDF sees in a potential loan). That would enable applicants to focus on the key drivers of risk and potentially decrease the credit subsidy cost.
- EDF should build on its recent announcement to provide supply-chain lending for Westinghouse reactors by making funds available for the component manufacturing and fuel cycle capacity for other advanced reactor technologies and clarifying its approach to supply-chain lending.

Incorporating these four recommendations will help set up EDF with what they need to move U.S. nuclear technology to full commercial maturity and scale.

I. Introduction

As discussed in NIA's companion document, [*The Role of DOE's Office of Energy Dominance Financing in U.S. Nuclear Energy Leadership*](#), the U.S. Department of Energy Office of Energy Dominance Financing (EDF) is essential to nuclear energy's success and provides benefits to all energy consumers, leveraging a relatively modest level of appropriated funds into much greater investment in energy assets. This report provides recommendations on the best use of this important program.

Thus far this century, new U.S. nuclear energy development has largely been focused on design. Dozens of companies have raised capital and developed next-generation nuclear designs, but only two completely new commercial nuclear reactors have been completed in the United States since 2000—the Westinghouse AP1000 units at Vogtle.

Now, in 2026, the industry is rapidly moving from design into the execution phase. TerraPower and Kairos Power's commercial advanced reactors have received construction permits from the Nuclear Regulatory Commission (NRC) and are under construction. Many others, including X-Energy and GE-Vernova, have construction permit applications under NRC review (and GE-Vernova has a reactor under construction in Ontario, Canada). Microreactor companies Valar Atomic, Aalo Atomic, Deployable Energy, Oklo, and Antares have successfully achieved criticality as part of the DOE Reactor Pilot Program and DOE Launch Pad initiative. Separately, Westinghouse completed zero-power criticality testing for its eVinci microreactor at DOE's National Criticality Experiments Research Center in Nevada. The U.S. Army's Janus program recently selected several vendors to build microreactors at military installations.¹ There is tangible progress across the industry, and the pace of project development has quickened.

Project execution brings other challenges that the industry must solve to develop nuclear energy on a commercial scale. Offtake contracts, project teaming agreements, component procurement, site selection and continued licensing efforts are all important pieces of commercial project development and risk sharing.² Project financing hinges on establishing and executing on all these agreements. Achieving that success is especially difficult for first-of-a-kind (FOAK) projects.

Capital cost and recovery are a significant portion of nuclear power's cost, so it will be important for developers of nuclear energy projects to attract competitive financing. This is especially true for FOAK units that will be expensive relative to future mature, nth-of-a-kind projects. Furthermore, financing for FOAK nuclear projects remains very challenging. Lack of

¹ Antares Nuclear at Fort Bragg, North Carolina; BWXT Advanced Technologies at Fort Campbell, Kentucky; General Atomic Electromagnetic Systems at Fort Hood, Texas; Radiant Industries at Fort Benning, Georgia; and Westinghouse Government Services at Fort Drum, New York.

² For more on key indicators of project progress, see [Progress of Early Mover Nuclear Projects: Key Indicators to Watch | NIA](#)

build experience, FOAK technology risk, cost overrun risk during construction, and completion risk all factor into investors' hesitancy to provide capital for these projects.

Many countries developing a nuclear-energy industry get around this early-stage financing gap by creating wholly or partially state-owned enterprises. The Korea Hydropower and Nuclear Company (KHNP), for example, has a track record of successful projects that are financed by the South Korean government. This financial commitment allowed KHNP to construct several APR-1400s, despite the FOAK risks of the first units. The technology has now been built multiple times, seen reduced costs and construction times, and even been exported and built in other countries. China, Russia, and France also have nuclear companies that are partially or wholly state owned.

The U.S. government typically does not create state-owned enterprises in the manner that South Korea, France or China have for nuclear energy. Rather, to finance and build projects, the U.S. industry relies on the immense domestic financial sector, which is still reticent to invest in FOAK and early deployments. A gap exists in the U.S. for financing early-mover projects.

This gap in early-mover project financing can be closed by a few strategic public-private partnerships incorporating grants, tax credits, and loan guarantees. EDF is the key to financing early-mover projects, realizing nuclear energy at scale, and setting up bankable, privately financed projects in the future.

