

TO:	Interested Parties
FROM:	Third Way
RE:	A Framework for Ensuring Long-term US National Security Through Global Leadership in Advanced Reactors and Civil Nuclear Industry

# Framework for US global leadership in advanced reactors and civil nuclear industry

The export of civilian nuclear power plants creates 100-year relationships between the host and supplier countries. China and Russia are investing heavily in the deployment of advanced nuclear domestically and abroad by forming these relationships using a combination of technology, government-backed financing, fuel provision and spent fuel takeback, and workforce development. To ensure the United States can compete with Russia and China and encourage global adherence to US standards for safety, security, and nonproliferation, we need to make it a national priority to make advanced nuclear technology commercially viable as soon as possible.

Nuclear energy has proven to be both scalable and reliable, and advanced nuclear is poised to expand these benefits. According to the Department of Energy's (DOE) "Pathways to Commercial Liftoff – Advanced Nuclear" report, commercial viability comes after the 5th plant, meaning that investments must be made into additional reactors beyond first-of-a-kind demonstrations. Looking abroad, other nations will be hesitant to purchase or build advanced reactors until the technology is fully demonstrated and responsibly licensed. To enable US leadership and support national security, the United States must swiftly act in the following three areas:

1. **Financing:**
  - 1.1. **Domestic Deployment:** The US must provide support both to first-of-a-kind reactors and subsequent builds to ensure commercial viability in the US. That support should also extend to supply chain development for advanced nuclear as well as to direct assistance to communities interested in advanced nuclear deployment.
  - 1.2. **International Deployment:** The US government must strengthen the interagency's ability to offer comprehensive financing packages to partners and allies. Doing so will enable the United States to leverage its unique financing approaches and innovative technologies in international markets.
2. **Fuel Cycle Development:** The US and its allies' reliance on Russian uranium fuel is untenable. With advanced nuclear's need for high-assay low-enriched uranium (HALEU), as well as the LEU feedstock to produce it, developing a sustainable domestic fuel supply is essential. With a stronger domestic fuel cycle, the United States and our allies reduce reliance on Russia, increase energy security, enable faster deployment of advanced nuclear energy, and increase our export competitiveness.

3. **Licensing and Regulatory Activities:** To deploy advanced reactors at a speed and scale sufficient to meet energy goals domestically and successfully export them to partners and allies, the US Nuclear Regulatory Commission (NRC) must reform processes, timelines, and approaches. Existing licensing and regulatory approaches are too slow and cumbersome to meet the national security imperatives of advanced reactors.

The following is an aggregated compendium of proposed recommendations to these aforementioned challenges that was developed in consultation with stakeholders from US industry and NGOs, as well as sourcing from stakeholders' publicly available whitepapers, reports, and advocacy products. This document presents a compilation of near-to-long term policy recommendations. However, not all of these recommendations are endorsed by Third Way.

## 1.1 Financing for Domestic Deployments

Bipartisan support for advanced nuclear in the US has resulted in significant investment in developing emerging and innovative reactor designs. While considerable funding has been directed towards building first-of-a-kind reactor units and demonstrations, additional support will be necessary to achieve economies of scale and maximize learning rates to ultimately achieve the full economic potential of these designs. Deploying these technologies domestically will be critical not only to our climate goals, but also to demonstrating the viability of these technologies, strengthening investor confidence, and creating greater international demand and interest in U.S. advanced nuclear.

### Sections:

- 1.1.1 First-of-a-Kind Support
- 1.1.2 Next-of-a-Kind Support
- 1.1.3 Nuclear Energy Supply Chain Development
- 1.1.4 Community Technical Assistance

## Recommendations

### 1.1.1 First-of-a-Kind Technology Support

**Goal:** Develop new technology that can compete both domestically and internationally to meet the needs of a wide range of end-users and scaled uses.

- **Provide \$3.8B for the DOE Advanced Reactor Demonstration Program (ARDP).** DOE is already working with multiple advanced reactor companies to develop and deploy new technologies by the end of the decade. These projects are being deployed at new locations, including a retiring coal facility and to provide industrial heat to decarbonize an industrial facility. These innovative projects need to be fully funded to allow for efficient project management and support new applications of nuclear energy.
  - Mandatory rebaselining and increased supply chain costs mean that additional USG support will likely be needed for the ARDP to bring the first US partnered demonstrations forward. If necessary, additional funding should be provided to support the successful completion of these projects.

- **Authorize and provide \$1.4B for small modular reactor RD&D in the US.** DOE has an existing award with Utah Associated Municipal Power Systems to commercialize and deploy the first NuScale VOYGR reactor in Idaho. Provision of this funding would fulfill the remaining government cost-share for that award and allow DOE to disburse funding in support of this project reliably and on-schedule.
- **Authorize and provide \$1.2B in advanced nuclear RD&D.** Grant funding to support continued technology development that will enable the US to compete with foreign competitors. This grant funding could support the deployment of the Carbon Free Power Project (CFPP) and innovations in microreactors, nuclear powered non-electric systems, nuclear propulsion, and radioisotope power systems.
- **Provide \$3.9B for the Versatile Test Reactor (VTR) project.** This test reactor is critical to addressing a significant testing gap in advanced reactor development including improving performance and developing advanced fuels and materials. Currently the only similar capability is in Russia, which is proceeding with deployment of a new fast test reactor. Funding should be conditional on the completion of the ARDP demonstrations and development of domestic HALEU capacity. VTR will enable innovation and ensure that the United States can compete globally with Russia and China. The \$3.9B figure reflects a midpoint estimate and should be updated following the completion of ARDP and HALEU projects.
- **Authorize and establish a “Microreactor for Community Resilience Program (MCRP)” with \$600M in funding.** This program would seek to develop community-scale microreactor projects that demonstrate novel applications. Under this program, DOE would initiate procurements with no less than two US microreactor developers for up to four microreactors of up to 15MWe. One project would be selected for each end-use including: (1) process heat; (2) district heating; (3) desalination; and (4) remote community power. US communities would submit applications to host a microreactor for one of the applicable uses and would be required to meet specific criteria such as having an acceptable site, workforce, and necessary infrastructure (or a plan to develop the infrastructure). DOE would then competitively award the siting of the reactor to qualified communities with priority given to energy communities and those facing energy resilience issues. DOE would partner with a project developer or vendor to build the reactor while the community would guarantee offtake for the project.
- **Enable USG-supported FOAK demonstrations to apply for existing LPO (Loan Program Office) loan programs.** Under current rules, USG-supported demonstrations cannot seek a loan guarantee for innovative technology under LPO’s 1703 program. These restrictions should be waived for FOAK demonstrations to allow industry to seek LPO loan assistance for their respective portion of a project’s cost-share commitment.

