Proceedings of the 2023 Winter Simulation Conference
C. G. Corlu, S. R. Hunter, H. Lam, B. S. Onggo, J. Shortle, and B. Biller, eds.

MODELING FOR ENERGY RESILIENCE: HOW DOE USES SIMULATION TO MODEL AND MANAGE EVERYTHING FROM THE POWER GRID TO THE STRATEGIC PETROLEUM RESERVE

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ABSTRACT

The U.S. Department of Energy's responsibilities run the gamut from managing the nuclear stockpile and the strategic petroleum reserve to running the power grid in 36 states to performing basic and applied research to protect national security, ensure stable power sector operations and accelerate the clean energy transition. Leveraging the power of DOE's computing infrastructure, including the world's fastest supercomputer, simulation models are used to accelerate advancements in nearly every field of research across DOE. Through a series of examples highlighting grid management, cybersecurity, cavern modeling and fundamental physical phenomena, this keynote will illuminate how DOE applies modeling and simulation to both research and operations.

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ANN DUNKIN currently serves as Chief Information Officer at the U.S. Department of Energy, where she manages the Department's information technology (IT) portfolio and modernization; oversees the Department's cybersecurity efforts; and leads tech innovation at DOE. She served in the Obama Administration as CIO of the U.S. Environmental Protection Agency. Prior roles include chief strategy and innovation officer, Dell Technologies; CIO, County of Santa Clara, CA; CTO, Palo Alto Unified School District, California; and various leadership roles at Hewlett Packard focused on engineering, research and development, IT, manufacturing engineering, software quality and operations. Ann is a published author, most recently of the book Industrial Digital Transformation, and a speaker on the topics of government technology modernization, digital transformation and organizational development. She was named in ComputerWorld's Premier 100 Technology Leaders for 2016, DC's Top 50 Women in Technology for 2015 and 2016 and StateScoop's Top 50 Women in Technology list for 2017. In 2018, she was inducted into Georgia Tech's Academy of Distinguished Engineering Alumni.