II. Rationale for Public-Private Partnership in Financing

Recent progress across the industry marks real movement toward commercial deployment, but it does not resolve the financing problem at the core of that transition. FOAK projects still carry meaningful technology and cost risk with little previous construction experience to rely on. Private lenders weigh projects on expected return and exposure to financial risk, so even strong early-mover projects can struggle to raise debt on competitive terms until that risk has been demonstrably reduced. These early movers, however, still need financing to build, learn, and reduce risk for follow-on projects. EDF's highest-value loans are for early projects that cannot attract private finance on reasonable terms. EDF's lending to these early-mover projects creates a bridge to private financing for subsequent projects.

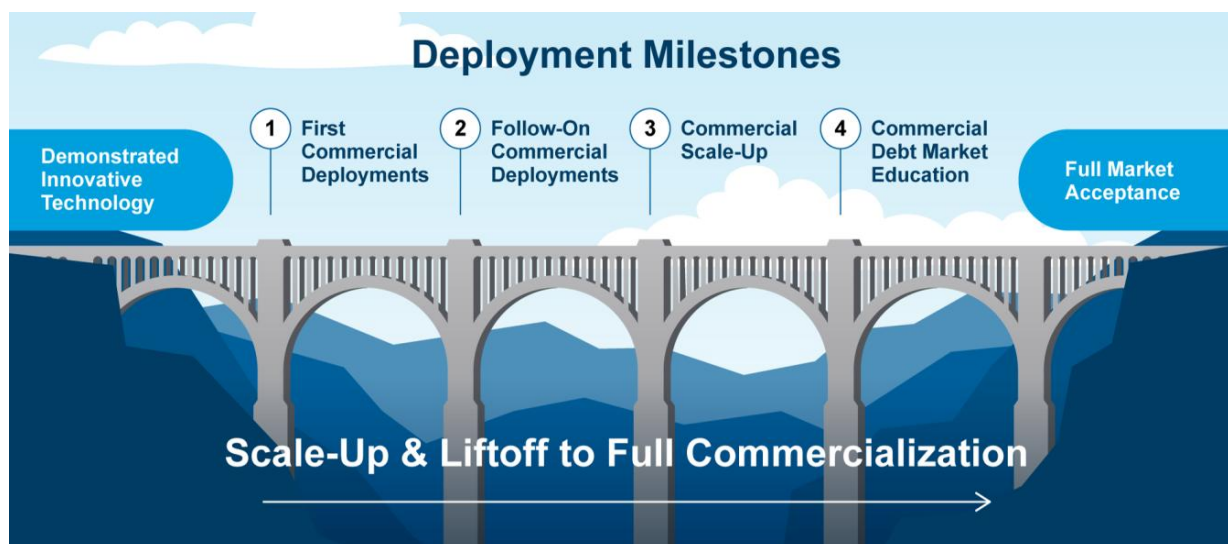


Figure 1 EDF is helping move the nuclear industry across the "bridge to bankability."³

It is challenging for the private lenders alone to finance early mover projects. When EDF invests, it provides a bridge from early mover projects to commercial acceptance, at which point projects can access commercial financing. Financing for initial projects lowers the barrier for subsequent ones; for example, financing for the restart of the Palisades nuclear plant was followed in short order by additional restart efforts, including the Crane Clean Energy Center and NextEra's planned restart of Duane Arnold. By financing the earliest and most difficult-to-finance projects, EDF shortens the path to an industry that can ultimately stand on private investment alone.

In addition to aiding commercial deployment of new technology, EDF reduces costs for energy consumers. Because capital cost and its recovery make up such a large share of nuclear power's cost, the terms on which a project is financed flow directly to the customers who ultimately pay for the power. EDF loans carry an interest rate pegged to the U.S. Treasury rate, which is well below what a first-of-a-kind nuclear project could secure in private debt markets, assuming it could secure debt at all. That lower cost of capital translates directly into a lower impact on electricity prices for consumers.

EDF loan guarantees also help manage project challenges and lead to ultimate completion. As the first new U.S. nuclear energy project attempted in decades, the Vogtle project encountered a series of challenges. The efficiency of loan guarantee financing and the flexibility EDF was able to provide helped to facilitate completion of the project. While there are added costs attributable to the first-of-a-kind experience, Georgia power customers now benefit from clean, reliable power generation that is likely to continue for 80 years or more, and the state economy continues to benefit from reliable energy that attracts economic development.

³ U.S. Department of Energy, "[Getting to Know the Loan Programs Office](#)," August 2022.

EDF must continue to have the resources to be effective. Without EDF to enable new nuclear energy projects to move more quickly along the bridge to private financing, projects would likely take longer to deploy, denying energy customers the benefit of a reliable, flexible, and clean energy alternative.