### 1.1.2 Next-of-a-Kind Support

**Goal:** Provide support for “first movers” and “fast followers” to develop deployments two through four of multiple US advanced reactor designs of multiple technologies and scale.

- **Provide USG support for cost overruns and first-mover technology risks through an advanced nuclear direct loan program, cost-share, or credit program.** There are several constraints to adjusting existing DOE programs including, program scope, level of credit subsidies, and lack of direct loan authority. A new LPO or

Grid Deployment Office (GDO) program could unlock LPO's potential or provide more attractive forms of public-private partnership for domestic deployments.

- **Path 1: Develop a Title 17 “Advanced Nuclear Technology Direct Loan Program” with specific conditions for partial loan forgiveness.** This program could provide direct loans to industry at competitive rates with a cap at the US Treasury Rate (UST)+1/4. Under this program, LPO and applicants would be required to develop project milestones, similar to the NASA Commercial Orbital Transportation Services (COTS) program. The percentage of costs eligible for loan forgiveness would be tied to successful completion of project milestones. For example, a \$3B project could be financed up to 80% by LPO to a total debt commitment of \$2.4B. Under the terms of the program, LPO would commit to forgiving up to 50 percent of additional cost beyond the \$3B based on a sliding scale—
  1. On-time completion of 70 percent of project milestones would entitle a recipient to forgiveness of up to **30 percent** of additional eligible project costs.
  2. On-time completion of 75 percent of project milestones would entitle a recipient to forgiveness of up to **40 percent** of additional eligible project costs.
  3. On-time completion of 80 percent of project milestones would entitle a recipient to forgiveness of up to **50 percent** of additional eligible project costs.
- **Path 2: Develop a DOE “Advanced Nuclear Critical Infrastructure” cost-share program that would provide cost-share grant funding to industry.** This program could cover incurred construction, procurement, and engineering costs for qualifying clean energy projects that exceed 50% of the project estimate, based on an ACE Class I cost estimate. The program should be provided with up to \$11B in funding and awards would be capped at \$1.2B per project. For a \$3B project, DOE would conditionally grant up to \$1.2B to an awardee, to be disbursed when eligible costs exceed the project estimate by over 50 percent. DOE would sequester funding for the award until an applicant submits notification that the threshold has been reached, and would then draw from it to reimburse the additional cost until the funding was expended—thereby providing a backstop to construction risk. If a project's additional costs do not exceed 50 percent of the project estimate, the grant conditions aren't fulfilled and the sequestered grant funding is reabsorbed to the program upon completion of the project. For this project DOE and the applicant would be required to develop project milestones, as with NASA's COTS Program.
- **Path 3: Authorize and establish a DOE credit program to offer cost overrun protection to regional or US consortia of multiple developers aligned on deploying a single technology.** The consortium approach would allow for risk-sharing among utilities and independent power producers in a given region, provided that each applicant agrees to select the same technology for deployment, thereby reducing technology risks. By using a regional model, the consortium can reduce construction risks by using the same work crews and project management. A qualifying consortium would be required to include at

least three separate projects of the same technology. Each member of the consortium would retain the ability to submit individual applications for each project in multiple service areas and states, however DOE would guarantee the additional project debts for all projects in the consortium collectively. Upon successful completion of the projects, and on time completion of multiple project milestones, DOE would forgive up to the entirety of additional project cost incurred by the consortium, subject to an overall project cap.

1. Re-appropriate \$2.5B from the Civil Nuclear Credit Program (CNCNCP) to a newly established “Advanced Reactor Credit Program (ARCP).” This funding would provide a signal to industry that USG support for advanced reactor deployments is firm and would incentivize new projects. After September 30, 2023, DOE should solicit requests for information from the nuclear industry on the ongoing need for the CNCNCP, and, if there is not sufficient need, Congress should reappropriate all remaining CNCNCP funding into the ARCP beginning in FY25. Congress should supplement the initial reappropriation with annual appropriations for the ARCP.
- **Enhance the LPO Energy Infrastructure Reinvestment (EIR) program by providing an additional \$1.2B in credit subsidy and extending program authority timelines.** The section 1706 program currently has authority to issue agreements through September 30, 2026 using \$5B in credit subsidy. To enable IPPs and other entities to use this program for advanced nuclear based clean energy projects, this timeline should be aligned with the clean electricity tax credits and remain authorized through 2032, or when GHG emissions are equal to or less than 25% 2022 levels. Additionally, as this program is tech neutral and nuclear projects will require a higher proportion of the credit subsidy to secure, it is necessary to add \$1.2B to the subsidy to remain available for advanced nuclear projects under this program.
  - **Enhance the LPO Innovative Clean Energy (ICE) program by extending program authority timelines.** The section 1703 program currently has authority to issue agreements through September 30, 2026 using \$3.6B in credit subsidy. To enable this program to be used by consumers seeking next stage advanced nuclear technology that is developed after the first mover stage, this timeline should be aligned with the clean electricity tax credits and remain authorized through 2032, or when GHG emissions are equal or less than 25 percent of 2022 levels. This would support a sustained pathway to commercialization for innovative technologies well into the 2030s and enhance capital access for scaling new nuclear innovations.

### 1.1.3 Nuclear Energy Supply Chain Development

**Goal:** Provide financial support for scaling of domestic supply chain capacity to enable wide-scale manufacturing and deployment of new nuclear technology and enhance energy security.

- **Provide up to \$1B for advanced nuclear supply chain enhancement projects including critical minerals and uranium, materials, and technology component manufacturing.** The LPO Title 17 Innovative Supply Chain program and the DOE Office of Manufacturing and Energy Supply Chains have authorities necessary to support supply chain scaling. However, funding for advanced nuclear is not specifically identified to support this effort. Providing DOE \$1B to issue credits specifically for advanced nuclear supply chains would enhance these efforts and ensure access to funding for industry. Funding should primarily support technology component

manufacturing (such as fuel fabricators) and technology investments to improve process, rather than feedstock procurements.

#### 1.1.4 Community Technical Assistance

**Goal:** Provide direct support and technical assistance for advanced nuclear enabling activities.

- **Develop a DOE “Technical Assistance for Community Transitions Program.”** The program should be provided with \$50M in appropriations for conditional grants to communities, including state, local, and tribal governments. These grants would support advanced nuclear enabling activities such as necessary community infrastructure improvements, feasibility & front-end engineering and design (FEED) studies, and early site permits.

