clean tomorrow THIRD WAY

Promises and Pitfalls in the FY25 Budget

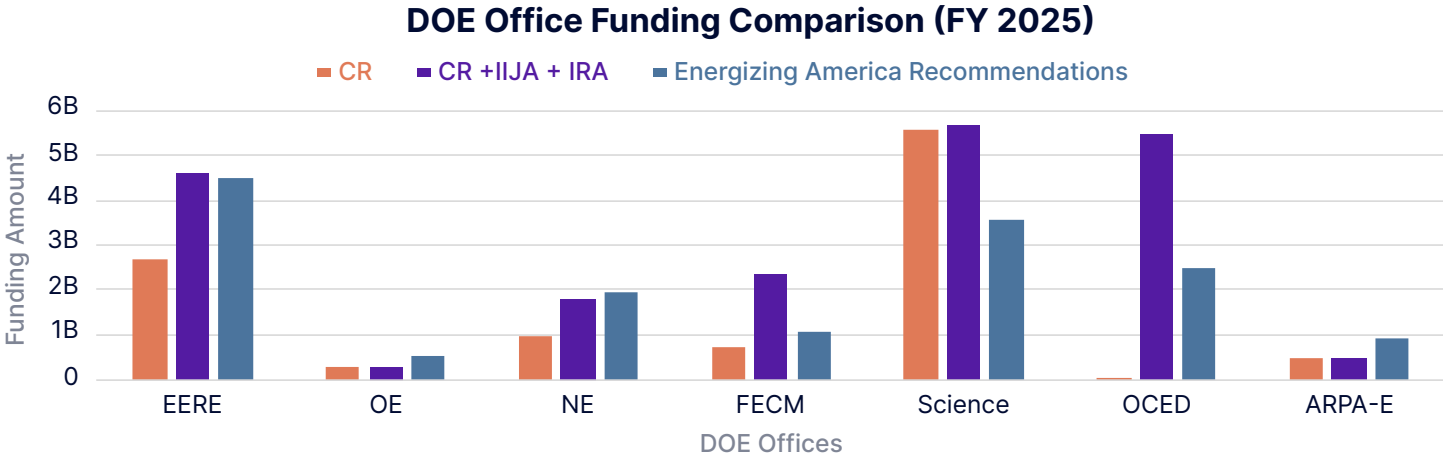
America's Energy Innovation Investment

With President Trump's signature of the Full-Year Continuing Appropriations and Extensions Act, 2025 (FY25 CR), we have another data point on what our nation's investment in energy research, development, and commercialization looks like and what gaps remain. Federal investment in energy innovation is not just a climate imperative, it's a strategic necessity. Without sustained and robust funding, we risk ceding leadership in the next generation of energy technologies to our global competitors, particularly in areas critical to national and economic security.

Over the past five years, we have seen President Trump and President Biden each make efforts to put the United States in a global leadership position on energy. The Energy Act of 2020 modernized our nation's energy policies, the Bipartisan Infrastructure Law (BIL) made a downpayment on upgrading our energy infrastructure , and the Inflation Reduction Act (IRA) put in place market incentives to support emerging technologies and jumpstart their path towards commercialization.

With the FY25 CR signed and funding for federal agencies in place through September, where do these funding levels leave us if we hope to position the United States to lead the world in energy innovation? While most program offices are relatively well resourced today, effective implementation of existing programs and the timely deployment of awarded grants will be essential to realizing these funding levels in the future. These challenges are being brought into sharper focus considering significant reductions in force at the Department of Energy (DOE), recissions of appropriated funding, the potential repeal of key IRA incentives, and the impending expiration of many BIL programs in 2026.

Using recommendations from Energizing America, published in 2020 by The Information Technology and Innovation and the Center on Global Energy Policy at Columbia University's School of International & Public Affairs (SIPA), let's take a closer look at what gaps and challenges remain, and where Congress has adequately put funding in place to meet our pressing innovation needs.



Office of Clean Energy Demonstrations

Current Funding Level: $5.5 Billion
Energizing America Recommendation: $2.5 Billion

If we are to commercialize the next generation of energy and manufacturing technologies, and proliferate these technologies across the globe, we must first demonstrate them here at home. Fortunately, the group of legislators that developed the Bipartisan Infrastructure Law recognized these needs and dedicated ample resources towards demonstration of emerging clean technologies, to the tune of $5.5 billion for FY25 compared to $2.5 billion recommended under Energizing America.

Today, the Office of Clean Energy Demonstrations (OCED) has funded demonstrations of new and novel industrial decarbonization technologies, first-of-a-kind direct air capture facilities, advanced nuclear reactors and a new, nationwide clean hydrogen ecosystem. These programs, alongside the rest of OCED's portfolio, will prove these technologies out in the real world – de-risking them and drawing in future private sector investment.

For example, in Seadrift, Texas, Dow and X-Energy are planning to begin construction on an OCED funded project that will deploy four X-Energy Xe-100 Advanced Small Modular Reactors (SMRs), nearly eliminating scope one and two emissions at the site. In Holyoke, MA, Sublime Systems plans to build a first-of-its-kind clean cement manufacturing plant. Since being awarded the OCED grant, Sublime has signed an agreement with Microsoft indicating their intent to book and claim environmental benefits of Sublime Cement, and received direct investment from Holcim, including an offtake agreement.