It is also important for the United States to have a mechanism to provide financing at the scale and risk level needed to support full-scale projects employing new energy technologies. That was EDF's goal in its original incarnation.⁴ EDF has recently refocused its efforts towards addressing demand growth and lowering energy prices.⁵ Those are certainly critical goals today, but they should not come at the expense of diminished support for commercial deployment of new technologies that may bear greater fruit in the future.

While large light-water reactors such as those deployed at Vogtle represent potential near-term opportunities to deploy generation in large increments, small modular reactors (SMRs) have the potential to drive down costs over time through displacing on-site costs through greater use of manufactured components, may be a better fit for customers in smaller markets, and can serve other uses such as industrial energy.⁶ Furthermore, U.S. competitors from China to the European Union are funding deployment of advanced nuclear energy technologies, and if the U.S. fails to keep pace, its economic competitiveness and its ability to influence global policies on nuclear technologies would be put at risk.⁷ EDF's recently-issued strategic plan continues to include "unleash American energy innovation," as one of the DOE priorities that guide EDF's strategic direction.⁸ As discussed in the recommendations below, it needs sufficient loan authority, appropriated credit subsidy, and policy direction to continue lending to nuclear energy projects incorporating a range of technologies.

With strategic loans to both reactor and supply chain projects, EDF has the potential to unlock new nuclear energy in the U.S., support the financing of initial nuclear energy projects so private financial institutions can take over, and help enable the domestic nuclear energy industry to compete for exports against foreign, state-owned entities.

⁴ EDF's original Section 1703 authority was to support financing for "new or significantly improved technologies." 42 USC 16513

⁵ U.S. Department of Energy, "[Energy Department Reins in Over \\$83 Billion in Biden-Era Loans and Conditional Commitments](#)," January 2026.

⁶ For example, see the discussion in [One Size Doesn't Fit All: The Portfolio of Policies Needed for Large and Small Reactors](#)

⁷ China is funding and deploying several advanced nuclear energy technologies in addition to large light-water projects. (Source: Power, "[China's Advanced Nuclear Efforts Are Pushing Frontiers](#)," March 2026) The E.U. has rapidly begun to pursue new nuclear energy technologies to control its own energy security. (See: European Commission, "[Commission unveils strategy to bring Europe's first SMRs online by the early 2030s](#)," March 2026)

⁸ Office of Energy Dominance Financing, "[Strategic Plan 2026-2030](#)," July 2026.

III. Recommendations

To fully harness EDF's potential to jumpstart new nuclear builds and enable U.S. competitiveness in global nuclear energy markets, NIA offers the following recommendations for policymakers and the Office of EDF itself.

A. Congress Should Provide EDF with Adequate Loan Authority to Address Both Infrastructure Buildout and Innovation, Which EDF Ought to Use for Both Purposes

EDF has the ability to lend through two relevant programs; Title 1703 and Title 1706. The majority of loans between 2024 and 2026 have been issued under the Title 1706 program. Title 1706 was designed for replacing and adding generation. Title 1703, which has been in place since the Energy Policy Act of 2005, focuses on innovative energy and innovative supply chain projects. Criteria for both 1703 and 1706 loans are shown below.

Title 17 Project Categories and Notable Project Requirements	1703			1706
	Innovative Energy	Innovative Supply Chain	SEFI	Energy Dominance Financing (EDF)
Is located in the United States	✓	✓	✓	✓
Is an energy-related project	✓	✓	✓	✓
Avoids, reduces, utilizes, or sequesters air pollutants or anthropogenic emissions of greenhouse gases	✓	✓	✓	
Has a "Reasonable Prospect of Repayment"	✓	✓	✓	✓
Involves technically viable and commercially ready technology	✓	✓	✓	✓
Does not benefit from prohibited federal support	✓	✓	✓	✓
Involves one or more of the 1703 Eligible Technologies	✓	✓	✓	
Deploys New or Significantly Improved Technology	✓			
Either (1) deploys New or Significantly Improved Technology in the manufacturing process or (2) manufactures a product that represents New or Significantly Improved Technology		✓		
Receives meaningful financial support or credit enhancements from a State Energy Financing Institution			✓	
Involves investment relating to retired or existing Energy Infrastructure or supporting or enabling the provision of known or forecastable electric supply				✓
Shares financial benefits with customers or associated communities (if electric utility application)				✓

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Figure 2 Title 1703 and 1706 criteria

⁹ From the EDF Title 17 guidance document accessed 07/13/2026: [DOE EDF Title 17 Energy Financing Program Guidance \(2026-05-13\)](#)

Title 1703 specifically supports projects that deploy “new or significantly improved technology” that is at a technology readiness level (TRL) of 6 or greater.¹⁰ All new nuclear technologies would be classified as new or significantly improved, making them candidates for 1703.

