2019 Nuclear Engineering Student Delegation

Washington, D.C. July 7th – 12th

The 2019 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 Congress support nuclear science education funding at or above FY19 levels either by:

- Reauthorizing and reappropriating the Integrated University Program (IUP).
  or
- Transitioning to the University Nuclear Leadership Program (UNLP) as proposed in the Nuclear Energy Leadership Act (S.903/H.R.3306).

The Delegation recommends passage of the Nuclear Energy Leadership Act (S.903/H.R.3306) to ensure American leadership in nuclear technology and increased zero-emission electrical power production.

- The construction of demonstration reactors via public-private partnerships accelerates the deployment of advanced nuclear reactors by reducing the financial risk.
- A strategic plan for the future of nuclear technology by the Department of Energy provides focus and long-term stability to encourage private investment in advanced nuclear reactors.

The Delegation recommends passage of the Nuclear Waste Administration Act of 2019 (S.1234) to create an independent agency to manage the storage of nuclear waste.

- The proposed administration would be tasked with developing a long-term geological repository and interim storage facilities.
- A consent-based siting system should be established to consider possible locations for long-term geological repositories.

2019 Nuclear Engineering Student Delegation

Hannah Gardiner (Chair)	University of Florida
Isaac Meyer (Co-Vice Chair)	Massachusetts Institute of Technology
Jillian Newmyer (Co-Vice Chair)	Oregon State University
Marie Bolt	Texas A&M University
Robert Carroll	Harvard Kennedy School
Samuel D'Amico	University of Wisconsin, Madison
Evan Gonzalez	University of Michigan
Alexandra Laing	Rensselaer Polytechnic Institute
Andrew O'Connor	University of Florida
Joseph Orellana	North Carolina State University
W. Robb Stewart	Massachusetts Institute of Technology
Jeevan Varghese	Texas A&M University
Scott Veldman	Oregon State University
Mitchell Whalen	University of Illinois, Urbana-Champaign
Marc Wonders	Pennsylvania State 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 2019 Delegates.

For further information on the 2019 NESD or the policy recommendations in this document, please contact Hannah Gardiner at hgardi1@ufl.edu or visit the NESD website at http://www.nesd.org.

2019 NESD Policy Statement

The 2019 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:

- Continued federal investment in nuclear science education
- Development and demonstration of advanced nuclear reactors at DOE facilities
- Creation of an independent agency to manage a nuclear waste repository system

Investing in Education

Federally funded programs for nuclear education promote workforce growth to meet the projected needs of the nuclear energy industry and expanding fields, such as national security, non-proliferation and safeguards, advanced fuels and materials, and nuclear medicine [1].

For universities approved by the Integrated University Program (IUP), the Nuclear Energy University Program (NEUP) supports nuclear science and technology through student scholarships and fellowships, faculty development assistance, and university infrastructure improvement grants [2]. Federal support is essential for maintaining a healthy research infrastructure and advancing our leadership in nuclear technology. Financial assistance to nuclear engineering and science programs reinforces America's global competitive advantage in advanced nuclear systems development. The inclusion of advanced reactor designs, as well as the ability to fund research related to nuclear science, increases America's investment in the next generation of nuclear energy leaders.

The Nuclear Energy Leadership Act (NELA) (S. 903/H.R. 3306) would shift many of these efforts to the proposed University Nuclear Leadership Program (UNLP), which would be created jointly by the Secretary of Energy, the National Nuclear Security Administration, and the Nuclear Regulatory Commission. In addition to fulfilling the goals of the IUP, which is only authorized through FY19, UNLP ensures more stable funding for nuclear education. The Delegation supports funding for education in nuclear-related fields either through passing the Nuclear Energy Leadership Act or reauthorizing the IUP.

The Delegation recommends Congress support nuclear science education funding at or above FY19 levels either by reauthorizing and reappropriating the IUP or transitioning to the UNLP as proposed in the NELA (S.903/H.R.3306).

[1] Economic Growth & Job Creation, Nuclear Energy Institute, 2015. http://www.nei.org/Why-Nuclear-Energy/Economic-Growth-Job-Creation
[2] "Student Educational Support: Funded Institutions." Nuclear Energy University Program, U.S. Department of Energy. 2017. https://neup.inl.gov/SitePages/Fellowship%20Information.aspx

Fostering American Leadership in Nuclear Technology

American leadership in the global nuclear industry, specifically in advanced reactor technologies, is imperative to national security, clean energy goals, and grid reliability. The global market for nuclear power is projected to grow by $740 billion over the next ten years [3]. NELA enables the construction of new nuclear technologies that will expand American influence in a market currently led by Russia and China.

NELA requires the Department of Energy to create and implement a 10-year strategic plan that will focus nuclear development efforts and promote consistent private investment opportunities. The bill also establishes a pilot program for nuclear-specific power purchasing agreements to provide reliable energy for DoD and DHS locations that are critical to national security.

Demonstration reactors at National Labs reduce the technological and regulatory burden of advanced nuclear designs for private companies. Advanced reactors will integrate with a cleaner energy portfolio by employing load-following capability to complement variable renewable energy sources, contributing to a diverse and robust electrical grid.

The Delegation recommends passage of the Nuclear Energy Leadership Act (S.903/H.R.3306) to ensure American leadership in nuclear technology and increased zero-emission electrical power production.

[3] Nuclear Energy Leadership Act, S.903 Sec. 8(a)(2), 116th Cong. (2019)

Managing Spent Nuclear Fuel

The federal government has not met the obligations set by the Nuclear Waste Policy Act of 1982 to oversee the disposal of spent nuclear fuel, which has cost the government a reported $6.1 billion in damages by the end of the 2016 fiscal year [4]. The Nuclear Waste Administration Act of 2019 (S. 1234) calls for the creation of an independent federal agency tasked with managing nuclear waste. The Delegation believes such an agency is best suited to solve our nuclear waste challenges.

The Nuclear Waste Administration Act advocates a neutral approach to repository siting, which will neither dismiss nor embrace Yucca Mountain's potential as a long term repository, while considering other sites on a consent basis. The creation of interim storage facilities allows for the removal of spent nuclear fuel from the 21 decommissioned nuclear power plants in the United States [5], and a commitment to a long-term repository alleviates concerns of waste being stored indefinitely at such interim facilities. Although not addressed in the Act, the waste burden can be further reduced by supporting research and development of advanced fuel management techniques.

The Delegation recommends passage of the Nuclear Waste Administration Act of 2019 (S.1234) to create an independent agency to manage the storage of nuclear waste.

[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] Nuclear Regulatory Commission, "Backgrounder on Decommissioning Nuclear Power Plants," August 2018. https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/decommissioning.html