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Global Potential for Small and Micro Reactor Systems to Provide Electricity Access

Small and micro-scale modular reactors have received considerable attention for their potential to reduce costs, load follow and meet electricity needs in places where the size of conventional reactor technologies is unwarranted. This small scale is particularly relevant in the developing world where large centralized grids are uncommon and the need for electricity is considerable. More than 1 billion people globally are currently estimated to live without access to any electricity. The Agenda for Sustainable Development calls for reliable, affordable and clean energy for all people by 2030, creating an additional imperative for rapid low carbon technological deployment. This talk will present a novel market analysis of near-term energy demand. We use state-of-the-art satellite imagery to identify regions with no night-time light as a proxy for electricity poverty, and ambient population to determine the number of persons in these regions. GIS is used to create corresponding maps showing the capacity needed to provide this degree of electricity as a function of location if only micro and mini-grids are available. Additional considerations including resilience to natural hazards, siting considerations and competitive technologies are discussed.

Free webcast

October 28, 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. Amy Schweikert is a Research Assistant Professor in Mechanical Engineering at the Colorado School of Mines. She is a Fellow in the Payne Institute for Public Policy and co-appointed in the Nuclear Science Program. Her work focuses broadly in the areas of infrastructure resilience and development. This includes a focus on quantitative risk modeling for infrastructure related to climate change and hazard events. Additionally, her work looks at socio-technical options for energy expansion for underserved areas of the globe, including the role of nuclear energy as a component of the low-carbon energy technology portfolio. She is a graduate of the Santa Fe Institute's Summer School on Complex Systems and hired as a coordinator for the 2019 and 2020 sessions. She has consulting experience with the United Nations, the World Bank and a number of public and private entities. She is a Colorado native and holds a Ph.D. in Civil Systems Engineering from the University of Colorado Boulder, a Masters of Science in Civil Systems Engineering and a certificate in Engineering for Developing Communities from University of Colorado Boulder and completed her undergraduate Bachelor of Arts in International Relations from Boston 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

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. Cody Wiggins, University of Tennessee, USA
28 January 2021	MOX Fuel for advanced reactors, Dr. Nathalie Chauvin, CEA, France

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