## 1.2. Financing for International Deployments

One of the key advantages of the United States’ primary adversaries for international civil nuclear markets is their ability to offer robust and comprehensive financing packages for export deals. In particular, Russian and Chinese nuclear companies provide terms and conditions that are not limited by OECD guidelines, and offer equity financing that US companies cannot match. Favorable financing has been an instrumental factor in Russia’s dominance of the global nuclear energy market and in China’s swift rise as a competitor. Without the capacity to provide strong financing support to export bids, the United States will continue to lose opportunities for global market share, as well as its leadership position in nuclear energy. Moreover, there is clear global demand for American technology today, and international market opportunities can provide an important driver for US advanced nuclear designs to be deployed at scale. Ultimately, a diminishing international presence will not only have commercial ramifications, but negative implications for US climate, geopolitical, nonproliferation, energy and national security, and other core national interests.

### Sections:

- 1.2.1 Export-Import Bank
- 1.2.2 Non-EXIM/Interagency
- 1.2.3 OECD/Multilateral Approaches

## Recommendations

### 1.2.1 Export-Import Bank

**Goal:** Enhance the capacity of the Export-Import Bank (EXIM) to more effectively use existing programs and resources to support international civil nuclear projects and help US industry win abroad.

- **Leverage the Transformational Exports Program to support US civil nuclear exports.** The China and Transformational Exports Program (CTEP) is a statutory mandate for the Export-Import Bank (EXIM) to more effectively support US exports that

are in competition with the People's Republic of China (PRC).<sup>1</sup> The program enables EXIM to offer terms, rates, and conditions on loans, guarantees, and insurance that are fully competitive with those offered and established by the PRC and other covered countries. Given the edge that state-owned, nuclear-supplier countries have on export finance offerings, the CTEP is a vital tool for American competitiveness in the global nuclear energy market.

- **Include nuclear energy in the list of Transformational Export Areas, or otherwise designate all clean energy to be covered under CTEP.** Currently, the list of supported areas under CTEP includes such areas as artificial intelligence, biotechnology, wireless communications, and renewable energy, but does not include civil nuclear technologies. Either “nuclear energy” could be added to CTEP or “renewable energy” could be revised as “clean energy.”
- **Designate Russia as a covered country under CTEP.** As with China, Russia will offer preferential and state-backed financing packages that do not comply with OECD financing restrictions. Treasury should be encouraged to execute its authority to include Russia within the list of covered countries.
- **Address issues caused by the 2 percent default rate trigger.** The current default rate trigger that would require congressional reporting disincentivizes EXIM from financing large, capital-intensive deals, such as nuclear build projects. The default rate trigger has generally steered the agency towards more conservative decision making, contributing to its diminishing portfolio, in turn further reducing the project sizes that would set off the trigger. Nuclear projects or all CTEP-covered exports could be exempted from the default rate trigger, or the EXIM board could be allowed to exclude defaulted transformational exports from the overall default rate, as long as the transformational exports portfolio does not exceed a certain percentage (e.g., in the 6-7% range).
- **Eliminate EXIM commitment fee.** EXIM is the only export credit agency in the world that charges a commitment fee to its customers. The fee is a percentage of the total financed amount, which disincentivizes working with EXIM on large, capital-intensive projects such as new nuclear construction. Thus, on nuclear projects, this fee is a significant disadvantage for both EXIM and US exporters competing for international markets.
- **Increase staff at the loan officer level.** Increased demand for advanced nuclear financing will require increased EXIM capacity at the working level. In addition, EXIM expects a large percentage of expected retirements.<sup>2</sup> To reduce single-point-of-failure risks, mitigate impacts of increased staff turnover, and meet growing demand for advanced nuclear, Congress should appropriate funds (\$65M in appropriations for FY 24 --approximately 50 percent of current administrative budget request) for administrative spending focused on at least doubling the number of loan officer staff.
- **Improve coverage and terms on nuclear fuel and other post-construction services.** Maximum repayment terms for activities such as nuclear fuel loading and storage/disposal of spent nuclear fuel are currently limited to five years. These activities

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<sup>1</sup> <https://www.exim.gov/about/special-initiatives/ctep>

<sup>2</sup> <https://img.exim.gov/s3fs-public/congressional-resources/budet-justification/FY%202023%20EXIM%20CBJ%20-%20FINAL%20508%20version.pdf>

support broader US export competitiveness, create jobs and economic activity, and critically advance US safety, security, and nonproliferation interests. Therefore, the maximum repayment terms for these services should be extended to at least ten years.

- **Increase local cost support.** Limits to local cost support, currently at 50 percent of the value of the export contract, should be raised to 100 percent. Local costs—including earthworks, drilling, and pouring concrete—comprise a significant proportion of the total costs of any nuclear build project, and supporting these costs would not affect US export content.
- **Fully capitalize interest during construction.** This is common practice for other EXIM energy projects like renewable energy projects. The practice of automatically capitalizing interest should be extended to all clean energy construction, including new nuclear projects.
- **Remove conditions on reference plant requirements.** EXIM requirements for reference plants are prejudicial against many advanced nuclear designs that are scheduled to have their FOAK units/demonstrations online and operating within the next several years. Burgeoning international demand and interest in US advanced nuclear has encouraged a number of countries to take concrete steps towards becoming first movers on these innovative technologies. Reference plant requirements should be removed to allow interested states to move quickly on the deployment of certain US advanced reactor concepts.
- **Revisions to EXIM Charter.** Revisions to EXIM’s charter may be considered as potential pathways to expanding EXIM’s opportunities to participate in nuclear energy projects.
  - **Add explicit imperative on civil nuclear for the national interest.** Include a specific mandate to the mission of EXIM to support US civil nuclear exports as an imperative to core US national interests, including national security, environmental, commercial, and foreign policy goals.
  - **Add explicit direction to coordinate and work with interagency partners.** Add explicit directive to the EXIM charter to work in full coordination with relevant federal offices and agencies (White House/Executive Office of the President, DOE, State, Commerce, International Development Finance Corporation, US Trade and Development Agency, etc.) on the development of financing packages for US civil nuclear exports.
  - **Remove prohibitions on fast reactors.** Amend Section 2(b)(5) on the prohibition on guaranteeing, insuring, or extending credit on purchases of liquid metal fast breeder reactors.
  - **Add liability coverage provisions.** Add provisions to Section 2 providing liability coverage to nuclear facilities receiving financial support from EXIM.
  - **Add congressional reporting requirements on nuclear energy activities.** Instituting periodic congressional reporting on EXIM’s nuclear energy-related activities can create pathways to incentivizing and monitoring EXIM’s progress in supporting US civil nuclear interests.



- **Remove prohibition on equity investments.** Give EXIM authority to make equity investments in civil nuclear export projects, a critical advantage that our international competitors wield in the pursuit of international market opportunities.

