



2023 NUCLEAR ENGINEERING STUDENT DELEGATION

WASHINGTON, D.C. SEPTEMBER 11TH - 15TH

The Delegation supports continued investment in the development of the current and future nuclear workforce to ensure the continued development of fission and fusion nuclear technology through:

- Appropriating funds as authorized in [H.R.4346](#), *CHIPS and Science Act of 2022* to:
 - Revitalize university research, community college, and training programs to account for inflation through [Subtitle L](#), *National Nuclear University Research Infrastructure Reinvestment*.
 - Maintain technological leadership and momentum in fusion energy research by investing in a public-private pathway to fusion energy commercialization and key research facilities ([Sec.10105](#))
- The continuing expansion of the nuclear technical workforce and apprenticeship programs outlined in [S.1111](#), *ADVANCE Act of 2023*, which is currently included in the Senate version of [S.2226](#), *National Defense Authorization Act for Fiscal Year 2023*.

The Delegation supports fuel cycle and nuclear waste management developments, including:

- Providing advanced nuclear fuel production facility funding for HALEU by supporting the Senate version of the *National Defense Authorization Act (NDAA)* regarding [S.Amdt.999 to S.Amdt.935](#).
- Amend the *Nuclear Waste Policy Act of 1982* ([42 U.S.C. 10101](#)) to allow the DOE to conduct site-specific activities preceding a geologic repository without Congressional authorization and to remove Yucca Mountain as the primary site for a geologic repository.
- Supporting the DOE's Consent-Based Siting initiative but not over-prescribing their method. Thus, the Delegation supports amendments to [H.R.1051](#) and [S.404](#), *Nuclear Waste Informed Consent Act*, to require the DOE to obtain consent from an affected community but *not* to define the scope of such consent or any conditions on the consent agreement before a repository of nuclear waste is established.
- The delegation supports maintaining the appropriated funding from the *Additional Ukraine Supplemental Appropriations Act of 2023* for HALEU and TRISO projects.

The Delegation supports legislation that helps the Nuclear Regulatory Commission (NRC) improve and develop effective regulation for existing and advanced technologies through:

- Increasing the competitiveness of the NRC's wages through [H.R.4528](#), *Strengthening the NRC Workforce Act of 2023*, and [S.1111](#), *ADVANCE Act*, which will aid in developing a more robust workforce.
- Redirecting focus from bills that have marginal impact and potential backlash, such as [H.R. 4675](#) *Advisory Committee on Reactor Safeguards Reform Act*, to bills, such as those mentioned above, that allow for greater benefit NRC operations.

The Delegation supports promoting a competitive nuclear energy economy in the U.S. and abroad:

- Expand the scope of the loan program to include demonstration reactors, as outlined in [H.R.4677](#), *LOAN Act*.
- Promote financial support through international financial institutions to encourage increased civil nuclear exports and facilitate international nuclear cooperation with [S.826](#), *International Nuclear Energy Act of 2023*.
- Amend the *Nuclear Waste Policy Act* so that the [Nuclear Waste Fund](#) can be utilized with the full balance raised by utilities and consumers.

2023 Nuclear Engineering Student Delegation

Kaylee Cunningham (Chair)	Massachusetts Institute of Technology
Emma Houston (Co-vice chair)	University of Tennessee, Knoxville
Hannah Patenaude (Co-vice chair)	University of Las Vegas, Nevada
Jessi Altiero	Pennsylvania State University
Hayden Bland	North Carolina State University
Natalie Cannon	Georgia Institute of Technology
Andrew Maris	Massachusetts Institute of Technology
Mitchell Mika	University of Florida
John Mobley IV	Iowa State University
Laura Moss	North Carolina State University
Malachi Nelson	University of California, Berkeley
Seun Olumurewa	Texas A&M University
Nataly Panczyk	University of Illinois Urbana-Champaign
Adria Peterkin	Massachusetts Institute of Technology
Nathan Ryan	University of Illinois Urbana-Champaign
Morgan Smith	Purdue University
Anthony Tom	University of Tennessee, Knoxville

About the NESD

In 1994, the first Nuclear Engineering Student Delegation (NESD) convened in Washington, D.C. to reinstate funding for research reactors. Today, the Delegation continues to express the views of students on nuclear science, policy, and education issues. Each year, the Delegation comprises a diverse group of students from the nation's most prestigious nuclear engineering programs, representing various disciplines within the nuclear sciences.

For further information on the 2023 NESD or the policy recommendations in this document, please contact Kaylee Cunningham at kmcu@mit.edu or visit the NESD website at <http://www.nesd.org>.

2023 NESD Policy Statement

Re-establishing U.S. leadership in fission and fusion technologies through workforce development

American leadership in fission and fusion energy research will be jeopardized unless funds authorized for these areas in the [CHIPS and Science Act of 2022](#) (Subtitle L and Section 10105, respectively) are appropriated by this Congress. Despite the constrained funding environment, key investments in the nuclear workforce and fusion experimental facilities are needed to remain internationally competitive. In line with the U.S. Department of Energy's report, [Pathways to Commercial Liftoff: Advanced Nuclear](#), the commercialization of advanced nuclear power will necessitate substantially expanding the current workforce. Nuclear science, engineering, and technology education across all academic levels and institutional types is thus critical to successfully realizing these infrastructure goals. As a result, the Delegation supports the appropriation of funds for [Subtitle L, National Nuclear University Research Infrastructure Reinvestment](#). This encapsulates university research reactors, which maintain users across the United States and have been instrumental in national innovation and productivity efforts.