These projects illustrate just how impactful DOE investment coupled with private sector leadership can be. These projects and others are currently funded at adequate levels to see these projects through. However, many OCED projects and the funding supporting them are at risk due to recent efforts from the current Administration to curtail awards or even cancel ongoing projects. And even without funding being imperiled, permitting and implementation challenges risk slowing completion of these projects.

Fossil Energy and Carbon Management

Current Funding Level: $2.3 Billion
Energizing America Recommendation: $1.1 Billion

The office of Fossil Energy and Carbon Management received over $2 billion in total funding for FY25, exceeding the recommendation in *Energizing America* by over $1 billion. These funds support research and demonstration projects across the carbon management lifecycle, including direct air capture technologies, beneficial use applications for captured carbon dioxide, transportation infrastructure for storage, and characterization of potential geological reservoirs.

Enhancing energy efficiency in globally competitive carbon-intensive industries—including chemical, steel, and cement manufacturing—is essential for maintaining economic advantage. Similarly, mastering direct air capture and point source carbon capture technologies positions the United States to lead in developing synthetic fuels and carbon-derived products, creating new market opportunities while addressing climate challenges.

FECM has recently awarded over $500 million to validate and test carbon storage sites, and has pioneered new financial mechanisms to pull new technologies towards the market lift-off. By awarding prizes to technologies meeting certain benchmarks, like the Direct Air Capture Pre-Commercial Prize, FECM can speed innovative technologies towards commercialization.

There has long been bipartisan cooperation around carbon management technologies, which will be critical if we are to be successful in increasing the efficiency of our nation's power and industrial capacities.

Advanced Research Projects Agency Energy (ARPA-E)

Current Funding Level: $470 Million
Energizing America Recommendation: $918 Million

ARPA-E represents one of the most broadly supported agencies found at the Department of Energy – and for good reason. Both parties recognize its mission as a high impact use of federal funding: advancing high-potential and high-impact energy technologies in the early stages of R&D. As of September of 2024, ARPA-E has 32 exits with a total reported value of $22.2 billion at the time of the deals, with 372 companies, as of most recent information, going on to work with other parts of the federal government on further projects.

ARPA-E has a clear record of catalyzing innovation, with nearly 1,200 patents resulting from their work. Unfortunately, the program falls short of funding recommended under Energizing America, receiving $470 million — lower even than the authorized level — compared to the recommended $920 million. This cost of this shortfall is hard to measure as it represents innovators who never get the chance to work with DOE on cutting edge technologies whose impacts on society go unrealized in the absence of adequate support.

And while additional funding is necessary to realize these benefits, additional supporting structures are critical to fully take advantage of innovations developed by ARPA-E awardees. As Breakthrough Energy noted in their Fast Track framework, ARPA-E's Technology to Market (T2M) program has had some success, but a more intentional model of moving projects through the commercialization pipeline could pay off in spades.

Energy Efficiency and Renewable Energy

Current Funding Level: $4.6 Billion
Energizing America Recommendation: $4.5 Billion

Compared to the report recommendations, the Office of Energy Efficiency and Renewable Energy (EERE) is funded slightly above recommended levels.

EERE and its component offices, which fund the research necessary to develop and bring to market next generation solar, wind, battery and storage, and geothermal, technologies, are crucial to developing the next set of technologies that will power the United States and our allies over the coming decades. Enhanced geothermal energy exemplifies EERE's potential—a

technology with broad bipartisan support that leverages advancements from the oil and gas sector, yet requires substantial additional investment to fully demonstrate its transformative capabilities.

If America is to lead the world in the development of the next generation of clean energy technologies we need to continue to invest in EERE programs and offices to pave the path towards their development. Failure to do so cedes the development of these technologies to our global competitors, and not meeting recommended funding levels will make it all the more difficult to keep up with global competition.

Nuclear Energy

Current Funding Level: $1.8 Billion
Energizing America Recommendation: $1.9 Billion

Despite bipartisan interest in seeing a nuclear renaissance in the United States, and a top line figure that appears to suggest ample funding, funding for the Office of Nuclear Energy (NE) is lags recommendations by over $100 million. NE is critical to meeting the challenges of increasing power demand over the next decade and developing the fuels that will power advanced reactors in the United States, but they need adequate funding to do it.

The Office of Nuclear Energy works to enable innovation, maintain American leadership in nuclear energy, and solve challenges holding back domestic reactor deployment. Engaging with existing reactor operators, advanced design developers, and key stakeholders including state and local governments, NE provides the research infrastructure necessary to advance breakthroughs in nuclear energy.

Most recently, the office made available $900 million to ensure that “America’s nuclear energy renaissance starts now.” These funds will support the deployment of up to two “first mover teams” of utility, reactor vendor, construction, and off takers committed to facilitating a multi-reactor orderbook, and to help address gaps hindering development and deployment of next generation small modular nuclear reactors.

These projects are important to pulling innovative reactor designs towards commercialization. While the recent solicitation announcements are promising, continued investment and successful implementation of existing programs like OCED’s Advanced Reactor Demonstration Projects are essential for making the most of the carbon-free power that nuclear energy offers.

While FY25 funding for clean energy innovation shows mixed results, the outlook for subsequent years represents heightened risks and uncertainties. As the Energy Act of 2020 provisions largely expire at the end of this fiscal year and mandatory funding from the Bipartisan Infrastructure Law—including crucial demonstration funding—concludes in FY26, policymakers must prioritize robust innovation and clean energy investments to maintain American competitiveness in the emerging clean energy economy, while ensuring that the Department of Energy is resourced and staffed to functionally deliver on the work of innovation.