### 1.2.2 Non-EXIM/Interagency

**Goal:** Strengthen interagency coordination on civil nuclear exports and expand the capacity of other agencies to provide unique solutions to support export projects and contribute to comprehensive export financing packages.

- **Enact the International Nuclear Energy Act (INEA)(S.826, H.R.2938), including provisions related to the establishment of an civil nuclear interagency coordinating office within the Executive Office of the President.** Enhanced interagency coordination and cohesion on nuclear energy policy and civil nuclear exports will be vital considering the breadth of domestic agencies involved in civil nuclear exports and the vertically-integrated structures of our state-backed competitors. Moreover, such interagency coordination will be necessary to more effectively coalesce the various export financing functions and tools within the federal government to allow US industry to offer comprehensive financing packages to international customers. In addition to enhanced interagency coordination, additional key provisions within INEA can further US export competitiveness and collaboration with allied countries:
  - **Creates an interagency, 10-year civil nuclear trade strategy.** INEA establishes a working group dedicated to coordination on civil nuclear export issues composed of interagency, senior-level officials. It also establishes a long-term nuclear commerce and trade strategy.
  - **Appoints White House official to coordinate a civil nuclear exports strategy.** Direction to appoint or designate a White House official who will serve as the point person on civil nuclear cooperation and exports to lead the civil nuclear coordinating office within the White House..
  - **Facilitates international nuclear energy cooperation.** Nuclear energy has expanded into a global market, and in order to compete with state-owned enterprises, it will require the United States to work with its allies to further competitive technological and financial offers. Among other helpful provisions, INEA would identify a lead on the development of cooperative financing relationships on civil nuclear projects with allies and partner countries.
  - **Facilitates the buildout of civil nuclear program capacity for newcomer countries.** Direction to the Secretary of State, in coordination with interagency stakeholders, to provide financial assistance on capacity building for new nuclear programs. (*\$50M/year authorization of appropriations, FY24-28.*)
  - **Establish Advanced Reactor Coordination and Resource Center.** Provision of a single point for resources and necessary information for newcomer countries interested in starting civil nuclear programs.
- **Expand funding and authorities on civil nuclear export financing for other agencies.** DFC, USTDA, and the US Department of State will play critical roles in the

development of competitive and comprehensive financing packages. These roles include: providing equity investments, funding FEED and feasibility studies, preliminary groundwork, technical and regulatory assistance, capacity building, etc. Expanding resources/capacity and providing the necessary statutory authorities for these agencies are critical to enable them to play such roles in civil nuclear engagements and commercial transactions.

- **US International Development Finance Corporation (DFC)**
  - **Increase the capacity of the agency to support civil nuclear exports, including taking equity positions in nuclear projects, as well as bolster in-house nuclear expertise and staffing.** DFC has unique tools to support civil nuclear export projects, including grants, feasibility studies, etc. DFC has authority to take equity positions in nuclear energy projects and should be directed/encouraged to do so. Strengthening in-house expertise on nuclear energy is also critical to fully deploy DFC in nuclear exports. (*\$1B in appropriations, FY24-27; 2 percent of appropriations shall be reserved for staff training/development on nuclear energy topics.*)
  - **Amend equity scoring rules.** Enable DFC to make equity investments in strategically competitive nuclear projects by allowing such investments to be scored in the budget on a net present value basis. This would allow equity investments to be valued up to 20 times the appropriated amounts without any additional taxpayer outlays, and would allow DFC to offer competitive terms in line with its peer and competitor institutions.
- **U. S. Trade and Development Agency (USTDA)**
  - **Significantly increase appropriations and authority for USTDA to support early-stage civil nuclear engagement.** Increase appropriations to USTDA to support early project development including feasibility and FEED studies and provide USTDA with expanded authority to enable work in strategic markets (*\$120M in appropriations for FY24.*)
  - **Authorize USTDA to participate in work in Europe beyond Ukraine and Bulgaria.** Authorize and enable USTDA to broadly work with countries in the European region seeking to reduce energy dependencies on Russia.
- **US Department of State**
  - **Increase resources for programs like the Foundational Infrastructure for Responsible Use of Small Modular Reactor Technology (FIRST) to help countries develop new civil nuclear programs and provide early stage project support.** Increase funding for programs like FIRST and Project Phoenix to engage in more early stage work with prospective markets and civil nuclear partners, including capacity building, training, pre-project phase work, feasibility study work, etc. (*\$120M in appropriations for FY24.*)
- **US Nuclear Regulatory Commission (NRC)**

- **Designate all activities involving international engagement as off-fee.** Amend the Nuclear Energy Innovation and Modernization Act (NEIMA) to explicitly exclude all international activities, including activities supporting civil nuclear cooperation and exports, from the fee base.
  - **Direct International Cooperation and Harmonization.** Provide the Commission authority to coordinate international and interagency cooperation, including exchange activities. Under this authority, the Commission should conduct joint reviews of regulations with trusted international partners including the Canadian and United Kingdom nuclear authorities. In addition, direction should be provided to require the NRC to incorporate and leverage harmonized license reviews performed by non-US regulators into its own reviews.
  - **Direct funding for Advanced Reactor Regulatory Infrastructure Activities Account towards international activities.** Dedicate resources towards sharing of best practices and lessons learned with foreign regulators and counterparts as the NRC navigates licensing modernization and the development of more effective and efficient frameworks for the evaluation of advanced reactor designs. (*\$20M in additional appropriations for the ARRIA account, FY 24-27; directive to dedicate funding to socializing advanced reactor licensing lessons learned to foreign counterparts/regulators.*)
- **Streamline processes to facilitate US engagement in capacity building and other early-stage work.** State Department should be encouraged to conclude 123 Agreements and Nuclear Cooperation Memoranda of Understanding (NCMOUs) as expeditiously as possible. For potential partner countries with which a 123 or an NCMOU has yet to be concluded, the Secretaries of Energy and State should be directed to streamline processes for Part 810 approvals in order to facilitate advance engagement, information sharing, capacity building, and other early-stage work.

### 1.2.3 OECD/Multilateral Approaches

**Goal:** Enhance coordination with international partners and allies on export financing.

- **Alignment with updated OECD export financing guidelines.** US Treasury should be directed to align with positive changes in OECD export financing guidelines, including but not limited to:
  - **Make permanent 95 percent coverage for sovereign transactions.** In 2020, the OECD established a common line for sovereign transactions to increase coverage from 85 percent to 95 percent. The EU, Japan, and other allies want to make 95 percent coverage the new standard, but the US has yet to agree. The US Treasury should be directed to agree and align with a new permanent standard for 95 percent coverage for sovereign transactions.
- **Increase contributions to the International Atomic Energy Agency (IAEA).** Bolster resources for the Nonproliferation, Anti-Terrorism, Demining, and Related Programs (NADR) account in order to supplement the International Atomic Energy

Agency's (IAEA) operating budget to implement strengthened nuclear safeguards measures, enhance nuclear safety cooperation with key countries, etc.

