



# Gateway for Accelerated Innovation in Nuclear

**N**uclear energy is a proven baseload, emission-free power source. One of the Department of Energy's missions is to advance nuclear power as a resource capable of meeting the nation's energy, environmental and national security needs by resolving cost, proliferation resistance, security and technical barriers through research and development (R&D).

Carrying out this mission will allow the United States nuclear industry to continue to establish itself as a global leader and ensure that the enormous potential of nuclear energy is realized. While many innovative ideas exist, the R&D needed to bring these concepts to a commercial readiness level is traditionally lengthy and expensive.

## Why is GAIN needed?

The facilities needed to conduct the necessary R&D activities are very expensive to develop and maintain. Facilities at government sites have not been easily accessible by the entities trying to commercialize innovative systems and components.

Moreover, the regulatory framework for novel ideas needs to be streamlined, with a clear, defined set of requirements for licensing

concepts. Reducing the uncertainties and financial risks of achieving technical and licensing readiness will help spur further investment in innovative nuclear energy technologies.

## Challenges

When it comes to deploying new technologies, two primary challenges face innovators:

- Retirement of technical and licensing risk
- Reduction of risk and cost of commercial deployment

By addressing the multiple steps of the development process, GAIN fosters efficient and cost-effective resolution of these challenges:

- Incubation of innovative ideas using existing infrastructure and government-sponsored research programs
- Faster and less-expensive maturation of the technologies toward engineering-scale demonstration using R&D test bed capabilities
- Reduction of commercialization uncertainty by using demonstration platforms to prove technical feasibility and economic viability

## What is GAIN?

The GAIN initiative is a partnership mechanism launched in 2016 by DOE-NE to accelerate the commercialization of advanced nuclear technologies. Through GAIN, DOE is continuously improving R&D infrastructure available to stakeholders to achieve faster and more cost-effective development of innovative nuclear energy technologies toward commercial readiness.



**Innovation in advanced nuclear is not just about new technology. GAIN will continue to champion the necessary innovation wherever that may be in our ecosystem, as long as that work helps to secure commercialization of advanced nuclear technologies.**

*- Christine King, GAIN director*



The capabilities accessible through GAIN include:

- Experimental capabilities with primary emphasis on nuclear and radiological facilities, but also including other testing capabilities (e.g., thermal-hydraulic loops, control systems testing, etc.)
- Computational capabilities along with state-of-the-art modeling and simulation tools
- Legacy data and information to support advanced nuclear technologies
- Intellectual capacity

### GAIN Vision

By 2030, the U.S. nuclear industry will be equipped to lead the world in deployment of innovative nuclear technologies to supply urgently needed abundant clean energy both domestically and globally.

### GAIN Communication and Outreach

GAIN strives to provide clear, consistent, relational, and timely messaging through various communication mediums such as social media,



articles, advocacy training and workshops. Proactive communication helps align messaging with national discussions on clean energy, policy, economics and advanced nuclear technology opportunities, promoting deeper engagement and faster response to current and potential stakeholders.

### Accessing GAIN

Through GAIN, users can access world-leading nuclear research resources and capabilities available at DOE national laboratories.

For more information, visit: [gain.inl.gov](http://gain.inl.gov).

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### QUESTIONS

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**The GAIN initiative is helping American companies move development of advanced nuclear technology into the fast lane. Through GAIN, Lightbridge can leverage the unique, world-class facilities at the U.S. National Laboratories to demonstrate our advanced metallic fuel, a key step on the path to market.**  
*- Seth Grae, CEO of Lightbridge Corporation*  
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