Additionally, recent advances in fusion energy research and major investments in the fusion industry demonstrate that the enabling technologies and science are maturing. Section 10105 of the CHIPS and Science Act authorizes key funding for the future of fusion research and workforce in the United States, such as studying a private-public pathway to fusion commercialization and investing in essential materials research facilities. These priorities are aligned with a recent [National Academies report](#) and a [long-term planning process](#) by the US fusion research community.

Furthermore, the Delegation supports passing the Senate's version of the *Nuclear Defense Authorization Act (NDAA)*, which includes [S.1111, ADVANCE Act of 2023](#). Section 402(c) of the *ADVANCE Act of 2023* provides a traineeship program for skilled workers and technicians to support the nuclear workforce.

Necessary actions for fuel cycle management

On the front end of the fuel cycle, the Delegation supports [S.Amdt.999 to S.Amdt.935](#) to the *NDAA*. This amendment procures explicit funding for the domestic production of High-Assay Low-Enriched Uranium (HALEU), which will be necessary to operate the soon-to-be-deployed fleet of advanced reactors.

The objective of the Department of Energy's (DOE) [consent-based siting initiative](#) is a community-centered approach to determining an interim repository site instead of Yucca Mountain for domestic nuclear waste. The delegation supports this initiative from the DOE. However, the Delegation finds the language of [H.R.1051](#) and [S.404, Nuclear Waste Informed Consent Act](#), prohibitively restrictive to the DOE's efforts. The delegation supports amendments to these bills to require the DOE to obtain consent from affected communities but *not* to define which entities must consent or any conditions on the consent agreement before establishing a nuclear waste storage facility.

Additionally, the delegation finds the [Nuclear Waste Policy Act of 1982 \(NWPA\)](#) at the crux of many obstructions to progress in nuclear waste management. Accordingly, we recommend improving the act to 1) allow the DOE to conduct site-specific activities preceding a geologic repository without Congressional authorization and 2) remove consideration of Yucca Mountain as the primary site for a geologic repository.

The funding included in the [H.R.2617, Ukraine Supplemental Appropriations Act of 2023](#) for HALEU and TRISO production infrastructure is critical for domestic energy security. This funding ensures the continued progress of advanced nuclear technology. Continued appropriations of these funds are necessary to avoid extraneous costs and delays impacting national energy security efforts.

Promoting a competitive nuclear energy economy in the U.S. and abroad

Energy economics are an ongoing [challenge for the domestic nuclear energy market](#), primarily related to the high capital expense of [first-of-a-kind nuclear technology](#). The economic risk of high-capital investments repaid over decades leads to high-interest loans and slow development of technology. The delegation supports [H.R.4677](#), *LOAN Act*, which extends reliable loans with reasonable interest to demonstration reactors, an essential step to advanced electricity generation reactors. Therefore, the delegation supports [H.R.1007](#), the *Nuclear Assistance for America's Small Businesses Act*.

Russian and Chinese [nuclear exports](#) have been dominating the global nuclear energy market. Investment in U.S.-backed advanced nuclear must be paired with the ability to export advanced reactor technology globally. The Delegation supports [S.826](#), *International Nuclear Energy Act of 2023*, which helps the U.S. support the safe deployment of nuclear technology worldwide while improving the economies of scale for nuclear reactors developed in the U.S. The delegation supports [H.R.806](#), *International Nuclear Energy Financing Act of 2023*, which requires the United States to leverage the World Bank to support international nuclear development. Exporting domestic technology to U.S. allies ensures beneficial collaboration and information-sharing while keeping the interests of energy security at the forefront.

The [Nuclear Waste Fund](#) raised money from utilities through consumer electricity bills to provide funds to pay for costs related to nuclear waste/used nuclear fuel, which currently has a balance of approximately \$46 billion raised over forty years. Access to this fund is a critical resource for responsible nuclear waste management. Still, it needs to be managed by a clearly defined entity or accessed through a standard process due to restrictions in the *NWPA*. The delegation requests amending the *NWPA* such that the Nuclear Waste Fund can be utilized with the total balance raised by utilities and consumers.

Supporting the NRC to improve and develop effective regulation for existing and advanced technologies

The Nuclear Regulatory Commission (NRC) is critical to ensuring the safety and advancement of the nuclear industry. Yet, it currently lacks the volume of employees needed to support the growing industry demands for reactor licensing. Several factors contribute to this workforce shortage, including the competition with the private sector and increasing workload as more advanced reactors begin licensing activities. The Delegation supports bills [H.R.4528](#), *Strengthening the NRC Workforce Act of 2023*, and [S.1111](#), *ADVANCE Act of 2023*, as avenues to address these issues, as previously stated. To address the labor shortage, [H.R.4528](#) and [S.1111](#) aim to provide compensation adjustments, including a bonus to new and existing employees, to increase the appeal of working at the commission and offset the cost of living expenses. Additionally, the *ADVANCE Act* increases the frequency of trainee programs, coordinated with universities and trade schools, to address the “critical mission needs” of the NRC. These initiatives will help ensure that the NRC can consistently fulfill its role as a regulator.

The Delegation appreciates Congress' support of the NRC (Nuclear Regulatory Commission) and its mission, as many bills surround NRC reform. However, the Delegation wants to focus on bills that profoundly affect NRC operational efficiency. The marginal impact of [H.R.4675](#), *Advisory Committee on Reactor Safeguards Reform Act*, risks a backlash from the appropriations committee due to it shifting the financial burden of fee remission onto the American taxpayer. Therefore, the focus of Congress can be better served on [S.1111](#), *The Advance Act of 2023*, and [H.R.4528](#), *Strengthening the NRC Workforce Act*.