- **Support multilateral development banks and other international financing institutions to participate in new nuclear build projects.** Multilateral development banks (MDBs) like World Bank and International Finance Corporation (IFC) maintain restrictions on financing civil nuclear build projects, which unfairly hinders the global deployment of nuclear energy.
  - **Encourage USG to use its vote/lobby power to advocate for removing restrictions on nuclear financing.** Congress should encourage the federal government to use any means it has available to encourage these institutions to revise their outdated positions on nuclear energy.
  - **Assist in the development of an international financing institution exclusively dedicated to new nuclear build.** Given challenges with changing policies and positions on civil nuclear within the traditional MDBs, there are current initiatives aimed at developing new multilateral financing institutions that would be focused on nuclear infrastructure projects, including the conceptual International Bank for Nuclear Infrastructure (IBNI). Supporting a project like IBNI would require Congressional authorization to enter into a treaty to establish the institution, then appropriations to match contributions from other participating countries. (*Approximately \$5B in authorizations to provide initial seed funding.*)

## 2. Fuel Cycle Development

The United States imported about 14 percent of its uranium and 28 percent of all enrichment services from Russia in 2021.<sup>34</sup> Russia controls 38 percent of global uranium conversion capacity and 46 percent of enrichment capacity.<sup>5</sup> Russia is also currently the world's only viable commercial supplier of high-assay low-enriched uranium (HALEU). Without a reliable domestic source of low-enriched uranium (LEU) and HALEU, our existing nuclear fleet and the anticipated wave of new advanced reactors are at-risk. Despite Russia's invasion of Ukraine, our reliance on them for uranium enrichment continues. The establishment of a domestic uranium enrichment capability through federal support is crucial to the security of the US energy sector and to the security of our allies.

**Goal:** Accelerate the domestic production of LEU and HALEU for US advanced nuclear reactors.

### Sections:

- 2.1 Expand Domestic Uranium Production Capacity
- 2.2 Fuel Facility Licensing & Infrastructure
- 2.3 Next Generation Enrichment R&D

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<sup>3</sup> <https://www.eia.gov/energyexplained/nuclear/where-our-uranium-comes-from.php>

<sup>4</sup> <https://thebulletin.org/2022/08/us-and-eu-imports-of-russian-uranium-and-enrichment-services-could-stop/#:~:text=In%202021%2C%20Russia%20provided%20US,their%20enrichment%20services%20from%20Russia>

<sup>5</sup> <https://www.energypolicy.columbia.edu/publications/reducing-russian-involvement-western-nuclear-power-markets>.

- 2.4 Expansion of the Uranium Reserve
- 2.5 Creation of the United States Enrichment Authority
- 2.6 Designation of Brownfield Sites for National Critical Infrastructure
- 2.7 International Nuclear Energy Security and Innovation Initiative
- 2.8 Establishment of an Advanced Fuel Recycling RD&D Program
- 2.9 Pursuit of Long-Term Spent Fuel Management

## Recommendations

### 2.1 Expand Domestic Uranium Production Capacity

- **Path 1: Direct appropriations and authorization to expand the domestic production capacity for HALEU and LEU.** Congress should expand the scope of DOE's Advanced Nuclear Fuel Availability program and authorize DOE to promote the development of fuel cycle capabilities for LEU, as well as HALEU, in order to fully catalyze domestic uranium enrichment activities within the United States. \$6B should be directly appropriated for this effort, which should remain available at the discretion of the Secretary of Energy, until fully utilized. This funding should be used to support the expansion of domestic capabilities for the entire front-end fuel cycle.
- **Path 2: Utilize the Defense Production Act to expand the domestic production capacity for HALEU and LEU.** Under the Defense Production Act (DPA), Congress should establish a "Defense Production Act American Energy Independence Fund" within the Department of Energy. This fund would utilize Titles I, III, and VII of the DPA to swiftly expand domestic conversion and enrichment capacity for both HALEU and LEU. Up to \$6B should be appropriated for this effort and remain available until expended. This funding should be used to support the expansion of domestic capabilities for the entire front-end fuel cycle.
- **Provide \$10M for Ukraine Nuclear Fuel Qualification Program.** DOE and the State Department previously coordinated to fund reactor optimization approaches and fuel qualification for Russian-designed VVER plants in Ukraine. Westinghouse has secured agreements in Ukraine to provide fuel to almost half of the plants in the country, helping to carve out reliance on Russia. Providing a reliable alternative for VVER fuel globally significantly improves US ability to counter Russian influence in existing and emerging markets.

### 2.2 Fuel Facility Licensing & Infrastructure

- **Expedite NRC reviews of fuel facility license applications.** As development of domestic fuel cycle capabilities for the existing reactors and advanced nuclear is critical to US national security and global influence, the NRC should be required to prioritize reviews for new fuel cycle facilities and be required to make a decision within 18 months for any new facility, notwithstanding DOE-designated national critical infrastructure sites. This prioritization should remain in place until the Secretary of Energy and Secretary of Defense deem that annual domestic uranium fuels production is adequate to satisfy national security. Further, during the prioritization period, NRC should be required to accept alternative National Environmental Policy Act (NEPA) documents, prepared by either an applicant or DOE, as a suitable alternative to an NRC-prepared NEPA document.

## 2.3 Next Generation Enrichment RD&D

- **Provide authority and annual appropriations to DOE to accelerate the next generation of uranium enrichment technology.** Congress could direct DOE to initiate a new cost-shared program to develop the next generation of uranium enrichment technology. The program would grant 80/20 cost-share awards focused on developing the safe and responsible commercial use of laser enrichment technology and other novel technology.

## 2.4 Expansion of the Uranium Reserve

- **Provide appropriations and expand the scope of DOE's Uranium Reserve to assure stability and growth of a domestic uranium mining and conversation industry.** Congress established the Uranium Reserve in 2020 to spur existing and new domestic uranium mines into operation, with one-time appropriation of \$75M. Congress could appropriate up to \$50M/year beginning in FY28 through FY37, and direct the DOE to expand the scope of the Uranium Reserve to include material mined and milled after 2009. This appropriation and activities should be conditional on the successful development and operation of domestic fuel cycle capabilities, including enrichment and conversation, for LEU and HALEU so as not to compete with near-term national priorities for funding or mineral resources.

