



Press Release

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## **Energy Department Invests \$82 Million in Advanced Nuclear Technologies**

WASHINGTON –Today, the U.S. Department of Energy (DOE) announced over \$82 million in nuclear energy research, facility access, crosscutting technology development, and infrastructure awards in 28 states. In total, 93 projects were selected to receive funding that will help push innovative nuclear technologies toward commercialization and into the market. These awards provide funding for nuclear energy-related research through the Nuclear Energy University Program, Nuclear Science User Facilities, and Nuclear Energy Enabling Technology programs. In addition to financial support, a number of recipients will receive technical and regulatory assistance through the Gateway for Accelerated Innovation in Nuclear (GAIN) initiative.

"Nuclear power is our nation's largest source of low-carbon electricity and is a vital component in our efforts to both provide affordable and reliable electricity and to combat climate change," said Energy Secretary Ernest Moniz. "These awards will help scientists and engineers as they continue to innovate with advanced nuclear technologies."

### *Nuclear Energy University Program*

DOE is awarding nearly \$36 million through its Nuclear Energy University Program (NEUP) to support 49 university-led nuclear energy research and development projects in 24 states. NEUP seeks to maintain U.S. leadership in nuclear research across the country by providing top science and engineering students and faculty members opportunities to develop innovative technologies and solutions for civil nuclear capabilities.

Additionally, 15 universities will receive nearly \$6 million for research reactor and infrastructure improvements – providing important safety- performance- and student education-related upgrades to a portion of the nation's 25 university research reactors as well as enhancing university research and training infrastructure.

### *Public Private Partnerships*

The awards announced today are part of a significant first set of actions to implement the [GAIN initiative](#) that was announced November 2015, which provides the nuclear energy community with access to the technical, regulatory, and financial support necessary to move new or advanced nuclear reactor designs toward commercialization while ensuring the continued safe, reliable, and economic operation of the existing nuclear fleet.

[GAIN](#) will provide the nuclear community with a single point of access to the broad range of capabilities – people, facilities, materials, and data – across the DOE complex and its National Laboratory capabilities. Today, the Department is making approximately \$2 million available

through the Nuclear Science User Facilities (NSUF) to provide access to world-class neutron and gamma irradiation and post-irradiation examination services to General Electric Hitachi. The project will cover the cost of placing selected material samples from additive manufacturing processes into a NSUF-affiliated nuclear reactor to analyze the effects of nuclear reactor irradiation on material property changes.

Additionally, under the innovative GAIN public private partnership model, DOE is supporting a nearly \$3 million collaborative effort with Westinghouse as the lead of one project and as a collaborator in two other projects, led by Argonne National Laboratory and Virginia Polytechnic Institute to develop advanced communication methods for nuclear facilities.

These awards complement the Office of Nuclear Energy's [Small Business Voucher Program](#) that will provide up to \$2 million in 2016 to help small businesses overcome critical nuclear technology and commercialization challenges.

### *Integrated Research Projects*

The Department is also awarding \$21 million for six Integrated Research Projects (IRPs), which include a jointly-funded project between the Office of Nuclear Energy and the Office of Environmental Management for enhanced glass forms for nuclear waste immobilization. The Office of Environmental Management will also fund two IRP projects for advanced nuclearized robotics capabilities. Collaboration between the Offices of Environmental Management and Nuclear Energy is part of Secretary Moniz's effort to integrate the Department's research for advanced nuclear R&D and remediation efforts.

### *Crosscutting Research Projects*

Additionally, nearly \$7 million will be awarded for seven research and development projects led by Department of Energy national laboratories, industry and U.S. universities to conduct research to address crosscutting nuclear energy challenges that will help to develop advanced sensors and instrumentation, advanced manufacturing methods, and materials for multiple nuclear reactor plant and fuel applications. Advanced innovative robust communication methods will be developed to demonstrate the ability to transmit greater amounts of data and other signals through physical boundaries in nuclear facilities. Multiple additive manufacturing techniques and a solid-phase cladding process will undergo microstructural and mechanical testing and irradiation evaluation. A rapid qualification process for laser-based powder bed additive manufacturing will also be examined. Advanced materials characterization techniques and tools will also be developed to provide advanced methods for sample preparation and new tools and techniques for examining and understanding material microstructures in a variety of conditions ranging from as-received to treated and irradiated.

### *Nuclear Science User Facilities*

Today, the DOE has selected eight universities, two national laboratories, and one industry-led project that will take advantage of NSUF capabilities to investigate important nuclear fuel and material applications. DOE will fund over \$9 million in facility access costs and expertise for experimental neutron and ion irradiation testing, post-irradiation examination facilities, synchrotron beamline capabilities, and technical assistance for design and analysis of experiments through the NSUF. Additionally, the Department of Energy is awarding over \$1 million for three projects at the Oak Ridge National Laboratory, Pacific Northwest National

Laboratory, and Argonne National Laboratory for further materials and instrumentation research. Visit [here](#) for details.

Since 2009, the Energy Department's Office of Nuclear Energy has awarded approximately \$464 million to 113 U.S. colleges and universities to continue American leadership in clean energy innovation and to train the next generation of nuclear engineers and scientists through its university programs. Visit [neup.gov](http://neup.gov) for more information on today's awards and [Energy.gov](http://Energy.gov) for information on all of the Energy Department's efforts to continue American leadership in low-carbon nuclear energy innovation.