

GAIN Announces Second Round of NE Voucher Recipients

June 26, 2017 — The Gateway for Accelerated Innovation in Nuclear (GAIN) announced today that 14 businesses will be provided nuclear energy vouchers worth approximately \$4.2 million to accelerate the innovation and application of advanced nuclear technologies. This follows an earlier announcement by the U.S. Department of Energy that awarded nearly \$67 million in nuclear energy research, facility access, crosscutting technology development, and infrastructure awards in 28 states. The GAIN NE vouchers provide advanced nuclear technology innovators with access to the extensive nuclear research capabilities and expertise available across the U.S. DOE national laboratories complex. Support of nuclear energy innovation, DOE-NE vouchers provide funds to assist applicants seeking access to the world class expertise and capabilities available across the United States (U.S.) DOE complex.

“DOE’s Office of Nuclear Energy established GAIN to provide the nuclear innovator community with assistance to address a range of technology needs,” said GAIN Director Rita Baranwal. “Through these vouchers, GAIN encourages accelerated nuclear technology innovation and promotes progress in the private sector.”

GAIN NE voucher recipients do not receive direct financial awards. The GAIN NE vouchers provide access to national laboratory capabilities at no cost to the voucher recipients.

GAIN serves the advanced nuclear technology developer community in several ways:

- Offering a centralized information and communications portal for advanced nuclear technology resources.
- Conducting needs assessments and research-oriented workshops.
- Connecting nuclear energy innovators with national laboratory scientists developing new computational tools.
- Providing a venue for DOE, in close coordination with the U.S. Nuclear Regulatory Commission, to work with nuclear technology developers on licensing support.
- Offering training opportunities to the nuclear community.
- Providing advanced nuclear technology developers access to technical, regulatory, and financial support via the broad range of DOE funding options.

“The GAIN team was impressed with the number and quality of voucher applications,” said Dr. John Jackson, GAIN technical interface. “The sense of urgency and the stakeholder support for developing and commercializing the next evolution of nuclear technologies has never been stronger.”

The businesses selected to receive GAIN NE vouchers are

GAIN Nuclear Energy Voucher Recipient	Awarded Proposal	Partner Facility
AMS Corp. Knoxville, TN	Radiation Aging of Nuclear Power Plant Components	Oak Ridge National Laboratory
Columbia Basin Consulting Group LLC Kennewick, WA	Methodology for Meeting Containment System Principal Design Criteria for Heavy Metal Fast Reactor Systems	Pacific Northwest National Laboratory
DYNAC Systems LLC Del Mar, CA	Dynamic Natural Convection System	Idaho National Laboratory
Elysium Industries Clifton Park, NY	Synthesis of Molten Chloride Salt Fast Reactor Fuel Salt from Spent Nuclear Fuel	Idaho National Laboratory Argonne National Laboratory
Fausek & Associates LLC Burr Ridge, IL	Development of an Integrated Mechanistic Source Term Assessment Capability for Lead- and Sodium-Cooled Fast Reactors	Argonne National Laboratory
GSE Systems Inc. Sykesville, MD	Human Factors Engineering for the Move to Digital Control Systems – Improved Strategies for Operations	Idaho National Laboratory
Kairos Power LLC Oakland, CA	NEAMS [Nuclear Energy Advanced Modeling and Simulation] Thermal-Fluids Test Stand for Fluoride-Salt-Cooled, High-Temperature Reactor Development	Argonne National Laboratory Idaho National Laboratory
MicroNuclear LLC Franklin, TN	Development of the Microscale Nuclear Battery Reactor System	Idaho National Laboratory
Muons Inc. Batavia, IL	Conversion of Light Water Reactor Spent Nuclear fuel to Fluoride Salt Fuel	Oak Ridge National Laboratory
NuVision Engineering, Inc. Pittsburgh, PA	Evaluation of Power Fluidic Pumping Technology for Molten Salt Reactor Applications	Oak Ridge National Laboratory
Oklo Inc. Sunnyvale, CA	Risk-Informed Mechanistic Source Term Calculations for a Compact Fast Reactor	Sandia National Laboratories Argonne National Laboratory
SMR Inventec LLC Camden, NJ	Small Modular Reactor-160 Primary Flow Stability	Oak Ridge National Laboratory
Terrestrial Energy USA Ltd. New York, NY	IMSR® [Integral Molten Salt Reactor] Fuel Salt Property Confirmation: Thermal conductivity and Viscosity	Argonne National Laboratory
Transatomic Power Corporation Cambridge, MA	Fuel Salt Characterization	Argonne National Laboratory

The 14 awarded vouchers cover a wide diversity of topics relevant to advanced nuclear including

- Seven related to Molten Salt technology – two physical characteristics of fuel, one thermal hydraulics, one component development, two waste reprocessing, four chloride salt, two fluoride salt, one micronuclear.
- Five related to Light Water Reactor (LWR) technology (existing and Small Modular Reactor (SMR)) – two waste reprocessing, one thermal hydraulics for SMR, one passive safety, one plant health monitoring.
- Three focused on metal-cooled fast reactor concepts – three regulatory/licensing support, one sodium-cooled fast reactor (SFR), one lead-bismuth, one crosscutting.

- Five involving modeling and simulation work – two physical properties measurement, two process development, one design evaluation, one safety concept development.
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- One focused on advanced digital instrumentation and controls.

GAIN awarded the first round of NE vouchers in 2016. For more information on the 2016 awards, please see:

- A June 2016 news release announcing the recipients (INL): <https://www.inl.gov/article/eight-small-businesses-selected-for-first-gain-nuclear-energy-vouchers/>
- A March 2017 news article reporting on progress made by recipients (NEI): <https://www.nei.org/News-Media/News/News-Archives/DOE-Nuclear-Innovation-Partnership-GAINs-Steam>

The U.S. Department of Energy Office of Nuclear Energy (DOE-NE) established the Gateway for Accelerated Innovation in Nuclear (GAIN) to provide the nuclear community with the technical, regulatory and financial support necessary to move innovative nuclear energy technologies toward commercialization while ensuring the continued safe, reliable and economic operation of the existing nuclear fleet. Through GAIN, DOE is making its state-of-the-art and continuously improving RD&D infrastructure available to stakeholders to achieve faster and cost-effective development of innovative nuclear energy technologies toward commercial readiness.

Idaho National Laboratory (INL) leads the GAIN initiative. INL is the nation's leading center for nuclear energy research and development. Day-to-day management and operation of the laboratory is the responsibility of Battelle Energy Alliance.



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