## 2.5 Creation of the United States Enrichment Authority

- **Create a quasi-private United States Enrichment Authority (USEA) under the Department of Defense.** This authority would facilitate foreign partnership from entities within allied countries in domestic fuel projects by providing a US owned entity for foreign entities to invest in. The Authority could partner with a foreign company to establish a jointly-owned subsidiary that could benefit from DPA and other USG funding. This authority could also be a vehicle for developing additional fuel projects that would scale domestic conversion and fuel fabrication capacity. Upon completion of the project, the Authority could negotiate terms with the partner entity to buy out the USEA stake and gain sole ownership of the asset.

## 2.6 Designation of Brownfield Sites for National Critical Infrastructure

- **Direct the Secretary of Energy to designate up to four DOE-owned or managed brownfield sites as national critical infrastructure sites.** There are over 90 completed cleanup sites in the US that could host critical infrastructure.<sup>6</sup> Through this designation, the Secretary would be authorized to waive the NEPA reviews for these sites. Further, upon the Secretary's designation, each critical infrastructure site would immediately move to an expedited review by the NRC for an early site permit. The NRC review and issuance of permits for critical infrastructure sites should be required to take no longer than one year and NRC should waive all costs associated with permitting and licensing activities for national critical infrastructures sites. These sites could be used for any uranium fuel cycle infrastructure including milling, conversion, deconversion, and enrichment.

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<sup>6</sup> <https://www.energy.gov/em/completed-cleanup-sites>

## 2.7 International Nuclear Energy Security and Innovation Initiative

- **Establish an International Nuclear Energy Security and Innovation Initiative.** To support US uranium conversion, enrichment, and fuel fabrication and reliable access to the fuels that Americans and our allies around the world depend on, it is vital that the United States collaborate with partners and allies to ensure upstream and downstream components of the uranium fuel supply chain are sufficiently diversified, resilient, and secure. The Secretary of State, in consultation with the Secretaries of Energy and Defense, should develop and implement such an initiative with Western allies in Canada and the United Kingdom for the purposes of securing the supply chain for mined uranium, milling, conversion, deconversion, and enrichment services among allied nations. Through this initiative, the Secretaries should be authorized to sign binding MOUs with entities of partner nations for the long-term procurement of uranium and long-term sale of LEU and HALEU fuels to foreign industry.

## 2.8 Establishment of an Advanced Fuel Recycling RD&D Program

- **Establish a program within DOE to pursue spent fuel recycling RD&D for future use in commercial reactors.** The US nuclear industry has generated more than 84,000 metric tons of spent nuclear fuel, and DOE holds an inventory of several thousand metric tons.<sup>7</sup> This material is safely stored around the country, and it contains valuable fuel resources. Building on the research conducted in Advanced Research Projects Agency-Energy's (ARPA-E) CURIE and ONWARDS programs, DOE should establish a 50/50 cost-shared program with industry partners to advance new fuel recycling technologies towards demonstration within the next 10 years. This program should focus on demonstrating advanced recycling technologies with commercial viability and appropriate proliferation management features.

## 2.9 Pursuit of Long-Term Spent Fuel Management

- **Direct DOE to begin investigating potential locations for spent nuclear fuel disposal through a consent-based siting process.** With Yucca Mountain at an impasse, identifying two to three other suitable locations for final disposal facilities is essential for a long-term, comprehensive spent fuel management solution. To enable investigation of other sites, Congress should amend the Nuclear Waste Policy Act to allow pursuit of consent-based siting elsewhere and direct the Environmental Protection Agency to update its generic repository standards in order to establish multiple facilities. Through this siting process, interested communities can bid to host a repository site if determined to be geologically sound, as has been successfully demonstrated in Finland, the global leader in spent fuel disposal. Congress may also choose to establish and shift over DOE leadership of this effort to a new independent spent fuel management entity, in effect providing an opportunity for a public acceptance "blank slate." While spent fuel has been safely and securely stored in the United States for many decades, geologic repository facilities are able to be more isolated from people and the environment. In addition to the inherent security advantages of a repository, pursuing this effort would demonstrate the United States' global leadership in responsible nuclear material management and encourage other countries to pursue similar safety, security, and nonproliferation standards.

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<sup>7</sup> <https://www.iaea.org/sites/default/files/usa-7rm.pdf>

# 3. Licensing and Regulatory Activities

The US Nuclear Regulatory Commission (NRC) will play a pivotal role in the successful deployment of advanced nuclear technologies. However, its licensing approach is based on licensing largely the same large, light-water type of reactor since its inception. The NRC must modernize its licensing process and approach so it better reflects the diversity of advanced reactors and can keep pace with the increasing demand for advanced nuclear deployment and commercialization. With 13 current and potential advanced reactor license applications expected in the next four years, the NRC will be expected to greatly increase its capacity and efficiency in licensing nuclear technologies in order to reach domestic climate goals, support US clean energy leadership, and promote US competitiveness abroad.<sup>8</sup>

**Goal:** Modernize the NRC licensing and approval process to effect efficient, risk-informed, technologically inclusive review for advanced reactors.

## Sections:

- 3.1 NRC Mission
- 3.2 NRC Fees
- 3.3 License Review Schedules
- 3.4 Safety and Environmental Reviews
- 3.5 NRC Hearings
- 3.6 NRC Workforce and Process Improvement
- 3.7 Liability Protections
- 3.8 International Coordination and Foreign Assistance
- 3.9 DoD-facilitated Pathways

## Recommendations

### 3.1 NRC Mission

- **Modify the agency’s mission.** To include nuclear energy’s role in contributing to national security, the general welfare of society, and the efficient licensing and regulation of civilian nuclear industry.
- **Update the Atomic Energy Act of 1954 (AEA).** To clarify that the NRC’s licensing responsibilities include enabling the deployment of nuclear technology and being efficient, effective, predictable, and anticipatory of industry trends.

### 3.2 NRC Fees

- **Reduce burden and increase predictability of user fees.** Options include:
  - Give small businesses an option to delay collection on a portion of their application fees that are accumulated until they begin operation.
  - Remove generic, cross-cutting, and broadly-applicable regulatory processes, activities, reviews, and other actions from the fee base in order to reduce the fee burden on specific applicants or licensees.
- **Extend the time availability of advanced reactor regulatory infrastructure development funds under fee-relief activities.** Under the Nuclear Energy

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<sup>8</sup> <https://www.osti.gov/biblio/1974450>



Innovation and Modernization Act (NEIMA) funding for these activities is available only through FY24. Extending the availability of this funding until expended would allow the NRC flexibility to develop the regulatory framework for advanced reactors at a pace that is responsive to the NRC's other commitments.

