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Maximizing Clean Energy Integration: The Role of Nuclear and Renewable Technologies in Integrated Energy Systems

Many cities, states, utilities, and public commissions are setting energy standards that aim to reduce carbon emissions. In order to realize a clean and resilient energy future, new methods of energy production, distribution, and use will be required. The primary focus of the DOE Office of Nuclear Energy (DOE-NE) Program on Integrated Energy Systems, led by researchers at Idaho National Laboratory (INL), has been to assess the potential of integrated energy systems to enhance the flexibility and utilization of nuclear reactors alongside renewable generators and, thereby, to maximize the use of the clean energy provided by these systems. This work begins with the question: "What goals are we trying to achieve, and how will the produced energy be used?" These questions must be addressed within the context of a specific deployment location, which has implications relative to the electricity market structure, supply, and demand; available feedstock for industrial processes; and available product markets. Product streams, ranging from potable water to hydrogen, fertilizer, synthetic fuels, and various chemicals, have been considered. Each product stream has its own market and market drivers and its own geographic location that would maximize profitability. Some of these products would only require electricity to support production, while others require both thermal and electrical energy. This webinar highlights work led by INL, in collaboration with other national laboratories and industry partners, to evaluate integrated energy system options that utilize nuclear energy in new ways. By working with key collaborators in the nuclear industry, these analytical studies are now becoming a reality in demonstration projects.

Free webcast

September 22, 2020 at 8:30 am (EDT) (UTC -4)



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Who should attend: policy makers, managers, regulators, students, general public

Meet the Presenter...

Dr. Shannon Bragg-Sitton is the Lead for Integrated Energy Systems (IES) in the Nuclear Science & Technology Directorate at Idaho National Laboratory (INL). Within this role, Shannon serves as the co-Director for the INL Laboratory Initiative on IES, which includes focus areas for thermal energy generation, power systems, data systems, and chemical processes/industrial applications. Shannon is also the INL lead for the DOE Applied Energy Tri-Laboratory Consortium, which includes INL, the National Renewable Energy Lab, and the National Energy Technology Lab. Shannon has held multiple leadership roles in DOE Office of Nuclear Energy programs since joining INL in 2010, ranging from space nuclear power and propulsion systems, to advanced nuclear fuel development, to her current work in integrated system design and demonstration. She currently serves as the National Technical Director for the DOE-NE IES program within Crosscutting Technologies Development. IES designs seek to coordinate the use of multiple clean energy generation sources—e.g. nuclear and renewables—to meet both thermal and electrical energy needs. Shannon holds a PhD and MS in Nuclear Engineering from the University of Michigan, an MS in Medical Physics from the University of Texas at Houston, and a BS in Nuclear Engineering from Texas A&M University.



The Generation IV International Forum invites you to attend web-based lectures on the next generation of nuclear energy systems and other cross-cutting subjects. Join internationally recognized subject matter experts and leading scientists in the nuclear energy arena for these short presentations.

Upcoming Webinars

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| 28 October 2020 | Global Potential for Small and Microreactor Systems to Provide Electricity, Dr. Amy Schweikert, Colorado School of Mines, USA |
| 19 November 2020 | Neutrino and Gen IV Reactor Systems, Prof. Jonathan Link, Virginia Tech, USA |
| 17 December 2020 | Development of Multiple-Particle Positron Emission Particle Tracking for Flow Measurement, Dr. Caddy Wiggins, University of Tennessee, USA |

For more information, please contact: Patricia Paviet at patricia.paviet@pnnl.gov or visit the GIF website at www.gen-4.org