The Title 1706 program currently has \$289 billion in loan authority.¹¹ However, in pursuing the mission to address near-term load growth, including the potentially massive new energy demand from AI, loan authority could be used quickly. For example, EDF recently closed a single loan package for a range of generation and transmission assets for \$26.5 billion.¹² Additional authority may be needed if the pace of commitments continues to accelerate.

The Title 1703 program direction contemplates a higher financial risk profile than the Title 1706 program. EDF must also have adequate loan authority, and policy support, to continue to provide financing for projects using new technology under this program. As noted earlier, new technologies such as SMRs have potential advantages even though today they are more expensive on a per-unit basis than today’s large reactors. In addition, continuing to pursue new energy technologies, including a range of new nuclear energy technologies, will be essential to maintain U.S. competitiveness and national security.

Title 1703 was established to support commercialization of new energy technologies such as advanced nuclear energy. To meet that objective requires executing loans that incorporate greater financial risk. This in turn requires political tolerance for supporting a range of financings, some of which may not pan out, as part of an overall successful portfolio. Congress should provide sufficient loan authority and credit subsidy appropriations (discussed below) to enable EDF to make loans under Title 1703, and should consider additional mechanisms to help address and allocate the risks.

B. Congress Should Provide Adequate Credit Subsidy for Both 1703 and 1706

EDF calculates a credit subsidy on projects based on their prospect of loan repayment. This essentially acts as a risk surcharge to the project. Congress has historically appropriated funds to be used to cover the credit subsidy.¹³

The FY27 appropriations package put forth by the House Appropriations Committee instructs EDF to “prioritize loans with greater than zero credit subsidy.”¹⁴ As noted above, it is essential

¹⁰ Technology Readiness Level is a scale for evaluating a technology’s maturity. The scale ranges from 1-9 with 1 being a brand-new concept and 9 being a completely commercialized and available technology.

¹¹ Available loan authority for all programs was over \$289 billion as of January 2026. (Source: U.S. Department of Energy, “[Energy Department Reins in Over \\$83 Billion in Biden-Era Loans and Conditional Commitments](#),” January 2026.)

¹² U.S. Department of Energy, “[Energy Department Announces Largest Loan in Department History, Delivering Over \\$7 Billion in Electricity Cost Savings for Georgia and Alabama Customers](#),” (February 2026).

¹³ For more on how credit subsidy works, see [The Role of DOE’s Office of Energy Dominance Financing in U.S. Nuclear Energy Leadership | NIA](#)

¹⁴ See *H. Rept. 119-667, Report from the Committee on Appropriations to accompany H.R. 9022*

that EDF have the tools to provide financing for new nuclear technologies or project structures that may incorporate greater financial risk. Some nuclear projects, such as those that are rate-based in regulated markets, will require little to no credit subsidy. However, many loans for projects such as supply chain investments, powerplants in restructured electricity markets, builds by independent power producers or electric co-ops, or builds for industry may require credit subsidy. For nuclear technology ultimately to be built at scale, EDF will need to finance early mover projects across many different markets and offtake structures.

Currently, there is \$1 billion in credit subsidy in Title 1706 that expires in 2028, plus \$150 million in additional credit subsidy for small modular reactors under Title 1703 that was added through 2026 appropriations.¹⁵ On loans that can be upwards of \$10 billion, these credit subsidy appropriations could be quickly exhausted by a small number of projects. History shows that if the program is working as intended to advance new technologies, \$1 billion in credit subsidy costs could be consumed by just a few projects. The Inflation Reduction Act had provided \$3.6 billion of credit subsidy appropriations for Title 1703 loans and \$5 billion for Title 1706 loans (these amounts were substantially reduced by the One Big Beautiful Bill Act in 2025).¹⁶

In order to make the most impactful use of EDF's loan authority and provide continued support for new technologies, Congress should extend the expiration of the credit subsidy currently available under Title 1706 and allow it to be used for loans under either Title 1706 or Title 1703. Congress should also increase the appropriated credit subsidy by \$1 billion to a total of \$2 billion, to bring the total amount available closer to what may be needed with a renewed focus on early mover projects. This would allow EDF to provide loans for projects using new technologies and project structures that involve greater risk, both of which enable more diverse projects in more diverse markets that would otherwise be unavailable with private financing alone.