- **Revise the corporate support caps.** Amend the corporate support costs to remove the cost cap on centrally managed activities and remove those activities from the fee base.
- **Establish caps on pre-application and docketed application user fees.** User fees for docketed applications should be capped at the value of the hourly fee rate multiplied by the estimated staff hours related to the NRC's generic milestone schedule or the review schedule mandated by Congress, where applicable. The NRC should be granted authority to waive the cap in the event of delays caused by the applicant, poor application quality, or if the time staff has spent on an application exceeds the estimate related to the generic schedule by more than 20 percent. User fees for pre-application review activities should also be capped to promote early and consistent engagement from developers on new technology.
  - Additionally, the NRC could remove fees entirely for certain types of pre-application activities, such as educating the NRC on reactor designs, meetings to describe application plans and understand NRC requirements, and pre-application audits.
- **Commence a study to assess NRC funding.** Require a review that results in a report studying current NRC funding and making recommendations to improve the long-term fee structure to ensure that—
  - the fee structure is not an unnecessary barrier to new entrants;
  - any fee restructuring does not impose overly burdensome fees on existing licensees;
  - the NRC has sufficient resources to meet its safety and security mission;
  - the NRC fosters a culture of innovation and continuous improvement;
  - decision making is efficient, effective and predictable;
  - the study considers funding models for similar regulatory agencies, international regulatory agencies, and private industries which regularly bill hours.

### 3.3 License Review Schedules

- **Direct the NRC to develop more expedient review schedules for licensing new reactor designs.** Update generic schedules for new reactors to be more expeditious. These targets are expected to be met for the large majority of applications, but may be exceeded in extraordinary cases.
  - For any licensing activity that extends beyond the NRC's public schedule, the NRC should have to brief the relevant committees of Congress in-person with sufficient explanation to the causes of the delay.
- **Establish a streamlined review process for NRC licensing actions to allow subsequent deployments of a standard design.** For subsequent builds of reactors that are significantly similar to previously licensed designs, or next-of-a-kind reactors.
  - Require that all licensing actions necessary to close the docket on an application are scheduled to be completed within 12 months.

- Require that the Commission report to Congress if any application-specific milestones are not met and describe the reason for the delay and the NRC's plan for timely completion of the applicable action.
- **Create a design-specific general license.** Amend the Atomic Energy Act of 1954 to require the NRC to establish a design-specific general license for a production or utilization facility, including non-power facilities, similar to a design the NRC has already licensed. In addition, the NRC should include, as part of the design-specific general license review, a generic environmental review that meets NEPA requirements. Any generic environmental review shall be updated every 10 years to maintain relevance. The designs would still be subject to Commission rules and regulations related to their safe operation, maintenance, and decommissioning. Any changes to the design, as defined by an appropriate change control process, would still be subject to further review by the NRC.
- **Direct the NRC to explore the impact of a rule change to allow for granting of a license for a duration beyond 40 years.** Current NRC regulations only allow for an operating license or combined license to be granted for up to 40 years. However, currently operating reactors have demonstrated that the life for a nuclear plant extends well beyond 40 years. Advanced nuclear reactors benefit from innovations and improvements upon many current reactor designs that enable an 'off-the-shelf' life of 60 years or more. The NRC should assess changes to regulations that would enable initial licensing of advanced reactors for up to 60 years.
- **Allow non-public meetings between the NRC Staff and applicants to facilitate the efficiency of licensing reviews, while retaining the extensive information and processes otherwise available to the public.**
- **Require regular Commission reports to Congress.**
  - An annual report with recommendations to further facilitate expedited licensing and environmental reviews for new reactors.
  - A periodic report on new plant application reviews that describes the agency's progress toward meeting licensing goals.

### 3.4 Safety and Environmental Reviews

- **Require more efficient safety and environmental reviews.** Issuance of a final SER or environmental document on a permit or license application no later than 18 months after an application is docketed.
- **Modernize scope of role of Advisory Committee on Reactor Safeguards (ACRS).** Provide an efficient timeline for application reviews by removing automatic referral of license applications to ACRS. The commission should refer applications to staff as necessary, in whole or in part, with direction to prioritize matters related to safety or unique reactor designs. ACRS should be required to begin its review of a referred application within one month of receiving the application and submit its report on the application to the Commission no later than 6 months after initiating its reviews.
- **Authorize the use of streamlined environmental documentation.** In particular, the expanded use of Environmental Assessments and Categorical Exclusions rather than Environmental Impact Statements (EIS).

- **Direct the NRC to ensure an overarching focus in its regulatory programs on what is most important to safety.**
  - Require that the NRC periodically re-train its staff and leaders on its decision making processes, including the agency's backfitting regulations in 10 CFR 50.109 and associated NRC guidance, and the application of NRC's reasonable assurance of adequate protection standards.
  - Require that the NRC expand the use of qualitative and quantitative risk insights into areas that have been traditionally approached deterministically, including security, emergency preparedness and aging management.
  - Require that the NRC implement a more streamlined license amendment review process for matters of low safety significance using either quantitative or qualitative risk insights.
  - Require that the NRC implement a more streamlined topical report review process, including improved timeliness metrics and an appeal process.
  - Require that the NRC expeditiously complete its rulemaking effort to modernize non-emergency reporting requirements, which is currently anticipated to last eight years despite a sound regulatory basis that was developed by the NRC staff.
- **Expand access for Energy Communities to early site permits.** Amend the Nuclear Energy Innovation Capabilities Act of 2017 (NEICA) to give energy communities access to the Advanced Nuclear Energy Licensing and Cost-Share Grant program for early site permits. Dedicated funding should be appropriated for this program.
- **Exclude small (< 20 megawatts thermal) non-commercial reactor projects on DOE sites from NEPA, whether subject to DOE authorization or NRC licensing.**

### 3.5 NRC Hearings

- **Eliminate the AEA requirement of uncontested mandatory hearings.**
- **Direct the NRC to begin any contested hearing on environmental contentions upon issuance of the draft EIS.** Rather than delay contested hearings until the NRC staff issues the final EIS, require the NRC hold its environmental hearings upon issuance of the draft EIS, unless it is determined that doing so will adversely impact the staff's ability to complete its final EIS in a timely manner.
- **Improve the internal adjudicatory process.** Require the Comptroller General to conduct a study on further improving NRC adjudicatory procedures' efficiency, effectiveness, and predictability. Additionally, require that the NRC use informal adjudication to the maximum extent possible in the circumstances when –
  - a license renewal is similar to a previously approved license renewal of a similar reactor design;
  - a license application for which a reactor of a similar design has already been licensed;
  - a license is transferred for a licensee;
  - a license is amended.
- **Require increased use of a simplified legislative hearing process for NRC contested new reactor licensing proceedings, instead of the existing lengthy and costly hearing procedures.**

- **Enable the use of modern technologies to remediate legacy uranium mine sites.** Amend the AEA to enable the use of modern technologies to help remediate uranium mine sites. The current regulatory framework must be updated to recognize the environmental benefits that can be provided by novel technologies and approaches to remediation at uranium mining sites that are contaminated by uranium and other constituents of concern.

