# 2018 NUCLEAR ENGINEERING STUDENT DELEGATION

WASHINGTON, D.C. JULY 8TH – 13TH

The 2018 Nuclear Engineering Student Delegation supports federal policies and programs that ensure a sustainable future for nuclear science, technology, and energy in the United States.

**The Delegation recommends that Congress fund the IUP at or above FY 2018 levels to ensure robust American nuclear science and engineering expertise in the coming decades.**

- Maintaining federal funding for nuclear science and engineering education is essential to American security, safety, and prosperity.
- America's place as a global leader in nuclear technology depends on the continued success of nuclear facilities that require a skilled workforce supplied by colleges and universities.

**The Delegation recommends Senate passage of the Department of Energy Research and Innovation Act (S.2503/H.R.589) and Congressional passage of regulatory reform bills (S.512/H.R.1320) to support U.S. leadership in the development, commercialization, and licensing of advanced nuclear energy technologies.**

- Public-private partnerships attract commercial investment in advanced nuclear reactor designs while mitigating the risks of capital-intensive technological development.
- Flexible, streamlined regulatory processes would decrease the financial risks associated with licensing and operating advanced nuclear reactors, leading to an increase in private investment, start-up creation, and innovative research.

**The Delegation recommends Congressional passage of the Interim Consolidated Storage Act of 2017 (H.R.474) into law to provide a path forward for removing spent nuclear fuel from nuclear power plants.**

- The U.S. government has not fulfilled its legal obligation to permanently dispose of spent nuclear fuel in accordance with the Nuclear Waste Policy Act of 1982.
- Consolidated interim storage is a first step toward permanent disposal and allows for the near-term removal of spent nuclear fuel currently kept on-site at nuclear power plants.

# 2018 Nuclear Engineering Student Delegation


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| Emma Redfoot | University of Idaho, Idaho Falls |
| Daniell Tincher | Virginia Commonwealth University |
| Pavel Velkovsky | University of California, Berkeley |
| Robert Zedric | Texas A&M University |


## 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.

The students independently organize and run this trip to Washington, D.C. The Delegation does not represent any organization or university; the views expressed in this policy document are strictly those of the 2018 Delegates.

For further information on the 2018 NESD or the policy recommendations in this document, please contact Patrick White at rpwhite@mit.edu or visit the NESD website at http://www.nesd.org.

# 2018 NESD Policy Statement

The 2018 Nuclear Engineering Student Delegation supports federal policies and programs that ensure a future for nuclear science, technology, and energy in the United States by advocating for:

- Investments in the future workforce
- Development, commercialization, and licensing support for advanced nuclear designs
- Sustainable approaches to spent nuclear fuel management

## Investing in Education

The Nuclear Energy University Program (NEUP) and the Integrated University Program (IUP) provide support for nuclear science and technology through student scholarships and fellowships, faculty development assistance, and university infrastructure improvement grants. These investments are necessary to develop the next generation of nuclear scientists and engineers, preserving our nation's expertise in nuclear technology.

Nuclear science graduates contribute to far-reaching applications in nuclear power, medicine, and national security. Department of Energy (DOE) IUP fellowships alone fund approximately 10% of nuclear engineering PhD students as well as contribute to research and development grants for universities, national labs, and American industry [1,2].

**The Delegation recommends that Congress fund the IUP at or above FY 2018 levels to ensure robust American nuclear science and engineering expertise in the coming decades.**

[1] "Student Educational Support: Funded Institutions." Nuclear Energy University Program, U.S. Department of Energy. 2017. https://neup.inl.gov/SitePages/Fellowship%20Information.aspx
[2] "Nuclear Engineering Enrollments and Degrees Survey, 2016 Data." Oak Ridge Institute for Science and Education. 2017. https://orise.orau.gov/stem/reports/ne-brief-78-2016-data.pdf

## Leading Advanced Reactor Development

Ensuring access to the world-class facilities at DOE sites enables private companies to develop and test advanced reactor technologies. This eliminates redundant and costly infrastructure construction, streamlining research and development while promoting innovation. The Energy Research and Innovation Act (H.R.589) directs the DOE to establish a program that enables the testing and demonstration of advanced reactor concepts that are privately funded at DOE sites. This program leverages the technical expertise of federal agencies to reduce the time and effort required to develop and commercialize innovative reactor designs.