C. EDF Should Increase Transparency and Speed of the Loan Application Process

The House Appropriations Committee directs EDF to produce a report on "improv[ing] its application processes to foster a diverse portfolio of technologies" in its reported FY27 Energy and Water Development Appropriations bill.¹⁷ This highlights a bipartisan interest in improving the EDF application process and suggests that Congress recognizes such changes can be a key factor in accelerating commercial deployment of new nuclear energy technologies.

¹⁵ Title 1706 – see Green Tape, "[What Happened to LPO](#)," July 2025. Title 1703 – see 2026 appropriations, [Public Law No. 119-74](#) at 140 STAT. 78.

¹⁶ [Inflation Reduction Act of 2022 \(Public Law 117-169\)](#)

¹⁷ See *H. Rept. 119-667*, *supra*.



Figure 3: EDF application and award process¹⁸

One example of a helpful change would be to provide companies with an early indication of the potential credit subsidy for their projects. The credit subsidy is evaluated at conditional commitment. Providing an initial indication earlier in the application process would help companies and EDF understand the feasibility of projects relative to the appropriated credit subsidy. The credit subsidy amount would still be established at conditional commitment, but an early indication would give companies the ability to understand their position better, mitigate project risk, and improve their application.

In addition, improved transparency around the credit subsidy calculation methodologies would help potential borrowers identify key areas of risk mitigation prior to initiating the EDF application. The goal of an applicant is to reduce the risk profile of a project, so understanding how the risk surcharge is calculated would help potential borrowers reduce risk and bring forward stronger projects.

D. Codify and Clarify Practices Around Nuclear Supply Chain Lending

Developing a robust nuclear supply chain after years of dormancy and contraction is crucial for commercializing advanced reactors. EDF has shown great leadership recently with conditional loan commitments to procure Westinghouse AP1000 components.¹⁹ That action builds on similar support they have provided for supply-chain development in the past, such as their loans to manufacturing entities such as Tesla. Continued lending to supply chain projects that support new reactors would create enormous value for the industry, ratepayers, and the country as a whole.

¹⁸ Diagram reproduced from [Getting to know LPO \(EDF\)](#).

¹⁹ U.S. Department of Energy, "[Department of Energy Announces American Nuclear Supply Chain Loans](#)," June 2026.

It is clear that loan guarantees can be provided to supply-chain projects via the Innovative Supply Chain vertical within 1703. EDF should clarify the potential for supply chain loans out of 1706. Provision 10 CFR § 609.3(e)(2)(iii) states that an eligible project is one that “supports or enables the provision of known or forecastable electric supply at time intervals necessary to maintain or enhance grid reliability or other system adequacy needs.” It is unclear whether supply chain fits into this definition. Clarification would help applicants, and the distinction could have implications for loan authority and credit subsidy availability.

IV. Conclusion

The nuclear energy industry is moving rapidly into a phase where project developers will seek to deploy more FOAK and early-mover technologies. Technology and construction risk remains, but financing is required to build projects, learn, and reduce that risk. One of the most important tools for financing these projects is, and will be, loan guarantees from EDF.

To realize EDF’s potential to commercialize nuclear technology, NIA offers four recommendations. First, Congress should provide EDF with adequate loan authority to address both affordability and innovation, and EDF ought to use its authority for both purposes. In particular, EDF should use the Title 1703 program to its full potential, since its higher risk tolerance and explicit focus on innovative energy and supply chain projects make it the natural vehicle for advanced reactors and manufacturing. Second, Congress should provide adequate credit subsidy across both 1703 and 1706 programs so that EDF can finance projects across the diverse technologies, markets and project structures that scaled deployment requires. Third, EDF should increase the transparency and speed of its application process, providing early guidance regarding the credit subsidy evaluation so applicants can better understand how EDF evaluates project risk and build stronger applications. Fourth, EDF should codify and clarify its practices around nuclear supply chain lending, making funds available for the component manufacturing and fuel cycle capacity that advanced reactor commercialization depends on.

The EDF program has already had a marked impact on the U.S. nuclear and energy landscape through its support of Vogtle, restarts of retired nuclear generation, and supply-chain loans. Following these recommendations would help unlock the next phase of nuclear energy commercialization in the United States, move the industry to maturity, when private finance can take over, bolster exports of new nuclear technologies, and preserve U.S. technology leadership in nuclear energy.