### 3.6 NRC Workforce and Process Improvement

- **Direct the NRC to evaluate measures to improve efficiency of its oversight programs.** Require that the NRC conduct an evaluation of measures that can be taken to improve the efficiency of its oversight programs. This evaluation should include organizational changes such as reducing the number of NRC regional offices and their reporting structure, improvements in guidance and training, increased use of templates in documenting inspection results, and identification and elimination of areas of duplication or otherwise unnecessary inspection.
- **Direct the NRC to improve the process for disposition of differing professional opinions.** The NRC's differing professional opinion processes are important to ensuring that agency leadership has a broad perspective to support decision making. However, the current processes hamstring NRC leadership's decision making ability and do not expressly include safety thresholds. Require that the NRC streamline its process for resolving differing views such that a safety threshold must be met to enter the process, and issue resolution must not impact the project schedule.
- **Require the development of an appeal process for timely resolution of new plant licensing issues.** Require the appeals process be designed to minimize the NRC resources spent on staff concerns that do not have a regulatory basis or are of low safety significance to accelerate agency decision making.
- **Require an external, continuous modernization audit of the NRC.**
  - **Path 1:** Authorize an external management and accounting audit to provide ongoing recommendations for how the NRC can better its project management practices. This audit should include recommendations that can be implemented at the staff level, management level, and Commission level; including structural changes to the Agency and its leadership. It should also identify areas that require Congressional action. This audit should be conducted every five years to ensure the NRC continuously seeks to improve and innovate its processes.
  - **Path 2:** Formulate an external review team to shadow an entire NRC licensing review start to finish and provide recommendations to further streamline the licensing process, including appropriate application of the reasonable assurance standard.
- **Reform compensation structure to attract and retain industry leaders.** Require the Government Accountability Office (GAO), in conjunction with the Nuclear Regulatory Commission and the Office of Management and Budget, to develop a report comparing the NRC's pay structure to other federal agencies and recommend changes to attract and retain high-performing staff. To permit the NRC to incorporate changes, the Atomic Energy Act requires an amendment.

- **Improve information systems and resources for stakeholder engagement.** Direct the NRC to add public engagement into its guiding laws. This can be accomplished by adding a definition for “public engagement” to the Nuclear Energy Innovation and Modernization Act fee-relief activities and by adding a public information and engagement mandate to the Energy Reorganization Act of 1974 regarding NRC activities.
- **Provide direction and necessary resources for NRC staffing and training.** Direct NRC to develop and deliver to Congress a plan for operationalizing additional off-fee funding to recruit, onboard, and develop new staff. To solidify support for additional resources and provide transparency of Agency direction, the NRC should provide a comprehensive report to Congress on its plans to meet this challenge. The report should identify expectations for staff efficiencies in the training process, the development of clear performance standards necessary to meet improved efficiencies, detailed summary of the NRC’s use of its hiring authorities with an emphasis on identifying any occasions where greater authority may have aided retention, and all current and future efforts to educate current and prospective staff on the NRC’s updated mission through recruitment activities and continuing training.
- **Expand NRC Scholarship and Fellowship programs to allow individuals to apply directly.** The NRC should expand scholarship and fellowship programs to offer individuals the ability to apply directly could help the NRC proactively engage with prospective recruits. This addition would offer more flexibility for students who seek scholarship funding but are not already in a grant program. The NRC should also be required to collect cohort data on the students who receive support including metrics on their progress through the higher education system and into the nuclear industry. The NRC could also explore allowing students to apply for a scholarship prior to being accepted in an engineering program by making the award conditional upon enrollment.

### 3.7 Liability Protections

- **Extend the Price-Anderson Act (PAA) indefinitely.** Congress should require a GAO review every 15 years to address whether changes to this model or the PAA should be implemented by Congress.
- **Adopt DOE’s additional recommendations.** To expand DOE indemnification to cover contractual activity that is outside the United States without the condition that nuclear materials must be owned by the United States; and increase the amount of that indemnification from \$500M to \$2B.

### 3.8 International Coordination and Foreign Assistance

- **Expand the NRC’s authority to coordinate international and interagency cooperation.** Expand the Office of International Programs (OIP) to include export readiness activities and provide additional funding. The NRC should commit more full-time equivalents (FTEs) to OIP, as well as consider a restructuring that would align all of the agency’s international activities with OIP. NRC staff should investigate how such a restructuring could be achieved by identifying potential challenges, opportunities, and any additional resources that would be needed to support enhancing OIP’s international engagement. This engagement should include—
  - requiring the NRC engage allies for the purposes of implementing harmonized license reviews and leveraging performed by non-US regulators;
  - exchange programs and training activities;

- joint reviews of regulations with trusted international partners to create consensus codes and standards.
- **Eliminate the NRC’s Foreign Ownership, Control, or Domination (FOCD) restrictions.** To permit foreign investment by US allies in US nuclear projects licensed by the NRC as long as the Commission determines that the entity is not inimical to common defense and security or the health and safety of the public.

### 3.9 DoD-facilitated Pathways

- **Re-establish an internal Defense Department reactor licensing capability.** According to the Atomic Energy Act, the Department of Defense (DoD) is authorized to manufacture, produce, or acquire any utilization facility for military purposes, and an NRC license would not be required for the use of such a facility by the DoD or a DoD contractor. The Army Reactor Office had licensed a number of reactors situated within domestic land bases and DoD installations, but it has not licensed a new reactor since the 1970s and its functions are now limited to overseeing the decommissioning of retired reactors.<sup>9</sup> Reconstituting the Army Reactor Office to regain the capacity to evaluate and license new reactors or establishing a central office to coordinate licensing of reactor deployment on domestic military bases could: (1) create an expedited licensing and deployment pathway for US advanced nuclear designs and (2) address growing DoD interest in nuclear reactors to satisfy demand for clean, resilient, and reliable energy. Data, information, and experience accumulated through DoD licensing, construction, and operation could be leveraged by the NRC, thereby accelerating broader agency modernization efforts and increasing advanced reactor licensing and review efficiencies.
- **DoD partnership on advanced nuclear demonstrations.** Enable eligibility of DoD sites for advanced nuclear demonstrations, allowing DoD licensing for such demonstrations provided they are within a certain threshold (e.g., 300MWe or less).

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<sup>9</sup> <https://www.nei.org/CorporateSite/media/filefolder/resources/reports-and-briefs/Road-map-micro-reactors-department-defense-201810.pdf>.