The promotion of advanced and existing U.S. nuclear technologies to the global market is essential to national security. International collaboration on nuclear power plant construction initiates a decades-long relationship between nations. Russia and China currently lead the world in nuclear construction [3]. Retaking a leadership role in advanced nuclear technology would allow the U.S. to ensure that international nuclear development aligns with nonproliferation goals.

Maintaining global leadership in nuclear energy regulation permits the export of high quality technologies with proper oversight. The restructuring of the licensing process promotes rapid development of nuclear technologies, establishing the United States as the leader in advanced reactors. Passage of the Nuclear Energy Innovation and Modernization Act (S.512) and the Nuclear Utilization of Keynote Energy Act (H.R.1320) creates a regulatory environment amenable to innovation and global leadership.

**The Delegation recommends Senate passage of the Department of Energy Research and Innovation Act (S.2503/H.R.589) and Congressional passage of regulatory reform bills (S.512/H.R.1320) to support U.S. leadership in the development, commercialization, and licensing of advanced nuclear energy technologies.**

[3] "U.S. Nuclear-Power Leadership and the Chinese and Russian Challenge". Ichord Jr., R. F, 2018. www.atlanticcouncil.org/publications/issue-briefs/us-nuclear-power-leadership-and-the-chinese-and-russian-challenge

## Managing Spent Nuclear Fuel

The Delegation supports the Interim Consolidated Storage Act of 2017 (H.R.474), which establishes a consolidated interim storage facility for the nation's commercial spent nuclear fuel. This fuel has accumulated at nuclear power plants for decades because the U.S. government has not fulfilled its commitment to site and license a permanent geological repository [4]. A nationwide consolidated storage plan reduces the burden of on-site storage for utilities and communities.

Spent fuel is still held in storage at 18 decommissioned nuclear sites across the country, preventing the return of the land to nearby communities [5]. While resources already exist to handle spent nuclear fuel through the Nuclear Waste Fund, clauses in the Nuclear Waste Policy Act (NWPA) of 1982 prevent the DOE from taking custody [6]. This lack of action burdens the nuclear industry resulting in tens of millions of dollars in extra expense per site [7]. Utilities have successfully sued the U.S. government for the additional costs associated with the government's failure to remove waste from sites by the legal deadline. Damages paid to utilities have cost the U.S. government $6.1 billion to date, with an estimated $24.7 billion expected in the future [6]. Amending the NWPA would give the DOE permission to transfer the spent fuel to an interim storage facility. H.R.474 will serve both communities and utilities, allowing the DOE to finally fulfill its legal obligations.

**The Delegation recommends Congressional passage of the Interim Consolidated Storage Act of 2017 (H.R.474) into law to provide a path forward for removing spent nuclear fuel from nuclear power plants.**

[4] "Spent Nuclear Fuel: Legislative, Technical, and Societal Challenges to Its Transportation". Statement of Frank Rusco, Director, Natural Resources and Environment. 2015. https://www.gao.gov/assets/680/672889.pdf
[5] "Backgrounder on Decommissioning Nuclear Power Plant". U.S. NRC. 2015. https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/decommissioning.html
[6] "Commercial Nuclear Waste: Resuming Licensing of the Yucca Mountain Repository Would Require Rebuilding Capacity at DOE and NRC, Among Other Key Steps". 2017. https://www.gao.gov/products/GAO-17-340
[7] "Revision 4 to Yankee Nuclear Power Station Post-Shutdown Decommissioning Activities Report". Yankee Atomic Electric Company. 2017. https://www.nrc.gov/docs/ML1706/ML17062A412.pdf